



In the Community to Serve[®]

**2012
Integrated Resource Plan
Vol III
Appendices B through I**

Appendix B-1

Demand Forecast Model Escalation Rates

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

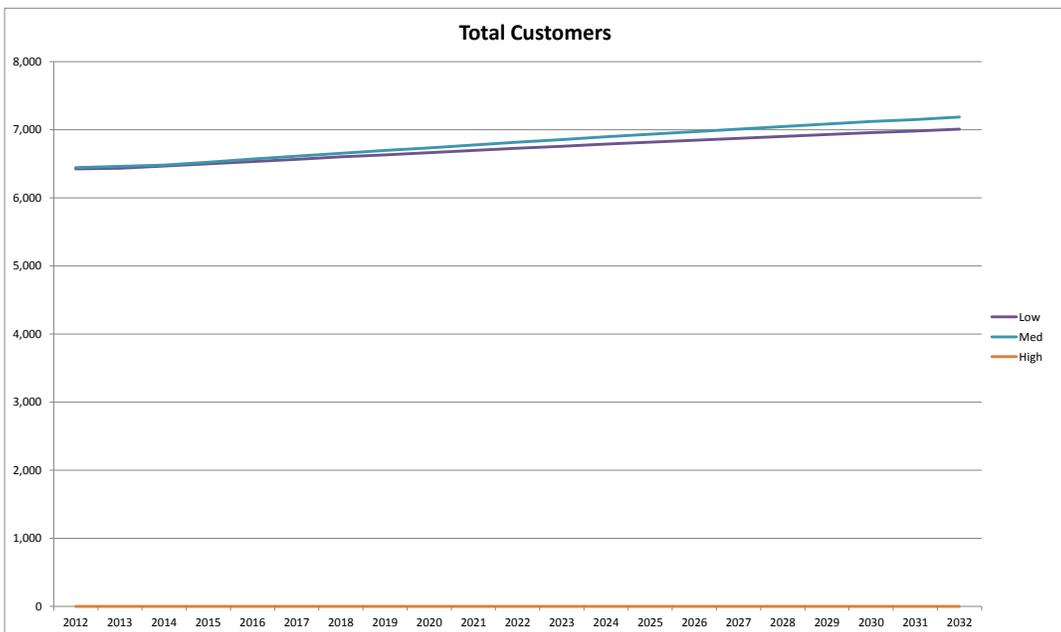
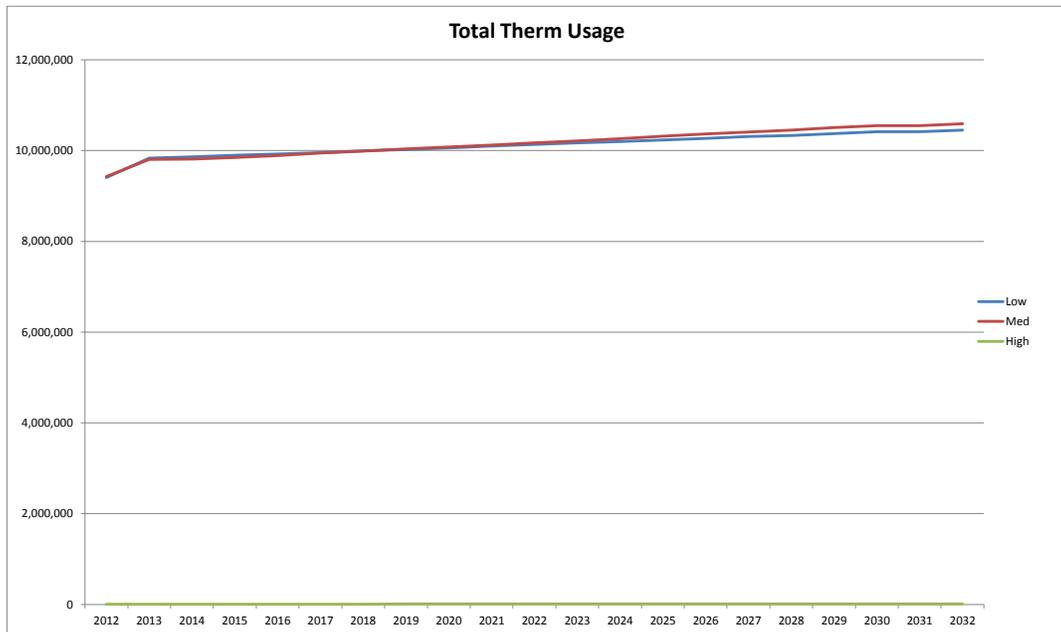
| Aberdeen | | | | | | | | | | | | | | | | | | |
|------------------------------|-----------|-----------|------------|-----------|-----------|------------|-------------|------------|-------|---------|----------|---------------|---------|----------|--------|---------|----------|--------|
| Annual Requirements (Therms) | | | | | | | | | | | | Annual Change | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 6,487,852 | 2,920,569 | 9,408,421 | 6,499,983 | 2,926,030 | 9,426,013 | -29,833,298 | 29,841,366 | 8,067 | 1.40% | 1.40% | 1.40% | 1.81% | 1.81% | 1.81% | 1.02% | 1.02% | 2.24% |
| 2013 | 6,780,413 | 3,052,268 | 9,832,681 | 6,761,811 | 3,043,894 | 9,805,706 | -29,971,585 | 29,979,998 | 8,414 | 4.51% | 4.51% | 4.51% | 4.03% | 4.03% | 4.03% | 0.46% | 0.46% | 4.29% |
| 2014 | 6,799,266 | 3,060,755 | 9,860,021 | 6,767,967 | 3,046,665 | 9,814,632 | -30,170,066 | 30,178,533 | 8,468 | 0.28% | 0.28% | 0.28% | 0.09% | 0.09% | 0.09% | 0.66% | 0.66% | 0.64% |
| 2015 | 6,824,422 | 3,072,079 | 9,896,501 | 6,792,935 | 3,057,905 | 9,850,841 | -30,411,291 | 30,419,818 | 8,526 | 0.37% | 0.37% | 0.37% | 0.37% | 0.37% | 0.37% | 0.80% | 0.80% | 0.69% |
| 2016 | 6,842,355 | 3,080,152 | 9,922,507 | 6,821,820 | 3,070,908 | 9,892,728 | -30,643,612 | 30,652,192 | 8,580 | 0.26% | 0.26% | 0.26% | 0.43% | 0.43% | 0.43% | 0.76% | 0.76% | 0.63% |
| 2017 | 6,865,395 | 3,090,523 | 9,955,919 | 6,856,860 | 3,086,681 | 9,943,541 | -30,876,023 | 30,884,657 | 8,633 | 0.34% | 0.34% | 0.34% | 0.51% | 0.51% | 0.51% | 0.76% | 0.76% | 0.62% |
| 2018 | 6,890,077 | 3,101,634 | 9,991,711 | 6,888,620 | 3,100,978 | 9,989,598 | -31,109,679 | 31,118,375 | 8,696 | 0.36% | 0.36% | 0.36% | 0.46% | 0.46% | 0.46% | 0.76% | 0.76% | 0.73% |
| 2019 | 6,913,825 | 3,112,325 | 10,026,150 | 6,920,352 | 3,115,263 | 10,035,615 | -31,333,708 | 31,342,464 | 8,756 | 0.34% | 0.34% | 0.34% | 0.46% | 0.46% | 0.46% | 0.72% | 0.72% | 0.69% |
| 2020 | 6,936,532 | 3,122,546 | 10,059,078 | 6,950,615 | 3,128,886 | 10,079,501 | -31,563,157 | 31,571,971 | 8,815 | 0.33% | 0.33% | 0.33% | 0.44% | 0.44% | 0.44% | 0.73% | 0.73% | 0.67% |
| 2021 | 6,962,545 | 3,134,256 | 10,096,801 | 6,980,990 | 3,142,560 | 10,123,549 | -31,788,353 | 31,797,225 | 8,872 | 0.38% | 0.38% | 0.38% | 0.44% | 0.44% | 0.44% | 0.71% | 0.71% | 0.65% |
| 2022 | 6,987,905 | 3,145,672 | 10,133,577 | 7,015,038 | 3,157,887 | 10,172,925 | -32,014,088 | 32,023,023 | 8,936 | 0.36% | 0.36% | 0.36% | 0.49% | 0.49% | 0.49% | 0.71% | 0.71% | 0.72% |
| 2023 | 7,014,028 | 3,157,432 | 10,171,460 | 7,044,230 | 3,171,028 | 10,215,258 | -32,239,339 | 32,248,338 | 8,999 | 0.37% | 0.37% | 0.37% | 0.42% | 0.42% | 0.42% | 0.70% | 0.70% | 0.71% |
| 2024 | 7,032,969 | 3,165,958 | 10,198,927 | 7,075,616 | 3,185,157 | 10,260,773 | -32,456,030 | 32,465,091 | 9,060 | 0.27% | 0.27% | 0.27% | 0.45% | 0.45% | 0.45% | 0.67% | 0.67% | 0.68% |
| 2025 | 7,054,925 | 3,175,842 | 10,230,767 | 7,112,823 | 3,201,906 | 10,314,729 | -32,677,650 | 32,686,761 | 9,110 | 0.31% | 0.31% | 0.31% | 0.53% | 0.53% | 0.53% | 0.68% | 0.68% | 0.55% |
| 2026 | 7,082,465 | 3,188,240 | 10,270,705 | 7,146,669 | 3,217,142 | 10,363,811 | -32,895,070 | 32,904,250 | 9,180 | 0.39% | 0.39% | 0.39% | 0.48% | 0.48% | 0.48% | 0.67% | 0.67% | 0.76% |
| 2027 | 7,107,871 | 3,199,676 | 10,307,547 | 7,177,338 | 3,230,948 | 10,408,286 | -33,107,746 | 33,116,991 | 9,245 | 0.36% | 0.36% | 0.36% | 0.43% | 0.43% | 0.43% | 0.65% | 0.65% | 0.71% |
| 2028 | 7,125,649 | 3,207,679 | 10,333,328 | 7,208,600 | 3,245,021 | 10,453,621 | -33,329,462 | 33,329,766 | 9,304 | 0.25% | 0.25% | 0.25% | 0.44% | 0.44% | 0.44% | 0.64% | 0.64% | 0.64% |
| 2029 | 7,154,446 | 3,220,643 | 10,375,089 | 7,244,366 | 3,261,121 | 10,505,486 | -33,529,180 | 33,538,551 | 9,371 | 0.40% | 0.40% | 0.40% | 0.50% | 0.50% | 0.50% | 0.63% | 0.63% | 0.72% |
| 2030 | 7,180,017 | 3,232,154 | 10,412,171 | 7,275,954 | 3,275,340 | 10,551,294 | -33,738,128 | 33,747,567 | 9,439 | 0.36% | 0.36% | 0.36% | 0.44% | 0.44% | 0.44% | 0.62% | 0.62% | 0.73% |
| 2031 | 7,183,206 | 3,233,589 | 10,416,795 | 7,273,486 | 3,274,230 | 10,547,716 | -33,899,686 | 33,909,113 | 9,428 | 0.04% | 0.04% | 0.04% | -0.03% | -0.03% | -0.03% | 0.48% | 0.48% | -0.12% |
| 2032 | 7,207,560 | 3,244,552 | 10,452,113 | 7,304,234 | 3,288,071 | 10,592,306 | -34,103,438 | 34,112,929 | 9,491 | 0.34% | 0.34% | 0.34% | 0.42% | 0.42% | 0.42% | 0.60% | 0.60% | 0.67% |

| Peak Day - Baseload | | | | | | | | | | Annual Change | | | | | | | | | |
|---------------------|----------------|--------|-----------------|----------------|--------|-----------------|----------------|----------|-----------------|---------------|--------|-------|--------|--------|-------|-------|-------|--------|-------|
| | Low | | | Medium | | | High | | | Total | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 8,002 | 73,239 | 81,240 | 8,017 | 73,449 | 81,466 | 81,757 | (81,083) | 674 | 1.40% | 0.27% | 0.38% | 1.81% | 0.54% | 0.66% | 1.02% | 1.03% | 0.00% | |
| 2013 | 8,362 | 73,030 | 81,392 | 8,339 | 73,375 | 81,715 | 82,137 | (81,401) | 736 | 4.51% | -0.28% | 0.19% | 4.03% | -0.10% | 0.31% | 0.46% | 0.39% | 9.20% | |
| 2014 | 8,386 | 73,376 | 81,761 | 8,347 | 73,617 | 81,964 | 82,681 | (81,950) | 731 | 0.28% | 0.47% | 0.45% | 0.09% | 0.33% | 0.31% | 0.66% | 0.67% | -0.68% | |
| 2015 | 8,417 | 73,779 | 82,196 | 8,378 | 74,142 | 82,520 | 83,342 | (82,616) | 726 | 0.37% | 0.55% | 0.53% | 0.37% | 0.71% | 0.68% | 0.80% | 0.81% | -0.68% | |
| 2016 | 8,439 | 74,193 | 82,632 | 8,413 | 74,651 | 83,064 | 83,979 | (83,258) | 721 | 0.26% | 0.56% | 0.53% | 0.43% | 0.69% | 0.66% | 0.76% | 0.78% | -0.69% | |
| 2017 | 8,467 | 74,576 | 83,043 | 8,457 | 75,140 | 83,596 | 84,615 | (83,899) | 716 | 0.34% | 0.52% | 0.50% | 0.51% | 0.65% | 0.64% | 0.76% | 0.77% | -0.69% | |
| 2018 | 8,498 | 74,972 | 83,469 | 8,496 | 75,635 | 84,131 | 85,256 | (84,544) | 712 | 0.36% | 0.53% | 0.51% | 0.46% | 0.66% | 0.64% | 0.76% | 0.77% | -0.56% | |
| 2019 | 8,527 | 75,343 | 83,870 | 8,535 | 76,118 | 84,653 | 85,870 | (85,163) | 707 | 0.34% | 0.50% | 0.48% | 0.46% | 0.64% | 0.62% | 0.72% | 0.73% | -0.70% | |
| 2020 | 8,555 | 75,717 | 84,272 | 8,572 | 76,604 | 85,176 | 86,499 | (85,797) | 702 | 0.33% | 0.50% | 0.48% | 0.44% | 0.64% | 0.62% | 0.73% | 0.74% | -0.71% | |
| 2021 | 8,587 | 76,088 | 84,675 | 8,610 | 77,078 | 85,687 | 87,116 | (86,419) | 697 | 0.38% | 0.49% | 0.48% | 0.44% | 0.62% | 0.60% | 0.71% | 0.73% | -0.71% | |
| 2022 | 8,618 | 76,448 | 85,066 | 8,628 | 77,548 | 86,200 | 87,734 | (87,042) | 692 | 0.36% | 0.47% | 0.46% | 0.49% | 0.61% | 0.60% | 0.71% | 0.72% | -0.72% | |
| 2023 | 8,650 | 76,807 | 85,457 | 8,688 | 78,011 | 86,699 | 88,352 | (87,665) | 687 | 0.37% | 0.47% | 0.46% | 0.42% | 0.60% | 0.58% | 0.70% | 0.71% | -0.72% | |
| 2024 | 8,674 | 77,163 | 85,836 | 8,728 | 78,473 | 87,199 | 88,945 | (88,263) | 682 | 0.27% | 0.46% | 0.44% | 0.45% | 0.59% | 0.58% | 0.67% | 0.68% | -0.73% | |
| 2025 | 8,701 | 77,515 | 86,216 | 8,772 | 78,928 | 87,700 | 89,553 | (88,877) | 676 | 0.31% | 0.46% | 0.44% | 0.53% | 0.58% | 0.57% | 0.68% | 0.69% | -0.88% | |
| 2026 | 8,735 | 77,849 | 86,584 | 8,814 | 79,375 | 88,189 | 90,149 | (89,477) | 672 | 0.39% | 0.43% | 0.43% | 0.48% | 0.57% | 0.56% | 0.67% | 0.67% | -0.59% | |
| 2027 | 8,766 | 78,186 | 86,952 | 8,852 | 79,814 | 88,666 | 90,731 | (90,064) | 667 | 0.36% | 0.43% | 0.42% | 0.43% | 0.55% | 0.54% | 0.65% | 0.66% | -0.74% | |
| 2028 | 8,788 | 78,519 | 87,307 | 8,890 | 80,239 | 89,129 | 91,314 | (90,653) | 661 | 0.25% | 0.43% | 0.41% | 0.44% | 0.53% | 0.52% | 0.64% | 0.65% | -0.90% | |
| 2029 | 8,824 | 78,827 | 87,651 | 8,935 | 80,672 | 89,607 | 91,886 | (91,230) | 656 | 0.40% | 0.39% | 0.39% | 0.50% | 0.54% | 0.54% | 0.63% | 0.64% | -0.76% | |
| 2030 | 8,855 | 79,152 | 88,007 | 8,974 | 81,099 | 90,072 | 92,459 | (91,808) | 651 | 0.36% | 0.41% | 0.41% | 0.44% | 0.53% | 0.52% | 0.62% | 0.63% | -0.76% | |
| 2031 | 8,859 | 79,426 | 88,285 | 8,970 | 81,468 | 90,439 | 92,902 | (92,257) | 645 | 0.04% | 0.35% | 0.32% | -0.03% | 0.46% | 0.41% | 0.48% | 0.49% | -0.92% | |
| 2032 | 8,889 | 79,726 | 88,616 | 8,908 | 81,882 | 90,890 | 93,460 | (92,821) | 639 | 0.34% | 0.38% | 0.37% | 0.42% | 0.51% | 0.50% | 0.60% | 0.61% | -0.93% | |

| Therm Usage by Class | | | | | | | | | | Annual Change | | | | | | | | | |
|----------------------|-----------|-----------|------------|-----------|-----------|------------|-----------|------------|-------|---------------|-------|---------|--------|--------|---------|-------|-------|---------|-------|
| | Low | | | Medium | | | High | | | Total | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 3,546,588 | 5,861,833 | 9,408,421 | 3,485,453 | 5,940,560 | 9,426,013 | 4,971,756 | -4,963,689 | 8,067 | 0.29% | 2.08% | 1.40% | 0.50% | 2.60% | 1.81% | 1.76% | 1.76% | 2.24% | |
| 2013 | 3,947,979 | 5,884,702 | 9,832,681 | 3,859,510 | 5,946,196 | 9,805,706 | 5,037,346 | -5,028,933 | 8,414 | 11.32% | 0.39% | 4.51% | 10.73% | 0.09% | 4.03% | 1.32% | 1.31% | 4.29% | |
| 2014 | 3,956,589 | 5,903,162 | 9,860,021 | 3,853,227 | 5,960,805 | 9,814,632 | 5,101,902 | -5,092,625 | 8,468 | 0.22% | 0.31% | 0.28% | -0.15% | 0.25% | 0.09% | 1.27% | 1.27% | 0.64% | |
| 2015 | 3,974,688 | 5,921,813 | 9,896,501 | 3,865,436 | 5,985,405 | 9,850,841 | 5,163,926 | -5,155,400 | 8,526 | 0.45% | 0.32% | 0.37% | 0.30% | 0.41% | 0.37% | 1.23% | 1.23% | 0.69% | |
| 2016 | 3,987,096 | 5,935,411 | 9,922,507 | 3,876,096 | 6,016,632 | 9,892,728 | 5,222,560 | -5,213,980 | 8,580 | 0.31% | 0.23% | 0.26% | 0.28% | 0.52% | 0.43% | 1.14% | 1.14% | 0.63% | |
| 2017 | 4,008,672 | 5,947,247 | 9,955,919 | 3,891,228 | 6,052,313 | 9,943,541 | 5,280,322 | -5,271,689 | 8,633 | 0.54% | 0.20% | 0.34% | 0.39% | 0.59% | 0.51% | 1.11% | 1.11% | 0.62% | |
| 2018 | 4,025,574 | 5,966,137 | 9,991,711 | 3,906,216 | 6,083,382 | 9,989,598 | 5,344,290 | -5,335,594 | 8,696 | 0.42% | 0.32% | 0.36% | 0.39% | 0.51% | 0.46% | 1.21% | 1.21% | 0.73% | |
| 2019 | 4,040,932 | 5,985,218 | 10,026,150 | 3,920,345 | 6,115,270 | 10,035,615 | 5,411,812 | -5,403,056 | 8,756 | 0.38% | 0.32% | 0.34% | 0.36% | 0.52% | 0.46% | 1.26% | 1.26% | 0.69% | |
| 2020 | 4,056,234 | 6,002,844 | 10,059,078 | 3,928,816 | 6,150,685 | 10,079,501 | 5,476,798 | -5,467,984 | 8,815 | 0.38% | 0.29% | 0.33% | 0.22% | 0.58% | 0.44% | 1.20% | 1.20% | 0.67% | |
| 2021 | 4,076,982 | 6,019,819 | 10,096,801 | 3,936,368 | 6,187,181 | 10,123,549 | 5,541,206 | -5,532,335 | 8,872 | 0.51% | 0.28% | 0.38% | 0.19% | 0.59% | 0.44% | 1.18% | 1.18% | 0.65% | |
| 2022 | 4,091,460 | 6,042,117 | 10,133,577 | 3,949,302 | 6,223,623 | 10,172,925 | 5,613,896 | -5,604,960 | 8,936 | 0.36% | 0.30% | 0.37% | 0.36% | 0.39% | 0.59% | 0.49% | 1.31% | 1.31% | 0.72% |
| 2023 | 4,105,884 | 6,065,576 | 10,171,460 | 3,955,776 | 6,259,482 | 10,215,258 | 5,686,542 | -5,677,543 | 8,999 | 0.35% | 0.39% | 0.37% | 0.16% | 0.58% | 0.42% | 1.29% | 1.29% | 0.71% | |
| 2024 | 4 | | | | | | | | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Aberdeen



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

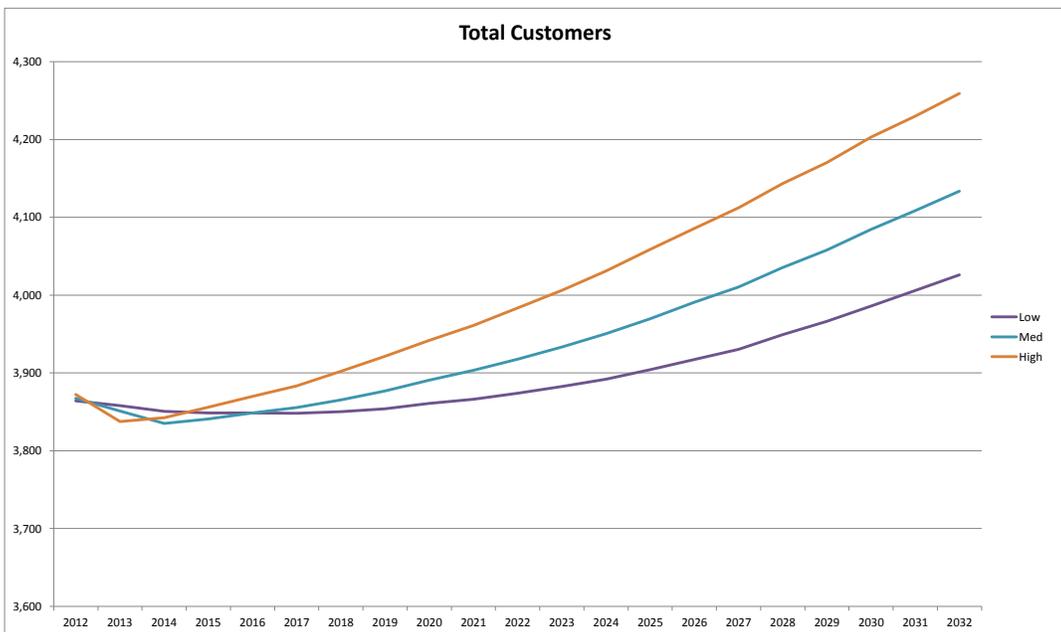
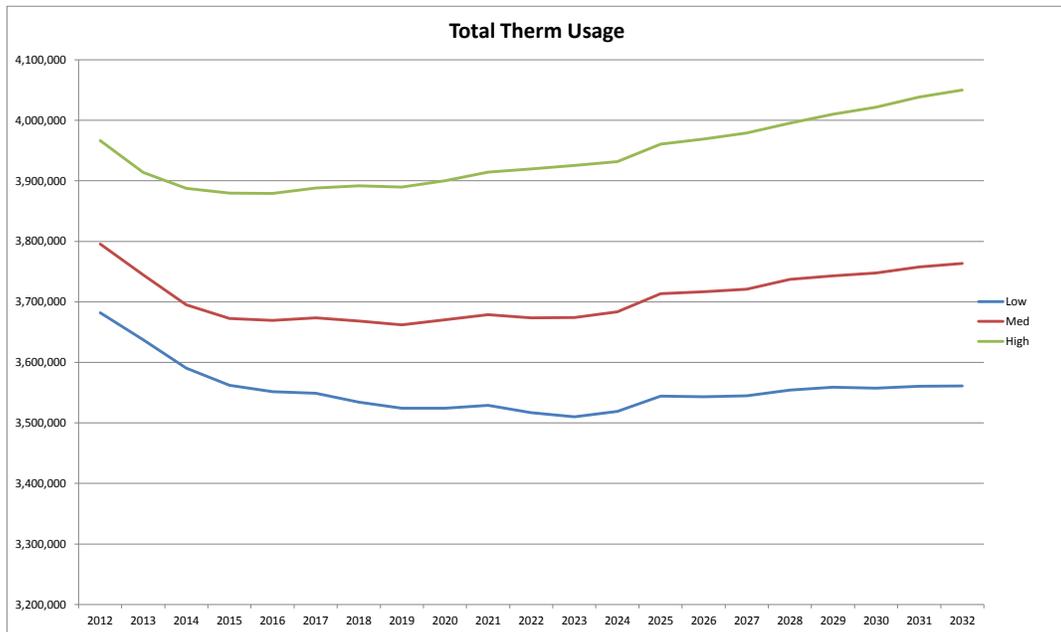
| Baker | | | | | | | | | | | | | | | | | | | |
|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|----------|---------------|---------|----------|--------|---------|----------|--------|--|
| Annual Requirements (Therms) | | | | | | | | | | | | Annual Change | | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | |
| 2012 | 2,583,675 | 1,098,131 | 3,681,806 | 2,663,442 | 1,132,034 | 3,795,476 | 2,783,424 | 1,183,030 | 3,966,453 | 0.35% | 0.35% | 0.35% | 3.22% | 3.22% | 3.22% | 7.92% | 7.92% | 7.92% | |
| 2013 | 2,552,314 | 1,084,802 | 3,637,116 | 2,627,718 | 1,116,851 | 3,744,569 | 2,746,656 | 1,167,402 | 3,914,058 | -1.21% | -1.21% | -1.21% | -1.34% | -1.34% | -1.34% | -1.32% | -1.32% | -1.32% | |
| 2014 | 2,519,434 | 1,070,827 | 3,590,262 | 2,592,977 | 1,102,085 | 3,695,062 | 2,728,041 | 1,159,490 | 3,887,531 | -1.29% | -1.29% | -1.29% | -1.32% | -1.32% | -1.32% | -0.68% | -0.68% | -0.68% | |
| 2015 | 2,499,801 | 1,062,482 | 3,562,283 | 2,577,030 | 1,095,307 | 3,672,336 | 2,722,366 | 1,157,078 | 3,879,444 | -0.78% | -0.78% | -0.78% | -0.62% | -0.62% | -0.62% | -0.21% | -0.21% | -0.21% | |
| 2016 | 2,492,267 | 1,059,280 | 3,551,548 | 2,575,024 | 1,094,454 | 3,669,478 | 2,722,127 | 1,156,977 | 3,879,103 | -0.30% | -0.30% | -0.30% | -0.08% | -0.08% | -0.08% | -0.01% | -0.01% | -0.01% | |
| 2017 | 2,490,377 | 1,058,477 | 3,548,853 | 2,577,763 | 1,095,618 | 3,673,381 | 2,728,521 | 1,159,695 | 3,888,216 | -0.08% | -0.08% | -0.08% | 0.11% | 0.11% | 0.11% | 0.23% | 0.23% | 0.23% | |
| 2018 | 2,480,226 | 1,054,163 | 3,534,389 | 2,574,299 | 1,094,146 | 3,668,445 | 2,730,864 | 1,160,690 | 3,891,554 | -0.41% | -0.41% | -0.41% | -0.13% | -0.13% | -0.13% | 0.09% | 0.09% | 0.09% | |
| 2019 | 2,473,188 | 1,051,171 | 3,524,359 | 2,569,899 | 1,092,276 | 3,662,175 | 2,729,677 | 1,160,186 | 3,889,863 | -0.28% | -0.28% | -0.28% | -0.17% | -0.17% | -0.17% | -0.04% | -0.04% | -0.04% | |
| 2020 | 2,473,110 | 1,051,138 | 3,524,247 | 2,575,797 | 1,094,783 | 3,670,580 | 2,736,945 | 1,163,275 | 3,900,221 | 0.00% | 0.00% | 0.00% | 0.23% | 0.23% | 0.23% | 0.27% | 0.27% | 0.27% | |
| 2021 | 2,476,277 | 1,052,484 | 3,528,762 | 2,581,728 | 1,097,303 | 3,679,031 | 2,747,008 | 1,167,552 | 3,914,560 | 0.13% | 0.13% | 0.13% | 0.23% | 0.23% | 0.23% | 0.37% | 0.37% | 0.37% | |
| 2022 | 2,467,868 | 1,048,910 | 3,516,779 | 2,578,030 | 1,095,732 | 3,673,761 | 2,750,546 | 1,169,056 | 3,919,601 | -0.34% | -0.34% | -0.34% | -0.14% | -0.14% | -0.14% | 0.13% | 0.13% | 0.13% | |
| 2023 | 2,463,085 | 1,046,877 | 3,509,962 | 2,578,383 | 1,095,882 | 3,674,264 | 2,754,657 | 1,170,803 | 3,925,460 | -0.19% | -0.19% | -0.19% | 0.01% | 0.01% | 0.01% | 0.15% | 0.15% | 0.15% | |
| 2024 | 2,469,482 | 1,049,596 | 3,519,077 | 2,585,015 | 1,098,701 | 3,683,716 | 2,758,948 | 1,172,626 | 3,931,572 | 0.26% | 0.26% | 0.26% | 0.26% | 0.26% | 0.26% | 0.16% | 0.16% | 0.16% | |
| 2025 | 2,487,053 | 1,057,064 | 3,544,117 | 2,605,891 | 1,107,573 | 3,713,464 | 2,779,298 | 1,181,276 | 3,960,574 | 0.71% | 0.71% | 0.71% | 0.81% | 0.81% | 0.81% | 0.74% | 0.74% | 0.74% | |
| 2026 | 2,486,256 | 1,056,725 | 3,542,981 | 2,607,998 | 1,108,469 | 3,716,467 | 2,785,192 | 1,183,781 | 3,968,973 | -0.03% | -0.03% | -0.03% | 0.08% | 0.08% | 0.08% | 0.21% | 0.21% | 0.21% | |
| 2027 | 2,487,416 | 1,057,218 | 3,544,635 | 2,611,134 | 1,109,802 | 3,720,935 | 2,792,423 | 1,186,855 | 3,979,278 | 0.05% | 0.05% | 0.05% | 0.12% | 0.12% | 0.12% | 0.26% | 0.26% | 0.26% | |
| 2028 | 2,494,126 | 1,060,070 | 3,554,197 | 2,622,415 | 1,114,596 | 3,737,011 | 2,803,520 | 1,191,584 | 3,995,133 | 0.27% | 0.27% | 0.27% | 0.43% | 0.43% | 0.43% | 0.40% | 0.40% | 0.40% | |
| 2029 | 2,497,399 | 1,061,461 | 3,558,860 | 2,626,485 | 1,116,327 | 3,742,812 | 2,814,038 | 1,196,041 | 4,010,079 | 0.13% | 0.13% | 0.13% | 0.16% | 0.16% | 0.16% | 0.37% | 0.37% | 0.37% | |
| 2030 | 2,496,404 | 1,061,038 | 3,557,442 | 2,629,915 | 1,117,784 | 3,747,699 | 2,821,990 | 1,199,421 | 4,021,411 | -0.04% | -0.04% | -0.04% | 0.13% | 0.13% | 0.13% | 0.28% | 0.28% | 0.28% | |
| 2031 | 2,498,642 | 1,061,990 | 3,560,632 | 2,636,783 | 1,120,703 | 3,757,486 | 2,833,812 | 1,204,446 | 4,038,259 | 0.09% | 0.09% | 0.09% | 0.26% | 0.26% | 0.26% | 0.42% | 0.42% | 0.42% | |
| 2032 | 2,499,102 | 1,062,185 | 3,561,287 | 2,640,905 | 1,122,455 | 3,763,361 | 2,842,020 | 1,207,934 | 4,049,954 | 0.02% | 0.02% | 0.02% | 0.16% | 0.16% | 0.16% | 0.29% | 0.29% | 0.29% | |

| Peak Day - Baseload | | | | | | | | | | | | Annual Change | | | | | | | |
|---------------------|----------------|--------|-----------------|----------------|--------|-----------------|----------------|--------|-----------------|--------|--------|---------------|--------|--------|--------|--------|--------|--------|--|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total | |
| 2012 | 3,009 | 23,275 | 26,284 | 3,101 | 23,205 | 26,306 | 3,241 | 23,099 | 26,340 | 0.35% | 0.25% | 0.26% | 3.22% | -0.02% | 0.35% | 7.92% | -0.49% | 0.48% | |
| 2013 | 2,972 | 23,269 | 26,241 | 3,060 | 23,135 | 26,195 | 3,198 | 22,904 | 26,103 | -1.21% | -0.03% | -0.16% | -1.34% | -0.30% | -0.42% | -1.32% | -0.84% | -0.90% | |
| 2014 | 2,934 | 23,259 | 26,192 | 3,019 | 23,066 | 26,086 | 3,177 | 22,959 | 26,136 | -1.29% | -0.05% | -0.19% | -1.32% | -0.30% | -0.42% | -0.68% | -0.24% | 0.13% | |
| 2015 | 2,911 | 23,267 | 26,178 | 3,001 | 23,125 | 26,125 | 3,170 | 23,058 | 26,228 | -0.78% | 0.04% | -0.06% | -0.62% | 0.25% | 0.15% | -0.21% | 0.43% | 0.35% | |
| 2016 | 2,902 | 23,275 | 26,177 | 2,999 | 23,181 | 26,179 | 3,170 | 23,152 | 26,322 | -0.30% | 0.03% | 0.00% | -0.08% | 0.24% | 0.21% | -0.01% | 0.41% | 0.36% | |
| 2017 | 2,900 | 23,276 | 26,176 | 3,002 | 23,223 | 26,225 | 3,177 | 23,237 | 26,414 | -0.08% | 0.00% | -0.01% | 0.11% | 0.18% | 0.17% | 0.23% | 0.37% | 0.35% | |
| 2018 | 2,888 | 23,301 | 26,189 | 2,998 | 23,295 | 26,292 | 3,180 | 23,361 | 26,541 | -0.41% | 0.11% | 0.05% | -0.13% | 0.31% | 0.26% | 0.09% | 0.53% | 0.48% | |
| 2019 | 2,880 | 23,335 | 26,214 | 2,993 | 23,379 | 26,371 | 3,179 | 23,494 | 26,672 | -0.28% | 0.14% | 0.10% | -0.17% | 0.36% | 0.30% | -0.04% | 0.57% | 0.50% | |
| 2020 | 2,880 | 23,380 | 26,260 | 2,999 | 23,465 | 26,464 | 3,187 | 23,625 | 26,812 | 0.00% | 0.20% | 0.17% | 0.23% | 0.37% | 0.35% | 0.27% | 0.56% | 0.52% | |
| 2021 | 2,884 | 23,415 | 26,298 | 3,006 | 23,543 | 26,549 | 3,199 | 23,745 | 26,944 | 0.13% | 0.15% | 0.14% | 0.23% | 0.33% | 0.32% | 0.37% | 0.51% | 0.49% | |
| 2022 | 2,874 | 23,477 | 26,350 | 3,002 | 23,647 | 26,649 | 3,203 | 23,894 | 27,097 | -0.34% | 0.26% | 0.20% | -0.14% | 0.44% | 0.38% | 0.13% | 0.63% | 0.57% | |
| 2023 | 2,868 | 23,540 | 26,408 | 3,002 | 23,752 | 26,754 | 3,208 | 24,040 | 27,248 | -0.19% | 0.27% | 0.22% | 0.01% | 0.44% | 0.39% | 0.15% | 0.61% | 0.56% | |
| 2024 | 2,876 | 23,597 | 26,472 | 3,010 | 23,861 | 26,872 | 3,213 | 24,205 | 27,418 | 0.26% | 0.24% | 0.24% | 0.26% | 0.46% | 0.44% | 0.16% | 0.68% | 0.62% | |
| 2025 | 2,896 | 23,660 | 26,556 | 3,034 | 23,968 | 27,002 | 3,236 | 24,371 | 27,608 | 0.71% | 0.27% | 0.32% | 0.81% | 0.45% | 0.49% | 0.74% | 0.69% | 0.69% | |
| 2026 | 2,895 | 23,750 | 26,645 | 3,037 | 24,109 | 27,146 | 3,243 | 24,547 | 27,791 | -0.03% | 0.38% | 0.34% | 0.08% | 0.59% | 0.53% | 0.21% | 0.72% | 0.66% | |
| 2027 | 2,896 | 23,837 | 26,733 | 3,041 | 24,239 | 27,280 | 3,252 | 24,719 | 27,971 | 0.05% | 0.36% | 0.33% | 0.12% | 0.54% | 0.50% | 0.26% | 0.70% | 0.65% | |
| 2028 | 2,904 | 23,958 | 26,862 | 3,054 | 24,397 | 27,450 | 3,265 | 24,918 | 28,183 | 0.27% | 0.51% | 0.48% | 0.43% | 0.65% | 0.63% | 0.40% | 0.81% | 0.76% | |
| 2029 | 2,908 | 24,071 | 26,979 | 3,058 | 24,543 | 27,601 | 3,277 | 25,090 | 28,367 | 0.13% | 0.47% | 0.44% | 0.16% | 0.60% | 0.55% | 0.37% | 0.69% | 0.65% | |
| 2030 | 2,907 | 24,207 | 27,114 | 3,062 | 24,721 | 27,783 | 3,286 | 25,303 | 28,590 | -0.04% | 0.56% | 0.50% | 0.13% | 0.72% | 0.66% | 0.28% | 0.85% | 0.78% | |
| 2031 | 2,910 | 24,340 | 27,250 | 3,070 | 24,876 | 27,947 | 3,300 | 25,473 | 28,773 | 0.09% | 0.55% | 0.50% | 0.26% | 0.63% | 0.59% | 0.42% | 0.67% | 0.64% | |
| 2032 | 2,910 | 24,476 | 27,387 | 3,075 | 25,042 | 28,117 | 3,309 | 25,661 | 28,970 | 0.02% | 0.56% | 0.50% | 0.16% | 0.67% | 0.61% | 0.29% | 0.74% | 0.68% | |

| Therm Usage by Class | | | | | | | | | | | | Annual Change | | | | | | | |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|---------|---------------|--------|---------|--------|--------|---------|--------|--|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | |
| 2012 | 1,809,962 | 1,871,844 | 3,681,806 | 1,938,143 | 1,857,333 | 3,795,476 | 2,116,800 | 1,849,653 | 3,966,453 | -11.82% | 15.82% | 0.35% | -6.55% | 16.02% | 3.22% | 1.96% | 15.65% | 7.92% | |
| 2013 | 1,786,083 | 1,851,033 | 3,637,116 | 1,923,840 | 1,820,729 | 3,744,569 | 2,104,880 | 1,809,178 | 3,914,058 | -1.32% | -1.11% | -1.21% | -0.74% | -1.97% | -1.34% | -0.56% | -2.19% | -1.32% | |
| 2014 | 1,764,576 | 1,825,686 | 3,590,262 | 1,899,612 | 1,795,450 | 3,695,062 | 2,095,511 | 1,791,980 | 3,887,531 | -1.20% | -1.37% | -1.29% | -1.26% | -1.39% | -1.32% | -0.44% | -0.95% | -0.68% | |
| 2015 | 1,752,450 | 1,809,833 | 3,562,283 | 1,891,356 | 1,780,980 | 3,672,336 | 2,098,530 | 1,780,914 | 3,879,444 | -0.69% | -0.87% | -0.78% | -0.43% | -0.81% | -0.62% | 0.14% | -0.62% | -0.21% | |
| 2016 | 1,748,064 | 1,803,484 | 3,551,548 | 1,890,872 | 1,778,606 | 3,669,478 | 2,101,489 | 1,777,614 | 3,879,103 | -0.25% | -0.35% | -0.30% | -0.03% | -0.13% | -0.08% | 0.14% | -0.19% | -0.01% | |
| 2017 | 1,747,016 | 1,801,837 | 3,548,853 | 1,893,144 | 1,780,237 | 3,673,381 | 2,111,130 | 1,777,086 | 3,888,216 | -0.06% | -0.09% | -0.08% | 0.12% | 0.09% | 0.11% | 0.46% | 0.23% | 0.23% | |
| 2018 | 1,737,014 | 1,797,375 | 3,534,389 | 1,890,440 | 1,778,005 | 3,668,445 | 2,117,214 | 1,774,340 | 3,891,554 | -0.57% | -0.25% | -0.41% | -0.14% | -0.13% | -0.13% | 0.29% | -0.15% | 0.09% | |
| 2019 | 1,731,384 | 1,792,975 | 3,524,359 | 1,888,836 | 1,773,339 | 3,662,175 | 2,120,514 | 1,769,349 | 3,889,863 | -0.32% | -0.24% | -0.28% | -0.08% | -0.26% | -0.17% | 0.16% | -0.28% | -0.04% | |
| 2020 | 1,730,638 | 1,793,609 | 3,524,247 | 1,895,040 | 1,775,540 | 3,670,580 | 2,131,173 | 1,769,048 | 3,900,221 | -0.04% | 0.04% | 0.00% | 0.33% | 0.12% | 0.23% | 0.50% | -0.02% | 0.27% | |
| 2021 | 1,732,710 | 1,796,052 | 3,528,762 | 1,900,680 | 1,778,351 | 3,679,031 | 2,144,620 | 1,769,940 | 3,914,560 | 0.12% | 0.14% | 0.13% | 0.30% | 0.16% | 0.23% | 0.63% | 0.05% | 0.37% | |
| 2022 | 1,722,414 | 1,794,365 | 3,516,779 | 1,897,302 | 1,776,459 | 3,673,761 | 2,153,118 | 1,766,483 | 3,919,601 | -0.59% | -0.09% | -0.34% | -0.18% | -0.11% | -0.14% | 0.40% | -0.20% | 0.13% | |
| 2023 | 1,719,296 | 1,790,666 | 3,509,962 | 1,901,200 | 1,773,064 | 3,674,264 | 2,163,031 | 1,760,429 | 3,925,460 | -0.18% | -0.21% | -0.19% | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Baker



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

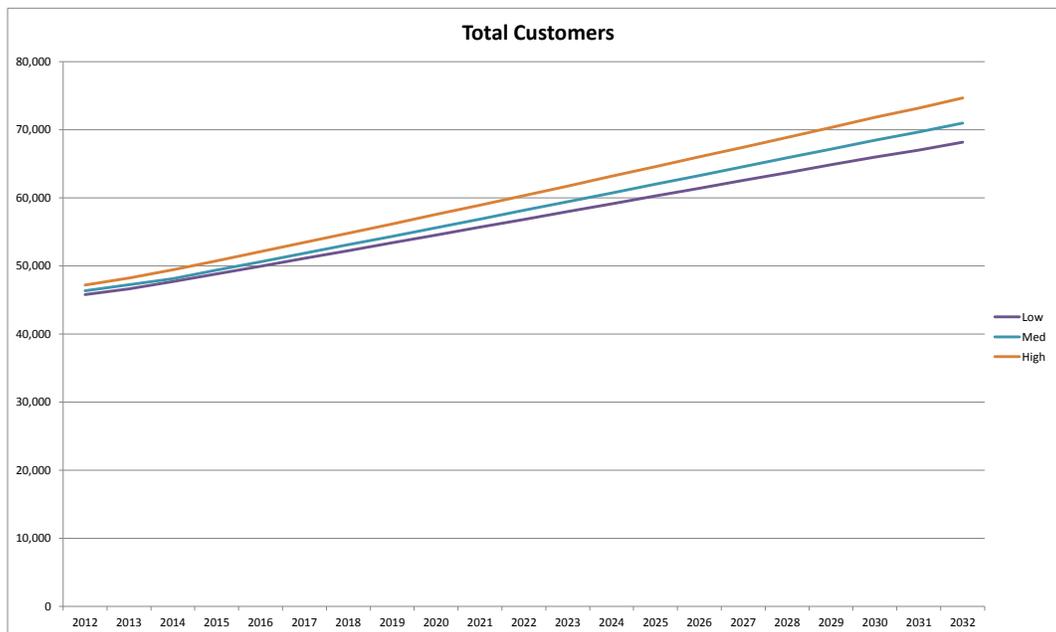
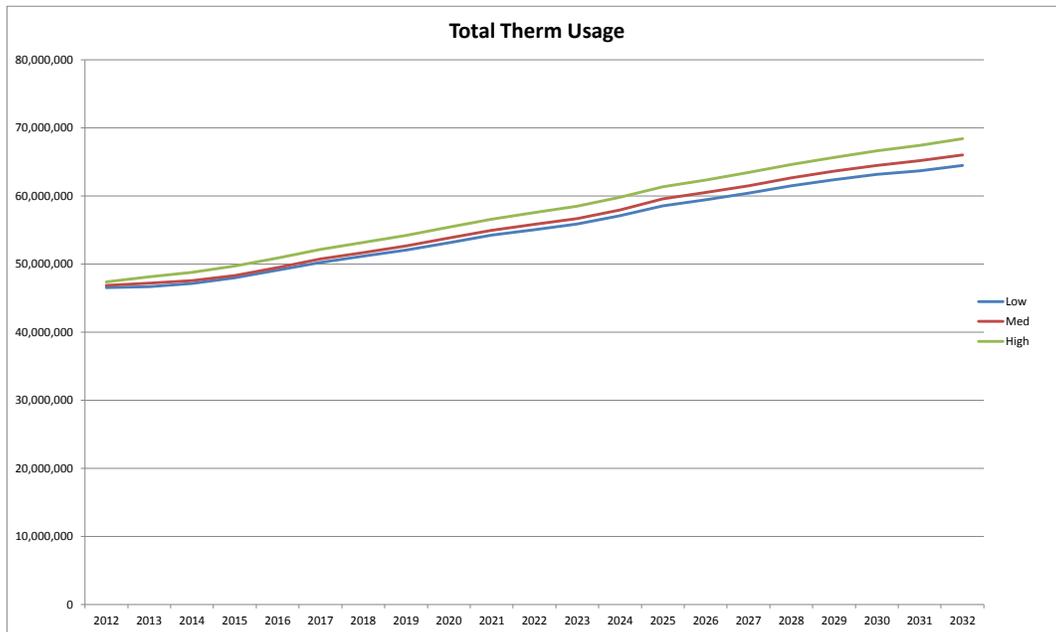
| Bellingham | | | | | | | | | | | | | | | | | | |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---------|----------|---------------|---------|----------|--------|---------|----------|--------|
| Annual Requirements (Therms) | | | | | | | | | | | | Annual Change | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 29,803,027 | 16,715,601 | 46,518,628 | 30,036,166 | 16,846,361 | 46,882,527 | 30,363,653 | 17,030,039 | 47,393,692 | 12.52% | 12.52% | 12.52% | 14.82% | 14.82% | 14.82% | 18.07% | 18.07% | 18.07% |
| 2013 | 29,901,345 | 16,770,744 | 46,672,089 | 30,232,996 | 16,956,757 | 47,189,753 | 30,847,272 | 17,301,286 | 48,148,558 | 0.33% | 0.33% | 0.33% | 0.66% | 0.66% | 0.66% | 1.59% | 1.59% | 1.59% |
| 2014 | 30,205,161 | 16,941,145 | 47,146,307 | 30,484,804 | 17,097,988 | 47,582,792 | 31,251,332 | 17,527,910 | 48,779,242 | 1.02% | 1.02% | 1.02% | 0.83% | 0.83% | 0.83% | 1.31% | 1.31% | 1.31% |
| 2015 | 30,733,893 | 17,237,695 | 47,971,588 | 30,965,522 | 17,367,608 | 48,333,130 | 31,859,136 | 17,868,809 | 49,727,944 | 1.75% | 1.75% | 1.75% | 1.58% | 1.58% | 1.58% | 1.94% | 1.94% | 1.94% |
| 2016 | 31,462,099 | 17,646,123 | 49,108,223 | 31,704,010 | 17,781,804 | 49,485,814 | 32,609,316 | 18,289,562 | 50,898,877 | 2.37% | 2.37% | 2.37% | 2.38% | 2.38% | 2.38% | 2.35% | 2.35% | 2.35% |
| 2017 | 32,193,485 | 18,056,335 | 50,249,819 | 32,513,187 | 18,235,646 | 50,748,833 | 33,421,597 | 18,745,145 | 52,166,742 | 2.32% | 2.32% | 2.32% | 2.55% | 2.55% | 2.55% | 2.49% | 2.49% | 2.49% |
| 2018 | 32,769,170 | 18,379,219 | 51,148,390 | 33,117,051 | 18,574,335 | 51,691,386 | 34,077,894 | 19,113,242 | 53,191,135 | 1.79% | 1.79% | 1.79% | 1.86% | 1.86% | 1.86% | 1.96% | 1.96% | 1.96% |
| 2019 | 33,359,332 | 18,710,223 | 52,069,555 | 33,723,661 | 18,914,564 | 52,638,225 | 34,718,797 | 19,472,705 | 54,191,502 | 1.80% | 1.80% | 1.80% | 1.83% | 1.83% | 1.83% | 1.88% | 1.88% | 1.88% |
| 2020 | 34,050,369 | 19,097,804 | 53,148,174 | 34,484,860 | 19,341,497 | 53,826,356 | 35,499,726 | 19,910,704 | 55,410,430 | 2.07% | 2.07% | 2.07% | 2.26% | 2.26% | 2.26% | 2.25% | 2.25% | 2.25% |
| 2021 | 34,756,629 | 19,493,923 | 54,250,552 | 35,204,023 | 19,744,853 | 54,948,876 | 36,264,909 | 20,339,872 | 56,604,731 | 2.07% | 2.07% | 2.07% | 2.09% | 2.09% | 2.09% | 2.16% | 2.16% | 2.16% |
| 2022 | 35,272,662 | 19,783,351 | 55,056,013 | 35,773,067 | 20,064,012 | 55,837,079 | 36,868,136 | 20,678,203 | 57,546,389 | 1.48% | 1.48% | 1.48% | 1.62% | 1.62% | 1.62% | 1.66% | 1.66% | 1.66% |
| 2023 | 35,791,777 | 20,074,506 | 55,866,283 | 36,305,135 | 20,362,433 | 56,667,568 | 37,480,085 | 21,021,426 | 58,501,511 | 1.47% | 1.47% | 1.47% | 1.49% | 1.49% | 1.49% | 1.66% | 1.66% | 1.66% |
| 2024 | 36,570,206 | 20,511,103 | 57,081,310 | 37,124,519 | 20,822,000 | 57,946,520 | 38,324,467 | 21,495,014 | 59,819,482 | 2.17% | 2.17% | 2.17% | 2.26% | 2.26% | 2.26% | 2.25% | 2.25% | 2.25% |
| 2025 | 37,519,490 | 21,043,527 | 58,563,017 | 38,164,735 | 21,405,425 | 59,570,161 | 39,302,169 | 22,043,377 | 61,345,546 | 2.60% | 2.60% | 2.60% | 2.80% | 2.80% | 2.80% | 2.55% | 2.55% | 2.55% |
| 2026 | 38,092,727 | 21,365,038 | 59,457,765 | 38,764,625 | 21,741,885 | 59,939,511 | 40,040,842 | 22,400,842 | 62,340,333 | 1.53% | 1.53% | 1.53% | 1.57% | 1.57% | 1.57% | 1.62% | 1.62% | 1.62% |
| 2027 | 38,704,453 | 21,708,137 | 60,412,590 | 39,406,081 | 22,101,658 | 61,507,739 | 40,645,503 | 22,796,812 | 63,442,314 | 1.61% | 1.61% | 1.61% | 1.65% | 1.65% | 1.65% | 1.77% | 1.77% | 1.77% |
| 2028 | 39,395,147 | 22,095,525 | 61,490,672 | 40,142,152 | 22,514,498 | 62,656,649 | 41,440,339 | 23,220,176 | 64,620,516 | 1.78% | 1.78% | 1.78% | 1.87% | 1.87% | 1.87% | 1.86% | 1.86% | 1.86% |
| 2029 | 39,966,039 | 22,415,721 | 62,381,760 | 40,785,320 | 22,875,231 | 63,660,551 | 42,072,921 | 23,597,407 | 65,670,328 | 1.45% | 1.45% | 1.45% | 1.60% | 1.60% | 1.60% | 1.62% | 1.62% | 1.62% |
| 2030 | 40,476,716 | 22,702,145 | 63,178,861 | 41,323,118 | 23,176,865 | 64,499,984 | 42,689,548 | 23,943,254 | 66,632,802 | 1.28% | 1.28% | 1.28% | 1.32% | 1.32% | 1.32% | 1.47% | 1.47% | 1.47% |
| 2031 | 40,807,331 | 22,887,576 | 63,694,907 | 41,761,420 | 23,422,695 | 65,184,116 | 43,210,978 | 24,235,708 | 67,446,858 | 0.82% | 0.82% | 0.82% | 1.06% | 1.06% | 1.06% | 1.22% | 1.22% | 1.22% |
| 2032 | 41,310,352 | 23,189,705 | 64,500,057 | 42,288,367 | 23,718,244 | 66,006,611 | 43,823,568 | 24,579,291 | 68,402,858 | 1.23% | 1.23% | 1.23% | 1.26% | 1.26% | 1.26% | 1.42% | 1.42% | 1.42% |

| Peak Day - Baseload | | | | | | | | | | | | Annual Change | | | | | | |
|---------------------|----------------|---------|-----------------|----------------|---------|-----------------|----------------|-----------|-----------------|--------|-------|---------------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 45,796 | 638,021 | 683,817 | 46,154 | 646,029 | 692,183 | 46,658 | 658,579 | 705,237 | 12.52% | 0.14% | 0.89% | 14.82% | 1.32% | 2.12% | 18.07% | 3.18% | 4.05% |
| 2013 | 45,947 | 650,428 | 696,375 | 46,457 | 659,251 | 705,708 | 47,401 | 672,760 | 720,161 | 0.33% | 1.94% | 1.84% | 0.66% | 2.05% | 1.95% | 1.59% | 2.15% | 2.12% |
| 2014 | 46,414 | 665,940 | 712,354 | 46,844 | 672,328 | 719,171 | 48,022 | 690,192 | 738,215 | 1.02% | 2.38% | 2.29% | 0.83% | 1.98% | 1.91% | 1.31% | 2.59% | 2.51% |
| 2015 | 47,227 | 682,163 | 729,390 | 47,582 | 690,338 | 737,620 | 48,956 | 709,176 | 758,132 | 1.75% | 2.44% | 2.39% | 1.58% | 2.63% | 2.57% | 1.94% | 2.75% | 2.70% |
| 2016 | 48,346 | 698,089 | 746,434 | 48,717 | 707,419 | 756,136 | 50,108 | 728,034 | 778,143 | 2.37% | 2.33% | 2.34% | 2.38% | 2.52% | 2.51% | 2.35% | 2.66% | 2.64% |
| 2017 | 49,469 | 714,016 | 763,486 | 49,961 | 724,774 | 774,734 | 51,357 | 746,955 | 798,312 | 2.32% | 2.28% | 2.28% | 2.55% | 2.45% | 2.46% | 2.49% | 2.60% | 2.59% |
| 2018 | 50,354 | 730,190 | 780,544 | 50,889 | 742,496 | 793,385 | 52,365 | 766,243 | 816,608 | 1.79% | 2.27% | 2.23% | 1.86% | 2.45% | 2.41% | 1.96% | 2.58% | 2.54% |
| 2019 | 51,261 | 746,362 | 797,623 | 51,821 | 760,309 | 812,130 | 53,350 | 785,661 | 839,011 | 1.80% | 2.21% | 2.19% | 1.83% | 2.40% | 2.36% | 1.88% | 2.53% | 2.49% |
| 2020 | 52,323 | 762,354 | 814,676 | 52,990 | 777,952 | 830,942 | 54,550 | 805,656 | 859,606 | 2.07% | 2.14% | 2.14% | 2.62% | 2.32% | 2.32% | 2.25% | 2.47% | 2.45% |
| 2021 | 53,408 | 778,344 | 831,752 | 54,095 | 795,726 | 849,822 | 55,726 | 824,587 | 880,313 | 2.07% | 2.10% | 2.10% | 2.09% | 2.28% | 2.27% | 2.16% | 2.43% | 2.41% |
| 2022 | 54,201 | 794,664 | 848,865 | 54,970 | 813,848 | 868,818 | 56,653 | 844,593 | 901,246 | 1.48% | 2.10% | 2.06% | 1.62% | 2.28% | 2.24% | 1.66% | 2.43% | 2.38% |
| 2023 | 54,999 | 811,004 | 866,003 | 55,787 | 832,108 | 887,895 | 57,593 | 864,693 | 922,286 | 1.47% | 2.06% | 2.02% | 1.49% | 2.24% | 2.20% | 1.66% | 2.38% | 2.33% |
| 2024 | 56,195 | 826,935 | 883,130 | 56,959 | 849,959 | 907,005 | 58,900 | 884,510 | 943,401 | 2.17% | 1.96% | 1.98% | 2.26% | 2.15% | 2.15% | 2.25% | 2.29% | 2.29% |
| 2025 | 57,653 | 842,592 | 900,245 | 58,645 | 867,536 | 926,181 | 60,393 | 904,281 | 964,674 | 2.60% | 1.89% | 1.94% | 2.80% | 2.07% | 2.11% | 2.55% | 2.24% | 2.25% |
| 2026 | 58,534 | 858,151 | 917,349 | 59,567 | 885,837 | 945,404 | 61,932 | 924,649 | 986,022 | 1.53% | 1.93% | 1.90% | 1.57% | 2.11% | 2.08% | 1.62% | 2.25% | 2.21% |
| 2027 | 59,474 | 874,965 | 934,440 | 60,552 | 904,121 | 964,674 | 62,457 | 945,019 | 1,007,476 | 1.61% | 1.88% | 1.86% | 1.65% | 2.06% | 2.04% | 1.77% | 2.20% | 2.18% |
| 2028 | 60,536 | 890,967 | 951,502 | 61,684 | 922,293 | 983,977 | 63,617 | 965,454 | 1,029,071 | 1.78% | 1.83% | 1.83% | 1.87% | 2.01% | 2.00% | 1.86% | 2.16% | 2.14% |
| 2029 | 61,413 | 907,109 | 968,522 | 62,672 | 940,641 | 1,003,312 | 64,650 | 986,077 | 1,050,728 | 1.45% | 1.81% | 1.79% | 1.60% | 1.99% | 1.97% | 1.62% | 2.14% | 2.10% |
| 2030 | 62,198 | 923,347 | 985,545 | 63,498 | 959,214 | 1,022,712 | 65,598 | 1,006,943 | 1,072,541 | 1.28% | 1.79% | 1.76% | 1.32% | 1.97% | 1.93% | 1.47% | 2.12% | 2.08% |
| 2031 | 62,706 | 938,225 | 1,000,930 | 64,172 | 976,346 | 1,040,517 | 66,399 | 1,026,411 | 1,092,810 | 0.82% | 1.61% | 1.56% | 1.06% | 1.79% | 1.74% | 1.22% | 1.93% | 1.89% |
| 2032 | 63,479 | 954,732 | 1,018,210 | 64,981 | 995,328 | 1,060,310 | 67,341 | 1,047,840 | 1,115,181 | 1.23% | 1.76% | 1.73% | 1.26% | 1.94% | 1.90% | 1.42% | 2.09% | 2.05% |

| Therm Usage by Class | | | | | | | | | | | | Annual Change | | | | | | |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------|---------|---------------|--------|---------|--------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 29,259,230 | 17,259,398 | 46,518,628 | 29,401,810 | 17,480,717 | 46,882,527 | 30,112,236 | 17,281,456 | 47,393,692 | 8.39% | 20.30% | 12.52% | 11.09% | 21.69% | 14.82% | 15.01% | 23.81% | 18.07% |
| 2013 | 29,238,300 | 17,433,789 | 46,672,089 | 29,620,890 | 17,568,863 | 47,189,753 | 30,686,807 | 17,461,751 | 48,148,558 | -0.07% | 1.01% | 0.33% | 0.75% | 0.50% | 0.66% | 1.91% | 1.04% | 1.59% |
| 2014 | 29,479,200 | 17,667,107 | 47,146,307 | 29,867,625 | 17,715,167 | 47,582,792 | 31,152,250 | 17,626,992 | 48,779,242 | 0.82% | 1.34% | 1.02% | 0.83% | 0.83% | 1.52% | 0.95% | 1.31% | 1.31% |
| 2015 | 30,011,248 | 17,930,340 | 47,971,588 | 30,377,321 | 17,955,809 | 48,333,130 | 31,871,208 | 17,856,736 | 49,727,944 | 1.80% | 1.66% | 1.75% | 1.71% | 1.36% | 1.58% | 2.31% | 1.30% | 1.94% |
| 2016 | 30,759,027 | 18,349,196 | 49,108,223 | 31,148,312 | 18,337,502 | 49,485,814 | 32,727,662 | 18,171,415 | 50,898,877 | 2.49% | 2.17% | 2.37% | 2.54% | 2.13% | 2.38% | 2.69% | 1.76% | 2.35% |
| 2017 | 31,463,874 | 18,785,945 | 50,249,819 | 31,969,770 | 18,779,063 | 50,748,833 | 33,639,232 | 18,527,510 | 52,166,742 | 2.29% | 2.38% | 2.32% | 2.64% | 2.41% | 2.55% | 2.79% | 1.96% | 2.49% |
| 2018 | 32,029,340 | 19,119,050 | 51,148,390 | 32,606,394 | 19,084,992 | 51,691,386 | 34,412,742 | 18,778,393 | 53,191,135 | 1.80% | 1.77% | 1.79% | 1.99% | 1.63% | 1.86% | 2.30% | 1.35% | 1.96% |
| 2019 | 32,637,744 | 19,431,811 | 52,069,555 | 33,289,630 | 19,348,595 | 52,638,225 | 35,186,900 | 19,004,602 | 54,191,502 | 1.90% | 1.64% | 1.80% | 2.10% | 1.38% | 1.83% | 2.25% | 1.20% | 1.88% |
| 2020 | 33,338,844 | 19,809,330 | 53,148,174 | 34,120,954 | 19,705,402 | 53,826,356 | 36,119,726 | 19,290,704 | 55,410,430 | 2.15% | 1.94% | 2.07% | 2.50% | 1.84% | 2.26% | 2.65% | 1.51% | 2.25% |
| 2021 | 34,041,312 | 20,209,240 | 54,250,552 | 34,856,225 | 20,092,651 | 54,948,876 | 37 | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Bellingham



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

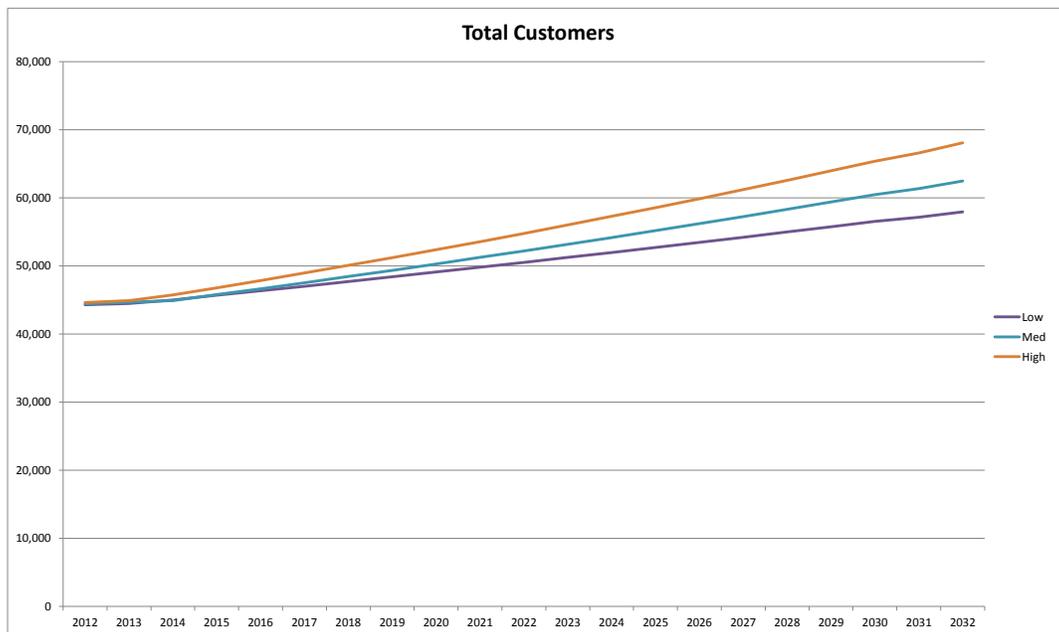
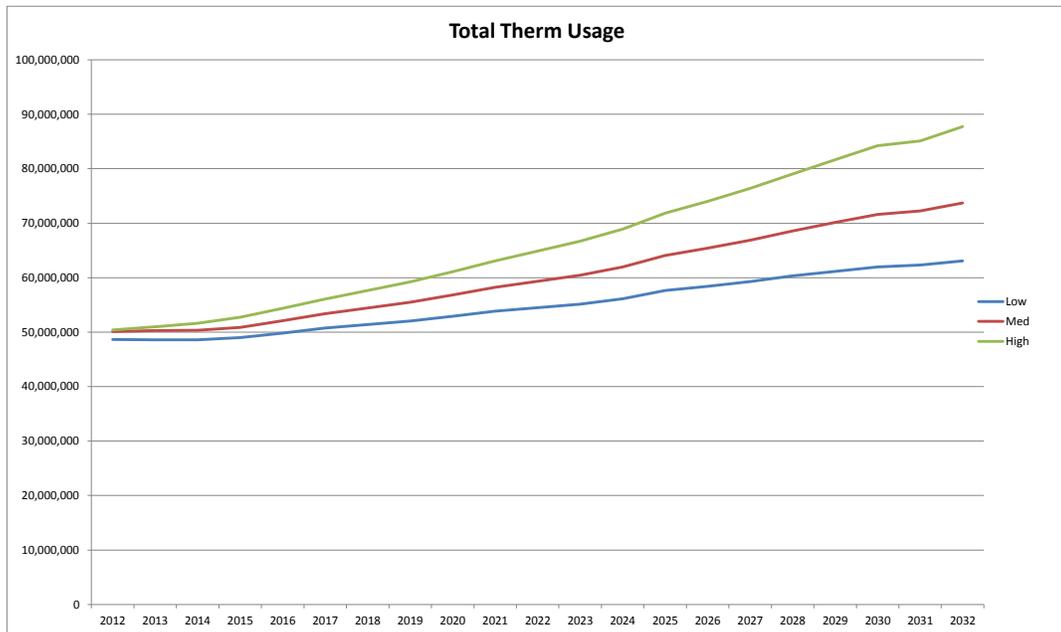
| Bend | | | | | | | | | | | | | | | | | | |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---------|----------|---------------|---------|----------|-------|---------|----------|--------|
| Annual Requirements (Therms) | | | | | | | | | | | | Annual Change | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 33,668,464 | 14,952,969 | 48,621,433 | 34,699,221 | 15,410,752 | 50,109,973 | 34,897,209 | 15,498,684 | 50,395,893 | 6.46% | 6.46% | 6.46% | 8.21% | 8.21% | 8.21% | 10.88% | 10.88% | 10.88% |
| 2013 | 33,650,788 | 14,945,118 | 48,595,907 | 34,818,315 | 15,463,645 | 50,281,960 | 35,309,114 | 15,681,621 | 50,990,735 | -0.05% | -0.05% | -0.05% | 0.34% | 0.34% | 0.34% | 1.18% | 1.18% | 1.18% |
| 2014 | 33,659,006 | 14,948,768 | 48,607,773 | 34,867,237 | 15,485,372 | 50,352,609 | 35,735,915 | 15,871,173 | 51,607,088 | 0.02% | 0.02% | 0.02% | 0.14% | 0.14% | 0.14% | 1.21% | 1.21% | 1.21% |
| 2015 | 33,941,318 | 15,074,150 | 49,015,468 | 35,232,508 | 15,647,598 | 50,880,106 | 36,536,664 | 16,226,804 | 52,763,468 | 0.84% | 0.84% | 0.84% | 1.05% | 1.05% | 1.05% | 2.24% | 2.24% | 2.24% |
| 2016 | 34,515,720 | 15,329,255 | 49,844,976 | 36,062,469 | 16,016,203 | 52,078,672 | 37,645,922 | 16,719,453 | 54,365,375 | 1.69% | 1.69% | 1.69% | 2.36% | 2.36% | 2.36% | 3.04% | 3.04% | 3.04% |
| 2017 | 35,135,247 | 15,604,402 | 50,739,649 | 36,964,115 | 16,416,646 | 53,380,761 | 38,842,222 | 17,250,758 | 56,092,980 | 1.79% | 1.79% | 1.79% | 2.50% | 2.50% | 2.50% | 3.18% | 3.18% | 3.18% |
| 2018 | 35,587,448 | 15,805,235 | 51,392,683 | 37,710,739 | 16,748,239 | 54,458,978 | 39,915,726 | 17,727,527 | 57,643,253 | 1.29% | 1.29% | 1.29% | 2.02% | 2.02% | 2.02% | 2.76% | 2.76% | 2.76% |
| 2019 | 36,041,253 | 16,006,781 | 52,048,034 | 38,433,239 | 17,069,119 | 55,502,358 | 41,026,501 | 18,220,848 | 59,247,349 | 1.28% | 1.28% | 1.28% | 1.92% | 1.92% | 1.92% | 2.78% | 2.78% | 2.78% |
| 2020 | 36,635,968 | 16,270,908 | 52,906,877 | 39,342,456 | 17,472,524 | 56,815,379 | 42,307,989 | 18,789,988 | 61,097,976 | 1.65% | 1.65% | 1.65% | 2.37% | 2.37% | 2.37% | 3.12% | 3.12% | 3.12% |
| 2021 | 37,279,789 | 16,556,844 | 53,836,634 | 40,310,702 | 17,902,945 | 58,213,646 | 43,685,330 | 19,401,698 | 63,087,028 | 1.76% | 1.76% | 1.76% | 2.46% | 2.46% | 2.46% | 3.26% | 3.26% | 3.26% |
| 2022 | 37,718,412 | 16,751,647 | 54,470,060 | 41,090,034 | 18,249,065 | 59,339,099 | 44,929,616 | 19,954,315 | 64,883,931 | 1.18% | 1.18% | 1.18% | 1.93% | 1.93% | 1.93% | 2.85% | 2.85% | 2.85% |
| 2023 | 38,170,944 | 16,952,627 | 55,123,571 | 41,863,507 | 18,592,583 | 60,456,090 | 46,196,812 | 20,517,107 | 66,713,919 | 1.20% | 1.20% | 1.20% | 1.88% | 1.88% | 1.88% | 2.82% | 2.82% | 2.82% |
| 2024 | 38,861,746 | 17,259,429 | 56,121,175 | 42,914,272 | 19,059,253 | 61,973,525 | 47,716,733 | 21,192,140 | 68,908,873 | 1.81% | 1.81% | 1.81% | 2.51% | 2.51% | 2.51% | 3.29% | 3.29% | 3.29% |
| 2025 | 39,904,838 | 17,722,691 | 57,627,529 | 44,381,552 | 19,710,907 | 64,092,459 | 49,747,546 | 22,094,073 | 71,841,619 | 2.68% | 2.68% | 2.68% | 3.42% | 3.42% | 3.42% | 4.26% | 4.26% | 4.26% |
| 2026 | 40,432,374 | 17,956,982 | 58,389,356 | 45,315,953 | 20,125,896 | 65,441,849 | 51,258,498 | 22,765,123 | 74,023,621 | 1.32% | 1.32% | 1.32% | 2.11% | 2.11% | 2.11% | 3.04% | 3.04% | 3.04% |
| 2027 | 41,042,323 | 18,227,875 | 59,270,198 | 46,297,281 | 20,561,728 | 66,859,009 | 52,890,052 | 23,489,747 | 76,379,829 | 1.51% | 1.51% | 1.51% | 2.17% | 2.17% | 2.17% | 3.18% | 3.18% | 3.18% |
| 2028 | 41,768,105 | 18,500,212 | 60,268,317 | 47,468,890 | 21,082,067 | 68,550,956 | 54,785,710 | 24,309,435 | 79,045,230 | 1.77% | 1.77% | 1.77% | 2.53% | 2.53% | 2.53% | 3.49% | 3.49% | 3.49% |
| 2029 | 42,355,304 | 18,811,002 | 61,166,306 | 48,567,438 | 21,569,959 | 70,137,397 | 56,537,553 | 25,109,677 | 81,647,230 | 1.41% | 1.41% | 1.41% | 2.31% | 2.31% | 2.31% | 3.29% | 3.29% | 3.29% |
| 2030 | 42,899,725 | 19,052,792 | 61,952,518 | 49,568,669 | 22,014,629 | 71,583,298 | 58,311,003 | 25,897,308 | 84,208,312 | 1.29% | 1.29% | 1.29% | 2.06% | 2.06% | 2.06% | 3.14% | 3.14% | 3.14% |
| 2031 | 43,146,146 | 19,162,233 | 62,308,380 | 50,011,009 | 22,211,083 | 72,222,092 | 58,917,318 | 26,166,587 | 85,083,906 | 0.57% | 0.57% | 0.57% | 0.89% | 0.89% | 0.89% | 1.04% | 1.04% | 1.04% |
| 2032 | 43,692,081 | 19,404,696 | 63,096,777 | 51,023,331 | 22,660,679 | 73,684,010 | 60,757,767 | 26,983,974 | 87,741,741 | 1.27% | 1.27% | 1.27% | 2.02% | 2.02% | 2.02% | 3.12% | 3.12% | 3.12% |

| Peak Day - Baseload | | | | | | | | | | | | Annual Change | | | | | | |
|---------------------|----------------|---------|-----------------|----------------|---------|-----------------|----------------|---------|-----------------|--------|-------|---------------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 40,967 | 535,366 | 576,333 | 42,221 | 535,817 | 578,038 | 42,462 | 537,930 | 580,392 | 6.46% | 1.11% | 1.47% | 8.21% | 1.30% | 1.77% | 10.88% | 1.56% | 2.19% |
| 2013 | 40,946 | 537,901 | 578,847 | 42,366 | 538,822 | 581,188 | 42,963 | 541,224 | 584,187 | -0.05% | 0.47% | 0.44% | 0.34% | 0.56% | 0.54% | 1.18% | 0.61% | 0.65% |
| 2014 | 40,956 | 544,823 | 585,779 | 42,426 | 541,970 | 584,396 | 43,483 | 551,492 | 594,974 | 0.02% | 1.29% | 1.20% | 0.14% | 0.58% | 0.55% | 1.21% | 1.90% | 1.85% |
| 2015 | 41,299 | 553,107 | 594,406 | 42,870 | 552,751 | 595,621 | 44,457 | 564,246 | 608,703 | 0.84% | 1.52% | 1.47% | 1.05% | 1.99% | 1.92% | 2.24% | 2.31% | 2.31% |
| 2016 | 41,998 | 561,156 | 603,154 | 43,880 | 563,152 | 607,032 | 45,807 | 576,915 | 622,721 | 1.69% | 1.46% | 1.47% | 2.36% | 1.88% | 1.92% | 3.04% | 2.25% | 2.30% |
| 2017 | 42,752 | 569,213 | 611,967 | 44,977 | 573,633 | 618,610 | 47,262 | 589,747 | 637,009 | 1.79% | 1.44% | 1.46% | 2.50% | 1.86% | 1.91% | 3.18% | 2.22% | 2.29% |
| 2018 | 43,302 | 577,588 | 620,885 | 45,886 | 584,500 | 630,386 | 48,569 | 603,019 | 651,588 | 1.29% | 1.47% | 1.46% | 2.02% | 1.89% | 1.90% | 2.76% | 2.25% | 2.29% |
| 2019 | 43,854 | 586,027 | 629,881 | 46,765 | 595,565 | 642,330 | 49,920 | 616,519 | 666,349 | 1.28% | 1.46% | 1.45% | 1.92% | 1.89% | 1.89% | 2.78% | 2.24% | 2.28% |
| 2020 | 44,578 | 594,417 | 638,995 | 47,871 | 606,601 | 654,472 | 51,479 | 630,129 | 681,609 | 1.65% | 1.43% | 1.45% | 2.37% | 1.85% | 1.89% | 3.12% | 2.21% | 2.28% |
| 2021 | 45,361 | 602,840 | 648,201 | 49,049 | 617,764 | 666,813 | 53,155 | 643,941 | 697,096 | 1.76% | 1.42% | 1.44% | 2.46% | 1.84% | 1.89% | 3.26% | 2.19% | 2.27% |
| 2022 | 45,895 | 611,590 | 657,485 | 49,997 | 629,313 | 679,311 | 54,669 | 658,180 | 712,849 | 1.18% | 1.45% | 1.43% | 1.93% | 1.87% | 1.87% | 2.85% | 2.12% | 2.26% |
| 2023 | 46,446 | 620,474 | 666,920 | 50,939 | 641,139 | 692,078 | 56,211 | 672,780 | 728,991 | 1.20% | 1.45% | 1.43% | 1.88% | 1.88% | 1.88% | 2.82% | 2.22% | 2.26% |
| 2024 | 47,286 | 629,116 | 676,402 | 52,217 | 652,753 | 704,970 | 58,061 | 687,326 | 745,386 | 1.81% | 1.39% | 1.42% | 2.51% | 1.81% | 1.86% | 3.29% | 2.26% | 2.25% |
| 2025 | 48,555 | 637,477 | 686,032 | 54,002 | 664,116 | 718,118 | 60,532 | 701,629 | 762,161 | 2.68% | 1.33% | 1.42% | 3.42% | 1.74% | 1.87% | 4.26% | 2.08% | 2.25% |
| 2026 | 49,197 | 646,524 | 695,722 | 55,139 | 676,276 | 731,416 | 62,370 | 716,818 | 779,188 | 1.32% | 1.42% | 1.41% | 2.11% | 1.83% | 1.85% | 3.04% | 2.16% | 2.23% |
| 2027 | 49,939 | 655,591 | 705,530 | 56,334 | 688,633 | 744,967 | 64,355 | 732,261 | 796,617 | 1.51% | 1.40% | 1.41% | 2.17% | 1.83% | 1.85% | 3.18% | 2.15% | 2.24% |
| 2028 | 50,822 | 664,618 | 715,441 | 57,759 | 700,954 | 758,713 | 66,001 | 747,777 | 814,378 | 1.77% | 1.38% | 1.40% | 2.53% | 1.79% | 1.85% | 3.49% | 2.12% | 2.23% |
| 2029 | 51,537 | 673,918 | 725,455 | 59,096 | 713,574 | 772,670 | 68,794 | 763,675 | 832,468 | 1.41% | 1.40% | 1.40% | 2.31% | 1.80% | 1.84% | 3.29% | 2.13% | 2.22% |
| 2030 | 52,199 | 683,373 | 735,573 | 60,314 | 726,537 | 786,851 | 70,952 | 779,995 | 850,946 | 1.29% | 1.40% | 1.39% | 2.06% | 1.82% | 1.84% | 3.14% | 2.14% | 2.22% |
| 2031 | 52,499 | 691,245 | 743,744 | 60,852 | 737,775 | 798,627 | 71,689 | 794,924 | 866,613 | 0.57% | 1.15% | 1.11% | 0.89% | 1.55% | 1.50% | 1.04% | 1.91% | 1.84% |
| 2032 | 53,164 | 700,920 | 754,083 | 62,084 | 751,157 | 813,241 | 73,929 | 811,848 | 885,776 | 1.27% | 1.40% | 1.39% | 2.02% | 1.81% | 1.83% | 3.12% | 2.13% | 2.21% |

| Therm Usage by Class | | | | | | | | | | | | Annual Change | | | | | | |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------|---------|---------------|--------|---------|-------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 28,051,701 | 20,569,732 | 48,621,433 | 29,578,004 | 20,531,969 | 50,109,973 | 29,716,440 | 20,679,453 | 50,395,893 | 4.41% | 9.37% | 6.46% | 6.83% | 10.26% | 8.21% | 10.61% | 11.26% | 10.88% |
| 2013 | 28,095,302 | 20,560,620 | 48,595,907 | 29,716,440 | 20,560,620 | 50,281,960 | 29,986,215 | 21,004,520 | 50,990,735 | 0.16% | -0.34% | -0.05% | 0.47% | 0.16% | 0.34% | 0.91% | 1.57% | 1.18% |
| 2014 | 28,077,710 | 20,530,631 | 48,607,773 | 29,627,680 | 20,724,929 | 50,352,609 | 30,180,234 | 21,426,854 | 51,607,088 | -0.06% | 0.14% | 0.02% | -0.30% | 0.78% | 0.14% | 0.65% | 2.01% | 1.21% |
| 2015 | 28,302,837 | 20,712,613 | 49,015,468 | 29,817,892 | 21,062,214 | 50,880,106 | 30,733,992 | 22,029,476 | 52,763,468 | 0.80% | 0.80% | 0.84% | 0.64% | 1.63% | 1.05% | 1.83% | 2.81% | 2.24% |
| 2016 | 28,726,880 | 21,118,966 | 49,844,976 | 30,400,512 | 21,678,160 | 52,078,672 | 31,459,575 | 22,905,800 | 54,365,375 | 1.50% | 1.96% | 1.69% | 1.95% | 2.92% | 2.36% | 2.36% | 3.98% | 3.04% |
| 2017 | 29,114,904 | 21,624,744 | 50,739,649 | 30,952,704 | 22,428,057 | 53,380,761 | 32,159,400 | 23,933,580 | 56,092,980 | 1.35% | 2.40% | 1.79% | 1.82% | 3.46% | 2.50% | 2.22% | 4.49% | 3.18% |
| 2018 | 29,426,958 | 21,965,724 | 51,392,683 | 31,473,845 | 22,985,133 | 54,458,978 | 32,831,532 | 24,811,721 | 57,643,253 | 1.07% | 1.58% | 1.29% | 1.68% | 2.48% | 2.02% | 2.09% | 3.67% | 2.76% |
| 2019 | 29,781,550 | 22,266,484 | 52,048,034 | 32,011,948 | 23,500,410 | 55,502,358 | 33,559,092 | 25,688,257 | 59,247,349 | 1.20% | 1.37% | 1.28% | 1.68% | 2.24% | 1.92% | 2.22% | 3.53% | 2.78% |
| 2020 | 30,182,475 | 22,724,402 | 52,906,877 | 32,581,044 | 24,234,335 | 56,815,379 | 34,302,906 | 26,795,070 | 61,097,976 | 1.35% | 2.06% | 1.65% | 1.81% | 3.12% | 2.37% | 2.22% | 4.31% | 3.12% |
| 2021 | 30,587,750 | 23,248,884 | 53,836,634 | 33,170,988 | 25,043,548 | 58,213,646 | 35,062,974 | 28,024,054 | 63,087,028 | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Bend



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

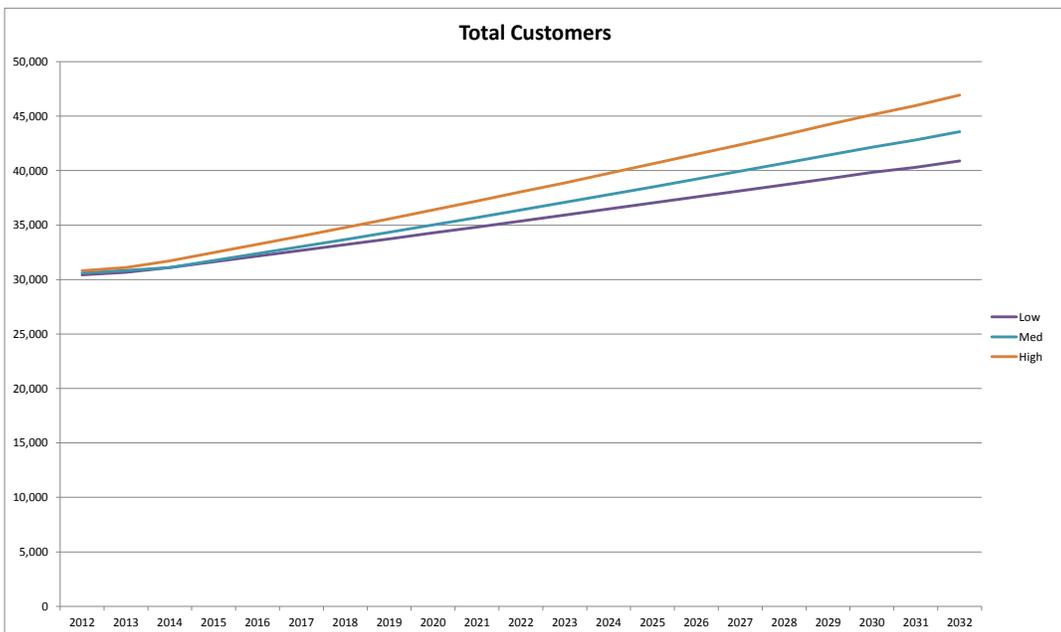
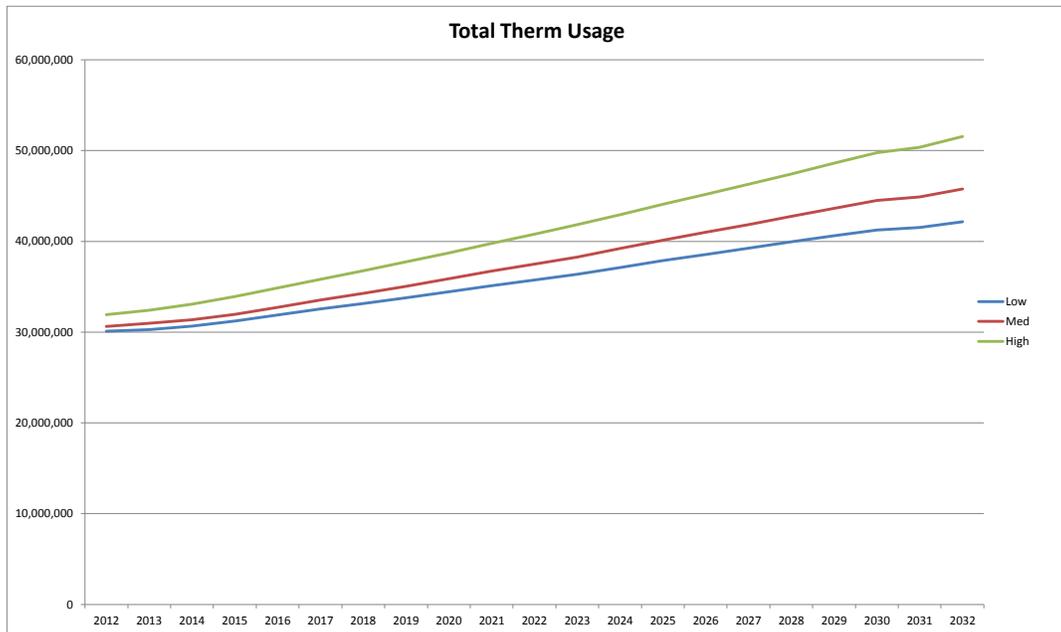
| Bremerton | | | | | | | | | | | | | | | | | | |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|---------|----------|-------|---------|----------|--------|---------|----------|--------|
| Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 17,725,253 | 12,387,095 | 30,112,348 | 18,036,697 | 12,604,745 | 30,641,442 | 18,783,742 | 13,126,809 | 31,910,551 | 7.58% | 7.58% | 7.58% | 10.14% | 10.14% | 10.14% | 14.38% | 14.38% | 14.38% |
| 2013 | 17,827,258 | 12,458,380 | 30,285,638 | 18,233,398 | 12,742,207 | 30,975,605 | 19,088,781 | 13,339,563 | 32,427,744 | 0.58% | 0.58% | 0.58% | 1.09% | 1.09% | 1.09% | 1.62% | 1.62% | 1.62% |
| 2014 | 18,047,201 | 12,612,085 | 30,659,286 | 18,462,593 | 12,902,377 | 31,364,971 | 19,466,727 | 13,604,105 | 33,070,832 | 1.23% | 1.23% | 1.23% | 1.26% | 1.26% | 1.26% | 1.98% | 1.98% | 1.98% |
| 2015 | 18,379,920 | 12,844,602 | 31,224,522 | 18,817,008 | 13,150,056 | 31,967,064 | 19,972,780 | 13,957,755 | 33,930,535 | 1.84% | 1.84% | 1.84% | 1.92% | 1.92% | 1.92% | 2.60% | 2.60% | 2.60% |
| 2016 | 18,778,254 | 13,122,974 | 31,901,228 | 19,270,469 | 13,466,952 | 32,737,421 | 20,515,970 | 14,337,357 | 34,853,327 | 2.17% | 2.17% | 2.17% | 2.41% | 2.41% | 2.41% | 2.72% | 2.72% | 2.72% |
| 2017 | 19,159,313 | 13,389,272 | 32,548,585 | 19,743,013 | 13,797,185 | 33,540,198 | 21,086,593 | 14,736,131 | 35,822,724 | 2.03% | 2.03% | 2.03% | 2.45% | 2.45% | 2.45% | 2.78% | 2.78% | 2.78% |
| 2018 | 19,513,107 | 13,636,517 | 33,149,625 | 20,176,536 | 14,100,147 | 34,276,683 | 21,634,750 | 15,119,204 | 36,753,954 | 1.85% | 1.85% | 1.85% | 2.20% | 2.20% | 2.20% | 2.60% | 2.60% | 2.60% |
| 2019 | 19,890,009 | 13,899,911 | 33,789,920 | 20,634,378 | 14,420,105 | 35,054,482 | 22,214,421 | 15,524,301 | 37,736,722 | 1.93% | 1.93% | 1.93% | 2.27% | 2.27% | 2.27% | 2.68% | 2.68% | 2.68% |
| 2020 | 20,282,082 | 14,173,907 | 34,455,989 | 21,128,532 | 14,765,439 | 35,893,971 | 22,801,206 | 15,934,369 | 38,735,574 | 1.97% | 1.97% | 1.97% | 2.39% | 2.39% | 2.39% | 2.64% | 2.64% | 2.64% |
| 2021 | 20,674,772 | 14,448,334 | 35,123,106 | 21,611,235 | 15,102,771 | 36,714,006 | 23,417,397 | 16,364,987 | 39,782,383 | 1.94% | 1.94% | 1.94% | 2.28% | 2.28% | 2.28% | 2.70% | 2.70% | 2.70% |
| 2022 | 21,041,332 | 14,704,501 | 35,745,833 | 22,067,318 | 15,421,499 | 37,488,816 | 24,014,279 | 16,782,111 | 40,796,391 | 1.77% | 1.77% | 1.77% | 2.11% | 2.11% | 2.11% | 2.55% | 2.55% | 2.55% |
| 2023 | 21,411,893 | 14,963,463 | 36,375,355 | 22,532,735 | 15,746,751 | 38,279,486 | 24,621,875 | 17,206,723 | 41,828,597 | 1.76% | 1.76% | 1.76% | 2.11% | 2.11% | 2.11% | 2.53% | 2.53% | 2.53% |
| 2024 | 21,853,801 | 15,272,285 | 37,126,085 | 23,076,447 | 16,126,718 | 39,203,165 | 25,274,859 | 17,663,054 | 42,937,913 | 2.06% | 2.06% | 2.06% | 2.41% | 2.41% | 2.41% | 2.65% | 2.65% | 2.65% |
| 2025 | 22,307,501 | 15,589,348 | 37,896,850 | 23,627,829 | 16,512,045 | 40,139,874 | 25,944,911 | 18,131,312 | 44,076,222 | 2.08% | 2.08% | 2.08% | 2.39% | 2.39% | 2.39% | 2.65% | 2.65% | 2.65% |
| 2026 | 22,700,152 | 15,863,748 | 38,563,901 | 24,126,020 | 16,860,200 | 40,986,220 | 26,582,328 | 18,576,764 | 45,159,091 | 1.76% | 1.76% | 1.76% | 2.11% | 2.11% | 2.11% | 2.46% | 2.46% | 2.46% |
| 2027 | 23,096,640 | 16,140,829 | 39,237,469 | 24,630,788 | 17,212,951 | 41,843,739 | 27,249,174 | 19,042,782 | 46,291,956 | 1.75% | 1.75% | 1.75% | 2.09% | 2.09% | 2.09% | 2.51% | 2.51% | 2.51% |
| 2028 | 23,507,980 | 16,428,290 | 39,936,270 | 25,175,209 | 17,593,414 | 42,768,624 | 27,920,798 | 19,512,138 | 47,432,936 | 1.78% | 1.78% | 1.78% | 2.21% | 2.21% | 2.21% | 2.46% | 2.46% | 2.46% |
| 2029 | 23,905,490 | 16,706,085 | 40,611,576 | 25,686,948 | 17,951,037 | 43,637,985 | 28,612,492 | 19,995,521 | 48,608,013 | 1.69% | 1.69% | 1.69% | 2.03% | 2.03% | 2.03% | 2.48% | 2.48% | 2.48% |
| 2030 | 24,285,659 | 16,971,762 | 41,257,421 | 26,189,751 | 18,302,415 | 44,492,166 | 29,294,303 | 20,471,997 | 49,766,299 | 1.59% | 1.59% | 1.59% | 1.96% | 1.96% | 1.96% | 2.38% | 2.38% | 2.38% |
| 2031 | 24,434,681 | 17,075,904 | 41,510,585 | 26,432,176 | 18,471,832 | 44,904,008 | 29,654,050 | 20,723,402 | 50,377,452 | 0.61% | 0.61% | 0.61% | 0.93% | 0.93% | 0.93% | 1.23% | 1.23% | 1.23% |
| 2032 | 24,817,460 | 17,343,405 | 42,160,865 | 26,939,847 | 18,826,612 | 45,766,459 | 30,354,963 | 21,213,228 | 51,568,191 | 1.57% | 1.57% | 1.57% | 1.92% | 1.92% | 1.92% | 2.36% | 2.36% | 2.36% |

| Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | | |
|---------------------|----------------|---------|-----------------|----------------|---------|-----------------|----------------|---------|-----------------|-------|--------|--------|--------|--------|--------|--------|--------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 33,937 | 310,538 | 344,475 | 34,534 | 311,667 | 346,200 | 35,964 | 312,715 | 348,679 | 7.58% | -1.32% | -0.51% | 10.14% | -1.02% | -0.01% | 14.38% | -0.66% | 0.70% |
| 2013 | 34,133 | 312,790 | 346,922 | 34,910 | 314,105 | 349,015 | 36,547 | 315,424 | 351,971 | 0.58% | 0.73% | 0.71% | 1.09% | 0.78% | 0.81% | 1.62% | 0.87% | 0.94% |
| 2014 | 34,554 | 313,328 | 351,882 | 35,349 | 316,484 | 351,833 | 37,272 | 321,755 | 358,847 | 1.23% | 1.45% | 1.43% | 1.26% | 0.76% | 0.81% | 1.98% | 1.95% | 1.95% |
| 2015 | 35,191 | 322,590 | 357,780 | 36,028 | 323,017 | 359,045 | 38,240 | 329,095 | 367,335 | 1.84% | 1.66% | 1.68% | 1.92% | 2.06% | 2.05% | 2.60% | 2.34% | 2.37% |
| 2016 | 35,953 | 327,758 | 363,711 | 36,896 | 329,429 | 366,325 | 39,280 | 336,658 | 373,938 | 2.17% | 1.60% | 1.66% | 2.41% | 1.98% | 2.03% | 2.72% | 2.30% | 2.34% |
| 2017 | 36,683 | 333,002 | 369,685 | 37,801 | 335,884 | 373,684 | 40,373 | 344,306 | 384,679 | 2.03% | 1.60% | 1.64% | 2.45% | 1.96% | 2.01% | 2.78% | 2.27% | 2.33% |
| 2018 | 37,360 | 338,340 | 375,701 | 38,631 | 342,504 | 381,135 | 41,422 | 352,149 | 393,572 | 1.85% | 1.60% | 1.63% | 2.20% | 1.97% | 1.99% | 2.60% | 2.28% | 2.31% |
| 2019 | 38,082 | 343,664 | 381,746 | 39,507 | 349,154 | 388,661 | 42,532 | 360,032 | 402,564 | 1.93% | 1.57% | 1.61% | 2.27% | 1.94% | 1.97% | 2.68% | 2.24% | 2.28% |
| 2020 | 38,833 | 348,998 | 387,831 | 40,453 | 355,826 | 396,279 | 43,566 | 368,054 | 411,710 | 1.97% | 1.55% | 1.59% | 2.39% | 1.91% | 1.96% | 2.64% | 2.23% | 2.27% |
| 2021 | 39,584 | 354,362 | 393,947 | 41,377 | 362,587 | 403,965 | 44,836 | 376,148 | 420,984 | 1.94% | 1.54% | 1.58% | 2.28% | 1.90% | 1.94% | 2.70% | 2.20% | 2.25% |
| 2022 | 40,286 | 359,830 | 400,116 | 42,251 | 369,504 | 411,754 | 45,798 | 384,445 | 430,424 | 1.77% | 1.54% | 1.57% | 2.11% | 1.91% | 1.93% | 2.55% | 2.21% | 2.24% |
| 2023 | 40,996 | 365,321 | 406,317 | 43,142 | 376,491 | 419,633 | 47,142 | 392,846 | 439,987 | 1.76% | 1.53% | 1.55% | 2.11% | 1.89% | 1.91% | 2.53% | 2.19% | 2.22% |
| 2024 | 41,842 | 370,726 | 412,568 | 44,183 | 383,393 | 427,576 | 48,392 | 401,279 | 449,671 | 2.06% | 1.48% | 1.54% | 2.41% | 1.83% | 1.89% | 2.65% | 2.15% | 2.20% |
| 2025 | 42,711 | 376,136 | 418,846 | 45,238 | 390,368 | 435,607 | 49,675 | 409,831 | 459,506 | 2.08% | 1.46% | 1.52% | 2.39% | 1.82% | 1.88% | 2.65% | 2.13% | 2.19% |
| 2026 | 43,462 | 381,689 | 425,151 | 46,192 | 397,531 | 443,724 | 50,895 | 418,565 | 469,460 | 1.76% | 1.48% | 1.51% | 2.11% | 1.83% | 1.86% | 2.46% | 2.13% | 2.17% |
| 2027 | 44,221 | 387,272 | 431,493 | 47,159 | 404,755 | 451,914 | 52,172 | 427,388 | 479,560 | 1.75% | 1.46% | 1.49% | 2.09% | 1.82% | 1.85% | 2.51% | 2.11% | 2.15% |
| 2028 | 45,009 | 392,851 | 437,860 | 48,201 | 411,978 | 460,180 | 53,458 | 436,327 | 489,785 | 1.78% | 1.44% | 1.48% | 2.21% | 1.78% | 1.83% | 2.46% | 2.09% | 2.13% |
| 2029 | 45,770 | 398,494 | 444,264 | 49,181 | 419,338 | 468,519 | 54,782 | 445,372 | 500,154 | 1.69% | 1.44% | 1.46% | 2.03% | 1.79% | 1.81% | 2.48% | 2.07% | 2.12% |
| 2030 | 46,498 | 404,196 | 450,694 | 50,144 | 426,813 | 476,957 | 56,088 | 454,584 | 510,672 | 1.59% | 1.43% | 1.45% | 1.96% | 1.78% | 1.80% | 2.38% | 2.07% | 2.10% |
| 2031 | 46,783 | 409,319 | 456,102 | 50,608 | 433,669 | 484,277 | 56,776 | 463,253 | 520,029 | 0.61% | 1.27% | 1.20% | 0.93% | 1.61% | 1.53% | 1.23% | 1.91% | 1.83% |
| 2032 | 47,516 | 415,121 | 462,637 | 51,580 | 441,334 | 492,914 | 58,118 | 472,755 | 530,874 | 1.57% | 1.42% | 1.43% | 1.92% | 1.77% | 1.78% | 2.36% | 2.05% | 2.09% |

| Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | | |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|--------|---------|-------|--------|---------|--------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 19,735,198 | 10,377,150 | 30,112,348 | 20,060,172 | 10,581,270 | 30,641,442 | 21,122,250 | 10,788,301 | 31,910,551 | 6.84% | 9.03% | 7.58% | 9.60% | 11.20% | 10.14% | 14.35% | 14.45% | 14.38% |
| 2013 | 19,580,994 | 10,704,644 | 30,285,638 | 20,005,670 | 11,179,935 | 31,179,605 | 21,177,450 | 11,250,294 | 32,427,744 | -0.78% | 3.16% | 0.58% | -0.27% | 3.67% | 1.09% | 0.26% | 4.28% | 1.62% |
| 2014 | 19,600,830 | 11,058,456 | 30,659,286 | 20,005,216 | 11,359,755 | 31,364,971 | 21,386,742 | 11,684,900 | 33,070,832 | 0.10% | 3.31% | 1.23% | 0.00% | 3.55% | 1.26% | 0.99% | 3.86% | 1.98% |
| 2015 | 19,815,141 | 11,409,381 | 31,224,522 | 20,217,400 | 11,749,664 | 31,967,064 | 21,811,585 | 12,118,950 | 33,930,535 | 1.09% | 3.17% | 1.84% | 1.06% | 3.43% | 1.92% | 0.99% | 3.72% | 2.60% |
| 2016 | 20,145,328 | 11,755,900 | 31,901,228 | 20,603,100 | 12,134,321 | 32,737,421 | 22,300,802 | 12,552,524 | 34,853,327 | 1.67% | 3.04% | 2.17% | 1.91% | 3.27% | 2.41% | 2.24% | 3.58% | 2.72% |
| 2017 | 20,448,736 | 12,099,849 | 32,548,585 | 21,022,990 | 12,517,208 | 33,540,198 | 22,829,000 | 12,993,724 | 35,822,724 | 1.51% | 2.93% | 2.03% | 2.04% | 3.16% | 2.45% | 2.37% | 3.51% | 2.78% |
| 2018 | 20,869,876 | 12,455,740 | 33,325,616 | 21,357,246 | 12,919,437 | 34,276,683 | 23,304,365 | 13,449,589 | 36,753,954 | 1.20% | 2.94% | 1.85% | 1.59% | 3.21% | 2.20% | 2.08% | 3.51% | 2.60% |
| 2019 | 20,929,220 | 12,820,700 | 33,749,920 | 21,724,552 | 13,329,930 | 35,054,482 | 23,816,492 | 13,922,230 | 37,736,722 | 1.33% | 2.93% | 1.93% | 1.72% | 3.18% | 2.27% | 2.20% | 3.51% | 2.68% |
| 2020 | 21,276,785 | 13,179,204 | 34,455,989 | 22,158,999 | 13,734,972 | 35,893,971 | 24,337,487 | 14,398,087 | 38,735,574 | 1.47% | 2.80% | 1.97% | 2.00% | 3.04% | 2.39% | 2.19% | 3.42% | 2.64% |
| 2021 | 21,585,720 | 13,537,386 | 35,123,106 | 22,565,817 | 14,148,189 | 36,714,006 | 24,899,520 | 14,882,863 | 39,782,383</ | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Bremerton



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

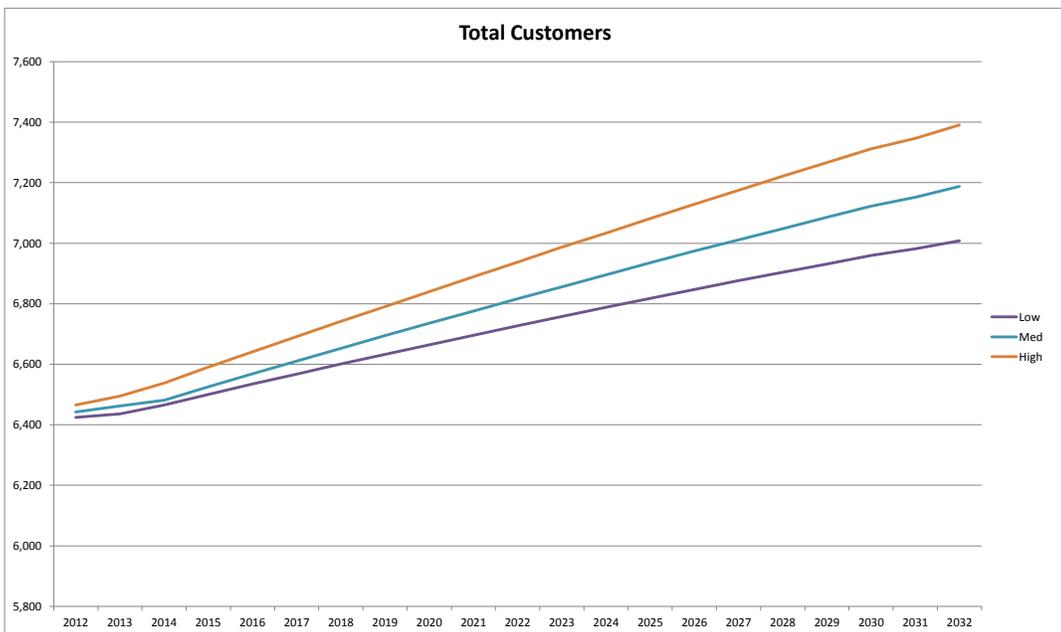
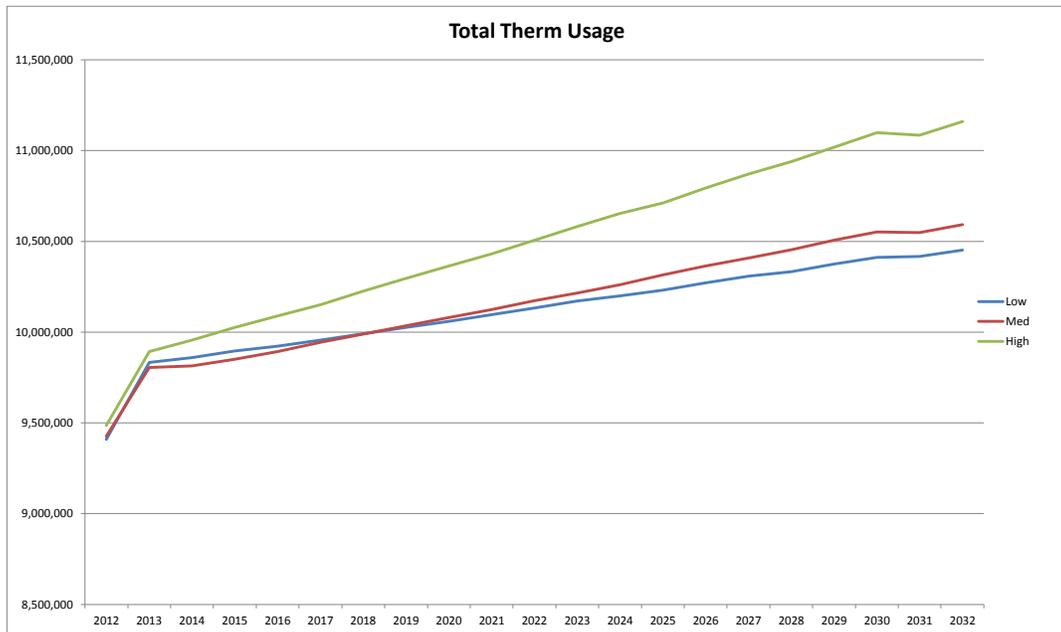
| Aberdeen | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|-----------|-----------|------------|-----------|-----------|------------|-----------|-----------|------------|---------|----------|-------|---------|----------|---------------|---------|----------|--------|--|--|--|--|--|--|--|--|--|--|--|
| Annual Requirements (Therms) | | | | | | | | | | | | | | | Annual Change | | | | | | | | | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | | | | | | | | | | | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | | | | | | | | | | | |
| 2012 | 6,487,852 | 2,920,569 | 9,408,421 | 6,499,983 | 2,926,030 | 9,426,013 | 6,541,100 | 2,944,539 | 9,485,640 | 1.40% | 1.40% | 1.40% | 1.81% | 1.81% | 1.81% | 2.24% | 2.24% | 2.24% | | | | | | | | | | | |
| 2013 | 6,780,413 | 3,052,268 | 9,832,681 | 6,761,811 | 3,043,894 | 9,805,706 | 6,821,884 | 3,070,936 | 9,892,820 | 4.51% | 4.51% | 4.51% | 4.03% | 4.03% | 4.03% | 4.29% | 4.29% | 4.29% | | | | | | | | | | | |
| 2014 | 6,799,266 | 3,060,755 | 9,860,021 | 6,767,967 | 3,046,665 | 9,814,632 | 6,865,687 | 3,090,655 | 9,956,341 | 0.28% | 0.28% | 0.28% | 0.09% | 0.09% | 0.09% | 0.64% | 0.64% | 0.64% | | | | | | | | | | | |
| 2015 | 6,824,422 | 3,072,079 | 9,896,501 | 6,792,935 | 3,057,905 | 9,850,841 | 6,913,330 | 3,112,102 | 10,025,432 | 0.37% | 0.37% | 0.37% | 0.37% | 0.37% | 0.37% | 0.69% | 0.69% | 0.69% | | | | | | | | | | | |
| 2016 | 6,842,355 | 3,080,152 | 9,922,507 | 6,821,820 | 3,070,908 | 9,892,728 | 6,957,055 | 3,131,785 | 10,088,840 | 0.26% | 0.26% | 0.26% | 0.43% | 0.43% | 0.43% | 0.63% | 0.63% | 0.63% | | | | | | | | | | | |
| 2017 | 6,865,395 | 3,090,523 | 9,955,919 | 6,856,860 | 3,086,681 | 9,943,541 | 7,000,052 | 3,151,141 | 10,151,193 | 0.34% | 0.34% | 0.34% | 0.51% | 0.51% | 0.51% | 0.62% | 0.62% | 0.62% | | | | | | | | | | | |
| 2018 | 6,890,077 | 3,101,634 | 9,991,711 | 6,888,620 | 3,100,978 | 9,989,598 | 7,051,117 | 3,174,128 | 10,225,245 | 0.36% | 0.36% | 0.36% | 0.46% | 0.46% | 0.46% | 0.73% | 0.73% | 0.73% | | | | | | | | | | | |
| 2019 | 6,913,825 | 3,112,325 | 10,026,150 | 6,920,352 | 3,115,263 | 10,035,615 | 7,099,777 | 3,196,033 | 10,295,810 | 0.34% | 0.34% | 0.34% | 0.46% | 0.46% | 0.46% | 0.69% | 0.69% | 0.69% | | | | | | | | | | | |
| 2020 | 6,936,532 | 3,122,546 | 10,059,078 | 6,950,615 | 3,128,886 | 10,079,501 | 7,147,034 | 3,217,306 | 10,364,339 | 0.33% | 0.33% | 0.33% | 0.44% | 0.44% | 0.44% | 0.67% | 0.67% | 0.67% | | | | | | | | | | | |
| 2021 | 6,962,545 | 3,134,256 | 10,096,801 | 6,980,990 | 3,142,560 | 10,123,549 | 7,193,291 | 3,238,129 | 10,431,420 | 0.38% | 0.38% | 0.38% | 0.44% | 0.44% | 0.44% | 0.65% | 0.65% | 0.65% | | | | | | | | | | | |
| 2022 | 6,987,905 | 3,145,672 | 10,133,577 | 7,015,038 | 3,157,887 | 10,172,925 | 7,245,121 | 3,261,461 | 10,506,582 | 0.36% | 0.36% | 0.36% | 0.49% | 0.49% | 0.49% | 0.72% | 0.72% | 0.72% | | | | | | | | | | | |
| 2023 | 7,014,028 | 3,157,432 | 10,171,460 | 7,044,230 | 3,171,028 | 10,215,258 | 7,296,727 | 3,284,692 | 10,581,419 | 0.37% | 0.37% | 0.37% | 0.42% | 0.42% | 0.42% | 0.71% | 0.71% | 0.71% | | | | | | | | | | | |
| 2024 | 7,032,969 | 3,165,958 | 10,198,927 | 7,075,616 | 3,185,157 | 10,260,773 | 7,346,425 | 3,307,064 | 10,653,488 | 0.27% | 0.27% | 0.27% | 0.45% | 0.45% | 0.45% | 0.68% | 0.68% | 0.68% | | | | | | | | | | | |
| 2025 | 7,054,925 | 3,175,842 | 10,230,767 | 7,112,823 | 3,201,906 | 10,314,729 | 7,386,741 | 3,325,212 | 10,711,953 | 0.31% | 0.31% | 0.31% | 0.53% | 0.53% | 0.53% | 0.55% | 0.55% | 0.55% | | | | | | | | | | | |
| 2026 | 7,082,465 | 3,188,240 | 10,270,705 | 7,146,669 | 3,217,142 | 10,363,811 | 7,443,031 | 3,350,552 | 10,793,583 | 0.39% | 0.39% | 0.39% | 0.48% | 0.48% | 0.48% | 0.76% | 0.76% | 0.76% | | | | | | | | | | | |
| 2027 | 7,107,871 | 3,199,676 | 10,307,547 | 7,177,338 | 3,230,948 | 10,408,286 | 7,495,752 | 3,374,285 | 10,870,037 | 0.36% | 0.36% | 0.36% | 0.43% | 0.43% | 0.43% | 0.71% | 0.71% | 0.71% | | | | | | | | | | | |
| 2028 | 7,125,649 | 3,207,679 | 10,333,328 | 7,208,600 | 3,245,021 | 10,453,621 | 7,543,761 | 3,395,897 | 10,939,658 | 0.25% | 0.25% | 0.25% | 0.44% | 0.44% | 0.44% | 0.64% | 0.64% | 0.64% | | | | | | | | | | | |
| 2029 | 7,154,446 | 3,220,643 | 10,375,089 | 7,244,366 | 3,261,121 | 10,505,486 | 7,597,864 | 3,420,251 | 11,018,116 | 0.40% | 0.40% | 0.40% | 0.50% | 0.50% | 0.50% | 0.72% | 0.72% | 0.72% | | | | | | | | | | | |
| 2030 | 7,180,017 | 3,232,154 | 10,412,171 | 7,275,954 | 3,275,340 | 10,551,294 | 7,653,217 | 3,445,169 | 11,098,386 | 0.36% | 0.36% | 0.36% | 0.44% | 0.44% | 0.44% | 0.73% | 0.73% | 0.73% | | | | | | | | | | | |
| 2031 | 7,183,206 | 3,233,589 | 10,416,795 | 7,273,486 | 3,274,230 | 10,547,716 | 7,644,046 | 3,441,041 | 11,085,087 | 0.04% | 0.04% | 0.04% | -0.03% | -0.03% | -0.03% | -0.12% | -0.12% | -0.12% | | | | | | | | | | | |
| 2032 | 7,207,560 | 3,244,552 | 10,452,113 | 7,304,234 | 3,288,071 | 10,592,306 | 7,695,209 | 3,464,072 | 11,159,282 | 0.34% | 0.34% | 0.34% | 0.42% | 0.42% | 0.42% | 0.67% | 0.67% | 0.67% | | | | | | | | | | | |

| Peak Day - Baseload | | | | | | | | | | | | | | | Annual Change | | | | | | | | | | | | | |
|---------------------|----------------|--------|-----------------|----------------|--------|-----------------|----------------|--------|-----------------|-------|--------|-------|--------|--------|---------------|--------|-------|-------|--|--|--|--|--|--|--|--|--|--|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | | | | | | | | | | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total | | | | | | | | | | |
| 2012 | 8,002 | 73,239 | 81,240 | 8,017 | 73,449 | 81,466 | 8,067 | 73,690 | 81,757 | 1.40% | 0.27% | 0.38% | 1.81% | 0.54% | 0.66% | 2.24% | 0.89% | 1.02% | | | | | | | | | | |
| 2013 | 8,362 | 73,030 | 81,392 | 8,339 | 73,375 | 81,715 | 8,414 | 73,723 | 82,137 | 4.51% | -0.28% | 0.19% | 4.03% | -0.10% | 0.31% | 4.29% | 0.05% | 0.46% | | | | | | | | | | |
| 2014 | 8,386 | 73,376 | 81,761 | 8,347 | 73,617 | 81,964 | 8,468 | 74,213 | 82,681 | 0.28% | 0.47% | 0.45% | 0.09% | 0.33% | 0.31% | 0.64% | 0.66% | 0.66% | | | | | | | | | | |
| 2015 | 8,417 | 73,779 | 82,196 | 8,378 | 74,142 | 82,520 | 8,526 | 74,816 | 83,342 | 0.37% | 0.55% | 0.53% | 0.37% | 0.71% | 0.68% | 0.69% | 0.81% | 0.80% | | | | | | | | | | |
| 2016 | 8,439 | 74,193 | 82,632 | 8,413 | 74,651 | 83,064 | 8,580 | 75,398 | 83,979 | 0.26% | 0.56% | 0.53% | 0.43% | 0.69% | 0.66% | 0.63% | 0.87% | 0.76% | | | | | | | | | | |
| 2017 | 8,467 | 74,576 | 83,043 | 8,457 | 75,140 | 83,596 | 8,633 | 75,982 | 84,615 | 0.34% | 0.52% | 0.50% | 0.51% | 0.65% | 0.64% | 0.62% | 0.77% | 0.76% | | | | | | | | | | |
| 2018 | 8,498 | 74,972 | 83,469 | 8,496 | 75,635 | 84,131 | 8,696 | 76,560 | 85,256 | 0.36% | 0.53% | 0.51% | 0.46% | 0.66% | 0.64% | 0.73% | 0.76% | 0.76% | | | | | | | | | | |
| 2019 | 8,527 | 75,343 | 83,870 | 8,535 | 76,118 | 84,653 | 8,756 | 77,114 | 85,870 | 0.34% | 0.50% | 0.48% | 0.46% | 0.64% | 0.62% | 0.69% | 0.72% | 0.72% | | | | | | | | | | |
| 2020 | 8,555 | 75,717 | 84,272 | 8,572 | 76,604 | 85,176 | 8,815 | 77,684 | 86,499 | 0.33% | 0.50% | 0.48% | 0.44% | 0.64% | 0.62% | 0.67% | 0.74% | 0.73% | | | | | | | | | | |
| 2021 | 8,587 | 76,088 | 84,675 | 8,610 | 77,078 | 85,687 | 8,872 | 78,244 | 87,116 | 0.38% | 0.49% | 0.48% | 0.44% | 0.62% | 0.60% | 0.65% | 0.72% | 0.71% | | | | | | | | | | |
| 2022 | 8,618 | 76,448 | 85,066 | 8,620 | 77,548 | 86,200 | 8,936 | 78,799 | 87,734 | 0.36% | 0.47% | 0.46% | 0.49% | 0.61% | 0.60% | 0.72% | 0.71% | 0.71% | | | | | | | | | | |
| 2023 | 8,650 | 76,807 | 85,457 | 8,688 | 78,011 | 86,699 | 8,999 | 79,352 | 88,352 | 0.37% | 0.47% | 0.46% | 0.42% | 0.60% | 0.58% | 0.71% | 0.70% | 0.70% | | | | | | | | | | |
| 2024 | 8,674 | 77,163 | 85,836 | 8,726 | 78,473 | 87,199 | 9,060 | 79,885 | 88,945 | 0.27% | 0.46% | 0.44% | 0.45% | 0.59% | 0.58% | 0.68% | 0.67% | 0.67% | | | | | | | | | | |
| 2025 | 8,701 | 77,515 | 86,216 | 8,772 | 78,928 | 87,700 | 9,110 | 80,443 | 89,553 | 0.31% | 0.46% | 0.44% | 0.53% | 0.58% | 0.57% | 0.55% | 0.70% | 0.68% | | | | | | | | | | |
| 2026 | 8,735 | 77,849 | 86,584 | 8,814 | 79,375 | 88,189 | 9,180 | 80,969 | 90,149 | 0.39% | 0.43% | 0.43% | 0.48% | 0.57% | 0.56% | 0.76% | 0.65% | 0.67% | | | | | | | | | | |
| 2027 | 8,766 | 78,186 | 86,952 | 8,852 | 79,814 | 88,666 | 9,245 | 81,487 | 90,731 | 0.36% | 0.43% | 0.42% | 0.43% | 0.55% | 0.54% | 0.71% | 0.64% | 0.65% | | | | | | | | | | |
| 2028 | 8,788 | 78,519 | 87,307 | 8,980 | 80,239 | 89,129 | 9,304 | 82,011 | 91,314 | 0.25% | 0.43% | 0.41% | 0.44% | 0.53% | 0.52% | 0.64% | 0.64% | 0.64% | | | | | | | | | | |
| 2029 | 8,824 | 78,827 | 87,651 | 8,935 | 80,672 | 89,607 | 9,371 | 82,516 | 91,886 | 0.40% | 0.39% | 0.39% | 0.50% | 0.54% | 0.54% | 0.72% | 0.62% | 0.63% | | | | | | | | | | |
| 2030 | 8,855 | 79,152 | 88,007 | 8,974 | 81,099 | 90,072 | 9,439 | 83,020 | 92,459 | 0.36% | 0.41% | 0.41% | 0.44% | 0.53% | 0.52% | 0.73% | 0.61% | 0.62% | | | | | | | | | | |
| 2031 | 8,859 | 79,426 | 88,285 | 8,970 | 81,468 | 90,439 | 9,428 | 83,474 | 92,902 | 0.04% | 0.35% | 0.32% | -0.03% | 0.46% | 0.41% | -0.12% | 0.55% | 0.48% | | | | | | | | | | |
| 2032 | 8,889 | 79,726 | 88,616 | 9,008 | 81,882 | 90,890 | 9,491 | 83,969 | 93,460 | 0.34% | 0.38% | 0.37% | 0.42% | 0.51% | 0.50% | 0.67% | 0.59% | 0.60% | | | | | | | | | | |

| Therm Usage by Class | | | | | | | | | | | | | | | Annual Change | | | | | | | | | | | | | |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|---------|-------|--------|---------|---------------|-------|---------|-------|--|--|--|--|--|--|--|--|--|--|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | | | | | | | | | | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | | | | | | | | | | |
| 2012 | 3,546,588 | 5,861,833 | 9,408,421 | 3,485,453 | 5,940,560 | 9,426,013 | 3,565,460 | 5,920,180 | 9,485,640 | 0.29% | 2.08% | 1.40% | 0.50% | 2.60% | 1.81% | 0.82% | 3.12% | 2.24% | | | | | | | | | | |
| 2013 | 3,947,979 | 5,884,702 | 9,832,681 | 3,859,510 | 5,946,196 | 9,805,706 | 3,909,632 | 5,983,188 | 9,892,820 | 11.32% | 0.39% | 0.33% | 10.73% | 0.09% | 4.03% | 9.65% | 1.06% | 4.29% | | | | | | | | | | |
| 2014 | 3,956,589 | 5,903,162 | 9,860,021 | 3,853,227 | 5,960,805 | 9,814,632 | 3,908 | | | | | | | | | | | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Aberdeen



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

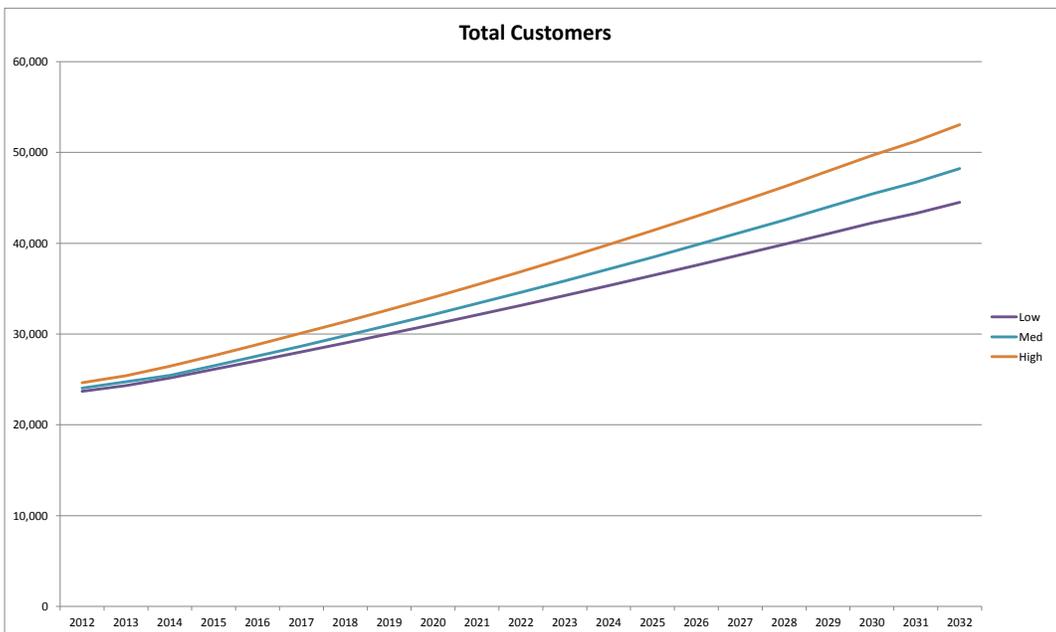
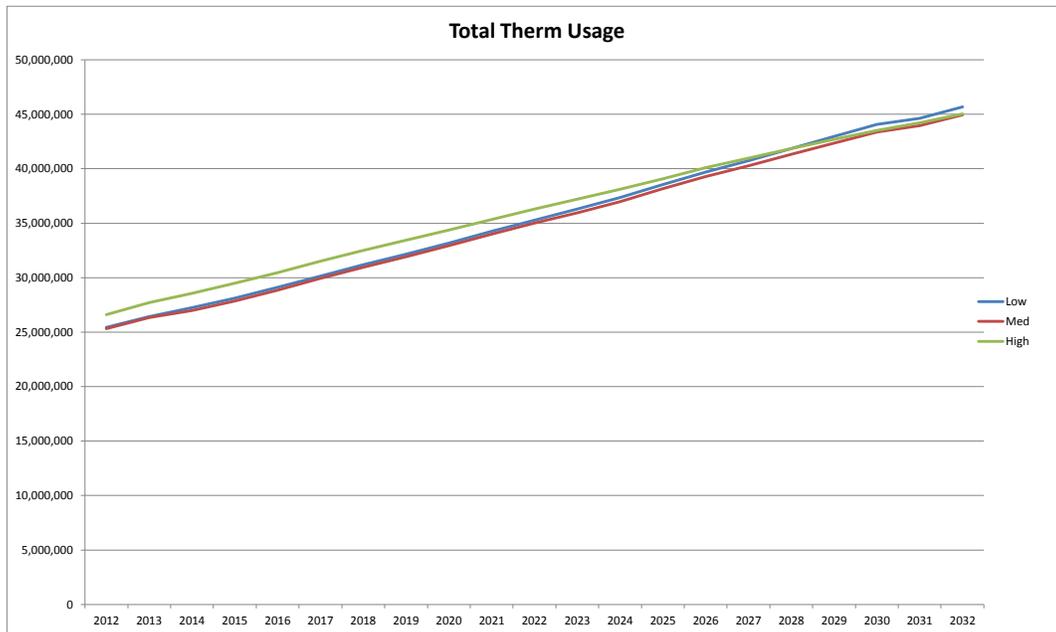
| Kennewick | | | | | | | | | | | | | | | | | | |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|----------|-------|---------|----------|-------|---------|----------|--------|
| Annual Requirements (Therms) | | | | | | | | | | Annual Change | | | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 17,954,327 | 7,473,164 | 25,427,491 | 17,883,684 | 7,443,760 | 25,327,443 | 18,782,115 | 7,817,715 | 26,599,830 | 5.83% | 5.83% | 5.83% | 7.66% | 7.66% | 7.66% | 10.30% | 10.30% | 10.30% |
| 2013 | 18,660,877 | 7,767,252 | 26,428,130 | 18,598,781 | 7,741,406 | 26,340,188 | 19,574,893 | 8,147,695 | 27,722,587 | 3.94% | 3.94% | 3.94% | 4.00% | 4.00% | 4.00% | 4.22% | 4.22% | 4.22% |
| 2014 | 19,238,713 | 8,007,766 | 27,246,480 | 19,049,743 | 7,929,111 | 26,978,853 | 20,165,100 | 8,393,358 | 28,558,458 | 3.10% | 3.10% | 3.10% | 2.42% | 2.42% | 2.42% | 3.02% | 3.02% | 3.02% |
| 2015 | 19,862,436 | 8,267,379 | 28,129,815 | 19,679,187 | 8,191,105 | 27,870,293 | 20,826,383 | 8,668,605 | 29,494,988 | 3.24% | 3.24% | 3.24% | 3.30% | 3.30% | 3.30% | 3.28% | 3.28% | 3.28% |
| 2016 | 20,556,852 | 8,556,417 | 29,113,269 | 20,375,909 | 8,481,103 | 28,857,012 | 21,512,734 | 8,954,286 | 30,467,021 | 3.50% | 3.50% | 3.50% | 3.54% | 3.54% | 3.54% | 3.30% | 3.30% | 3.30% |
| 2017 | 21,286,552 | 8,860,142 | 30,146,694 | 21,131,071 | 8,795,426 | 29,926,497 | 22,245,724 | 9,259,380 | 31,505,103 | 3.55% | 3.55% | 3.55% | 3.71% | 3.71% | 3.71% | 3.41% | 3.41% | 3.41% |
| 2018 | 22,014,575 | 9,163,168 | 31,177,744 | 21,848,648 | 9,094,104 | 30,942,752 | 22,945,085 | 9,550,476 | 32,495,561 | 3.42% | 3.42% | 3.42% | 3.40% | 3.40% | 3.40% | 3.14% | 3.14% | 3.14% |
| 2019 | 22,707,257 | 9,451,485 | 32,158,742 | 22,539,503 | 9,381,660 | 31,921,163 | 23,614,405 | 9,829,609 | 33,443,473 | 3.15% | 3.15% | 3.15% | 3.16% | 3.16% | 3.16% | 2.92% | 2.92% | 2.92% |
| 2020 | 23,427,863 | 9,751,424 | 33,179,287 | 23,250,630 | 9,677,654 | 32,928,284 | 24,262,925 | 10,099,003 | 34,361,928 | 3.17% | 3.17% | 3.17% | 3.16% | 3.16% | 3.16% | 2.75% | 2.75% | 2.75% |
| 2021 | 24,180,730 | 10,064,791 | 34,245,521 | 24,011,703 | 9,994,437 | 34,006,139 | 24,948,510 | 10,384,365 | 35,332,875 | 3.21% | 3.21% | 3.21% | 3.27% | 3.27% | 3.27% | 2.83% | 2.83% | 2.83% |
| 2022 | 24,915,401 | 10,370,585 | 35,285,986 | 24,718,974 | 10,288,826 | 35,007,800 | 25,632,624 | 10,669,116 | 36,301,740 | 3.04% | 3.04% | 3.04% | 2.95% | 2.95% | 2.95% | 2.74% | 2.74% | 2.74% |
| 2023 | 25,625,849 | 10,666,296 | 36,292,145 | 25,391,044 | 10,568,563 | 35,959,607 | 26,260,676 | 10,930,531 | 37,191,207 | 2.85% | 2.85% | 2.85% | 2.72% | 2.72% | 2.72% | 2.45% | 2.45% | 2.45% |
| 2024 | 26,372,676 | 10,977,149 | 37,349,825 | 26,104,043 | 10,865,335 | 36,969,378 | 26,900,827 | 11,196,982 | 38,097,809 | 2.91% | 2.91% | 2.91% | 2.81% | 2.81% | 2.81% | 2.44% | 2.44% | 2.44% |
| 2025 | 27,127,225 | 11,326,804 | 38,539,529 | 26,949,347 | 11,217,178 | 38,166,525 | 27,599,735 | 11,487,890 | 39,087,625 | 3.19% | 3.19% | 3.19% | 3.24% | 3.24% | 3.24% | 2.60% | 2.60% | 2.60% |
| 2026 | 28,023,875 | 11,664,431 | 39,688,305 | 27,738,546 | 11,545,668 | 39,284,214 | 28,314,102 | 11,785,232 | 40,099,334 | 2.98% | 2.98% | 2.98% | 2.93% | 2.93% | 2.93% | 2.59% | 2.59% | 2.59% |
| 2027 | 28,773,330 | 11,976,378 | 40,749,708 | 28,400,084 | 11,837,670 | 40,277,755 | 28,921,364 | 12,037,994 | 40,959,358 | 2.67% | 2.67% | 2.67% | 2.53% | 2.53% | 2.53% | 2.14% | 2.14% | 2.14% |
| 2028 | 29,550,886 | 12,300,022 | 41,850,908 | 29,154,278 | 12,143,681 | 41,318,959 | 29,844,296 | 12,298,943 | 41,847,240 | 2.70% | 2.70% | 2.70% | 2.59% | 2.59% | 2.59% | 2.17% | 2.17% | 2.17% |
| 2029 | 30,335,465 | 12,626,588 | 42,962,053 | 29,906,294 | 12,447,954 | 42,354,248 | 30,146,514 | 12,547,941 | 42,694,455 | 2.66% | 2.66% | 2.66% | 2.51% | 2.51% | 2.51% | 2.02% | 2.02% | 2.02% |
| 2030 | 31,118,783 | 12,952,630 | 44,071,413 | 30,621,507 | 12,745,648 | 43,367,155 | 30,731,785 | 12,791,549 | 43,523,334 | 2.58% | 2.58% | 2.58% | 2.39% | 2.39% | 2.39% | 1.94% | 1.94% | 1.94% |
| 2031 | 31,519,349 | 13,119,358 | 44,638,707 | 31,042,489 | 12,920,874 | 43,963,363 | 31,214,309 | 12,992,391 | 44,206,700 | 1.29% | 1.29% | 1.29% | 1.37% | 1.37% | 1.37% | 1.57% | 1.57% | 1.57% |
| 2032 | 32,260,611 | 13,427,895 | 45,688,507 | 31,740,383 | 13,211,360 | 44,951,743 | 31,798,798 | 13,235,674 | 45,034,472 | 2.35% | 2.35% | 2.35% | 2.25% | 2.25% | 2.25% | 1.87% | 1.87% | 1.87% |

| Peak Day - Baseload | | | | | | | | | | Annual Change | | | | | | | | |
|---------------------|----------------|---------|-----------------|----------------|---------|-----------------|----------------|---------|-----------------|---------------|-------|-------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 20,474 | 353,229 | 373,703 | 20,394 | 359,198 | 379,592 | 21,418 | 367,276 | 388,695 | 5.83% | 1.06% | 1.31% | 7.66% | 2.65% | 2.91% | 10.30% | 5.10% | 5.37% |
| 2013 | 21,280 | 362,415 | 383,695 | 21,209 | 369,396 | 390,606 | 22,322 | 378,802 | 401,124 | 3.94% | 2.60% | 2.67% | 4.00% | 2.84% | 2.90% | 4.22% | 3.14% | 3.20% |
| 2014 | 21,939 | 375,268 | 397,207 | 21,724 | 379,947 | 401,670 | 22,996 | 394,444 | 417,439 | 3.10% | 3.55% | 3.52% | 2.42% | 2.86% | 2.83% | 4.02% | 4.13% | 4.07% |
| 2015 | 22,650 | 389,383 | 412,034 | 22,441 | 395,851 | 418,293 | 23,570 | 412,325 | 436,074 | 3.24% | 3.76% | 3.73% | 3.30% | 4.19% | 4.14% | 3.28% | 4.53% | 4.46% |
| 2016 | 23,442 | 403,707 | 427,149 | 23,236 | 412,074 | 435,310 | 24,352 | 430,674 | 455,206 | 3.50% | 3.68% | 3.67% | 3.54% | 4.10% | 4.07% | 3.30% | 4.45% | 4.39% |
| 2017 | 24,274 | 418,261 | 442,536 | 24,097 | 428,625 | 452,723 | 25,368 | 449,539 | 474,908 | 3.55% | 3.61% | 3.60% | 3.71% | 4.02% | 4.00% | 3.41% | 4.38% | 4.33% |
| 2018 | 25,105 | 433,071 | 458,176 | 24,915 | 445,631 | 470,546 | 26,166 | 468,994 | 495,160 | 3.42% | 3.54% | 3.53% | 3.40% | 3.97% | 3.94% | 3.14% | 4.33% | 4.26% |
| 2019 | 25,894 | 448,174 | 474,069 | 25,703 | 463,042 | 488,745 | 26,929 | 488,980 | 515,909 | 3.15% | 3.49% | 3.47% | 3.16% | 3.91% | 3.87% | 2.92% | 4.26% | 4.19% |
| 2020 | 26,716 | 463,498 | 490,215 | 26,514 | 480,843 | 507,357 | 27,669 | 509,595 | 537,263 | 3.17% | 3.42% | 3.41% | 3.16% | 3.84% | 3.81% | 2.75% | 4.22% | 4.14% |
| 2021 | 27,575 | 479,073 | 506,648 | 27,382 | 499,016 | 526,398 | 28,450 | 530,771 | 559,221 | 3.21% | 3.36% | 3.35% | 3.27% | 3.78% | 3.75% | 2.83% | 4.16% | 4.09% |
| 2022 | 28,413 | 494,904 | 523,315 | 28,189 | 517,714 | 545,903 | 29,230 | 552,589 | 581,820 | 3.04% | 3.31% | 3.30% | 2.95% | 3.75% | 3.71% | 2.74% | 4.11% | 4.04% |
| 2023 | 29,223 | 511,141 | 540,364 | 28,955 | 536,884 | 565,839 | 29,947 | 575,075 | 605,022 | 2.85% | 3.27% | 3.25% | 2.72% | 3.70% | 3.65% | 2.45% | 4.07% | 3.99% |
| 2024 | 30,074 | 527,555 | 557,629 | 29,768 | 556,415 | 586,183 | 30,677 | 598,074 | 628,751 | 2.91% | 3.21% | 3.20% | 2.81% | 3.64% | 3.60% | 2.44% | 4.00% | 3.92% |
| 2025 | 31,032 | 544,129 | 575,162 | 30,732 | 576,224 | 606,956 | 31,474 | 621,663 | 653,137 | 3.19% | 3.14% | 3.14% | 3.24% | 3.56% | 3.54% | 2.60% | 3.94% | 3.88% |
| 2026 | 31,957 | 561,005 | 592,962 | 31,632 | 596,519 | 628,151 | 32,288 | 645,676 | 676,065 | 2.98% | 3.10% | 3.09% | 2.93% | 3.52% | 3.49% | 2.59% | 3.88% | 3.82% |
| 2027 | 32,812 | 578,199 | 611,010 | 32,432 | 617,307 | 649,739 | 32,981 | 670,629 | 703,610 | 2.67% | 3.06% | 3.04% | 2.53% | 3.48% | 3.44% | 2.14% | 3.85% | 3.77% |
| 2028 | 33,699 | 595,595 | 629,294 | 33,270 | 638,498 | 671,768 | 33,696 | 696,091 | 729,787 | 2.70% | 3.01% | 2.99% | 2.59% | 3.43% | 3.39% | 2.17% | 3.80% | 3.72% |
| 2029 | 34,593 | 613,231 | 647,824 | 34,104 | 660,116 | 694,220 | 34,378 | 722,219 | 755,596 | 2.66% | 2.96% | 2.94% | 2.51% | 3.39% | 3.34% | 2.02% | 3.75% | 3.67% |
| 2030 | 35,487 | 631,135 | 666,622 | 34,920 | 682,195 | 717,115 | 35,045 | 748,994 | 784,039 | 2.58% | 2.92% | 2.90% | 2.39% | 3.34% | 3.30% | 1.94% | 3.71% | 3.63% |
| 2031 | 35,943 | 647,077 | 683,020 | 35,400 | 701,917 | 737,317 | 35,596 | 772,955 | 808,551 | 1.29% | 2.53% | 2.46% | 1.37% | 2.89% | 2.82% | 1.57% | 3.20% | 3.13% |
| 2032 | 36,789 | 665,734 | 702,523 | 36,196 | 725,086 | 761,281 | 36,262 | 801,245 | 837,507 | 2.35% | 2.88% | 2.86% | 2.25% | 3.30% | 3.25% | 1.87% | 3.66% | 3.58% |

| Therm Usage by Class | | | | | | | | | | Annual Change | | | | | | | | |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|---------|-------|--------|---------|-------|-------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 11,116,962 | 14,310,529 | 25,427,491 | 11,156,840 | 14,170,603 | 25,327,443 | 11,772,264 | 14,827,566 | 26,599,830 | 1.09% | 9.83% | 5.83% | 2.59% | 12.01% | 7.66% | 4.92% | 14.97% | 10.30% |
| 2013 | 11,687,676 | 14,740,454 | 26,428,130 | 11,775,421 | 14,564,767 | 26,340,188 | 12,423,537 | 15,299,050 | 27,722,587 | 5.13% | 3.00% | 3.94% | 5.54% | 2.78% | 4.00% | 5.53% | 3.18% | 4.22% |
| 2014 | 12,024,985 | 15,221,495 | 27,246,480 | 11,994,609 | 14,984,784 | 26,978,853 | 12,829,081 | 15,729,377 | 28,558,458 | 2.89% | 3.26% | 3.10% | 1.86% | 2.88% | 2.42% | 3.26% | 2.81% | 3.02% |
| 2015 | 12,402,500 | 15,727,315 | 28,129,815 | 12,420,608 | 15,449,685 | 27,870,293 | 13,331,360 | 16,163,628 | 29,494,988 | 3.14% | 3.32% | 3.24% | 3.56% | 3.10% | 3.30% | 3.92% | 2.76% | 3.28% |
| 2016 | 12,830,679 | 16,282,590 | 29,113,269 | 12,877,378 | 15,979,634 | 28,857,012 | 13,843,121 | 16,623,900 | 30,467,021 | 3.45% | 3.53% | 3.50% | 3.68% | 3.43% | 3.54% | 3.85% | 2.85% | 3.30% |
| 2017 | 13,289,643 | 16,857,051 | 30,146,694 | 13,391,736 | 16,534,761 | 29,926,497 | 14,118,192 | 17,086,911 | 31,505,103 | 3.58% | 3.53% | 3.55% | 3.99% | 3.47% | 3.71% | 4.14% | 2.79% | 3.41% |
| 2018 | 13,781,350 | 17,396,934 | 31,177,744 | 13,918,560 | 17,024,192 | 30,942,752 | 15,008,310 | 17,487,251 | 32,495,561 | 3.70% | 3.20% | 3.42% | 3.93% | 2.96% | 3.40% | 4.09% | 2.34% | 3.14% |
| 2019 | 14,230,629 | 17,928,113 | 32,158,742 | 14,430,093 | 17,491,070 | 31,921,163 | 15,583,540 | 17,859,933 | 33,443,473 | 3.26% | 3.06% | 3.15% | 3.68% | 2.74% | 3.16% | 3.83% | 2.13% | 2.92% |
| 2020 | 14,685,852 | 18,493,435 | 33,179,287 | 14,924,371 | 18,003,913 | 32,928,284 | 16,114,248 | 18,247,680 | 34,361,928 | 3.20% | 3.15% | 3.17% | 3.43% | 2.93% | 3.16% | 3.41% | 2.17% | 2.75% |
| 2021 | 15,175,764 | 19,069,757 | 34,245,521 | 15,484,931 | 18,521,208 | 34,006,139 | 16,715,226 | 18,617,649 | 35,332,875 | 3.34% | 3.12% | 3.21% | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Kennewick



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

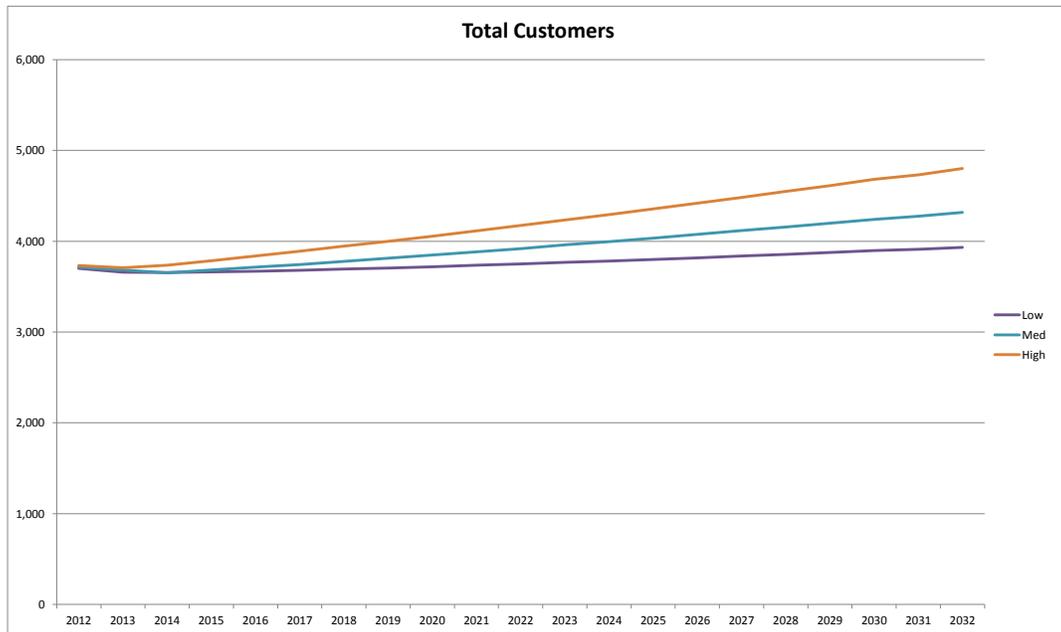
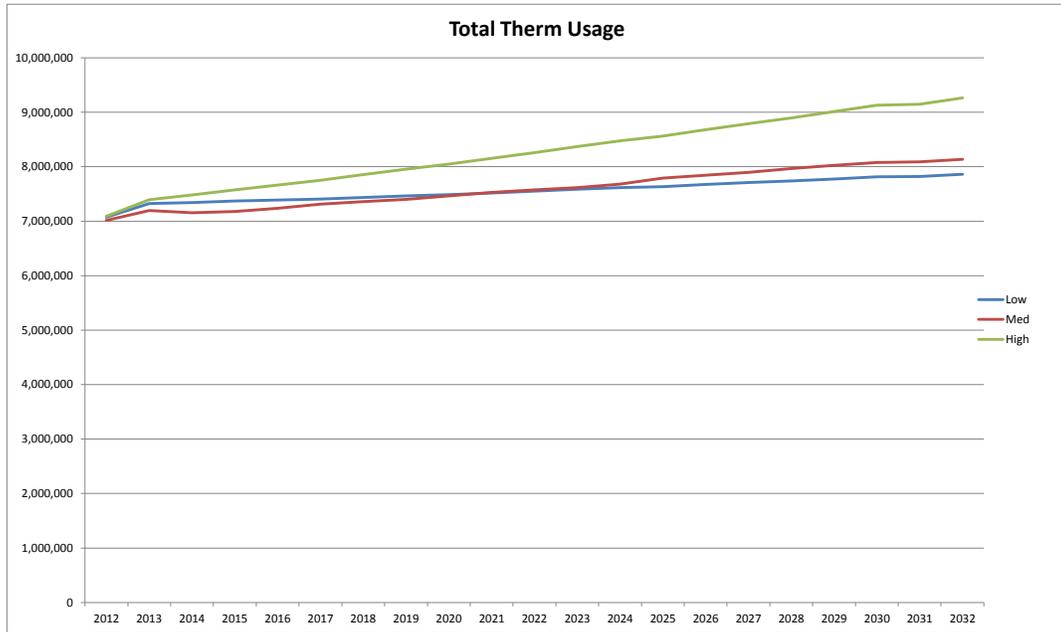
| Longview | | | | | | | | | | | | | | | | | | |
|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|---------|----------|-------|---------|----------|--------|---------|----------|-------|
| Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 4,099,415 | 2,974,053 | 7,073,468 | 4,063,893 | 2,948,282 | 7,012,175 | 4,110,098 | 2,981,804 | 7,091,902 | 8.50% | 8.50% | 8.50% | 8.94% | 8.94% | 8.94% | 9.41% | 9.41% | 9.41% |
| 2013 | 4,243,234 | 3,078,391 | 7,321,625 | 4,170,111 | 3,025,342 | 7,195,453 | 4,286,350 | 3,109,671 | 7,396,022 | 3.51% | 3.51% | 3.51% | 2.61% | 2.61% | 2.61% | 4.29% | 4.29% | 4.29% |
| 2014 | 4,255,648 | 3,087,398 | 7,343,046 | 4,146,870 | 3,008,481 | 7,155,350 | 4,334,638 | 3,144,704 | 7,479,342 | 0.29% | 0.29% | 0.29% | -0.56% | -0.56% | -0.56% | 1.13% | 1.13% | 1.13% |
| 2015 | 4,270,421 | 3,098,115 | 7,368,537 | 4,160,366 | 3,018,272 | 7,178,639 | 4,389,586 | 3,184,567 | 7,574,154 | 0.35% | 0.35% | 0.35% | 0.33% | 0.33% | 0.33% | 1.27% | 1.27% | 1.27% |
| 2016 | 4,281,258 | 3,105,977 | 7,387,235 | 4,192,912 | 3,041,884 | 7,234,796 | 4,441,156 | 3,221,980 | 7,663,135 | 0.25% | 0.25% | 0.25% | 0.78% | 0.78% | 0.78% | 1.17% | 1.17% | 1.17% |
| 2017 | 4,292,239 | 3,113,943 | 7,406,182 | 4,236,420 | 3,073,448 | 7,309,867 | 4,492,411 | 3,259,165 | 7,751,576 | 0.26% | 0.26% | 0.26% | 1.04% | 1.04% | 1.04% | 1.15% | 1.15% | 1.15% |
| 2018 | 4,308,024 | 3,125,395 | 7,433,419 | 4,264,708 | 3,093,970 | 7,358,678 | 4,551,531 | 3,302,056 | 7,853,587 | 0.37% | 0.37% | 0.37% | 0.67% | 0.67% | 0.67% | 1.32% | 1.32% | 1.32% |
| 2019 | 4,325,652 | 3,138,184 | 7,463,835 | 4,288,880 | 3,111,507 | 7,400,387 | 4,609,735 | 3,344,281 | 7,954,016 | 0.41% | 0.41% | 0.41% | 0.57% | 0.57% | 0.57% | 1.28% | 1.28% | 1.28% |
| 2020 | 4,340,786 | 3,149,163 | 7,489,949 | 4,324,631 | 3,137,443 | 7,462,074 | 4,666,269 | 3,385,296 | 8,051,565 | 0.35% | 0.35% | 0.35% | 0.83% | 0.83% | 0.83% | 1.23% | 1.23% | 1.23% |
| 2021 | 4,355,586 | 3,159,901 | 7,515,487 | 4,364,587 | 3,166,431 | 7,531,018 | 4,724,494 | 3,427,537 | 8,152,300 | 0.34% | 0.34% | 0.34% | 0.92% | 0.92% | 0.92% | 1.25% | 1.25% | 1.25% |
| 2022 | 4,375,307 | 3,174,208 | 7,549,516 | 4,390,816 | 3,185,460 | 7,576,276 | 4,786,552 | 3,472,559 | 8,259,112 | 0.45% | 0.45% | 0.45% | 0.60% | 0.60% | 0.60% | 1.31% | 1.31% | 1.31% |
| 2023 | 4,397,233 | 3,190,115 | 7,587,348 | 4,414,973 | 3,202,985 | 7,617,957 | 4,851,954 | 3,520,007 | 8,371,962 | 0.50% | 0.50% | 0.50% | 0.55% | 0.55% | 0.55% | 1.37% | 1.37% | 1.37% |
| 2024 | 4,415,623 | 3,203,457 | 7,619,080 | 4,450,594 | 3,228,827 | 7,679,422 | 4,911,835 | 3,563,449 | 8,475,284 | 0.42% | 0.42% | 0.42% | 0.81% | 0.81% | 0.81% | 1.23% | 1.23% | 1.23% |
| 2025 | 4,423,718 | 3,209,330 | 7,633,048 | 4,514,944 | 3,275,512 | 7,790,455 | 4,962,623 | 3,600,324 | 8,562,987 | 0.18% | 0.18% | 0.18% | 1.45% | 1.45% | 1.45% | 1.03% | 1.03% | 1.03% |
| 2026 | 4,447,188 | 3,226,356 | 7,673,544 | 4,547,256 | 3,298,954 | 7,846,211 | 5,030,028 | 3,649,196 | 8,679,224 | 0.53% | 0.53% | 0.53% | 0.72% | 0.72% | 0.72% | 1.36% | 1.36% | 1.36% |
| 2027 | 4,467,830 | 3,241,332 | 7,709,162 | 4,575,810 | 3,319,670 | 7,895,480 | 5,095,257 | 3,696,519 | 8,791,777 | 0.46% | 0.46% | 0.46% | 0.63% | 0.63% | 0.63% | 1.30% | 1.30% | 1.30% |
| 2028 | 4,485,269 | 3,253,984 | 7,739,253 | 4,616,836 | 3,349,433 | 7,965,269 | 5,155,736 | 3,740,396 | 8,896,132 | 0.39% | 0.39% | 0.39% | 0.90% | 0.90% | 0.90% | 1.19% | 1.19% | 1.19% |
| 2029 | 4,506,552 | 3,269,424 | 7,775,976 | 4,650,773 | 3,374,054 | 8,024,827 | 5,223,996 | 3,789,917 | 9,013,914 | 0.47% | 0.47% | 0.47% | 0.74% | 0.74% | 0.74% | 1.32% | 1.32% | 1.32% |
| 2030 | 4,528,310 | 3,285,209 | 7,813,518 | 4,681,115 | 3,396,066 | 8,077,182 | 5,290,788 | 3,838,374 | 9,129,162 | 0.48% | 0.48% | 0.48% | 0.65% | 0.65% | 0.65% | 1.28% | 1.28% | 1.28% |
| 2031 | 4,532,390 | 3,288,169 | 7,820,559 | 4,688,672 | 3,401,549 | 8,090,222 | 5,299,920 | 3,844,998 | 9,144,918 | 0.09% | 0.09% | 0.09% | 0.16% | 0.16% | 0.16% | 0.17% | 0.17% | 0.17% |
| 2032 | 4,555,182 | 3,304,704 | 7,859,887 | 4,716,612 | 3,421,818 | 8,138,430 | 5,367,947 | 3,894,351 | 9,262,297 | 0.50% | 0.50% | 0.50% | 0.60% | 0.60% | 0.60% | 1.28% | 1.28% | 1.28% |

| Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | | |
|---------------------|----------------|--------|-----------------|----------------|--------|-----------------|----------------|--------|-----------------|-------|--------|--------|--------|--------|--------|-------|--------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 8,148 | 70,440 | 78,588 | 8,077 | 70,825 | 78,903 | 8,169 | 71,156 | 79,325 | 8.50% | -2.23% | -1.22% | 8.94% | -1.82% | -0.82% | 9.41% | -1.29% | -0.29% |
| 2013 | 8,434 | 69,310 | 77,744 | 8,289 | 69,922 | 78,210 | 8,520 | 70,230 | 78,750 | 3.51% | -1.60% | -1.07% | 2.61% | -1.28% | -0.88% | 4.29% | -1.30% | -0.73% |
| 2014 | 8,459 | 69,171 | 77,630 | 8,242 | 69,369 | 77,611 | 8,616 | 70,759 | 79,375 | 0.29% | -0.20% | -0.15% | -0.56% | -0.79% | -0.77% | 1.13% | 0.75% | 0.79% |
| 2015 | 8,488 | 69,305 | 77,793 | 8,269 | 69,953 | 78,223 | 8,725 | 71,698 | 80,422 | 0.35% | 0.19% | 0.21% | 0.33% | 0.84% | 0.79% | 1.27% | 1.33% | 1.32% |
| 2016 | 8,510 | 69,476 | 77,985 | 8,334 | 70,551 | 78,885 | 8,827 | 72,696 | 81,523 | 0.25% | 0.25% | 0.25% | 0.78% | 0.78% | 0.78% | 1.17% | 1.17% | 1.17% |
| 2017 | 8,531 | 69,669 | 78,200 | 8,420 | 71,128 | 79,549 | 8,929 | 73,696 | 82,625 | 0.26% | 0.28% | 0.28% | 1.04% | 1.04% | 1.04% | 1.15% | 1.15% | 1.15% |
| 2018 | 8,563 | 69,901 | 78,464 | 8,477 | 71,785 | 80,262 | 9,047 | 74,753 | 83,799 | 0.37% | 0.33% | 0.34% | 0.67% | 0.67% | 0.67% | 1.32% | 1.32% | 1.32% |
| 2019 | 8,598 | 70,108 | 78,706 | 8,525 | 72,448 | 80,973 | 9,162 | 75,809 | 84,971 | 0.41% | 0.30% | 0.31% | 0.57% | 0.92% | 0.89% | 1.28% | 1.41% | 1.40% |
| 2020 | 8,628 | 70,388 | 78,976 | 8,596 | 73,135 | 81,731 | 9,275 | 76,895 | 86,170 | 0.35% | 0.40% | 0.39% | 0.83% | 0.95% | 0.94% | 1.23% | 1.43% | 1.41% |
| 2021 | 8,657 | 70,670 | 79,327 | 8,675 | 73,816 | 82,491 | 9,391 | 78,003 | 87,393 | 0.34% | 0.40% | 0.39% | 0.92% | 0.93% | 0.93% | 1.25% | 1.44% | 1.42% |
| 2022 | 8,696 | 70,942 | 79,634 | 8,727 | 74,544 | 83,272 | 9,516 | 79,122 | 88,636 | 0.45% | 0.39% | 0.39% | 0.60% | 0.99% | 0.95% | 1.31% | 1.43% | 1.42% |
| 2023 | 8,740 | 71,259 | 79,999 | 8,775 | 75,327 | 84,103 | 9,644 | 80,309 | 89,953 | 0.50% | 0.45% | 0.45% | 0.55% | 1.05% | 1.00% | 1.37% | 1.50% | 1.49% |
| 2024 | 8,777 | 71,557 | 80,333 | 8,846 | 76,059 | 84,905 | 9,660 | 81,456 | 91,219 | 0.42% | 0.42% | 0.42% | 0.81% | 0.97% | 0.95% | 1.23% | 1.43% | 1.41% |
| 2025 | 8,793 | 71,918 | 80,711 | 8,974 | 76,756 | 85,730 | 9,864 | 82,664 | 92,528 | 0.18% | 0.51% | 0.47% | 1.45% | 0.92% | 0.97% | 1.03% | 1.48% | 1.44% |
| 2026 | 8,839 | 72,254 | 81,093 | 9,038 | 77,543 | 86,581 | 9,998 | 83,890 | 93,887 | 0.53% | 0.47% | 0.47% | 0.72% | 1.03% | 0.99% | 1.36% | 1.48% | 1.47% |
| 2027 | 8,880 | 72,614 | 81,494 | 9,095 | 78,355 | 87,450 | 10,127 | 85,115 | 95,242 | 0.46% | 0.50% | 0.49% | 0.63% | 1.05% | 1.00% | 1.30% | 1.46% | 1.44% |
| 2028 | 8,915 | 73,000 | 81,915 | 9,177 | 79,140 | 88,317 | 10,248 | 86,369 | 96,617 | 0.39% | 0.53% | 0.52% | 0.90% | 1.00% | 0.99% | 1.19% | 1.47% | 1.44% |
| 2029 | 8,957 | 73,381 | 82,338 | 9,244 | 79,964 | 89,208 | 10,383 | 87,633 | 98,016 | 0.47% | 0.52% | 0.52% | 0.74% | 1.04% | 1.01% | 1.32% | 1.46% | 1.45% |
| 2030 | 9,001 | 73,783 | 82,783 | 9,304 | 80,817 | 90,121 | 10,516 | 88,922 | 99,438 | 0.48% | 0.55% | 0.54% | 0.65% | 1.07% | 1.02% | 1.28% | 1.47% | 1.45% |
| 2031 | 9,009 | 74,115 | 83,123 | 9,319 | 81,481 | 90,801 | 10,534 | 90,009 | 100,543 | 0.09% | 0.45% | 0.41% | 0.16% | 0.82% | 0.75% | 0.17% | 1.22% | 1.11% |
| 2032 | 9,054 | 74,511 | 83,565 | 9,375 | 82,333 | 91,708 | 10,669 | 91,310 | 101,979 | 0.50% | 0.53% | 0.53% | 0.60% | 1.05% | 1.00% | 1.28% | 1.45% | 1.43% |

| Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | | |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|--------|---------|---------|--------|---------|--------|--------|---------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 1,316,484 | 5,756,984 | 7,073,468 | 1,334,364 | 5,677,811 | 7,012,175 | 1,342,796 | 5,749,106 | 7,091,902 | -1.91% | 11.20% | 8.50% | -1.52% | 11.73% | 8.94% | -0.89% | 12.13% | 9.41% |
| 2013 | 1,532,022 | 5,789,603 | 7,321,625 | 1,554,384 | 5,641,069 | 7,195,453 | 1,559,976 | 5,836,046 | 7,396,022 | 16.37% | 0.57% | 3.51% | 16.49% | -0.65% | 2.61% | 16.17% | 1.51% | 4.29% |
| 2014 | 1,521,520 | 5,821,526 | 7,343,046 | 1,523,934 | 5,631,416 | 7,155,350 | 1,557,308 | 5,922,034 | 7,479,342 | -0.69% | 0.55% | 0.29% | -1.96% | -0.17% | -0.56% | -0.17% | 1.47% | 1.13% |
| 2015 | 1,521,510 | 5,847,027 | 7,368,537 | 1,531,406 | 5,647,233 | 7,178,639 | 1,569,280 | 6,004,874 | 7,574,154 | 0.00% | 0.44% | 0.35% | 0.49% | 0.28% | 0.33% | 0.77% | 1.40% | 1.27% |
| 2016 | 1,522,106 | 5,865,129 | 7,387,235 | 1,537,536 | 5,697,260 | 7,234,796 | 1,582,182 | 6,080,953 | 7,663,135 | 0.04% | 0.31% | 0.25% | 0.40% | 0.89% | 0.78% | 0.82% | 1.27% | 1.17% |
| 2017 | 1,525,790 | 5,880,392 | 7,406,182 | 1,548,570 | 5,761,297 | 7,309,867 | 1,597,416 | 6,154,160 | 7,751,576 | 0.24% | 0.26% | 0.26% | 0.72% | 1.12% | 1.04% | 0.96% | 1.20% | 1.15% |
| 2018 | 1,528,209 | 5,905,210 | 7,433,419 | 1,560,788 | 5,797,890 | 7,358,678 | 1,614,231 | 6,239,356 | 7,853,587 | 0.16% | 0.42% | 0.37% | 0.79% | 0.64% | 0.67% | 1.05% | 1.38% | 1.32% |
| 2019 | 1,532,500 | 5,931,335 | 7,463,835 | 1,570,392 | 5,829,995 | 7,400,387 | 1,628,082 | 6,325,934 | 7,954,016 | 0.28% | 0.44% | 0.41% | 0.62% | 0.55% | 0.57% | 0.86% | 1.39% | 1.28% |
| 2020 | 1,536,120 | 5,953,829 | 7,489,949 | 1,581,120 | 5,880,954 | 7,462,074 | 1,642,200 | 6,409,365 | 8,051,565 | 0.24% | 0.38% | 0.35% | 0.68% | 0.87% | 0.83% | 0.87% | 1.32% | 1.23% |
| 2021 | 1,539,720 | 5,975,767 | 7,515,487 | 1,591,744 | 5,939,274 | 7,531,018 | 1,659,376 | 6,492,654 | 8,152,300 | 0.23% | 0.37% | 0.34% | 0.67% | 0.99% | 0.92% | 1.05% | 1.30% | 1.25% |
| 2022 | 1,545,830 | 6,003,686 | 7,549,516 | 1,602,870 | 5,973,406 | 7,576,276 | 1,674,036 | 6,585,076 | 8,259,112 | 0.40% | 0.47% | 0.45% | 0.70% | 0.57% | 0.60% | 0.88% | 1.42% | 1.31% |
| 2023 | 1,550,620 | 6,036,728 | 7,587,348 | 1,615,096 | 6,002,861 | 7,617,957 | 1,690,996 | 6,681,866 | 8,371,962 | 0.31% | 0.55% | 0.50%</ | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Longview



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

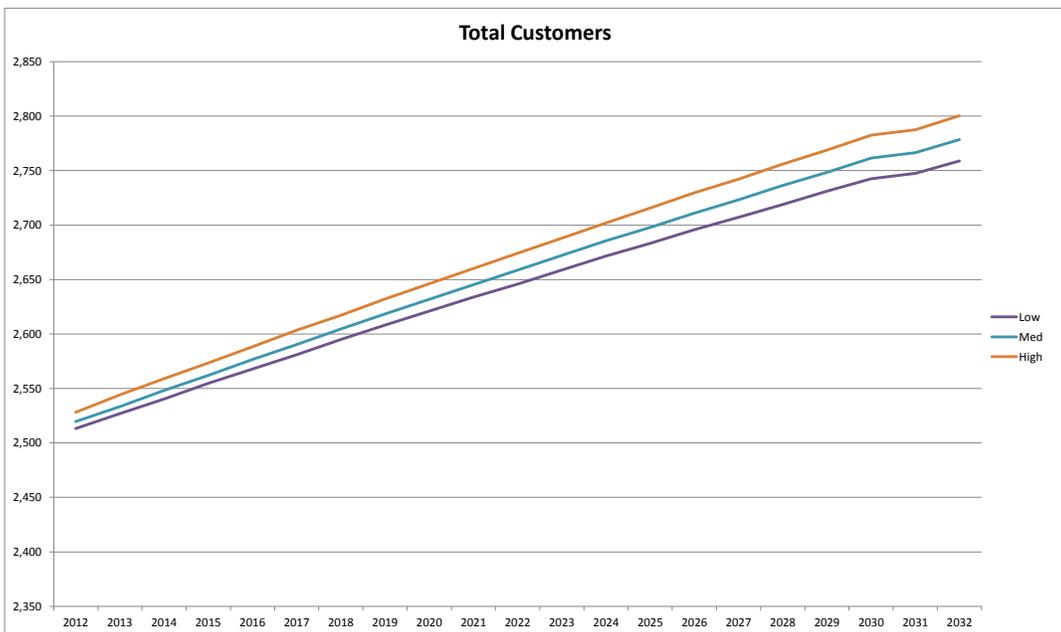
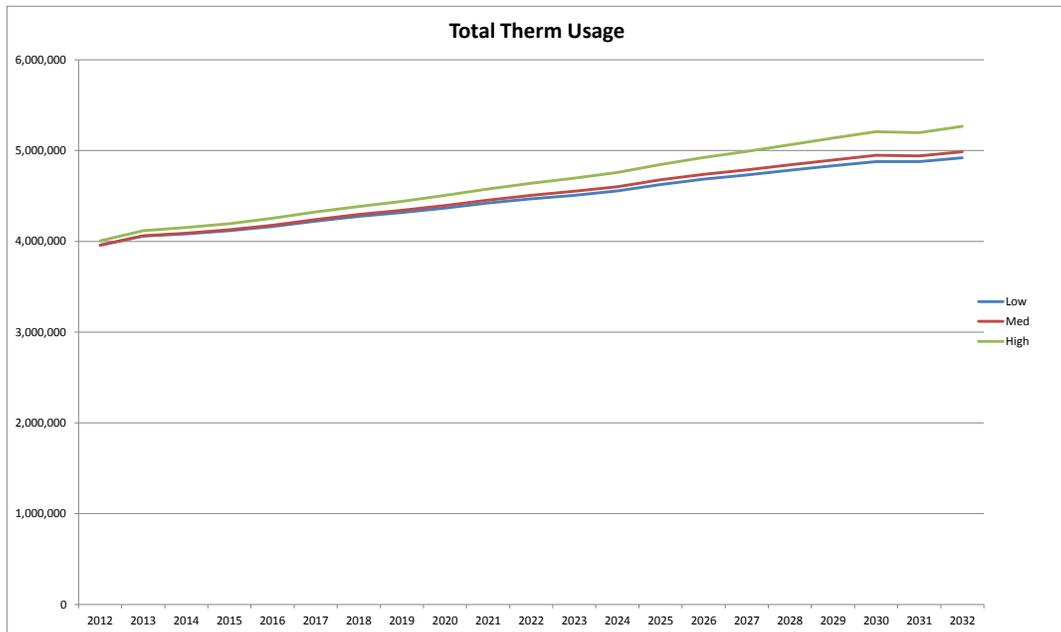
| Moses Lake | | | | | | | | | | | | | | | | | | |
|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|----------|---------------|---------|----------|--------|---------|----------|--------|
| Annual Requirements (Therms) | | | | | | | | | | | | Annual Change | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 2,693,236 | 1,265,426 | 3,958,662 | 2,691,267 | 1,264,501 | 3,955,768 | 2,724,868 | 1,280,288 | 4,005,157 | 0.38% | 0.38% | 0.38% | 1.08% | 1.08% | 1.08% | 1.93% | 1.93% | 1.93% |
| 2013 | 2,760,976 | 1,297,254 | 4,058,229 | 2,762,807 | 1,298,114 | 4,060,920 | 2,802,489 | 1,316,758 | 4,119,247 | 2.52% | 2.52% | 2.52% | 2.66% | 2.66% | 2.66% | 2.85% | 2.85% | 2.85% |
| 2014 | 2,777,669 | 1,305,097 | 4,082,767 | 2,782,252 | 1,307,250 | 4,089,503 | 2,825,447 | 1,327,546 | 4,152,993 | 0.60% | 0.60% | 0.60% | 0.70% | 0.70% | 0.70% | 0.82% | 0.82% | 0.82% |
| 2015 | 2,800,814 | 1,315,972 | 4,116,786 | 2,807,560 | 1,319,142 | 4,126,702 | 2,854,004 | 1,340,963 | 4,194,967 | 0.83% | 0.83% | 0.83% | 0.91% | 0.91% | 0.91% | 1.01% | 1.01% | 1.01% |
| 2016 | 2,832,938 | 1,331,065 | 4,164,003 | 2,842,817 | 1,335,707 | 4,178,524 | 2,893,385 | 1,359,466 | 4,252,851 | 1.15% | 1.15% | 1.15% | 1.26% | 1.26% | 1.26% | 1.38% | 1.38% | 1.38% |
| 2017 | 2,872,157 | 1,349,492 | 4,221,649 | 2,884,923 | 1,355,490 | 4,240,413 | 2,941,808 | 1,382,218 | 4,324,027 | 1.38% | 1.38% | 1.38% | 1.48% | 1.48% | 1.48% | 1.67% | 1.67% | 1.67% |
| 2018 | 2,907,985 | 1,366,326 | 4,274,311 | 2,922,289 | 1,373,047 | 4,295,336 | 2,983,576 | 1,401,843 | 4,385,420 | 1.25% | 1.25% | 1.25% | 1.30% | 1.30% | 1.30% | 1.42% | 1.42% | 1.42% |
| 2019 | 2,936,938 | 1,379,930 | 4,316,868 | 2,954,039 | 1,387,965 | 4,342,004 | 3,021,481 | 1,419,653 | 4,441,134 | 1.00% | 1.00% | 1.00% | 1.09% | 1.09% | 1.09% | 1.27% | 1.27% | 1.27% |
| 2020 | 2,970,139 | 1,395,530 | 4,365,669 | 2,990,785 | 1,405,230 | 4,396,015 | 3,066,001 | 1,440,571 | 4,506,572 | 1.13% | 1.13% | 1.13% | 1.24% | 1.24% | 1.24% | 1.47% | 1.47% | 1.47% |
| 2021 | 3,008,026 | 1,413,331 | 4,421,357 | 3,030,546 | 1,423,912 | 4,454,458 | 3,112,938 | 1,462,624 | 4,575,562 | 1.28% | 1.28% | 1.28% | 1.33% | 1.33% | 1.33% | 1.53% | 1.53% | 1.53% |
| 2022 | 3,039,981 | 1,428,345 | 4,468,326 | 3,065,992 | 1,440,567 | 4,506,559 | 3,156,248 | 1,482,974 | 4,639,222 | 1.06% | 1.06% | 1.06% | 1.17% | 1.17% | 1.17% | 1.39% | 1.39% | 1.39% |
| 2023 | 3,066,837 | 1,440,964 | 4,507,801 | 3,096,437 | 1,454,871 | 4,551,308 | 3,193,886 | 1,500,658 | 4,694,544 | 0.88% | 0.88% | 0.88% | 0.99% | 0.99% | 0.99% | 1.19% | 1.19% | 1.19% |
| 2024 | 3,099,331 | 1,456,231 | 4,555,562 | 3,130,884 | 1,471,056 | 4,601,940 | 3,237,551 | 1,521,174 | 4,758,725 | 1.06% | 1.06% | 1.06% | 1.11% | 1.11% | 1.11% | 1.37% | 1.37% | 1.37% |
| 2025 | 3,148,192 | 1,479,188 | 4,627,380 | 3,182,076 | 1,495,109 | 4,677,184 | 3,298,132 | 1,549,638 | 4,847,771 | 1.58% | 1.58% | 1.58% | 1.64% | 1.64% | 1.64% | 1.87% | 1.87% | 1.87% |
| 2026 | 3,186,791 | 1,497,324 | 4,684,115 | 3,223,981 | 1,514,798 | 4,738,779 | 3,350,053 | 1,574,034 | 4,924,087 | 1.23% | 1.23% | 1.23% | 1.32% | 1.32% | 1.32% | 1.57% | 1.57% | 1.57% |
| 2027 | 3,218,854 | 1,512,389 | 4,731,243 | 3,256,598 | 1,530,123 | 4,786,722 | 3,394,704 | 1,595,013 | 4,989,717 | 1.01% | 1.01% | 1.01% | 1.01% | 1.01% | 1.01% | 1.33% | 1.33% | 1.33% |
| 2028 | 3,254,302 | 1,529,044 | 4,783,346 | 3,295,051 | 1,548,191 | 4,843,242 | 3,445,640 | 1,618,945 | 5,064,585 | 1.10% | 1.10% | 1.10% | 1.18% | 1.18% | 1.18% | 1.50% | 1.50% | 1.50% |
| 2029 | 3,288,929 | 1,545,314 | 4,834,242 | 3,331,915 | 1,565,511 | 4,897,426 | 3,496,430 | 1,642,809 | 5,139,239 | 1.06% | 1.06% | 1.06% | 1.12% | 1.12% | 1.12% | 1.47% | 1.47% | 1.47% |
| 2030 | 3,319,076 | 1,559,479 | 4,878,555 | 3,365,802 | 1,581,433 | 4,947,235 | 3,543,913 | 1,665,119 | 5,209,032 | 0.92% | 0.92% | 0.92% | 1.02% | 1.02% | 1.02% | 1.36% | 1.36% | 1.36% |
| 2031 | 3,318,269 | 1,559,099 | 4,877,368 | 3,362,227 | 1,579,753 | 4,941,980 | 3,536,140 | 1,661,467 | 5,197,607 | -0.02% | -0.02% | -0.02% | -0.11% | -0.11% | -0.11% | -0.22% | -0.22% | -0.22% |
| 2032 | 3,346,621 | 1,572,421 | 4,919,041 | 3,393,116 | 1,594,266 | 4,987,382 | 3,582,847 | 1,683,412 | 5,266,260 | 0.85% | 0.85% | 0.85% | 0.92% | 0.92% | 0.92% | 1.32% | 1.32% | 1.32% |

| Peak Day - Baseload | | | | | | | | | | | | Annual Change | | | | | | |
|---------------------|----------------|--------|-----------------|----------------|--------|-----------------|----------------|--------|-----------------|--------|-------|---------------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 3,467 | 74,146 | 77,613 | 3,464 | 74,347 | 77,812 | 3,508 | 74,563 | 78,070 | 0.38% | 0.32% | 0.33% | 1.08% | 0.56% | 0.58% | 1.93% | 0.87% | 0.92% |
| 2013 | 3,554 | 74,484 | 78,038 | 3,556 | 74,681 | 78,238 | 3,608 | 74,962 | 78,569 | 2.52% | 0.46% | 0.55% | 2.66% | 0.45% | 0.55% | 2.85% | 0.53% | 0.64% |
| 2014 | 3,576 | 74,874 | 78,450 | 3,582 | 75,112 | 78,694 | 3,637 | 75,398 | 79,035 | 0.60% | 0.52% | 0.53% | 0.70% | 0.58% | 0.58% | 0.82% | 0.58% | 0.59% |
| 2015 | 3,605 | 75,286 | 78,891 | 3,614 | 75,504 | 79,118 | 3,674 | 75,796 | 79,470 | 0.83% | 0.55% | 0.56% | 0.91% | 0.52% | 0.54% | 1.01% | 0.53% | 0.55% |
| 2016 | 3,647 | 75,653 | 79,290 | 3,659 | 75,912 | 79,571 | 3,725 | 76,210 | 79,935 | 1.15% | 0.49% | 0.52% | 1.26% | 0.54% | 0.57% | 1.38% | 0.55% | 0.58% |
| 2017 | 3,697 | 76,009 | 79,707 | 3,714 | 76,278 | 79,992 | 3,787 | 76,611 | 80,398 | 1.38% | 0.47% | 0.51% | 1.48% | 0.48% | 0.53% | 1.67% | 0.53% | 0.58% |
| 2018 | 3,743 | 76,399 | 80,142 | 3,762 | 76,681 | 80,442 | 3,841 | 76,989 | 80,830 | 1.25% | 0.51% | 0.55% | 1.30% | 0.53% | 0.56% | 1.42% | 0.49% | 0.54% |
| 2019 | 3,781 | 76,764 | 80,545 | 3,803 | 77,057 | 80,860 | 3,889 | 77,401 | 81,290 | 1.00% | 0.48% | 0.50% | 1.09% | 0.49% | 0.52% | 1.27% | 0.53% | 0.57% |
| 2020 | 3,823 | 77,121 | 80,945 | 3,850 | 77,426 | 81,276 | 3,947 | 77,774 | 81,721 | 1.13% | 0.47% | 0.50% | 1.24% | 0.48% | 0.51% | 1.47% | 0.48% | 0.53% |
| 2021 | 3,872 | 77,471 | 81,343 | 3,901 | 77,791 | 81,692 | 4,007 | 78,144 | 82,151 | 1.28% | 0.45% | 0.49% | 1.33% | 0.47% | 0.51% | 1.53% | 0.48% | 0.53% |
| 2022 | 3,913 | 77,796 | 81,710 | 3,947 | 78,160 | 82,107 | 4,063 | 78,518 | 82,581 | 1.06% | 0.42% | 0.45% | 1.17% | 0.47% | 0.51% | 1.39% | 0.48% | 0.52% |
| 2023 | 3,948 | 78,157 | 82,105 | 3,986 | 78,534 | 82,520 | 4,111 | 78,900 | 83,011 | 0.88% | 0.46% | 0.48% | 0.99% | 0.48% | 0.50% | 1.19% | 0.49% | 0.52% |
| 2024 | 3,990 | 78,510 | 82,500 | 4,030 | 78,902 | 82,933 | 4,168 | 79,272 | 83,440 | 1.06% | 0.45% | 0.48% | 1.17% | 0.47% | 0.50% | 1.37% | 0.47% | 0.52% |
| 2025 | 4,053 | 78,807 | 82,860 | 4,096 | 79,216 | 83,312 | 4,246 | 79,621 | 83,867 | 1.58% | 0.38% | 0.44% | 1.64% | 0.40% | 0.46% | 1.87% | 0.44% | 0.51% |
| 2026 | 4,102 | 79,148 | 83,250 | 4,150 | 79,572 | 83,722 | 4,312 | 79,982 | 84,294 | 1.23% | 0.43% | 0.47% | 1.32% | 0.45% | 0.49% | 1.57% | 0.45% | 0.51% |
| 2027 | 4,144 | 79,463 | 83,607 | 4,192 | 79,906 | 84,098 | 4,370 | 80,318 | 84,688 | 1.01% | 0.40% | 0.43% | 1.01% | 0.42% | 0.45% | 1.33% | 0.42% | 0.47% |
| 2028 | 4,189 | 79,772 | 83,961 | 4,242 | 80,263 | 84,505 | 4,435 | 80,678 | 85,114 | 1.10% | 0.39% | 0.42% | 1.18% | 0.45% | 0.48% | 1.50% | 0.45% | 0.50% |
| 2029 | 4,234 | 80,111 | 84,344 | 4,289 | 80,590 | 84,879 | 4,501 | 81,007 | 85,508 | 1.06% | 0.42% | 0.46% | 1.12% | 0.41% | 0.44% | 1.47% | 0.41% | 0.46% |
| 2030 | 4,273 | 80,422 | 84,695 | 4,333 | 80,950 | 85,283 | 4,562 | 81,371 | 85,933 | 0.92% | 0.39% | 0.42% | 1.02% | 0.45% | 0.48% | 1.36% | 0.45% | 0.50% |
| 2031 | 4,272 | 80,578 | 84,849 | 4,328 | 81,109 | 85,437 | 4,552 | 81,536 | 86,088 | -0.02% | 0.19% | 0.18% | -0.11% | 0.20% | 0.18% | -0.22% | 0.20% | 0.18% |
| 2032 | 4,308 | 80,890 | 85,198 | 4,368 | 81,442 | 85,809 | 4,612 | 81,870 | 86,482 | 0.85% | 0.39% | 0.41% | 0.92% | 0.41% | 0.44% | 1.32% | 0.41% | 0.46% |

| Therm Usage by Class | | | | | | | | | | | | Annual Change | | | | | | |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|---------|---------------|--------|---------|-------|--------|---------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 982,350 | 2,976,312 | 3,958,662 | 983,412 | 2,972,356 | 3,955,768 | 964,800 | 3,044,077 | 4,005,157 | 0.22% | 0.43% | 0.38% | 0.33% | 1.33% | 1.08% | 0.43% | 2.42% | 1.93% |
| 2013 | 1,056,633 | 3,001,596 | 4,058,229 | 1,056,344 | 3,005,576 | 4,060,920 | 1,032,855 | 3,086,392 | 4,119,247 | 7.56% | 0.85% | 2.52% | 7.31% | 1.12% | 2.66% | 7.13% | 1.49% | 2.85% |
| 2014 | 1,048,869 | 3,033,898 | 4,082,767 | 1,046,265 | 3,043,238 | 4,089,503 | 1,021,796 | 3,131,197 | 4,152,993 | -0.73% | 1.08% | 0.60% | -0.86% | 1.25% | 0.70% | -1.07% | 1.45% | 0.82% |
| 2015 | 1,043,460 | 3,073,326 | 4,116,786 | 1,038,405 | 3,088,297 | 4,126,702 | 1,010,086 | 3,184,881 | 4,194,967 | -0.52% | 1.00% | 0.83% | -0.75% | 1.48% | 0.91% | -1.15% | 1.71% | 1.01% |
| 2016 | 1,041,180 | 3,122,823 | 4,164,003 | 1,034,778 | 3,143,746 | 4,178,524 | 1,002,573 | 3,250,778 | 4,252,851 | -0.22% | 1.61% | 1.15% | -0.35% | 1.80% | 1.26% | -0.74% | 2.05% | 1.38% |
| 2017 | 1,044,510 | 3,177,139 | 4,221,649 | 1,036,200 | 3,204,213 | 4,240,413 | 1,002,528 | 3,321,499 | 4,324,027 | 0.32% | 1.74% | 1.38% | 0.14% | 1.92% | 1.48% | 0.00% | 2.19% | 1.67% |
| 2018 | 1,052,173 | 3,222,138 | 4,274,311 | 1,040,050 | 3,255,286 | 4,295,336 | 1,001,926 | 3,383,494 | 4,385,420 | 0.73% | 1.42% | 1.25% | 0.37% | 1.59% | 1.30% | -0.06% | 1.87% | 1.42% |
| 2019 | 1,051,725 | 3,265,143 | 4,316,868 | 1,037,659 | 3,304,345 | 4,342,004 | 996,124 | 3,445,010 | 4,441,134 | -0.04% | 1.33% | 1.00% | -0.23% | 1.51% | 1.09% | -0.58% | 1.82% | 1.27% |
| 2020 | 1,051,253 | 3,314,416 | 4,365,669 | 1,035,232 | 3,360,783 | 4,396,015 | 991,640 | 3,514,932 | 4,506,572 | -0.04% | 1.51% | 1.13% | -0.23% | 1.71% | 1.24% | -0.45% | 2.03% | 1.47% |
| 2021 | 1,054,571 | 3,366,786 | 4,421,357 | 1,034,678 | 3,419,780 | 4,454,458 | 987,108 | 3,588,454 | 4,575,562 | 0.32% | 1.58% | 1.28% | -0.05% | 1.76% | 1.33% | -0.46% | 2.09% | 1.53% |
| 2022 | 1,057,336 | 3,410,990 | 4,468,326 | 1,036,015 | 3,470,544 | 4,506,559 | 984,447 | 3,654,775 | 4,639,222 | 0.26% | 1.31% | 1.06% | 0.13% | 1.48% | 1.17% | -0.27% | 1.85% | 1.39% |
| 2023 | 1,056,818 | 3,450,983 | 4,507,801 | 1,033,498 | 3,517,810 | 4,551,308 | 975,975 | 3,718,569 | 4,694,544 | -0.05% | 1.17% | 0.88% | -0.24% | 1.36% | 0.9 | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Moses Lake



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

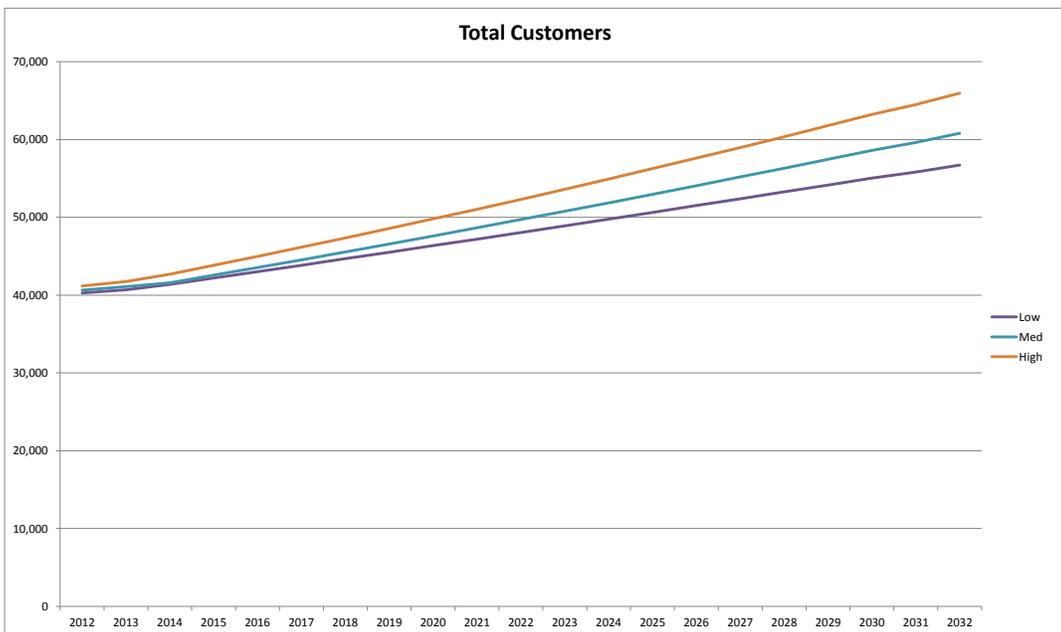
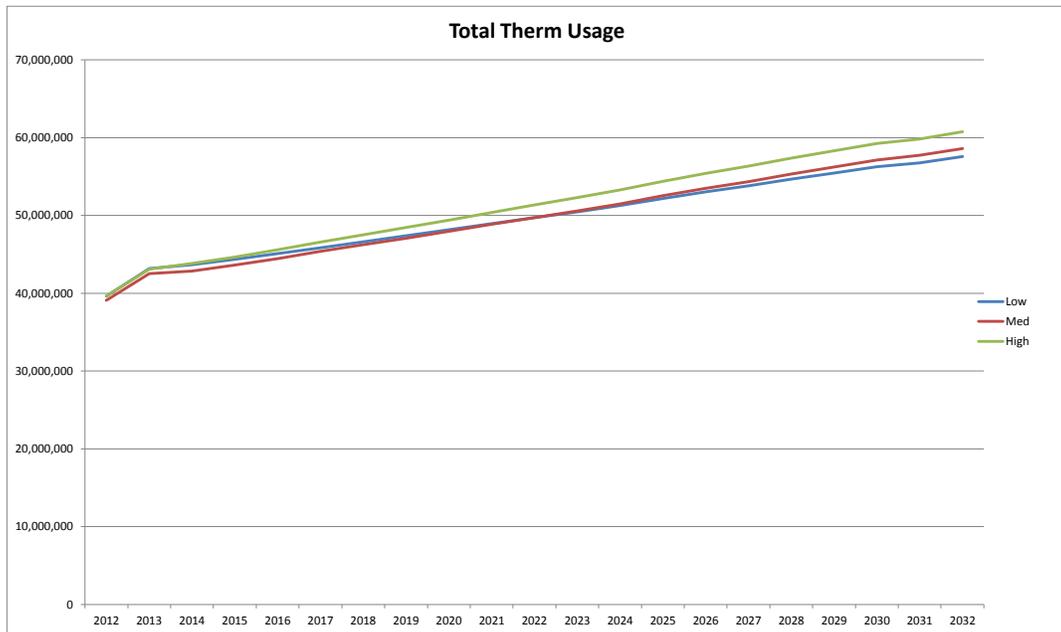
| Mount Vernon | | | | | | | | | | | | | | | | | | |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---------|----------|---------------|---------|----------|-------|---------|----------|-------|
| Annual Requirements (Therms) | | | | | | | | | | | | Annual Change | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 25,463,108 | 14,172,347 | 39,635,455 | 25,110,256 | 13,975,956 | 39,086,212 | 25,485,745 | 14,184,946 | 39,670,691 | 3.93% | 3.93% | 3.93% | 4.69% | 4.69% | 4.69% | 5.69% | 5.69% | 5.69% |
| 2013 | 27,729,058 | 15,433,537 | 43,162,595 | 27,305,742 | 15,197,927 | 42,503,669 | 27,692,274 | 15,413,064 | 43,105,339 | 8.90% | 8.90% | 8.90% | 8.74% | 8.74% | 8.74% | 8.66% | 8.66% | 8.66% |
| 2014 | 28,058,984 | 15,617,169 | 43,676,152 | 27,533,962 | 15,324,950 | 42,858,912 | 28,144,349 | 15,664,882 | 43,809,230 | 1.19% | 1.19% | 1.19% | 0.84% | 0.84% | 0.84% | 1.63% | 1.63% | 1.63% |
| 2015 | 28,488,109 | 15,856,013 | 44,344,121 | 28,023,580 | 15,597,464 | 43,621,044 | 28,699,003 | 15,962,261 | 44,641,264 | 1.53% | 1.53% | 1.53% | 1.78% | 1.78% | 1.78% | 1.90% | 1.90% | 1.90% |
| 2016 | 28,958,784 | 16,117,983 | 45,076,767 | 28,557,674 | 15,894,732 | 44,452,406 | 29,283,422 | 16,298,671 | 45,582,093 | 1.65% | 1.65% | 1.65% | 1.91% | 1.91% | 1.91% | 2.11% | 2.11% | 2.11% |
| 2017 | 29,453,397 | 16,393,276 | 45,846,674 | 29,144,733 | 16,221,479 | 45,366,211 | 29,913,497 | 16,649,360 | 46,562,857 | 1.71% | 1.71% | 1.71% | 2.06% | 2.06% | 2.06% | 2.15% | 2.15% | 2.15% |
| 2018 | 29,942,867 | 16,665,707 | 46,608,574 | 29,700,022 | 16,530,543 | 46,230,565 | 30,517,426 | 16,985,497 | 47,502,923 | 1.66% | 1.66% | 1.66% | 1.91% | 1.91% | 1.91% | 2.02% | 2.02% | 2.02% |
| 2019 | 30,433,022 | 16,938,519 | 47,371,541 | 30,238,480 | 16,830,241 | 47,068,721 | 31,124,746 | 17,323,522 | 48,448,268 | 1.64% | 1.64% | 1.64% | 1.81% | 1.81% | 1.81% | 1.99% | 1.99% | 1.99% |
| 2020 | 30,929,445 | 17,214,820 | 48,144,265 | 30,803,733 | 17,144,851 | 47,948,584 | 31,735,190 | 17,663,285 | 49,398,475 | 1.63% | 1.63% | 1.63% | 1.87% | 1.87% | 1.87% | 1.96% | 1.96% | 1.96% |
| 2021 | 31,434,503 | 17,495,927 | 48,930,430 | 31,383,848 | 17,467,733 | 48,851,581 | 32,361,267 | 18,011,749 | 50,373,016 | 1.63% | 1.63% | 1.63% | 1.88% | 1.88% | 1.88% | 1.97% | 1.97% | 1.97% |
| 2022 | 31,941,290 | 17,777,997 | 49,719,287 | 31,940,903 | 17,777,781 | 49,718,685 | 32,995,362 | 18,364,675 | 51,360,037 | 1.61% | 1.61% | 1.61% | 1.77% | 1.77% | 1.77% | 1.96% | 1.96% | 1.96% |
| 2023 | 32,418,378 | 18,043,536 | 50,461,914 | 32,488,531 | 18,082,582 | 50,571,112 | 33,586,877 | 18,693,903 | 52,280,780 | 1.49% | 1.49% | 1.49% | 1.71% | 1.71% | 1.71% | 1.79% | 1.79% | 1.79% |
| 2024 | 32,925,770 | 18,325,942 | 51,251,711 | 33,075,231 | 18,409,129 | 51,484,361 | 34,220,503 | 19,046,569 | 53,267,073 | 1.57% | 1.57% | 1.57% | 1.81% | 1.81% | 1.81% | 1.89% | 1.89% | 1.89% |
| 2025 | 33,510,164 | 18,611,206 | 52,121,370 | 33,745,239 | 18,782,045 | 52,527,283 | 34,934,235 | 19,443,821 | 54,378,056 | 1.77% | 1.77% | 1.77% | 2.03% | 2.03% | 2.03% | 2.09% | 2.09% | 2.09% |
| 2026 | 34,070,344 | 18,962,993 | 53,033,337 | 34,359,337 | 19,123,842 | 53,483,178 | 35,593,449 | 19,810,728 | 55,404,178 | 1.67% | 1.67% | 1.67% | 1.82% | 1.82% | 1.82% | 1.89% | 1.89% | 1.89% |
| 2027 | 34,576,623 | 19,244,780 | 53,821,403 | 34,914,210 | 19,432,675 | 54,346,885 | 36,193,125 | 20,144,498 | 56,337,622 | 1.49% | 1.49% | 1.49% | 1.61% | 1.61% | 1.61% | 1.68% | 1.68% | 1.68% |
| 2028 | 35,109,601 | 19,541,426 | 54,651,027 | 35,535,181 | 19,778,297 | 55,313,479 | 37,065,917 | 20,514,510 | 57,372,427 | 1.54% | 1.54% | 1.54% | 1.78% | 1.78% | 1.78% | 1.84% | 1.84% | 1.84% |
| 2029 | 35,626,204 | 19,828,959 | 55,455,163 | 36,103,713 | 20,094,733 | 56,198,446 | 37,466,786 | 20,853,397 | 58,320,183 | 1.47% | 1.47% | 1.47% | 1.60% | 1.60% | 1.60% | 1.65% | 1.65% | 1.65% |
| 2030 | 36,135,964 | 20,112,683 | 56,248,648 | 36,697,165 | 20,425,038 | 57,122,203 | 38,066,524 | 21,187,201 | 59,253,725 | 1.43% | 1.43% | 1.43% | 1.64% | 1.64% | 1.64% | 1.60% | 1.60% | 1.60% |
| 2031 | 36,469,705 | 20,298,438 | 56,768,143 | 37,077,751 | 20,636,866 | 57,714,618 | 38,419,849 | 21,383,856 | 59,803,705 | 0.92% | 0.92% | 0.92% | 1.04% | 1.04% | 1.04% | 0.93% | 0.93% | 0.93% |
| 2032 | 36,978,835 | 20,581,811 | 57,560,647 | 37,648,885 | 20,954,750 | 58,603,635 | 39,023,886 | 21,720,053 | 60,743,939 | 1.40% | 1.40% | 1.40% | 1.54% | 1.54% | 1.54% | 1.57% | 1.57% | 1.57% |

| Peak Day - Baseload | | | | | | | | | | | | Annual Change | | | | | | |
|---------------------|----------------|---------|-----------------|----------------|---------|-----------------|----------------|---------|-----------------|-------|--------|---------------|--------|-------|-------|-------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 38,828 | 449,084 | 487,912 | 38,290 | 453,943 | 492,233 | 38,863 | 459,967 | 498,830 | 3.93% | -0.36% | -0.03% | 4.69% | 0.55% | 0.86% | 5.69% | 1.92% | 2.21% |
| 2013 | 42,284 | 450,366 | 492,650 | 41,638 | 456,220 | 497,858 | 42,228 | 463,380 | 505,608 | 8.90% | 0.29% | 0.97% | 8.74% | 0.50% | 1.14% | 8.66% | 0.74% | 1.36% |
| 2014 | 42,787 | 458,423 | 501,209 | 41,986 | 461,558 | 503,544 | 42,917 | 474,145 | 517,062 | 1.19% | 1.79% | 1.74% | 0.84% | 1.17% | 1.14% | 1.63% | 2.32% | 2.27% |
| 2015 | 43,441 | 467,628 | 511,069 | 42,733 | 472,614 | 515,346 | 43,732 | 487,092 | 530,824 | 1.53% | 2.01% | 1.97% | 1.78% | 2.40% | 2.34% | 1.90% | 2.73% | 2.66% |
| 2016 | 44,159 | 476,844 | 521,003 | 43,547 | 483,743 | 527,290 | 44,654 | 500,142 | 544,796 | 1.65% | 1.97% | 1.94% | 1.91% | 2.35% | 2.32% | 2.11% | 2.68% | 2.63% |
| 2017 | 44,913 | 486,099 | 531,012 | 44,442 | 494,948 | 539,390 | 45,615 | 513,401 | 559,016 | 1.71% | 1.94% | 1.92% | 2.06% | 2.32% | 2.29% | 2.15% | 2.65% | 2.61% |
| 2018 | 45,659 | 495,394 | 541,054 | 45,289 | 506,302 | 551,591 | 46,536 | 526,882 | 573,418 | 1.66% | 1.91% | 1.89% | 1.91% | 2.29% | 2.26% | 2.02% | 2.63% | 2.58% |
| 2019 | 46,407 | 504,774 | 551,181 | 46,110 | 517,861 | 563,971 | 47,462 | 540,619 | 588,081 | 1.64% | 1.89% | 1.87% | 1.81% | 2.28% | 2.24% | 1.99% | 2.61% | 2.56% |
| 2020 | 47,164 | 514,191 | 561,355 | 46,972 | 529,520 | 576,492 | 48,393 | 554,599 | 602,992 | 1.63% | 1.87% | 1.85% | 1.87% | 2.25% | 2.22% | 1.96% | 2.59% | 2.54% |
| 2021 | 47,934 | 523,657 | 571,587 | 47,857 | 541,296 | 589,152 | 49,347 | 568,800 | 618,148 | 1.63% | 1.84% | 1.82% | 1.88% | 2.22% | 2.20% | 1.97% | 2.56% | 2.51% |
| 2022 | 48,707 | 533,197 | 581,904 | 48,706 | 553,273 | 601,980 | 50,314 | 583,252 | 633,566 | 1.61% | 1.82% | 1.80% | 1.77% | 2.21% | 2.18% | 1.96% | 2.54% | 2.49% |
| 2023 | 49,434 | 542,858 | 592,292 | 49,541 | 565,417 | 614,959 | 51,216 | 598,013 | 649,229 | 1.49% | 1.81% | 1.79% | 1.71% | 2.19% | 2.16% | 1.79% | 2.53% | 2.47% |
| 2024 | 50,208 | 552,557 | 602,765 | 50,436 | 577,667 | 628,103 | 52,182 | 612,958 | 665,140 | 1.57% | 1.79% | 1.77% | 1.81% | 2.17% | 2.14% | 1.89% | 2.50% | 2.45% |
| 2025 | 51,099 | 562,156 | 613,255 | 51,458 | 589,902 | 641,360 | 53,271 | 627,998 | 681,269 | 1.77% | 1.74% | 1.74% | 2.03% | 2.12% | 2.11% | 2.09% | 2.45% | 2.42% |
| 2026 | 51,953 | 571,901 | 623,855 | 52,394 | 602,401 | 654,795 | 54,736 | 647,864 | 697,658 | 1.67% | 1.73% | 1.73% | 1.82% | 2.12% | 2.09% | 1.89% | 2.52% | 2.41% |
| 2027 | 52,725 | 581,720 | 634,445 | 53,240 | 615,073 | 668,313 | 55,190 | 659,034 | 714,225 | 1.49% | 1.72% | 1.70% | 1.61% | 2.10% | 2.06% | 1.68% | 2.43% | 2.37% |
| 2028 | 53,538 | 591,554 | 645,092 | 54,187 | 627,783 | 681,970 | 56,204 | 674,846 | 731,050 | 1.54% | 1.69% | 1.68% | 1.78% | 2.07% | 2.04% | 1.84% | 2.40% | 2.36% |
| 2029 | 54,326 | 601,470 | 655,796 | 55,054 | 640,737 | 695,791 | 57,133 | 691,002 | 748,135 | 1.47% | 1.68% | 1.66% | 1.60% | 2.06% | 2.03% | 1.65% | 2.39% | 2.34% |
| 2030 | 55,103 | 611,425 | 666,528 | 55,959 | 653,738 | 709,697 | 58,047 | 707,364 | 765,411 | 1.43% | 1.66% | 1.64% | 1.64% | 2.03% | 2.00% | 1.60% | 2.37% | 2.31% |
| 2031 | 55,612 | 620,459 | 676,072 | 56,539 | 665,644 | 722,184 | 58,586 | 722,448 | 781,034 | 0.92% | 1.48% | 1.43% | 1.04% | 1.82% | 1.76% | 0.93% | 2.13% | 2.04% |
| 2032 | 56,389 | 630,630 | 687,019 | 57,410 | 679,111 | 736,521 | 59,507 | 739,478 | 798,985 | 1.40% | 1.64% | 1.62% | 1.54% | 2.02% | 1.99% | 1.57% | 2.36% | 2.30% |

| Therm Usage by Class | | | | | | | | | | | | Annual Change | | | | | | |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------|---------|---------------|--------|---------|-------|--------|---------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 22,979,415 | 16,656,004 | 39,635,419 | 22,497,188 | 16,589,024 | 39,086,212 | 23,018,072 | 16,652,619 | 39,670,691 | 0.01% | 9.87% | 3.93% | 0.88% | 10.33% | 4.69% | 2.24% | 10.85% | 5.69% |
| 2013 | 26,412,225 | 16,750,370 | 43,162,595 | 25,771,580 | 16,732,089 | 42,503,669 | 26,240,048 | 16,865,291 | 43,105,339 | 14.94% | 0.57% | 8.90% | 14.55% | 0.86% | 8.74% | 14.00% | 1.28% | 8.66% |
| 2014 | 26,793,349 | 16,882,803 | 43,676,152 | 25,955,988 | 16,902,924 | 42,858,912 | 26,712,993 | 17,096,037 | 43,809,230 | 1.44% | 0.79% | 1.19% | 0.72% | 1.02% | 0.84% | 1.80% | 1.37% | 1.63% |
| 2015 | 27,286,764 | 17,057,357 | 44,344,121 | 26,494,062 | 17,126,982 | 43,621,044 | 27,275,040 | 17,366,224 | 44,641,264 | 1.84% | 1.03% | 1.53% | 2.07% | 1.33% | 1.78% | 2.10% | 1.57% | 1.90% |
| 2016 | 27,782,386 | 17,294,381 | 45,076,767 | 27,035,712 | 17,116,694 | 44,452,406 | 27,879,228 | 17,702,865 | 45,582,093 | 1.82% | 1.39% | 1.65% | 2.04% | 1.69% | 1.91% | 2.22% | 1.94% | 2.11% |
| 2017 | 28,280,200 | 17,566,474 | 45,846,674 | 27,620,870 | 17,445,341 | 45,366,211 | 28,489,842 | 18,073,015 | 46,562,857 | 1.79% | 1.57% | 1.71% | 2.16% | 1.89% | 2.06% | 2.19% | 2.09% | 2.15% |
| 2018 | 28,817,480 | 17,791,094 | 46,608,574 | 28,209,168 | 18,021,397 | 46,230,565 | 29,103,240 | 18,399,683 | 47,502,923 | 1.90% | 1.28% | 1.66% | 2.13% | 1.56% | 1.91% | 2.15% | 1.81% | 2.02% |
| 2019 | 29,359,140 | 18,012,401 | 47,371,541 | 28,763,700 | 18,305,021 | 47,068,721 | 29,723,463 | 18,724,805 | 48,448,268 | 1.88% | 1.24% | 1.64% | 1.97% | 1.57% | 1.81% | 2.13% | 1.77% | 1.99% |
| 2020 | 29,862,027 | 18,282,238 | 48,144,265 | 29,321,584 | 18,627,000 | 47,948,584 | 30,305,665 | 19,092,810 | 49,398,475 | 1.71% | 1.50% | 1.63% | 1.94% | 1.76% | 1.87% | 1.96% | 1.97% | 1.96% |
| 2021 | 30,366,336 | 18,564,094 | 48,930,430 | 29,882,760 | 18,968,821 | 48,851,581 | 30,891,445 | 19,481,571 | 50,373,016 | 1.6 | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Mount Vernon



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Ontario

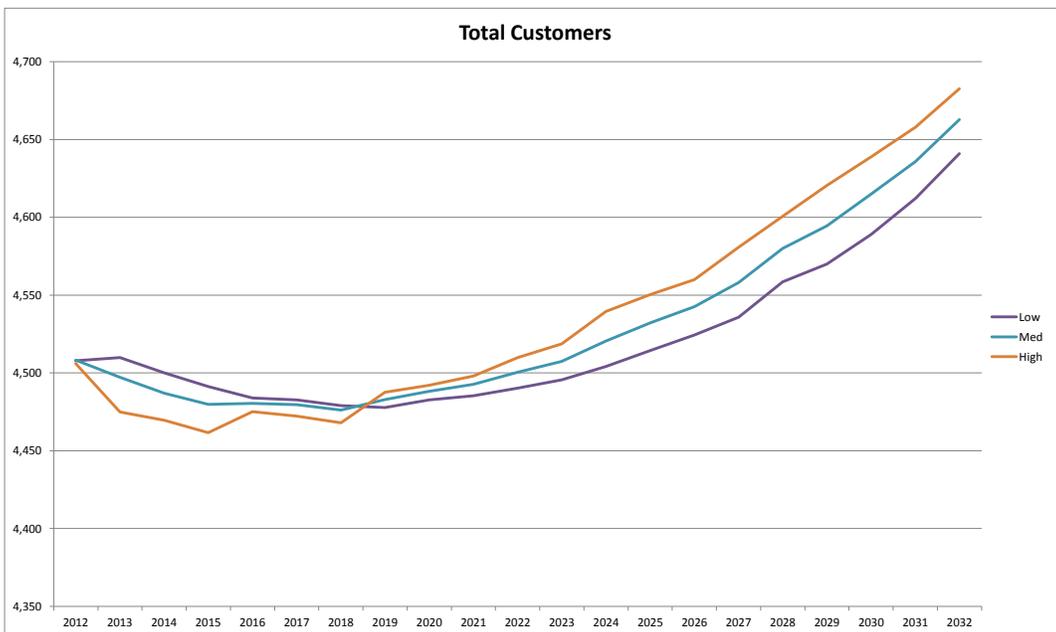
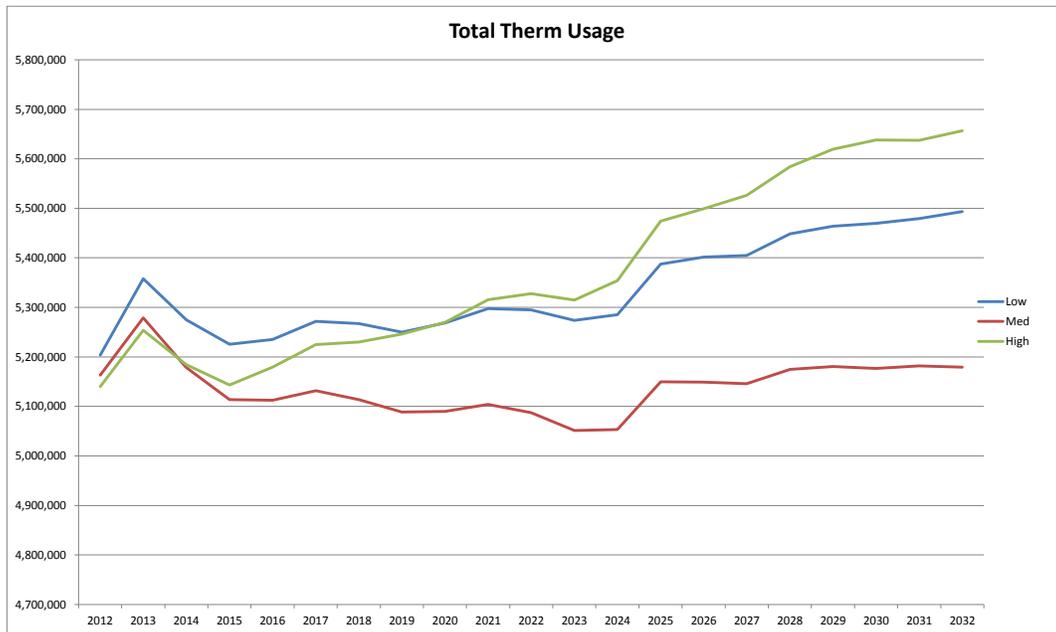
| | Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | |
|------|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|----------|--------|---------|----------|--------|---------|----------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 3,792,793 | 1,410,966 | 5,203,758 | 3,763,304 | 1,399,995 | 5,163,299 | 3,746,270 | 1,393,659 | 5,139,928 | 15.43% | 15.43% | 15.43% | 15.21% | 15.21% | 15.21% | 15.00% | 15.00% | 15.00% |
| 2013 | 3,904,905 | 1,452,673 | 5,357,578 | 3,847,381 | 1,431,273 | 5,278,654 | 3,829,302 | 1,424,548 | 5,253,850 | 2.96% | 2.96% | 2.96% | 2.23% | 2.23% | 2.23% | 2.22% | 2.22% | 2.22% |
| 2014 | 3,844,793 | 1,430,310 | 5,275,103 | 3,774,438 | 1,404,138 | 5,178,576 | 3,778,496 | 1,405,647 | 5,184,143 | -1.54% | -1.54% | -1.54% | -1.90% | -1.90% | -1.90% | -1.33% | -1.33% | -1.33% |
| 2015 | 3,808,579 | 1,416,838 | 5,225,418 | 3,727,112 | 1,386,532 | 5,113,644 | 3,748,680 | 1,394,555 | 5,143,235 | -0.94% | -0.94% | -0.94% | -1.25% | -1.25% | -1.25% | -0.79% | -0.79% | -0.79% |
| 2016 | 3,815,446 | 1,419,393 | 5,234,839 | 3,726,037 | 1,386,132 | 5,112,169 | 3,775,112 | 1,404,388 | 5,179,500 | 0.18% | 0.18% | 0.18% | -0.03% | -0.03% | -0.03% | 0.71% | 0.71% | 0.71% |
| 2017 | 3,842,229 | 1,429,357 | 5,271,585 | 3,740,240 | 1,391,416 | 5,131,656 | 3,808,224 | 1,416,706 | 5,224,930 | 0.70% | 0.70% | 0.70% | 0.38% | 0.38% | 0.38% | 0.88% | 0.88% | 0.88% |
| 2018 | 3,839,152 | 1,428,212 | 5,267,364 | 3,727,180 | 1,386,557 | 5,113,737 | 3,812,112 | 1,418,153 | 5,230,265 | -0.08% | -0.08% | -0.08% | -0.35% | -0.35% | -0.35% | 0.10% | 0.10% | 0.10% |
| 2019 | 3,826,350 | 1,423,540 | 5,249,890 | 3,709,099 | 1,379,831 | 5,088,929 | 3,823,477 | 1,422,381 | 5,245,858 | -0.33% | -0.33% | -0.33% | -0.49% | -0.49% | -0.49% | 0.30% | 0.30% | 0.30% |
| 2020 | 3,839,886 | 1,428,485 | 5,268,371 | 3,709,632 | 1,380,029 | 5,089,661 | 3,840,950 | 1,428,881 | 5,269,831 | 0.35% | 0.35% | 0.35% | 0.01% | 0.01% | 0.01% | 0.46% | 0.46% | 0.46% |
| 2021 | 3,861,138 | 1,436,391 | 5,297,529 | 3,720,199 | 1,383,960 | 5,104,160 | 3,874,092 | 1,441,210 | 5,315,302 | 0.55% | 0.55% | 0.55% | 0.28% | 0.28% | 0.28% | 0.86% | 0.86% | 0.86% |
| 2022 | 3,858,991 | 1,435,592 | 5,294,583 | 3,707,783 | 1,379,341 | 5,087,124 | 3,883,028 | 1,444,534 | 5,327,562 | -0.06% | -0.06% | -0.06% | -0.33% | -0.33% | -0.33% | 0.26% | 0.26% | 0.26% |
| 2023 | 3,843,613 | 1,429,871 | 5,273,485 | 3,681,499 | 1,369,563 | 5,051,062 | 3,873,934 | 1,441,151 | 5,315,085 | -0.40% | -0.40% | -0.40% | -0.71% | -0.71% | -0.71% | -0.23% | -0.23% | -0.23% |
| 2024 | 3,852,332 | 1,433,115 | 5,285,447 | 3,683,344 | 1,370,250 | 5,053,594 | 3,902,189 | 1,451,662 | 5,353,851 | 0.23% | 0.23% | 0.23% | 0.05% | 0.05% | 0.05% | 0.73% | 0.73% | 0.73% |
| 2025 | 3,926,753 | 1,460,801 | 5,387,553 | 3,753,517 | 1,396,355 | 5,149,872 | 3,989,866 | 1,484,279 | 5,474,145 | 1.93% | 1.93% | 1.93% | 1.91% | 1.91% | 1.91% | 2.25% | 2.25% | 2.25% |
| 2026 | 3,936,950 | 1,464,594 | 5,401,544 | 3,752,898 | 1,396,124 | 5,149,022 | 4,008,170 | 1,491,089 | 5,499,259 | 0.26% | 0.26% | 0.26% | -0.02% | -0.02% | -0.02% | 0.46% | 0.46% | 0.46% |
| 2027 | 3,939,266 | 1,465,456 | 5,404,722 | 3,750,785 | 1,395,338 | 5,146,123 | 4,027,760 | 1,498,377 | 5,526,137 | 0.06% | 0.06% | 0.06% | -0.06% | -0.06% | -0.06% | 0.49% | 0.49% | 0.49% |
| 2028 | 3,970,997 | 1,477,260 | 5,448,257 | 3,774,740 | 1,403,110 | 5,177,850 | 4,069,912 | 1,514,058 | 5,583,970 | 0.81% | 0.81% | 0.81% | 0.56% | 0.56% | 0.56% | 1.05% | 1.05% | 1.05% |
| 2029 | 3,982,305 | 1,481,467 | 5,463,772 | 3,775,740 | 1,404,622 | 5,180,362 | 4,095,778 | 1,523,680 | 5,619,459 | 0.28% | 0.28% | 0.28% | 0.11% | 0.11% | 0.11% | 0.64% | 0.64% | 0.64% |
| 2030 | 3,986,632 | 1,483,076 | 5,469,709 | 3,773,262 | 1,403,700 | 5,176,962 | 4,109,299 | 1,528,710 | 5,638,009 | 0.11% | 0.11% | 0.11% | -0.07% | -0.07% | -0.07% | 0.33% | 0.33% | 0.33% |
| 2031 | 3,993,641 | 1,485,684 | 5,479,325 | 3,776,561 | 1,404,927 | 5,181,489 | 4,108,668 | 1,528,475 | 5,637,144 | 0.18% | 0.18% | 0.18% | 0.09% | 0.09% | 0.09% | -0.02% | -0.02% | -0.02% |
| 2032 | 4,003,748 | 1,489,444 | 5,493,192 | 3,774,880 | 1,404,302 | 5,179,182 | 4,122,972 | 1,533,796 | 5,656,768 | 0.25% | 0.25% | 0.25% | -0.04% | -0.04% | -0.04% | 0.35% | 0.35% | 0.35% |

| | Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | |
|------|---------------------|--------|-----------------|----------------|--------|-----------------|----------------|--------|-----------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 3,866 | 26,797 | 30,662 | 3,836 | 26,830 | 30,665 | 3,818 | 26,832 | 30,650 | 15.43% | -1.06% | 0.76% | 15.21% | -1.01% | 0.77% | 15.00% | -1.03% | 0.72% |
| 2013 | 3,980 | 26,696 | 30,676 | 3,921 | 26,668 | 30,590 | 3,903 | 26,535 | 30,438 | 2.96% | -0.38% | 0.04% | 2.23% | -0.60% | -0.25% | 2.22% | -1.11% | -0.69% |
| 2014 | 3,919 | 26,690 | 30,609 | 3,847 | 26,674 | 30,521 | 3,851 | 26,551 | 30,403 | -1.54% | -0.02% | -0.22% | -1.90% | 0.02% | -0.22% | -1.33% | -0.16% | -0.12% |
| 2015 | 3,882 | 26,668 | 30,549 | 3,799 | 26,673 | 30,471 | 3,821 | 26,527 | 30,348 | -0.94% | -0.08% | -0.19% | -1.25% | 0.00% | -0.16% | -0.79% | -0.09% | -0.18% |
| 2016 | 3,889 | 26,611 | 30,440 | 3,798 | 26,679 | 30,476 | 3,848 | 26,592 | 30,440 | 0.18% | -0.21% | -0.16% | -0.03% | 0.02% | 0.02% | 0.71% | 0.25% | 0.30% |
| 2017 | 3,916 | 26,576 | 30,492 | 3,812 | 26,658 | 30,470 | 3,881 | 26,538 | 30,320 | 0.70% | -0.13% | -0.03% | 0.38% | -0.08% | -0.02% | 0.88% | -0.20% | -0.07% |
| 2018 | 3,913 | 26,553 | 30,466 | 3,799 | 26,648 | 30,447 | 3,885 | 26,506 | 30,401 | -0.08% | -0.09% | -0.08% | -0.35% | -0.04% | -0.08% | 0.10% | -0.12% | -0.09% |
| 2019 | 3,900 | 26,558 | 30,457 | 3,780 | 26,713 | 30,493 | 3,897 | 26,627 | 30,524 | -0.33% | 0.02% | -0.03% | -0.49% | 0.24% | 0.15% | 0.30% | 0.46% | 0.44% |
| 2020 | 3,914 | 26,577 | 30,491 | 3,781 | 26,748 | 30,529 | 3,915 | 26,640 | 30,555 | 0.35% | 0.07% | 0.11% | 0.13% | 0.13% | 0.12% | 0.46% | 0.05% | 0.10% |
| 2021 | 3,935 | 26,574 | 30,510 | 3,792 | 26,767 | 30,559 | 3,949 | 26,647 | 30,595 | 0.55% | -0.01% | 0.06% | 0.28% | 0.07% | 0.10% | 0.86% | 0.03% | 0.13% |
| 2022 | 3,933 | 26,609 | 30,543 | 3,779 | 26,833 | 30,612 | 3,958 | 26,719 | 30,677 | -0.06% | 0.13% | 0.11% | -0.33% | 0.25% | 0.17% | 0.23% | 0.27% | 0.27% |
| 2023 | 3,917 | 26,662 | 30,579 | 3,752 | 26,908 | 30,660 | 3,948 | 26,787 | 30,735 | -0.40% | 0.20% | 0.12% | -0.71% | 0.28% | 0.16% | -0.23% | 0.25% | 0.19% |
| 2024 | 3,926 | 26,711 | 30,637 | 3,754 | 26,994 | 30,748 | 3,977 | 26,900 | 30,877 | 0.23% | 0.19% | 0.19% | 0.05% | 0.32% | 0.29% | 0.73% | 0.42% | 0.46% |
| 2025 | 4,002 | 26,705 | 30,707 | 3,826 | 27,002 | 30,828 | 4,067 | 26,885 | 30,951 | 1.93% | -0.02% | 0.23% | 1.91% | 0.03% | 0.26% | 2.25% | -0.06% | 0.24% |
| 2026 | 4,013 | 26,762 | 30,775 | 3,825 | 27,073 | 30,898 | 4,085 | 26,931 | 31,016 | 0.26% | 0.22% | 0.22% | -0.02% | 0.26% | 0.23% | 0.46% | 0.17% | 0.21% |
| 2027 | 4,015 | 26,838 | 30,853 | 3,823 | 27,181 | 31,004 | 4,105 | 27,054 | 31,159 | 0.06% | 0.28% | 0.25% | -0.06% | 0.40% | 0.34% | 0.49% | 0.46% | 0.46% |
| 2028 | 4,047 | 26,960 | 31,007 | 3,844 | 27,309 | 31,153 | 4,148 | 27,146 | 31,294 | 0.81% | 0.45% | 0.50% | 0.56% | 0.47% | 0.48% | 1.05% | 0.34% | 0.43% |
| 2029 | 4,059 | 27,026 | 31,085 | 3,848 | 27,403 | 31,252 | 4,174 | 27,253 | 31,428 | 0.28% | 0.25% | 0.25% | 0.11% | 0.35% | 0.32% | 0.64% | 0.40% | 0.43% |
| 2030 | 4,063 | 27,152 | 31,215 | 3,846 | 27,545 | 31,390 | 4,188 | 27,365 | 31,554 | 0.11% | 0.46% | 0.42% | -0.07% | 0.52% | 0.44% | 0.33% | 0.41% | 0.40% |
| 2031 | 4,070 | 27,301 | 31,371 | 3,849 | 27,684 | 31,533 | 4,188 | 27,495 | 31,683 | 0.18% | 0.55% | 0.50% | 0.09% | 0.51% | 0.46% | -0.02% | 0.47% | 0.41% |
| 2032 | 4,081 | 27,487 | 31,568 | 3,847 | 27,869 | 31,717 | 4,202 | 27,649 | 31,851 | 0.25% | 0.68% | 0.63% | -0.04% | 0.67% | 0.58% | 0.35% | 0.56% | 0.53% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|---------|--------|--------|---------|--------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 1,905,105 | 3,298,653 | 5,203,758 | 1,904,051 | 3,259,248 | 5,163,299 | 1,865,853 | 3,274,075 | 5,139,928 | 0.58% | 26.19% | 15.43% | 0.53% | 25.95% | 15.21% | 0.42% | 25.38% | 15.00% |
| 2013 | 2,133,440 | 3,224,138 | 5,357,578 | 2,122,167 | 3,156,487 | 5,278,654 | 2,063,808 | 3,190,042 | 5,253,850 | 11.99% | -2.26% | 2.96% | 11.46% | -3.15% | 2.23% | 10.61% | -2.57% | 2.22% |
| 2014 | 2,114,288 | 3,160,815 | 5,275,103 | 2,102,490 | 3,076,086 | 5,178,576 | 2,043,038 | 3,141,105 | 5,184,143 | -0.90% | -1.96% | -1.54% | -0.93% | -2.55% | -1.90% | -1.01% | -1.53% | -1.33% |
| 2015 | 2,095,782 | 3,129,636 | 5,225,418 | 2,084,628 | 3,020,016 | 5,113,644 | 2,021,186 | 3,122,049 | 5,143,235 | -0.88% | -0.99% | -0.94% | -0.85% | -1.53% | -1.25% | -1.07% | -0.61% | -0.79% |
| 2016 | 2,088,695 | 3,146,144 | 5,234,839 | 2,077,452 | 3,034,717 | 5,112,169 | 2,016,103 | 3,163,397 | 5,179,500 | -0.34% | 0.53% | 0.18% | -0.34% | 0.19% | 0.03% | -0.25% | 1.32% | 0.71% |
| 2017 | 2,088,114 | 3,183,471 | 5,271,585 | 2,073,286 | 3,058,370 | 5,131,656 | 2,010,836 | 3,214,094 | 5,224,930 | -0.03% | 1.19% | 0.70% | -0.20% | 0.78% | 0.38% | -0.26% | 1.60% | 0.88% |
| 2018 | 2,089,962 | 3,177,402 | 5,267,364 | 2,075,136 | 3,038,601 | 5,113,737 | 2,008,588 | 3,221,677 | 5,230,265 | 0.09% | -0.19% | -0.08% | 0.09% | -0.65% | -0.35% | -0.11% | 0.24% | 0.10% |
| 2019 | 2,085,790 | 3,164,010 | 5,249,890 | 2,074,442 | 3,014,487 | 5,088,929 | 2,009,840 | 3,236,018 | 5,245,858 | -0.20% | -0.42% | -0.33% | -0.03% | -0.79% | -0.49% | 0.06% | 0.45% | 0.30% |
| 2020 | 2,084,520 | 3,183,851 | 5,268,371 | 2,069,568 | 3,020,093 | 5,089,661 | 2,000,744 | 3,269,087 | 5,269,831 | -0.06% | 0.63% | 0.35% | -0.23% | 0.19% | 0.01% | -0.45% | 1.02% | 0.46% |
| 2021 | 2,085,680 | 3,211,489 | 5,297,529 | 2,067,700 | 3,036,460 | 5,104,160 | 1,999,376 | 3,315,926 | 5,315,302 | 0.06% | 0.88% | 0.55% | -0.09% | 0.54% | 0.28% | 0.07% | 1.43% | 0.86% |
| 2022 | 2,091,600 | 3,202,983 | 5,294,583 | 2,071,150 | 3,015,974 | 5,087,124 | 2,000,775 | 3,326,787 | 5,327,562 | 0.28% | -0.28% | -0.06% | 0.17% | -0.67% | -0.33% | 0.73% | 0.33% | 0.23% |
| 2023 | 2,090,320 | 3,183,165 | 5,273,485 | 2,070,418 | 2,980, | | | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Ontario



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

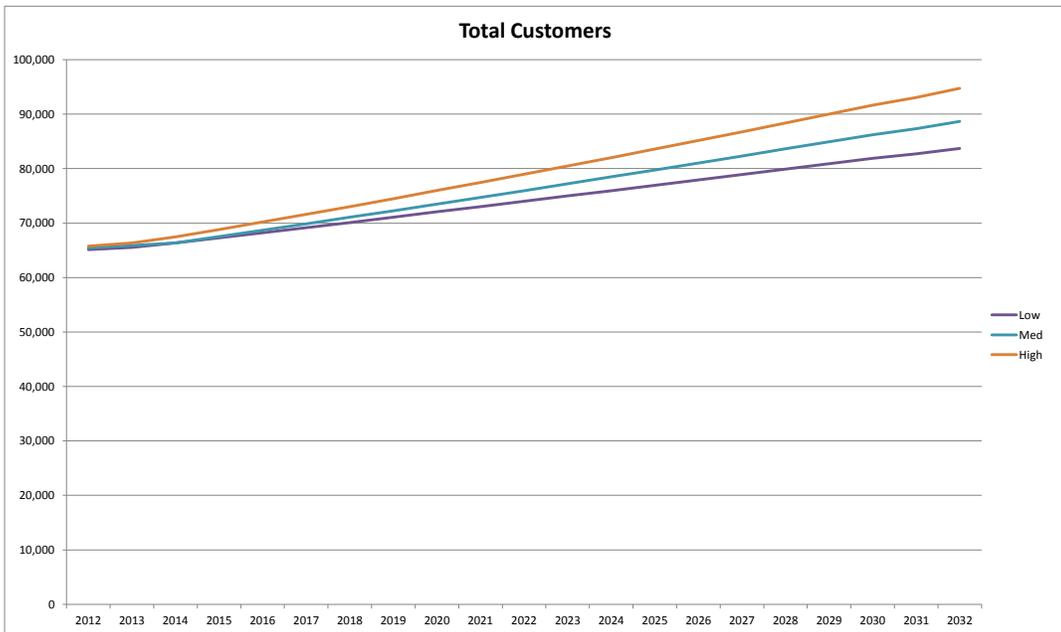
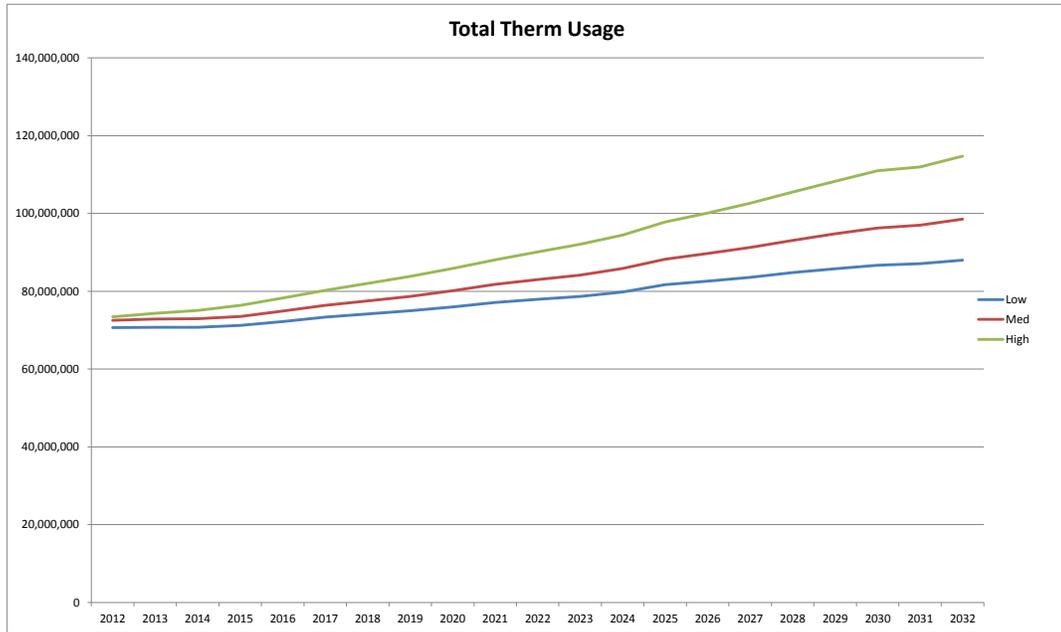
| OR | | | | | | | | | | | | | | | | | | |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|---------|----------|---------------|---------|----------|-------|---------|----------|--------|
| Annual Requirements (Therms) | | | | | | | | | | | | Annual Change | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 48,230,451 | 22,378,644 | 70,609,095 | 49,543,700 | 22,998,839 | 72,542,539 | 50,134,312 | 23,305,421 | 73,439,733 | 7.08% | 7.07% | 7.08% | 8.89% | 8.96% | 8.91% | 11.76% | 11.93% | 11.81% |
| 2013 | 48,322,100 | 22,416,335 | 70,738,435 | 49,770,942 | 23,103,741 | 72,874,683 | 50,747,315 | 23,596,619 | 74,343,934 | 0.19% | 0.17% | 0.18% | 0.46% | 0.46% | 0.46% | 1.22% | 1.25% | 1.23% |
| 2014 | 48,304,007 | 22,423,699 | 70,727,706 | 49,782,056 | 23,125,537 | 72,907,594 | 51,229,139 | 23,834,106 | 75,063,245 | -0.04% | 0.03% | -0.02% | 0.02% | 0.09% | 0.05% | 0.95% | 1.01% | 0.97% |
| 2015 | 48,629,157 | 22,586,538 | 71,215,695 | 50,178,567 | 23,320,148 | 73,498,715 | 52,123,732 | 24,253,918 | 76,377,651 | 0.67% | 0.73% | 0.69% | 0.80% | 0.84% | 0.81% | 1.75% | 1.76% | 1.75% |
| 2016 | 49,323,474 | 22,913,423 | 72,236,897 | 51,108,195 | 23,749,215 | 74,857,410 | 53,389,053 | 24,834,303 | 78,223,356 | 1.43% | 1.45% | 1.43% | 1.85% | 1.84% | 1.85% | 2.43% | 2.39% | 2.42% |
| 2017 | 50,089,217 | 23,270,602 | 73,359,818 | 52,128,808 | 24,217,386 | 76,346,194 | 54,763,880 | 25,464,146 | 80,228,027 | 1.55% | 1.56% | 1.55% | 2.00% | 1.97% | 1.99% | 2.58% | 2.54% | 2.56% |
| 2018 | 50,624,267 | 23,523,684 | 74,147,951 | 52,947,859 | 24,596,077 | 77,543,936 | 55,958,551 | 26,012,393 | 81,970,944 | 1.07% | 1.09% | 1.07% | 1.57% | 1.56% | 1.57% | 2.18% | 2.15% | 2.17% |
| 2019 | 51,158,978 | 23,777,988 | 74,936,966 | 53,733,566 | 24,959,828 | 78,693,394 | 57,197,042 | 26,580,036 | 83,777,078 | 1.06% | 1.08% | 1.06% | 1.48% | 1.48% | 1.48% | 2.21% | 2.18% | 2.20% |
| 2020 | 51,877,334 | 24,113,298 | 75,990,632 | 54,742,944 | 25,422,636 | 80,165,580 | 58,622,088 | 27,230,131 | 85,852,219 | 1.40% | 1.41% | 1.41% | 1.88% | 1.85% | 1.87% | 2.49% | 2.45% | 2.48% |
| 2021 | 52,655,070 | 24,474,255 | 77,129,325 | 55,826,610 | 25,918,526 | 81,745,136 | 60,169,385 | 27,934,580 | 88,103,964 | 1.50% | 1.50% | 1.50% | 1.98% | 1.95% | 1.97% | 2.64% | 2.59% | 2.62% |
| 2022 | 53,168,313 | 24,715,845 | 77,884,158 | 56,659,072 | 26,300,046 | 82,959,118 | 61,527,643 | 28,552,989 | 90,080,632 | 0.97% | 0.99% | 0.98% | 1.49% | 1.47% | 1.49% | 2.26% | 2.21% | 2.24% |
| 2023 | 53,678,832 | 24,956,011 | 78,634,844 | 57,478,633 | 26,677,194 | 84,155,827 | 62,888,464 | 29,173,373 | 92,061,837 | 0.96% | 0.97% | 0.96% | 1.45% | 1.43% | 1.44% | 2.21% | 2.17% | 2.20% |
| 2024 | 54,500,331 | 25,338,198 | 79,838,529 | 58,628,212 | 27,201,630 | 85,829,842 | 64,542,990 | 29,922,043 | 94,465,032 | 1.53% | 1.53% | 1.53% | 2.00% | 1.97% | 1.99% | 2.63% | 2.57% | 2.61% |
| 2025 | 55,761,815 | 25,912,535 | 81,674,351 | 60,290,922 | 27,950,958 | 88,241,880 | 66,814,137 | 30,944,711 | 97,758,847 | 2.31% | 2.27% | 2.30% | 2.84% | 2.75% | 2.81% | 3.52% | 3.42% | 3.49% |
| 2026 | 56,377,903 | 26,197,824 | 82,575,727 | 61,288,475 | 28,403,651 | 89,692,126 | 68,426,051 | 31,671,183 | 100,097,234 | 1.10% | 1.10% | 1.10% | 1.65% | 1.62% | 1.64% | 2.14% | 2.15% | 2.39% |
| 2027 | 57,065,259 | 26,514,477 | 83,579,736 | 62,339,282 | 28,881,147 | 91,220,429 | 70,169,106 | 32,457,014 | 102,626,119 | 1.22% | 1.21% | 1.22% | 1.71% | 1.68% | 1.70% | 2.55% | 2.48% | 2.53% |
| 2028 | 57,913,791 | 26,902,110 | 84,815,902 | 63,609,354 | 29,453,869 | 93,063,223 | 72,150,940 | 33,346,922 | 105,497,862 | 1.49% | 1.46% | 1.48% | 2.04% | 1.98% | 2.02% | 2.82% | 2.74% | 2.80% |
| 2029 | 58,951,596 | 27,214,161 | 86,165,757 | 64,773,962 | 29,979,795 | 94,753,757 | 74,072,212 | 34,210,540 | 108,281,752 | 1.17% | 1.16% | 1.17% | 1.83% | 1.79% | 1.82% | 2.66% | 2.59% | 2.64% |
| 2030 | 59,191,523 | 27,488,476 | 86,680,000 | 65,812,722 | 30,446,822 | 96,259,544 | 75,926,162 | 35,042,637 | 110,968,799 | 1.02% | 1.01% | 1.02% | 1.60% | 1.56% | 1.59% | 2.50% | 2.43% | 2.48% |
| 2031 | 59,477,649 | 27,619,770 | 87,097,419 | 66,318,473 | 30,679,553 | 96,998,026 | 76,610,793 | 35,357,023 | 111,967,816 | 0.48% | 0.48% | 0.48% | 0.77% | 0.76% | 0.77% | 0.90% | 0.90% | 0.90% |
| 2032 | 60,089,984 | 27,899,724 | 87,989,708 | 67,371,991 | 31,153,553 | 98,525,544 | 78,534,769 | 36,219,870 | 114,754,639 | 1.03% | 1.01% | 1.02% | 1.59% | 1.55% | 1.57% | 2.51% | 2.44% | 2.49% |

| | Peak Day - Baseload | | | | | | Annual Change | | | | | | | | | | | |
|------|---------------------|-----------|----------------|--------|----------------|-----------|---------------|-----------|-----------|-------|-------|-------|-------|-------|-------|--------|-------|-------|
| | Low | | Medium | | High | | Low | | Medium | | High | | | | | | | |
| | Daily Baseload | Peak | Daily Baseload | Peak | Daily Baseload | Peak | Base | Peak | Base | Peak | Base | Peak | | | | | | |
| 2012 | 61,311 | 770,022 | 831,334 | 63,011 | 771,998 | 835,009 | 63,850 | 776,532 | 840,383 | 7.07% | 0.75% | 1.19% | 8.96% | 1.08% | 1.64% | 11.93% | 1.57% | 2.29% |
| 2013 | 61,415 | 775,801 | 837,216 | 63,298 | 778,921 | 842,219 | 64,648 | 784,712 | 849,360 | 0.17% | 0.75% | 0.71% | 0.46% | 0.90% | 0.86% | 1.25% | 1.05% | 1.07% |
| 2014 | 61,435 | 786,990 | 848,425 | 63,358 | 786,104 | 849,462 | 65,299 | 799,413 | 867,712 | 0.03% | 1.44% | 1.34% | 0.09% | 0.92% | 0.86% | 1.01% | 1.87% | 1.81% |
| 2015 | 61,881 | 799,566 | 861,447 | 63,891 | 801,410 | 865,301 | 66,449 | 816,819 | 883,268 | 0.73% | 1.60% | 1.53% | 0.84% | 1.95% | 1.86% | 1.76% | 2.18% | 2.15% |
| 2016 | 62,777 | 811,786 | 874,562 | 65,066 | 816,244 | 881,311 | 68,039 | 834,040 | 902,079 | 1.45% | 1.53% | 1.52% | 1.84% | 1.85% | 1.85% | 2.39% | 2.13% | 2.13% |
| 2017 | 63,755 | 823,976 | 887,732 | 66,349 | 831,068 | 897,417 | 69,765 | 851,264 | 921,029 | 1.56% | 1.50% | 1.51% | 1.97% | 1.82% | 1.83% | 2.54% | 2.07% | 2.10% |
| 2018 | 64,448 | 836,488 | 900,396 | 67,387 | 846,273 | 913,660 | 71,267 | 868,947 | 940,216 | 1.09% | 1.52% | 1.49% | 1.56% | 1.83% | 1.81% | 2.15% | 2.08% | 2.08% |
| 2019 | 65,145 | 849,019 | 914,164 | 68,383 | 861,684 | 930,067 | 72,822 | 886,947 | 959,769 | 1.08% | 1.50% | 1.47% | 1.48% | 1.82% | 1.80% | 2.18% | 2.07% | 2.08% |
| 2020 | 66,064 | 861,441 | 927,505 | 69,651 | 876,944 | 946,595 | 74,603 | 904,816 | 979,419 | 1.41% | 1.46% | 1.46% | 1.85% | 1.77% | 1.78% | 2.45% | 2.01% | 2.05% |
| 2021 | 67,053 | 873,747 | 940,799 | 71,010 | 892,212 | 963,222 | 76,533 | 922,819 | 999,353 | 1.50% | 1.43% | 1.43% | 1.95% | 1.74% | 1.76% | 2.59% | 1.99% | 2.04% |
| 2022 | 67,715 | 886,418 | 954,132 | 72,055 | 907,923 | 979,978 | 78,227 | 941,321 | 1,019,549 | 0.99% | 1.45% | 1.42% | 1.47% | 1.76% | 1.74% | 2.21% | 2.00% | 2.02% |
| 2023 | 68,373 | 899,153 | 967,526 | 73,088 | 923,783 | 996,871 | 79,927 | 959,984 | 1,039,911 | 0.97% | 1.44% | 1.40% | 1.43% | 1.75% | 1.72% | 2.17% | 1.98% | 2.00% |
| 2024 | 69,420 | 911,443 | 980,863 | 74,525 | 939,269 | 1,013,794 | 81,978 | 978,504 | 1,060,482 | 1.53% | 1.37% | 1.38% | 1.97% | 1.68% | 1.70% | 2.57% | 1.93% | 1.98% |
| 2025 | 70,993 | 923,237 | 994,230 | 76,578 | 954,283 | 1,030,861 | 84,780 | 996,489 | 1,081,269 | 2.27% | 1.29% | 1.36% | 2.75% | 1.60% | 1.68% | 3.42% | 1.84% | 1.96% |
| 2026 | 71,775 | 935,737 | 1,010,529 | 77,818 | 970,066 | 1,047,884 | 86,770 | 1,015,257 | 1,102,129 | 1.10% | 1.35% | 1.34% | 1.62% | 1.65% | 1.65% | 2.35% | 1.88% | 1.92% |
| 2027 | 72,642 | 948,082 | 1,020,724 | 79,126 | 985,979 | 1,065,006 | 89,923 | 1,034,227 | 1,123,151 | 1.21% | 1.32% | 1.31% | 1.68% | 1.63% | 1.63% | 2.48% | 1.87% | 1.92% |
| 2028 | 73,704 | 960,304 | 1,034,008 | 80,696 | 1,001,561 | 1,082,257 | 91,361 | 1,053,212 | 1,144,468 | 1.46% | 1.29% | 1.30% | 1.98% | 1.59% | 1.62% | 2.74% | 1.83% | 1.90% |
| 2029 | 74,559 | 972,583 | 1,047,142 | 82,136 | 1,017,344 | 1,099,480 | 93,728 | 1,072,158 | 1,165,885 | 1.16% | 1.28% | 1.27% | 1.79% | 1.58% | 1.59% | 2.59% | 1.81% | 1.87% |
| 2030 | 75,311 | 984,959 | 1,060,270 | 83,416 | 1,033,422 | 1,116,838 | 95,607 | 1,091,600 | 1,187,608 | 1.01% | 1.27% | 1.25% | 1.56% | 1.58% | 1.58% | 2.43% | 1.81% | 1.86% |
| 2031 | 75,671 | 995,459 | 1,071,130 | 84,054 | 1,047,310 | 1,131,364 | 96,869 | 1,109,131 | 1,205,999 | 0.48% | 1.07% | 1.02% | 0.76% | 1.34% | 1.30% | 0.90% | 1.61% | 1.55% |
| 2032 | 76,438 | 1,007,977 | 1,084,414 | 85,352 | 1,063,685 | 1,149,037 | 99,233 | 1,129,008 | 1,228,241 | 1.01% | 1.26% | 1.24% | 1.55% | 1.56% | 1.56% | 2.44% | 1.79% | 1.84% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|---------|--------|--------|---------|-------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 37,521,182 | 33,087,913 | 70,609,095 | 39,524,999 | 33,017,540 | 72,542,539 | 40,275,411 | 33,164,322 | 73,439,733 | 3.25% | 11.78% | 7.08% | 6.14% | 12.43% | 8.91% | 10.71% | 13.19% | 11.81% |
| 2013 | 37,790,569 | 32,947,866 | 70,738,435 | 39,953,475 | 32,921,208 | 72,874,683 | 40,941,447 | 33,402,487 | 74,343,934 | 0.72% | -0.42% | 0.18% | 1.08% | -0.29% | 0.46% | 1.65% | 0.72% | 1.23% |
| 2014 | 37,804,702 | 32,923,004 | 70,727,706 | 39,925,885 | 32,981,709 | 72,907,594 | 41,277,533 | 33,785,712 | 75,063,245 | 0.04% | -0.08% | -0.02% | -0.07% | 0.18% | 0.05% | 0.82% | 1.15% | 0.97% |
| 2015 | 38,116,435 | 33,099,260 | 71,215,695 | 40,231,076 | 33,267,639 | 73,498,715 | 41,981,818 | 34,395,833 | 76,377,651 | 0.82% | 0.54% | 0.69% | 0.76% | 0.87% | 0.81% | 1.71% | 1.81% | 1.75% |
| 2016 | 38,666,817 | 33,570,082 | 72,236,897 | 40,955,564 | 33,901,854 | 74,857,410 | 42,868,022 | 35,355,334 | 78,223,356 | 1.44% | 1.42% | 1.43% | 1.80% | 1.91% | 1.85% | 2.11% | 2.79% | 2.42% |
| 2017 | 39,189,446 | 34,100,372 | 73,359,818 | 41,653,694 | 34,692,500 | 76,346,194 | 43,746,680 | 36,481,347 | 80,228,027 | 1.35% | 1.79% | 1.55% | 1.70% | 2.33% | 1.99% | 2.05% | 3.18% | 2.56% |
| 2018 | 39,603,242 | 34,544,709 | 74,147,951 | 42,307,261 | 35,236,641 | 77,543,936 | 44,569,444 | 37,401,500 | 81,970,944 | 1.06% | 1.10% | 1.07% | 1.57% | 1.57% | 1.57% | 1.88% | 2.52% | 2.17% |
| 2019 | 40,066,665 | 34,870,301 | 74,936,966 | 42,963,104 | 35,730,290 | 78,693,394 | 45,458,251 | 38,318,827 | 83,777,078 | 1.17% | 0.94% | 1.06% | 1.55% | 1.40% | 1.48% | 1.99% | 2.45% | 2.20% |
| 2020 | 40,594,232 | 35,396,400 | 75,990,632 | 43,683,030 | 36,482,550 | 80,165,580 | 46,355,483 | 39,496,736 | 85,852,219 | 1.32% | 1.51% | 1.41% | 1.68% | 2.11% | 1.87% | 1.97% | 3.07% | 2.48% |
| 2021 | 41,127,366 | 36,001,589 | 77,129,325 | 44,425,602 | 37,319,534 | 81,745,136 | 47 | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

OR



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Pendleton

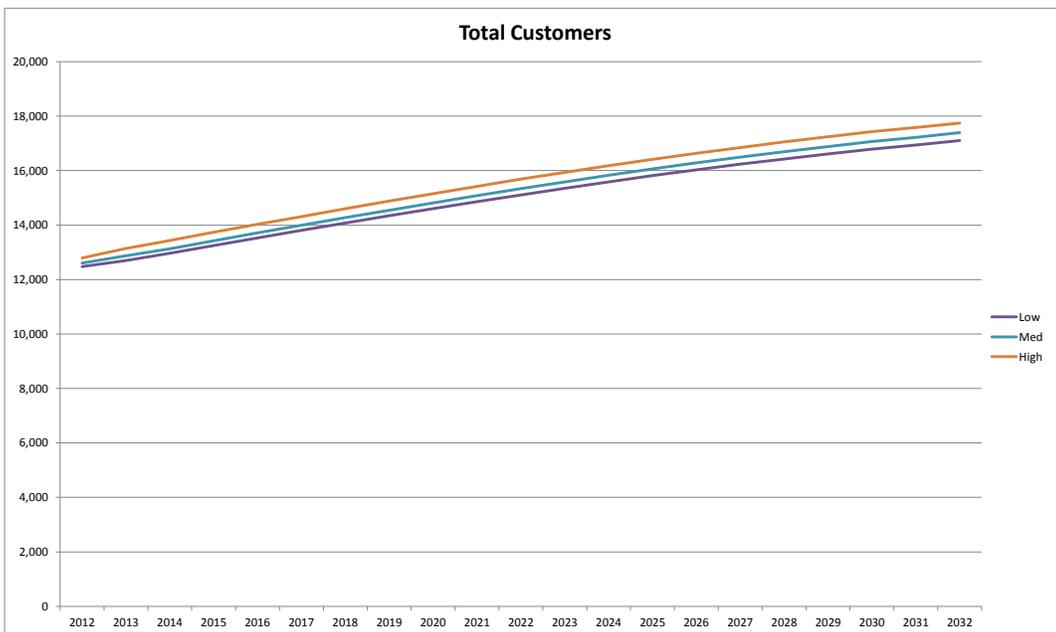
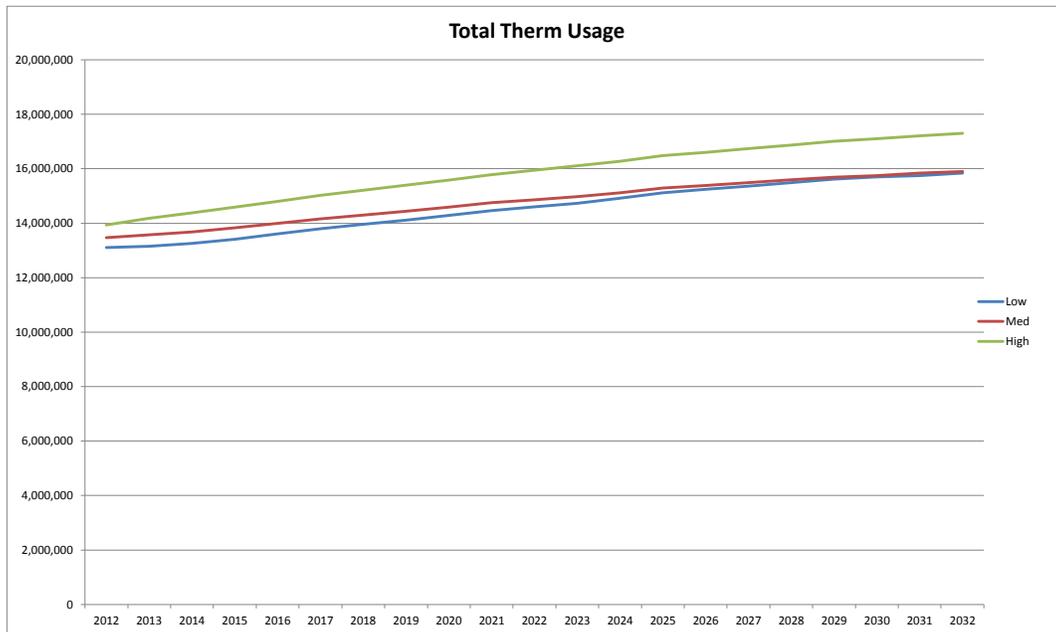
| | Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | |
|------|------------------------------|-----------|------------|-----------|-----------|------------|------------|-----------|------------|---------------|----------|-------|---------|----------|--------|---------|----------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 8,185,519 | 4,916,579 | 13,102,099 | 8,417,733 | 5,056,057 | 13,473,790 | 8,707,409 | 5,230,049 | 13,937,458 | 8.36% | 8.36% | 8.36% | 11.01% | 11.01% | 11.01% | 15.34% | 15.34% | 15.34% |
| 2013 | 8,214,093 | 4,933,742 | 13,147,835 | 8,477,528 | 5,091,972 | 13,569,500 | 8,862,242 | 5,323,048 | 14,185,291 | 0.35% | 0.35% | 0.35% | 0.71% | 0.71% | 0.71% | 1.78% | 1.78% | 1.78% |
| 2014 | 8,280,774 | 4,973,793 | 13,254,567 | 8,547,404 | 5,133,943 | 13,681,347 | 8,986,687 | 5,397,796 | 14,384,483 | 0.81% | 0.81% | 0.81% | 0.82% | 0.82% | 0.82% | 1.40% | 1.40% | 1.40% |
| 2015 | 8,379,459 | 5,033,068 | 13,412,527 | 8,641,917 | 5,190,711 | 13,832,628 | 9,116,023 | 5,475,480 | 14,591,503 | 1.19% | 1.19% | 1.19% | 1.11% | 1.11% | 1.11% | 1.44% | 1.44% | 1.44% |
| 2016 | 8,500,041 | 5,105,494 | 13,605,535 | 8,744,664 | 5,252,426 | 13,997,090 | 9,245,892 | 5,553,485 | 14,799,378 | 1.44% | 1.44% | 1.44% | 1.19% | 1.19% | 1.19% | 1.42% | 1.42% | 1.42% |
| 2017 | 8,621,364 | 5,178,367 | 13,799,731 | 8,846,690 | 5,313,707 | 14,160,396 | 9,384,913 | 5,636,987 | 15,021,901 | 1.43% | 1.43% | 1.43% | 1.17% | 1.17% | 1.17% | 1.50% | 1.50% | 1.50% |
| 2018 | 8,717,441 | 5,236,074 | 13,953,516 | 8,935,642 | 5,367,135 | 14,302,777 | 9,499,849 | 5,706,023 | 15,205,872 | 1.11% | 1.11% | 1.11% | 1.01% | 1.01% | 1.01% | 1.22% | 1.22% | 1.22% |
| 2019 | 8,818,186 | 5,296,586 | 14,114,772 | 9,021,329 | 5,418,603 | 14,439,931 | 9,617,387 | 5,776,621 | 15,394,008 | 1.16% | 1.16% | 1.16% | 0.96% | 0.96% | 0.96% | 1.24% | 1.24% | 1.24% |
| 2020 | 8,928,369 | 5,362,767 | 14,291,137 | 9,115,059 | 5,474,901 | 14,589,960 | 9,736,204 | 5,847,988 | 15,584,191 | 1.25% | 1.25% | 1.25% | 1.04% | 1.04% | 1.04% | 1.24% | 1.24% | 1.24% |
| 2021 | 9,037,865 | 5,428,535 | 14,466,400 | 9,213,981 | 5,534,318 | 14,748,299 | 9,862,955 | 5,924,120 | 15,787,075 | 1.23% | 1.23% | 1.23% | 1.09% | 1.09% | 1.09% | 1.30% | 1.30% | 1.30% |
| 2022 | 9,123,041 | 5,479,696 | 14,602,737 | 9,283,225 | 5,575,909 | 14,859,134 | 9,964,453 | 5,985,084 | 15,949,537 | 0.94% | 0.94% | 0.94% | 0.75% | 0.75% | 0.75% | 1.03% | 1.03% | 1.03% |
| 2023 | 9,201,191 | 5,526,636 | 14,727,826 | 9,355,244 | 5,619,167 | 14,974,411 | 10,063,061 | 6,044,312 | 16,107,373 | 0.86% | 0.86% | 0.86% | 0.78% | 0.78% | 0.78% | 0.99% | 0.99% | 0.99% |
| 2024 | 9,316,771 | 5,596,058 | 14,912,830 | 9,445,580 | 5,673,427 | 15,119,007 | 10,165,122 | 6,105,614 | 16,270,736 | 1.26% | 1.26% | 1.26% | 0.97% | 0.97% | 0.97% | 1.01% | 1.01% | 1.01% |
| 2025 | 9,443,172 | 5,671,980 | 15,115,152 | 9,549,962 | 5,736,123 | 15,286,085 | 10,297,427 | 6,185,083 | 16,482,509 | 1.36% | 1.36% | 1.36% | 1.11% | 1.11% | 1.11% | 1.30% | 1.30% | 1.30% |
| 2026 | 9,522,324 | 5,719,522 | 15,241,846 | 9,611,627 | 5,773,161 | 15,384,788 | 10,374,191 | 6,231,191 | 16,605,382 | 0.84% | 0.84% | 0.84% | 0.65% | 0.65% | 0.65% | 0.75% | 0.75% | 0.75% |
| 2027 | 9,596,254 | 5,763,928 | 15,360,182 | 9,680,083 | 5,814,279 | 15,494,362 | 10,458,841 | 6,282,035 | 16,740,876 | 0.78% | 0.78% | 0.78% | 0.71% | 0.71% | 0.71% | 0.82% | 0.82% | 0.82% |
| 2028 | 9,680,563 | 5,814,096 | 15,494,659 | 9,746,373 | 5,854,096 | 15,600,469 | 10,541,769 | 6,331,845 | 16,881,614 | 0.88% | 0.88% | 0.88% | 0.68% | 0.68% | 0.68% | 0.79% | 0.79% | 0.79% |
| 2029 | 9,756,587 | 5,860,231 | 15,616,818 | 9,804,298 | 5,888,888 | 15,693,186 | 10,623,842 | 6,381,142 | 17,004,984 | 0.79% | 0.79% | 0.79% | 0.59% | 0.59% | 0.59% | 0.78% | 0.78% | 0.78% |
| 2030 | 9,808,762 | 5,891,569 | 15,700,331 | 9,840,627 | 5,910,709 | 15,751,336 | 10,683,871 | 6,417,198 | 17,101,068 | 0.53% | 0.53% | 0.53% | 0.37% | 0.37% | 0.37% | 0.57% | 0.57% | 0.57% |
| 2031 | 9,839,219 | 5,909,863 | 15,749,082 | 9,894,121 | 5,942,839 | 15,836,960 | 10,750,994 | 6,457,515 | 17,208,508 | 0.31% | 0.31% | 0.31% | 0.54% | 0.54% | 0.54% | 0.63% | 0.63% | 0.63% |
| 2032 | 9,895,053 | 5,943,399 | 15,838,452 | 9,932,875 | 5,966,117 | 15,898,992 | 10,812,011 | 6,494,165 | 17,306,176 | 0.57% | 0.57% | 0.57% | 0.39% | 0.39% | 0.39% | 0.57% | 0.57% | 0.57% |

| | Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | |
|------|---------------------|---------|-----------------|----------------|---------|-----------------|----------------|---------|-----------------|---------------|-------|-------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 13,470 | 184,584 | 198,054 | 13,852 | 186,147 | 199,999 | 14,329 | 188,672 | 203,001 | 8.36% | 0.03% | 0.55% | 11.01% | 0.90% | 1.54% | 15.34% | 2.24% | 3.07% |
| 2013 | 13,517 | 187,935 | 201,452 | 13,951 | 190,296 | 204,246 | 14,584 | 194,048 | 208,632 | 0.35% | 1.82% | 1.72% | 0.71% | 2.23% | 2.12% | 1.78% | 2.85% | 2.77% |
| 2014 | 13,627 | 192,218 | 205,845 | 14,066 | 194,394 | 208,460 | 14,788 | 198,411 | 213,199 | 0.81% | 2.28% | 2.18% | 0.82% | 2.15% | 2.06% | 1.40% | 2.52% | 2.19% |
| 2015 | 13,789 | 196,524 | 210,314 | 14,221 | 198,862 | 213,083 | 15,001 | 202,987 | 217,988 | 1.19% | 2.24% | 2.17% | 1.11% | 2.30% | 2.22% | 1.44% | 2.31% | 2.25% |
| 2016 | 13,988 | 200,744 | 214,732 | 14,390 | 203,233 | 217,624 | 15,215 | 207,381 | 222,596 | 1.44% | 2.15% | 2.10% | 1.19% | 2.20% | 2.13% | 1.42% | 2.16% | 2.11% |
| 2017 | 14,187 | 204,910 | 219,097 | 14,588 | 207,554 | 222,112 | 15,444 | 211,742 | 227,186 | 1.43% | 2.08% | 2.03% | 1.17% | 2.13% | 2.06% | 1.50% | 2.10% | 2.06% |
| 2018 | 14,345 | 209,051 | 223,396 | 14,704 | 211,830 | 226,535 | 15,633 | 216,061 | 231,694 | 1.11% | 2.02% | 1.96% | 1.01% | 2.06% | 1.99% | 1.22% | 2.04% | 1.98% |
| 2019 | 14,511 | 213,100 | 227,611 | 14,845 | 216,028 | 230,873 | 15,826 | 220,307 | 236,133 | 1.16% | 1.94% | 1.89% | 0.96% | 1.98% | 1.92% | 1.24% | 1.97% | 1.92% |
| 2020 | 14,693 | 217,067 | 231,759 | 15,000 | 220,130 | 235,129 | 16,022 | 224,422 | 240,443 | 1.25% | 1.86% | 1.82% | 1.04% | 1.90% | 1.84% | 1.24% | 1.87% | 1.83% |
| 2021 | 14,873 | 220,917 | 235,790 | 15,163 | 224,138 | 239,301 | 16,230 | 228,487 | 244,717 | 1.23% | 1.77% | 1.74% | 1.09% | 1.82% | 1.77% | 1.30% | 1.81% | 1.78% |
| 2022 | 15,013 | 224,741 | 239,754 | 15,276 | 228,130 | 243,406 | 16,397 | 232,528 | 248,926 | 0.94% | 1.73% | 1.68% | 0.75% | 1.78% | 1.72% | 1.30% | 1.77% | 1.72% |
| 2023 | 15,141 | 228,477 | 243,619 | 15,395 | 231,984 | 247,379 | 16,560 | 236,377 | 252,937 | 0.86% | 1.66% | 1.61% | 0.78% | 1.69% | 1.63% | 0.99% | 1.66% | 1.61% |
| 2024 | 15,332 | 232,019 | 247,351 | 15,544 | 235,661 | 251,204 | 16,728 | 240,073 | 256,801 | 1.26% | 1.55% | 1.53% | 0.97% | 1.58% | 1.55% | 1.01% | 1.56% | 1.53% |
| 2025 | 15,540 | 235,395 | 250,935 | 15,715 | 239,198 | 254,913 | 16,945 | 243,604 | 260,549 | 1.36% | 1.46% | 1.45% | 1.11% | 1.50% | 1.48% | 1.30% | 1.47% | 1.46% |
| 2026 | 15,670 | 238,700 | 254,370 | 15,817 | 242,608 | 258,425 | 17,072 | 246,626 | 264,035 | 0.84% | 1.40% | 1.37% | 0.65% | 1.43% | 1.38% | 0.75% | 1.38% | 1.34% |
| 2027 | 15,792 | 241,816 | 257,607 | 15,930 | 245,826 | 261,755 | 17,211 | 250,193 | 267,404 | 0.78% | 1.31% | 1.27% | 0.71% | 1.33% | 1.29% | 0.82% | 1.31% | 1.28% |
| 2028 | 15,930 | 244,768 | 260,698 | 16,039 | 248,901 | 264,940 | 17,348 | 253,265 | 270,613 | 0.88% | 1.22% | 1.20% | 0.68% | 1.25% | 1.22% | 0.79% | 1.23% | 1.20% |
| 2029 | 16,055 | 247,567 | 263,623 | 16,134 | 251,824 | 267,958 | 17,483 | 256,139 | 273,622 | 0.79% | 1.14% | 1.12% | 0.59% | 1.17% | 1.14% | 0.78% | 1.13% | 1.11% |
| 2030 | 16,141 | 250,227 | 266,368 | 16,194 | 254,620 | 270,814 | 17,581 | 258,937 | 276,518 | 0.53% | 1.07% | 1.04% | 0.37% | 1.11% | 1.07% | 0.57% | 1.09% | 1.06% |
| 2031 | 16,191 | 252,573 | 268,765 | 16,282 | 256,976 | 273,257 | 17,692 | 261,238 | 278,930 | 0.31% | 0.94% | 0.90% | 0.54% | 0.93% | 0.90% | 0.63% | 0.89% | 0.87% |
| 2032 | 16,283 | 255,093 | 271,377 | 16,346 | 259,617 | 275,963 | 17,792 | 263,851 | 281,643 | 0.57% | 1.00% | 0.97% | 0.39% | 1.03% | 0.99% | 0.57% | 1.00% | 0.97% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|-----------|------------|-----------|-----------|------------|-----------|-----------|------------|---------------|---------|-------|--------|---------|--------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 5,754,414 | 7,347,685 | 13,102,099 | 6,104,801 | 7,368,989 | 13,473,790 | 6,576,318 | 7,361,140 | 13,937,458 | 4.10% | 11.94% | 8.36% | 9.40% | 12.38% | 11.01% | 17.85% | 13.18% | 15.34% |
| 2013 | 5,775,744 | 7,372,091 | 13,147,835 | 6,191,028 | 7,378,472 | 13,569,500 | 6,786,544 | 7,398,747 | 14,185,291 | 0.37% | 0.33% | 0.35% | 1.41% | 0.13% | 0.71% | 3.20% | 0.51% | 1.78% |
| 2014 | 5,848,128 | 7,406,439 | 13,254,567 | 6,296,103 | 7,385,244 | 13,681,347 | 6,958,710 | 7,425,737 | 14,384,483 | 1.25% | 0.47% | 0.81% | 1.70% | 0.09% | 0.82% | 2.54% | 0.37% | 1.40% |
| 2015 | 5,965,366 | 7,447,161 | 13,412,527 | 6,437,200 | 7,395,428 | 13,832,628 | 7,128,110 | 7,463,393 | 14,591,503 | 2.00% | 0.55% | 1.19% | 2.24% | 0.14% | 1.11% | 2.43% | 0.51% | 1.44% |
| 2016 | 6,103,178 | 7,502,357 | 13,605,535 | 6,586,720 | 7,410,370 | 13,997,090 | 7,290,855 | 7,508,523 | 14,799,378 | 2.31% | 0.74% | 1.44% | 2.32% | 0.20% | 1.19% | 2.28% | 0.60% | 1.42% |
| 2017 | 6,239,412 | 7,560,319 | 13,799,731 | 6,734,560 | 7,425,836 | 14,160,396 | 7,465,314 | 7,556,587 | 15,021,901 | 2.32% | 0.77% | 1.43% | 2.24% | 0.21% | 1.17% | 2.39% | 0.64% | 1.50% |
| 2018 | 6,349,308 | 7,604,208 | 13,953,516 | 6,867,874 | 7,434,903 | 14,302,777 | 7,612,110 | 7,593,762 | 15,205,872 | 1.76% | 0.58% | 1.11% | 1.98% | 0.12% | 1.01% | 1.97% | 0.49% | 1.22% |
| 2019 | 6,467,941 | 7,646,832 | 14,114,772 | 6,997,878 | 7,442,053 | 14,439,931 | 7,768,805 | 7,625,203 | 15,394,008 | 1.87% | 0.56% | 1.16% | 1.89% | 0.10% | 0.96% | 2.06% | 0.41% | 1.24% |
| 2020 | 6,596,599 | 7,694,538 | 14,291,137 | 7,137,378 | 7,452,582 | 14,589,960 | 7,920,660 | 7,663,531 | 15,584,191 | 1.99% | 0.62% | 1.25% | 1.99% | 0.14% | 1.04% | 1.95% | 0.50% | 1.24% |
| 2021 | 6,721,596 | 7,744,804 | 14,466,400 | 7,287,124 | 7,461,175 | 14,748,299 | 8,084,646 | 7,702,429 | 15,787,075 | 1.89% | 0.65% | 1.23% | 2.10% | 0.12% | 1.04% | 2.07% | 0.51% | 1.30% |
| 2022 | | | | | | | | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Pendleton



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

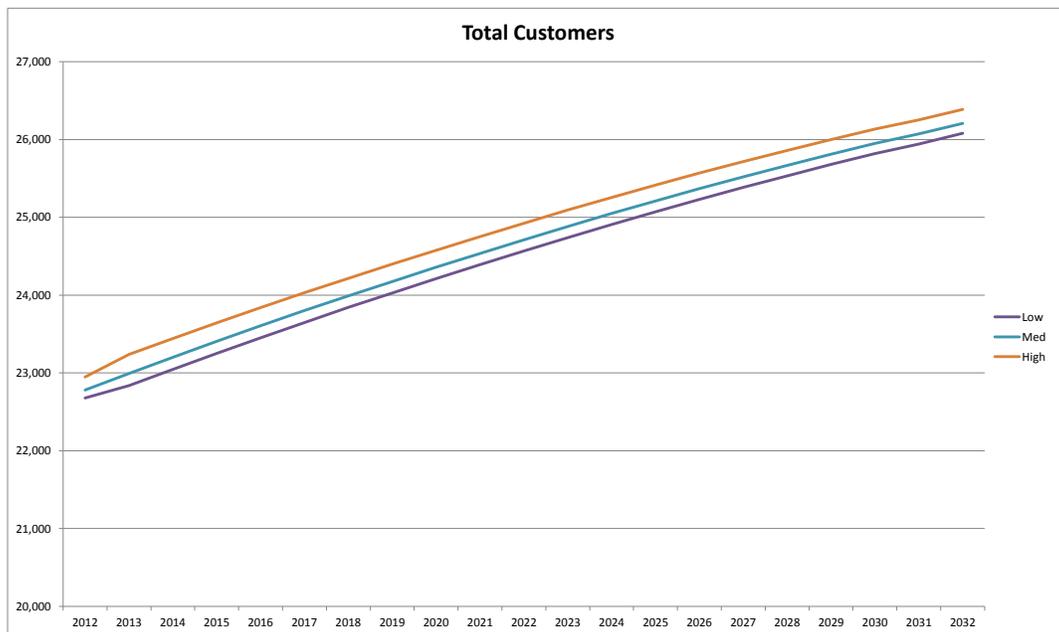
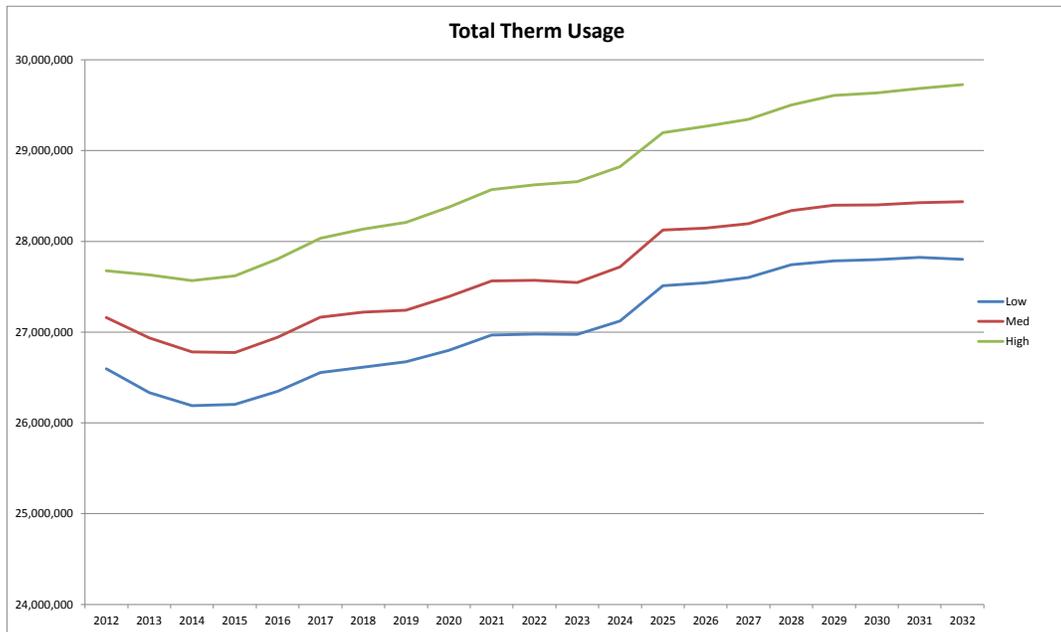
| Sunnyside | | | | | | | | | | | | | | | | | | |
|------------------------------|------------|-----------|------------|------------|-----------|------------|------------|-----------|------------|---------|----------|---------------|---------|----------|--------|---------|----------|--------|
| Annual Requirements (Therms) | | | | | | | | | | | | Annual Change | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 19,585,905 | 7,008,973 | 26,594,877 | 20,003,284 | 7,158,335 | 27,161,620 | 20,382,250 | 7,293,951 | 27,676,201 | 1.32% | 1.32% | 1.32% | 2.89% | 2.89% | 2.89% | 5.08% | 5.08% | 5.08% |
| 2013 | 19,392,597 | 6,939,796 | 26,332,393 | 19,837,480 | 7,099,001 | 26,936,481 | 20,348,229 | 7,281,776 | 27,630,005 | -0.99% | -0.99% | -0.99% | -0.83% | -0.83% | -0.83% | -0.17% | -0.17% | -0.17% |
| 2014 | 19,288,871 | 6,902,677 | 26,191,547 | 19,723,259 | 7,058,126 | 26,781,386 | 20,302,906 | 7,265,557 | 27,568,463 | -0.53% | -0.53% | -0.53% | -0.58% | -0.58% | -0.58% | -0.22% | -0.22% | -0.22% |
| 2015 | 19,298,067 | 6,905,968 | 26,204,035 | 19,719,035 | 7,056,614 | 26,775,649 | 20,340,645 | 7,279,062 | 27,619,707 | 0.05% | 0.05% | 0.05% | -0.02% | -0.02% | -0.02% | 0.19% | 0.19% | 0.19% |
| 2016 | 19,403,948 | 6,943,858 | 26,347,806 | 19,842,541 | 7,100,812 | 26,943,353 | 20,477,954 | 7,328,200 | 27,806,153 | 0.55% | 0.55% | 0.55% | 0.63% | 0.63% | 0.63% | 0.68% | 0.68% | 0.68% |
| 2017 | 19,556,642 | 6,998,501 | 26,555,142 | 20,004,199 | 7,158,663 | 27,162,862 | 20,644,770 | 7,387,896 | 28,032,666 | 0.79% | 0.79% | 0.79% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% | 0.81% |
| 2018 | 19,601,209 | 7,014,450 | 26,615,659 | 20,045,480 | 7,173,435 | 27,218,916 | 20,719,482 | 7,414,632 | 28,134,114 | 0.23% | 0.23% | 0.23% | 0.21% | 0.21% | 0.21% | 0.36% | 0.36% | 0.36% |
| 2019 | 19,642,593 | 7,029,259 | 26,671,852 | 20,063,189 | 7,179,773 | 27,242,962 | 20,775,612 | 7,434,719 | 28,210,331 | 0.21% | 0.21% | 0.21% | 0.09% | 0.09% | 0.09% | 0.27% | 0.27% | 0.27% |
| 2020 | 19,736,600 | 7,062,900 | 26,799,500 | 20,173,288 | 7,219,173 | 27,392,461 | 20,896,323 | 7,478,632 | 28,376,956 | 0.48% | 0.48% | 0.48% | 0.55% | 0.55% | 0.55% | 0.59% | 0.59% | 0.59% |
| 2021 | 19,860,056 | 7,107,080 | 26,967,136 | 20,300,734 | 7,264,780 | 27,565,514 | 21,039,177 | 7,529,038 | 28,568,215 | 0.63% | 0.63% | 0.63% | 0.63% | 0.63% | 0.63% | 0.67% | 0.67% | 0.67% |
| 2022 | 19,868,139 | 7,109,972 | 26,978,111 | 20,303,926 | 7,265,922 | 27,569,848 | 21,078,897 | 7,543,252 | 28,622,148 | 0.04% | 0.04% | 0.04% | 0.02% | 0.02% | 0.02% | 0.19% | 0.19% | 0.19% |
| 2023 | 19,866,235 | 7,109,291 | 26,975,526 | 20,287,500 | 7,260,044 | 27,547,545 | 21,104,819 | 7,552,528 | 28,657,348 | -0.01% | -0.01% | -0.01% | -0.08% | -0.08% | -0.08% | 0.12% | 0.12% | 0.12% |
| 2024 | 19,974,674 | 7,148,097 | 27,122,770 | 20,413,655 | 7,305,190 | 27,718,845 | 21,225,811 | 7,595,826 | 28,821,637 | 0.55% | 0.55% | 0.55% | 0.62% | 0.62% | 0.62% | 0.57% | 0.57% | 0.57% |
| 2025 | 20,260,218 | 7,250,281 | 27,510,499 | 20,711,394 | 7,411,738 | 28,123,132 | 21,501,211 | 7,694,380 | 29,195,592 | 1.43% | 1.43% | 1.43% | 1.46% | 1.46% | 1.46% | 1.30% | 1.30% | 1.30% |
| 2026 | 20,284,325 | 7,258,908 | 27,543,233 | 20,728,650 | 7,417,913 | 28,146,563 | 21,554,823 | 7,713,566 | 29,268,389 | 0.12% | 0.12% | 0.12% | 0.08% | 0.08% | 0.08% | 0.25% | 0.25% | 0.25% |
| 2027 | 20,326,571 | 7,274,090 | 27,600,661 | 20,764,253 | 7,430,654 | 28,194,908 | 21,610,736 | 7,733,575 | 29,344,310 | 0.21% | 0.21% | 0.21% | 0.17% | 0.17% | 0.17% | 0.26% | 0.26% | 0.26% |
| 2028 | 20,431,729 | 7,311,658 | 27,743,387 | 20,870,781 | 7,468,776 | 28,339,557 | 21,727,710 | 7,775,435 | 29,503,145 | 0.52% | 0.52% | 0.52% | 0.51% | 0.51% | 0.51% | 0.54% | 0.54% | 0.54% |
| 2029 | 20,461,662 | 7,322,369 | 27,784,031 | 20,914,580 | 7,484,450 | 28,399,030 | 21,803,880 | 7,802,693 | 29,606,573 | 0.15% | 0.15% | 0.15% | 0.21% | 0.21% | 0.21% | 0.35% | 0.35% | 0.35% |
| 2030 | 20,473,002 | 7,326,427 | 27,799,429 | 20,915,527 | 7,484,789 | 28,400,316 | 21,826,194 | 7,810,678 | 29,636,873 | 0.06% | 0.06% | 0.06% | 0.00% | 0.00% | 0.00% | 0.10% | 0.10% | 0.10% |
| 2031 | 20,490,370 | 7,332,643 | 27,823,013 | 20,933,520 | 7,491,228 | 28,424,748 | 21,861,823 | 7,823,428 | 29,685,251 | 0.08% | 0.08% | 0.08% | 0.09% | 0.09% | 0.09% | 0.16% | 0.16% | 0.16% |
| 2032 | 20,475,135 | 7,327,191 | 27,802,326 | 20,942,603 | 7,494,478 | 28,437,082 | 21,893,153 | 7,834,640 | 29,727,792 | -0.07% | -0.07% | -0.07% | 0.04% | 0.04% | 0.04% | 0.14% | 0.14% | 0.14% |

| Peak Day - Baseload | | | | | | | | | | | | Annual Change | | | | | | |
|---------------------|----------------|---------|-----------------|----------------|---------|-----------------|----------------|---------|-----------------|--------|-------|---------------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 19,203 | 284,164 | 303,366 | 19,612 | 285,165 | 304,777 | 19,983 | 286,996 | 306,980 | 1.32% | 0.12% | 0.20% | 2.89% | 0.52% | 0.66% | 5.08% | 1.15% | 1.39% |
| 2013 | 19,013 | 286,513 | 305,526 | 19,449 | 288,154 | 307,603 | 19,950 | 290,919 | 310,870 | -0.99% | 0.83% | 0.71% | -0.83% | 1.05% | 0.93% | -0.17% | 1.37% | 1.27% |
| 2014 | 18,911 | 289,404 | 308,315 | 19,337 | 291,063 | 310,400 | 19,960 | 293,711 | 313,671 | -0.53% | 1.01% | 0.91% | -0.58% | 1.01% | 0.91% | -0.22% | 0.96% | 0.88% |
| 2015 | 18,920 | 292,141 | 311,062 | 19,333 | 293,795 | 313,128 | 19,943 | 296,379 | 316,322 | 0.05% | 0.95% | 0.89% | -0.02% | 0.94% | 0.88% | 0.19% | 0.91% | 0.86% |
| 2016 | 19,024 | 294,727 | 313,752 | 19,454 | 296,344 | 315,798 | 20,077 | 298,864 | 318,942 | 0.55% | 0.89% | 0.86% | 0.63% | 0.87% | 0.85% | 0.68% | 0.84% | 0.83% |
| 2017 | 19,174 | 297,210 | 316,384 | 19,613 | 298,799 | 318,411 | 20,241 | 301,250 | 321,490 | 0.79% | 0.84% | 0.84% | 0.81% | 0.83% | 0.83% | 0.81% | 0.80% | 0.80% |
| 2018 | 19,218 | 299,741 | 318,959 | 19,653 | 301,301 | 320,954 | 20,314 | 303,668 | 323,982 | 0.23% | 0.85% | 0.81% | 0.21% | 0.84% | 0.80% | 0.36% | 0.80% | 0.78% |
| 2019 | 19,258 | 302,205 | 321,463 | 19,671 | 303,767 | 323,438 | 20,369 | 306,033 | 326,402 | 0.21% | 0.82% | 0.78% | 0.09% | 0.82% | 0.77% | 0.27% | 0.78% | 0.75% |
| 2020 | 19,350 | 304,558 | 323,909 | 19,779 | 306,086 | 325,865 | 20,489 | 308,290 | 328,779 | 0.48% | 0.78% | 0.76% | 0.55% | 0.76% | 0.75% | 0.57% | 0.74% | 0.73% |
| 2021 | 19,471 | 306,826 | 326,298 | 19,904 | 308,332 | 328,235 | 20,628 | 310,499 | 331,127 | 0.63% | 0.74% | 0.74% | 0.63% | 0.73% | 0.73% | 0.67% | 0.72% | 0.71% |
| 2022 | 19,479 | 309,164 | 328,644 | 19,907 | 310,670 | 330,577 | 20,666 | 312,780 | 333,447 | 0.04% | 0.76% | 0.72% | 0.62% | 0.76% | 0.71% | 0.19% | 0.73% | 0.70% |
| 2023 | 19,478 | 311,483 | 330,961 | 19,891 | 312,985 | 332,876 | 20,692 | 315,018 | 335,710 | -0.01% | 0.75% | 0.70% | -0.08% | 0.75% | 0.70% | 0.12% | 0.72% | 0.68% |
| 2024 | 19,584 | 313,623 | 333,207 | 20,014 | 315,089 | 335,103 | 20,810 | 317,062 | 337,873 | 0.55% | 0.69% | 0.68% | 0.62% | 0.67% | 0.67% | 0.57% | 0.65% | 0.64% |
| 2025 | 19,864 | 315,545 | 335,409 | 20,306 | 319,966 | 337,273 | 21,080 | 318,926 | 340,007 | 1.43% | 0.61% | 0.66% | 1.46% | 0.60% | 0.65% | 1.30% | 0.59% | 0.63% |
| 2026 | 19,887 | 317,653 | 337,541 | 20,323 | 319,062 | 339,385 | 21,133 | 320,922 | 342,055 | 0.12% | 0.67% | 0.64% | 0.08% | 0.66% | 0.63% | 0.25% | 0.63% | 0.60% |
| 2027 | 19,929 | 319,671 | 339,600 | 20,358 | 321,053 | 341,411 | 21,188 | 322,843 | 344,031 | 0.21% | 0.64% | 0.61% | 0.17% | 0.62% | 0.60% | 0.26% | 0.60% | 0.58% |
| 2028 | 20,032 | 321,570 | 341,602 | 20,462 | 322,932 | 343,395 | 21,303 | 324,648 | 346,551 | 0.52% | 0.59% | 0.59% | 0.51% | 0.59% | 0.58% | 0.54% | 0.56% | 0.56% |
| 2029 | 20,061 | 323,472 | 343,533 | 20,505 | 324,801 | 345,306 | 21,377 | 326,435 | 347,812 | 0.15% | 0.59% | 0.57% | 0.21% | 0.58% | 0.56% | 0.35% | 0.55% | 0.54% |
| 2030 | 20,072 | 325,334 | 345,406 | 20,506 | 326,655 | 347,161 | 21,399 | 328,232 | 349,631 | 0.06% | 0.58% | 0.55% | 0.00% | 0.57% | 0.54% | 0.10% | 0.55% | 0.52% |
| 2031 | 20,089 | 326,976 | 347,065 | 20,524 | 328,256 | 348,780 | 21,434 | 329,762 | 351,196 | 0.08% | 0.50% | 0.48% | 0.09% | 0.49% | 0.47% | 0.16% | 0.47% | 0.45% |
| 2032 | 20,074 | 328,834 | 348,908 | 20,533 | 330,058 | 350,591 | 21,465 | 331,520 | 352,985 | -0.07% | 0.57% | 0.53% | 0.04% | 0.55% | 0.52% | 0.14% | 0.53% | 0.51% |

| Therm Usage by Class | | | | | | | | | | | | Annual Change | | | | | | |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------|---------|---------------|--------|---------|--------|-------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 11,093,554 | 15,501,323 | 26,594,877 | 11,456,478 | 15,705,142 | 27,161,620 | 12,031,503 | 15,644,698 | 27,676,201 | -4.00% | 5.50% | 1.32% | -0.86% | 5.80% | 2.89% | 4.12% | 5.83% | 5.08% |
| 2013 | 11,004,460 | 15,327,933 | 26,332,393 | 11,453,652 | 15,482,829 | 26,936,481 | 12,136,432 | 15,493,573 | 27,630,005 | -0.80% | -1.12% | -0.99% | -0.02% | -1.42% | -0.83% | 0.87% | -0.97% | -0.17% |
| 2014 | 10,995,953 | 15,195,594 | 26,191,547 | 11,467,027 | 15,314,359 | 26,781,386 | 12,190,731 | 15,377,322 | 27,568,463 | -0.08% | -0.86% | -0.53% | 0.12% | -1.09% | -0.58% | 0.45% | -0.75% | -0.22% |
| 2015 | 11,062,359 | 15,141,676 | 26,204,035 | 11,535,174 | 15,240,475 | 26,775,649 | 12,282,228 | 15,337,479 | 27,619,707 | 0.60% | -0.35% | 0.05% | 0.59% | -0.48% | -0.02% | 0.75% | -0.26% | 0.19% |
| 2016 | 11,145,680 | 15,202,126 | 26,347,806 | 11,640,335 | 15,303,018 | 26,943,353 | 12,389,940 | 15,416,213 | 27,806,153 | 0.75% | 0.40% | 0.55% | 0.91% | 0.41% | 0.63% | 0.88% | 0.51% | 0.68% |
| 2017 | 11,246,480 | 15,308,662 | 26,555,142 | 11,743,172 | 15,419,690 | 27,162,862 | 12,494,592 | 15,538,074 | 28,032,666 | 0.90% | 0.70% | 0.79% | 0.88% | 0.76% | 0.81% | 0.84% | 0.79% | 0.81% |
| 2018 | 11,304,522 | 15,311,137 | 26,615,659 | 11,802,336 | 15,416,580 | 27,218,916 | 12,576,213 | 15,557,901 | 28,134,114 | 0.52% | 0.02% | 0.23% | 0.50% | -0.02% | 0.21% | 0.65% | 0.13% | 0.36% |
| 2019 | 11,379,510 | 15,292,342 | 26,671,852 | 11,858,504 | 15,384,458 | 27,242,962 | 12,654,450 | 15,555,881 | 28,210,331 | 0.66% | -0.12% | 0.21% | 0.48% | -0.21% | 0.09% | 0.62% | -0.10% | 0.27% |
| 2020 | 11,451,932 | 15,347,568 | 26,799,500 | 11,953,132 | 15,439,329 | 27,392,461 | 12,751,440 | 15,625,516 | 28,376,956 | 0.64% | 0.36% | 0.48% | 0.80% | 0.36% | 0.55% | 0.77% | 0.45% | 0.59% |
| 2021 | 11,542,560 | 15,424,576 | 26,967,136 | 12,045,542 | 15,520,062 | 27,565,514 | 12,847,210 | 15,721,005 | 28,568,215 | 0.79% | 0.50% | 0.63% | 0.73% | 0.52% | 0.63% | 0.75% | 0.61% | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Sunnyside



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

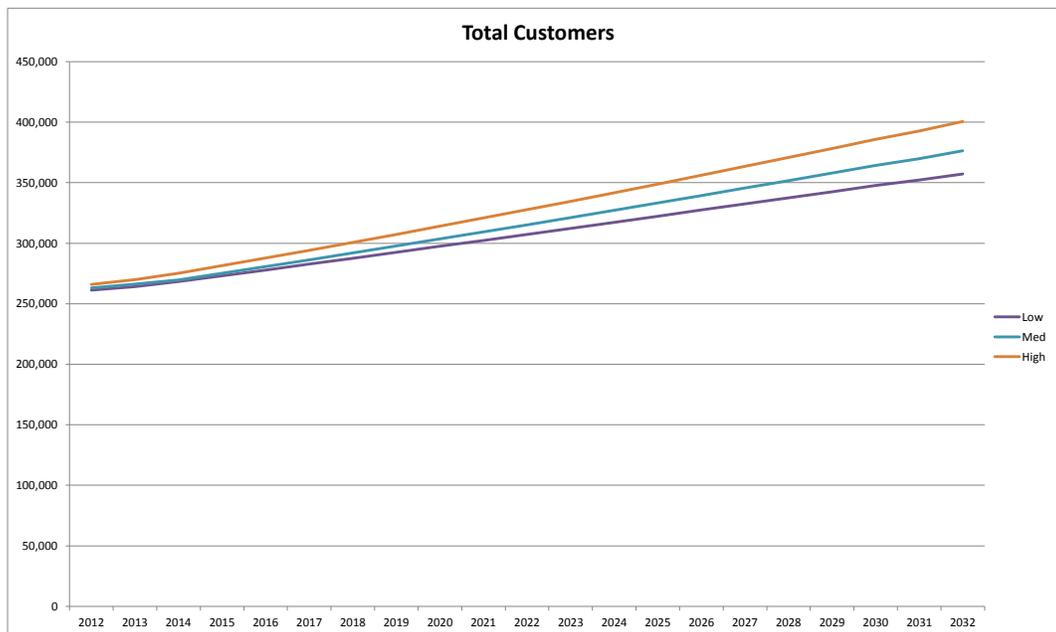
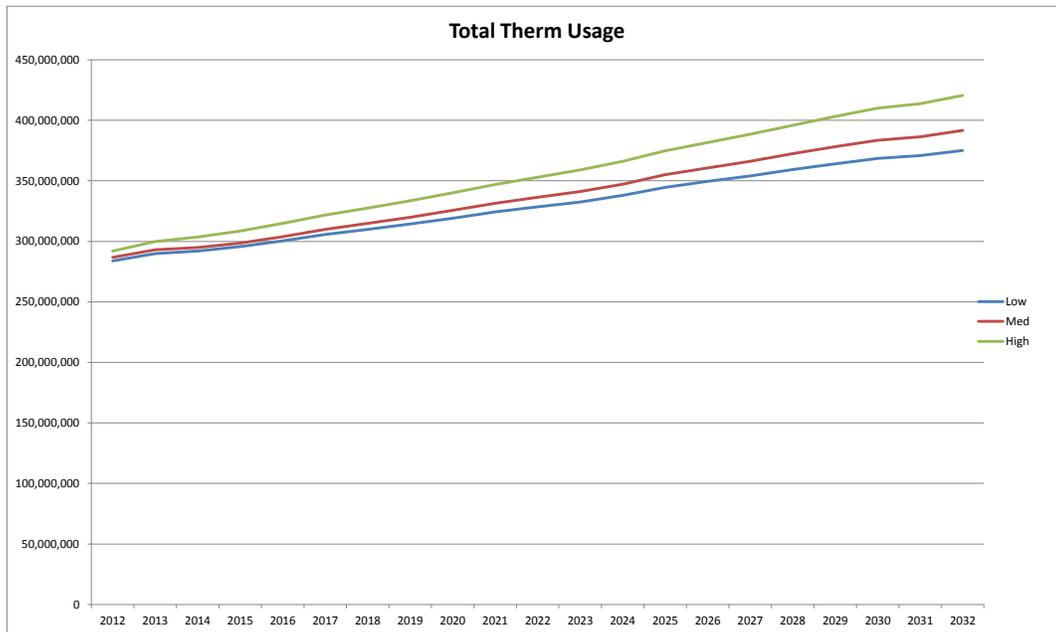
| SYSTEM TOTAL | | | | | | | | | | | | | | | | | | |
|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------|----------|---------------|---------|----------|-------|---------|----------|-------|
| Annual Requirements (Therms) | | | | | | | | | | | | Annual Change | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 190,003,969 | 93,928,414 | 283,932,383 | 191,954,540 | 94,834,328 | 286,788,868 | 195,329,768 | 96,609,848 | 291,939,616 | 5.98% | 6.38% | 6.11% | 7.50% | 7.98% | 7.66% | 9.78% | 10.36% | 9.97% |
| 2013 | 193,920,511 | 95,976,724 | 289,897,235 | 196,132,809 | 97,015,834 | 293,148,643 | 200,639,959 | 99,366,477 | 300,006,436 | 2.06% | 2.18% | 2.10% | 2.18% | 2.20% | 2.22% | 2.72% | 2.85% | 2.76% |
| 2014 | 195,288,692 | 96,721,747 | 292,010,439 | 197,189,943 | 97,603,011 | 294,792,954 | 202,966,097 | 100,613,241 | 303,579,338 | 0.71% | 0.78% | 0.73% | 0.54% | 0.61% | 0.56% | 1.16% | 1.25% | 1.19% |
| 2015 | 197,638,722 | 97,958,564 | 295,597,286 | 199,593,042 | 98,873,272 | 298,466,314 | 206,317,955 | 102,369,237 | 308,687,192 | 1.20% | 1.28% | 1.23% | 1.22% | 1.30% | 1.25% | 1.65% | 1.75% | 1.68% |
| 2016 | 200,849,396 | 99,608,752 | 300,458,147 | 203,199,757 | 100,723,383 | 303,923,140 | 210,425,325 | 104,479,762 | 314,905,087 | 1.62% | 1.68% | 1.64% | 1.81% | 1.87% | 1.83% | 2.99% | 3.06% | 2.91% |
| 2017 | 204,246,541 | 101,333,737 | 305,580,278 | 207,164,299 | 102,748,277 | 309,912,577 | 214,855,511 | 106,746,996 | 321,602,507 | 1.69% | 1.73% | 1.70% | 1.95% | 2.01% | 1.97% | 2.11% | 2.17% | 2.13% |
| 2018 | 207,111,101 | 102,806,980 | 309,918,082 | 210,477,738 | 104,454,380 | 314,932,119 | 218,789,965 | 108,776,559 | 327,566,523 | 1.40% | 1.45% | 1.42% | 1.60% | 1.66% | 1.62% | 1.83% | 1.90% | 1.85% |
| 2019 | 209,967,185 | 104,286,735 | 314,253,920 | 213,691,984 | 106,123,590 | 319,815,575 | 222,722,130 | 110,814,117 | 333,536,247 | 1.38% | 1.44% | 1.40% | 1.53% | 1.60% | 1.55% | 1.80% | 1.87% | 1.82% |
| 2020 | 213,207,043 | 105,946,428 | 319,153,471 | 217,467,195 | 108,066,542 | 325,533,737 | 227,025,789 | 113,030,573 | 340,056,362 | 1.54% | 1.59% | 1.56% | 1.77% | 1.83% | 1.79% | 1.93% | 2.00% | 1.95% |
| 2021 | 216,593,584 | 107,617,313 | 324,210,897 | 221,361,839 | 110,053,977 | 331,415,816 | 231,549,974 | 115,349,636 | 346,899,610 | 1.59% | 1.63% | 1.60% | 1.79% | 1.84% | 1.81% | 1.99% | 2.05% | 2.01% |
| 2022 | 219,370,984 | 109,106,803 | 328,477,787 | 224,607,586 | 111,733,874 | 336,341,460 | 235,621,293 | 117,452,392 | 353,073,685 | 1.28% | 1.33% | 1.30% | 1.47% | 1.53% | 1.49% | 1.76% | 1.82% | 1.78% |
| 2023 | 222,080,864 | 110,512,306 | 332,593,170 | 227,734,722 | 113,361,291 | 341,096,013 | 239,581,660 | 119,510,913 | 359,092,573 | 1.24% | 1.29% | 1.25% | 1.39% | 1.46% | 1.41% | 1.68% | 1.75% | 1.70% |
| 2024 | 225,611,947 | 112,425,173 | 337,937,121 | 231,800,844 | 115,452,479 | 347,253,323 | 244,271,517 | 121,923,166 | 366,194,683 | 1.59% | 1.64% | 1.61% | 1.79% | 1.84% | 1.81% | 1.96% | 2.02% | 1.98% |
| 2025 | 230,112,161 | 114,577,227 | 344,689,388 | 237,038,594 | 118,087,293 | 355,125,887 | 250,008,486 | 124,813,641 | 374,822,128 | 1.99% | 2.00% | 2.00% | 2.26% | 2.28% | 2.27% | 2.35% | 2.37% | 2.36% |
| 2026 | 233,257,681 | 116,189,723 | 349,447,403 | 240,715,033 | 119,973,418 | 360,688,452 | 254,520,536 | 127,123,400 | 381,643,936 | 1.37% | 1.41% | 1.38% | 1.55% | 1.60% | 1.57% | 1.80% | 1.85% | 1.82% |
| 2027 | 236,375,832 | 117,789,981 | 354,165,813 | 244,310,855 | 121,826,588 | 366,137,443 | 259,040,043 | 129,451,420 | 388,491,463 | 1.34% | 1.38% | 1.35% | 1.49% | 1.54% | 1.51% | 1.78% | 1.83% | 1.79% |
| 2028 | 239,842,795 | 119,554,862 | 359,397,657 | 248,439,169 | 123,939,513 | 372,378,681 | 263,988,951 | 131,976,310 | 395,965,261 | 1.47% | 1.50% | 1.48% | 1.69% | 1.73% | 1.70% | 1.91% | 1.95% | 1.92% |
| 2029 | 242,946,805 | 121,146,317 | 364,093,122 | 252,220,769 | 125,877,372 | 378,098,141 | 268,712,619 | 134,397,555 | 403,110,174 | 1.29% | 1.33% | 1.31% | 1.52% | 1.56% | 1.54% | 1.79% | 1.83% | 1.80% |
| 2030 | 245,836,310 | 122,631,234 | 368,467,543 | 255,708,378 | 127,673,791 | 383,382,169 | 273,212,126 | 136,712,642 | 409,924,768 | 1.19% | 1.23% | 1.20% | 1.38% | 1.43% | 1.40% | 1.67% | 1.72% | 1.69% |
| 2031 | 247,387,330 | 123,423,688 | 370,811,018 | 257,743,376 | 128,726,792 | 386,470,168 | 275,685,074 | 137,994,124 | 413,679,198 | 0.63% | 0.65% | 0.64% | 0.80% | 0.82% | 0.81% | 0.91% | 0.94% | 0.92% |
| 2032 | 250,210,153 | 124,882,643 | 375,092,795 | 261,188,585 | 130,502,754 | 391,691,339 | 280,275,747 | 140,354,409 | 420,630,155 | 1.14% | 1.18% | 1.15% | 1.34% | 1.38% | 1.35% | 1.67% | 1.71% | 1.68% |

| | Peak Day - Baseload | | | | | | Annual Change | | | | | | | | | | | |
|------|---------------------|-----------|-----------------|----------------|-----------|-----------------|----------------|-----------|-----------------|-------|-------|-------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 257,338 | 3,319,666 | 3,577,004 | 259,820 | 3,344,386 | 3,604,206 | 264,685 | 3,380,952 | 3,645,636 | 6.38% | 0.10% | 0.52% | 7.98% | 0.80% | 1.29% | 10.36% | 1.88% | 2.45% |
| 2013 | 262,950 | 3,353,604 | 3,616,554 | 265,797 | 3,383,941 | 3,649,738 | 272,327 | 3,427,271 | 3,699,508 | 2.18% | 1.02% | 1.11% | 2.30% | 1.18% | 1.26% | 2.85% | 1.37% | 1.48% |
| 2014 | 264,991 | 3,411,763 | 3,676,754 | 267,406 | 3,411,763 | 3,676,754 | 275,653 | 3,498,781 | 3,774,434 | 0.78% | 1.73% | 1.66% | 0.61% | 1.30% | 1.25% | 1.25% | 1.09% | 2.03% |
| 2015 | 268,380 | 3,475,288 | 3,743,668 | 270,886 | 3,501,329 | 3,772,125 | 280,464 | 3,580,685 | 3,861,149 | 1.28% | 1.86% | 1.82% | 1.30% | 2.14% | 2.08% | 1.75% | 2.34% | 2.30% |
| 2016 | 272,901 | 3,538,094 | 3,810,995 | 275,954 | 3,573,728 | 3,849,683 | 286,246 | 3,662,708 | 3,948,954 | 1.68% | 1.81% | 1.80% | 1.87% | 2.07% | 2.06% | 2.06% | 2.29% | 2.27% |
| 2017 | 277,627 | 3,601,404 | 3,878,666 | 281,502 | 3,646,388 | 3,927,890 | 292,458 | 3,745,398 | 4,037,856 | 1.73% | 1.78% | 1.78% | 2.01% | 2.03% | 2.03% | 2.17% | 2.26% | 2.25% |
| 2018 | 281,663 | 3,665,026 | 3,946,689 | 286,176 | 3,720,670 | 4,006,849 | 298,018 | 3,829,931 | 4,127,949 | 1.45% | 1.78% | 1.75% | 1.66% | 2.04% | 2.01% | 1.90% | 2.26% | 2.23% |
| 2019 | 285,717 | 3,729,184 | 4,014,901 | 290,750 | 3,795,793 | 4,086,542 | 303,600 | 3,915,222 | 4,219,222 | 1.44% | 1.75% | 1.73% | 1.60% | 2.02% | 1.99% | 1.87% | 2.24% | 2.21% |
| 2020 | 290,264 | 3,793,259 | 4,083,523 | 296,073 | 3,870,921 | 4,166,993 | 309,673 | 4,002,032 | 4,317,705 | 1.59% | 1.72% | 1.71% | 1.83% | 1.98% | 1.97% | 2.00% | 2.21% | 2.19% |
| 2021 | 294,990 | 3,857,380 | 4,152,370 | 301,518 | 3,946,634 | 4,248,151 | 316,026 | 4,089,529 | 4,405,556 | 1.63% | 1.69% | 1.69% | 1.84% | 1.96% | 1.95% | 2.05% | 2.19% | 2.18% |
| 2022 | 298,223 | 3,922,654 | 4,221,577 | 306,120 | 4,024,107 | 4,320,227 | 321,787 | 4,179,076 | 4,500,863 | 1.33% | 1.69% | 1.67% | 1.53% | 1.96% | 1.93% | 1.82% | 2.15% | 2.16% |
| 2023 | 302,773 | 3,988,508 | 4,291,282 | 310,579 | 4,102,539 | 4,413,118 | 327,427 | 4,269,961 | 4,597,388 | 1.29% | 1.68% | 1.65% | 1.46% | 1.95% | 1.91% | 1.75% | 2.17% | 2.14% |
| 2024 | 307,740 | 4,053,389 | 4,361,129 | 316,308 | 4,180,241 | 4,496,549 | 334,026 | 4,360,751 | 4,694,787 | 1.64% | 1.63% | 1.63% | 1.84% | 1.89% | 1.89% | 2.02% | 2.13% | 2.12% |
| 2025 | 313,910 | 4,117,280 | 4,431,190 | 323,527 | 4,257,142 | 4,580,669 | 341,955 | 4,451,631 | 4,793,586 | 2.00% | 1.58% | 1.61% | 2.28% | 1.84% | 1.87% | 2.37% | 2.08% | 2.10% |
| 2026 | 318,328 | 4,183,098 | 4,501,426 | 328,694 | 4,336,675 | 4,665,370 | 348,283 | 4,544,925 | 4,893,208 | 1.41% | 1.60% | 1.59% | 1.60% | 1.87% | 1.85% | 1.85% | 2.10% | 2.08% |
| 2027 | 322,712 | 4,249,007 | 4,571,720 | 333,771 | 4,416,833 | 4,750,604 | 354,661 | 4,639,367 | 4,994,209 | 1.38% | 1.58% | 1.56% | 1.54% | 1.85% | 1.83% | 1.83% | 2.08% | 2.06% |
| 2028 | 327,548 | 4,314,678 | 4,642,226 | 339,560 | 4,497,013 | 4,836,573 | 361,579 | 4,734,605 | 5,096,184 | 1.30% | 1.55% | 1.54% | 1.73% | 1.82% | 1.81% | 1.95% | 2.05% | 2.05% |
| 2029 | 331,908 | 4,380,879 | 4,712,787 | 344,870 | 4,578,189 | 4,923,059 | 368,212 | 4,831,153 | 5,199,366 | 1.33% | 1.53% | 1.52% | 1.56% | 1.81% | 1.79% | 1.83% | 2.04% | 2.02% |
| 2030 | 335,976 | 4,447,547 | 4,783,523 | 349,791 | 4,660,488 | 5,010,279 | 374,555 | 4,929,399 | 5,303,946 | 1.23% | 1.52% | 1.50% | 1.43% | 1.80% | 1.77% | 1.72% | 2.03% | 2.01% |
| 2031 | 338,147 | 4,506,861 | 4,845,008 | 352,676 | 4,734,181 | 5,086,857 | 378,066 | 5,018,665 | 5,396,731 | 0.65% | 1.33% | 1.29% | 0.82% | 1.58% | 1.53% | 0.94% | 1.81% | 1.75% |
| 2032 | 342,144 | 4,574,947 | 4,917,091 | 357,542 | 4,818,806 | 5,176,348 | 384,533 | 5,120,243 | 5,504,776 | 1.18% | 1.51% | 1.49% | 1.38% | 1.79% | 1.76% | 1.71% | 2.02% | 2.00% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------|-------|--------|---------|-------|-------|---------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 147,295,028 | 136,637,355 | 283,932,383 | 149,789,942 | 136,998,926 | 286,788,868 | 154,178,266 | 137,761,350 | 291,939,616 | 3.22% | 9.42% | 6.11% | 5.41% | 10.23% | 7.66% | 8.84% | 11.26% | 9.97% |
| 2013 | 152,445,498 | 137,451,737 | 289,897,235 | 155,464,825 | 137,683,818 | 293,148,643 | 160,693,012 | 139,313,424 | 300,006,436 | 3.50% | 0.60% | 2.10% | 3.79% | 0.50% | 2.22% | 4.23% | 1.13% | 2.76% |
| 2014 | 153,412,307 | 138,598,132 | 292,010,439 | 156,064,068 | 138,728,886 | 294,792,954 | 162,620,569 | 140,958,676 | 303,579,338 | 0.63% | 0.83% | 0.73% | 0.39% | 0.76% | 0.56% | 1.20% | 1.18% | 1.19% |
| 2015 | 155,458,411 | 140,138,875 | 295,597,286 | 158,151,759 | 140,314,555 | 298,466,314 | 165,684,539 | 143,002,653 | 308,687,192 | 1.33% | 1.11% | 1.23% | 1.34% | 1.14% | 1.25% | 1.88% | 1.45% | 1.68% |
| 2016 | 158,188,977 | 142,269,170 | 300,458,147 | 161,241,063 | 142,682,077 | 303,923,140 | 169,233,088 | 145,671,479 | 314,905,087 | 1.76% | 1.52% | 1.64% | 1.95% | 1.69% | 1.83% | 2.14% | 1.87% | 2.01% |
| 2017 | 160,912,282 | 144,667,996 | 305,580,278 | 164,516,255 | 145,396,322 | 309,912,577 | 172,970,496 | 148,632,011 | 321,602,507 | 1.72% | 1.69% | 1.70% | 2.03% | 1.90% | 1.97% | 2.21% | 2.03% | 2.13% |
| 2018 | 163,333,868 | 146,584,214 | 309,918,082 | 167,446,778 | 147,485,341 | 314,932,119 | 176,454,519 | 151,112,066 | 327,566,523 | 1.50% | 1.32% | 1.42% | 1.78% | 1.44% | 1.62% | 2.01% | 1.67% | 1.85% |
| 2019 | 165,842,449 | 148,411,471 | 314,253,920 | | | | | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

SYSTEM TOTAL



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

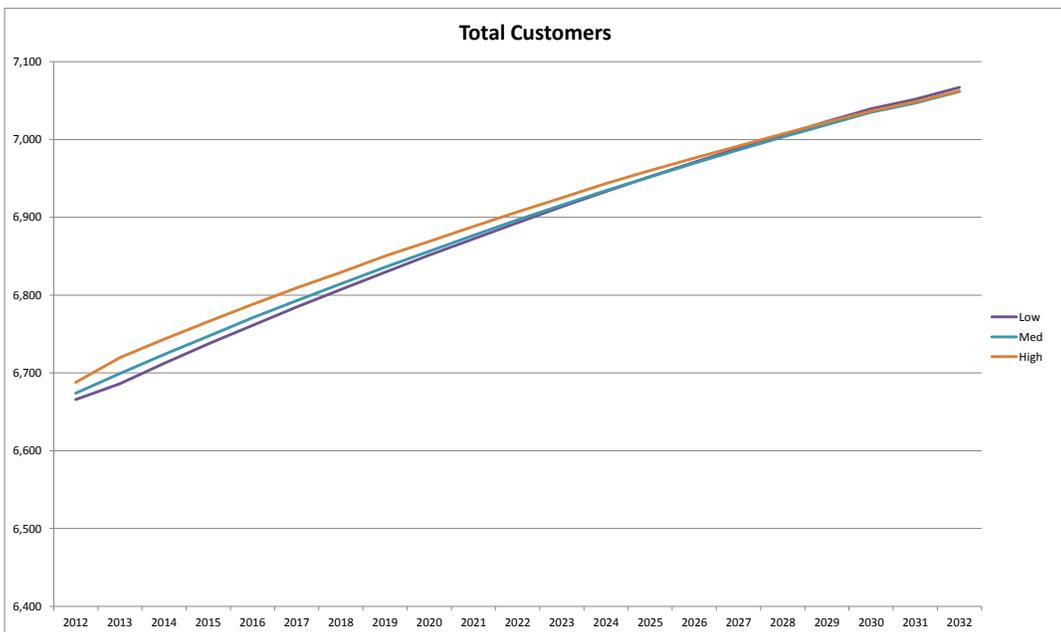
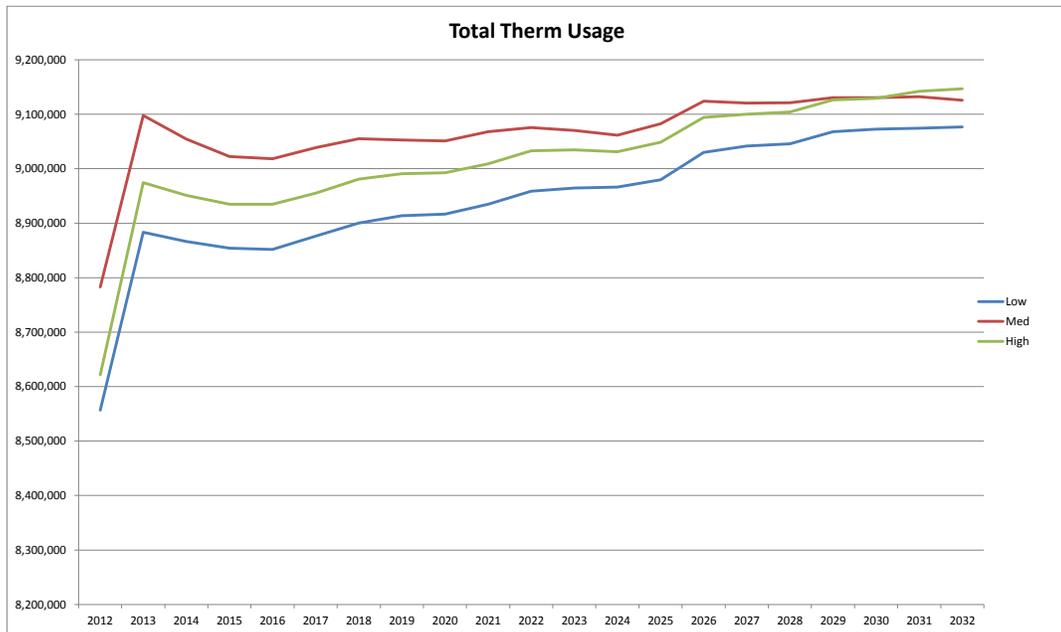
| Walla Walla | | | | | | | | | | | | | | | | | | |
|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|----------|---------------|---------|----------|--------|---------|----------|--------|
| Annual Requirements (Therms) | | | | | | | | | | | | Annual Change | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 6,368,561 | 2,188,231 | 8,556,792 | 6,537,031 | 2,246,117 | 8,783,148 | 6,416,943 | 2,204,854 | 8,621,797 | 0.07% | 0.07% | 0.07% | 0.07% | 0.07% | 0.07% | 0.06% | 0.06% | 0.06% |
| 2013 | 6,611,788 | 2,271,803 | 8,883,591 | 6,771,071 | 2,326,532 | 9,097,603 | 6,679,335 | 2,295,012 | 8,974,346 | 3.82% | 3.82% | 3.82% | 3.58% | 3.58% | 3.58% | 4.09% | 4.09% | 4.09% |
| 2014 | 6,598,945 | 2,267,390 | 8,866,335 | 6,738,873 | 2,315,469 | 9,054,342 | 6,661,921 | 2,289,029 | 8,950,949 | -0.19% | -0.19% | -0.19% | -0.48% | -0.48% | -0.48% | -0.26% | -0.26% | -0.26% |
| 2015 | 6,589,695 | 2,264,212 | 8,853,907 | 6,715,236 | 2,307,348 | 9,022,583 | 6,649,947 | 2,284,914 | 8,934,861 | -0.14% | -0.14% | -0.14% | -0.35% | -0.35% | -0.35% | -0.18% | -0.18% | -0.18% |
| 2016 | 6,588,000 | 2,263,629 | 8,851,629 | 6,712,187 | 2,306,300 | 9,018,486 | 6,649,801 | 2,284,864 | 8,934,665 | -0.03% | -0.03% | -0.03% | -0.05% | -0.05% | -0.05% | 0.00% | 0.00% | 0.00% |
| 2017 | 6,606,280 | 2,269,910 | 8,876,190 | 6,727,183 | 2,311,453 | 9,038,636 | 6,665,209 | 2,290,158 | 8,955,368 | 0.28% | 0.28% | 0.28% | 0.22% | 0.22% | 0.22% | 0.23% | 0.23% | 0.23% |
| 2018 | 6,624,239 | 2,276,081 | 8,900,320 | 6,739,226 | 2,315,591 | 9,054,817 | 6,684,222 | 2,296,691 | 8,980,913 | 0.27% | 0.27% | 0.27% | 0.18% | 0.18% | 0.18% | 0.29% | 0.29% | 0.29% |
| 2019 | 6,634,258 | 2,279,524 | 8,913,782 | 6,737,728 | 2,315,076 | 9,052,804 | 6,691,621 | 2,299,233 | 8,990,854 | 0.15% | 0.15% | 0.15% | -0.02% | -0.02% | -0.02% | 0.11% | 0.11% | 0.11% |
| 2020 | 6,636,237 | 2,280,204 | 8,916,441 | 6,736,575 | 2,314,680 | 9,051,255 | 6,693,084 | 2,299,736 | 8,992,821 | 0.03% | 0.03% | 0.03% | -0.02% | -0.02% | -0.02% | 0.02% | 0.02% | 0.02% |
| 2021 | 6,649,884 | 2,284,893 | 8,934,776 | 6,748,972 | 2,318,939 | 9,067,911 | 6,705,183 | 2,303,893 | 9,009,076 | 0.21% | 0.21% | 0.21% | 0.18% | 0.18% | 0.18% | 0.18% | 0.18% | 0.18% |
| 2022 | 6,667,638 | 2,290,993 | 8,958,631 | 6,754,619 | 2,320,880 | 9,075,498 | 6,722,940 | 2,309,994 | 9,032,934 | 0.27% | 0.27% | 0.27% | 0.08% | 0.08% | 0.08% | 0.26% | 0.26% | 0.26% |
| 2023 | 6,672,243 | 2,292,575 | 8,964,818 | 6,750,866 | 2,319,590 | 9,070,456 | 6,724,436 | 2,310,509 | 9,034,944 | 0.07% | 0.07% | 0.07% | -0.06% | -0.06% | -0.06% | 0.02% | 0.02% | 0.02% |
| 2024 | 6,673,340 | 2,292,952 | 8,966,292 | 6,744,354 | 2,317,353 | 9,061,707 | 6,721,606 | 2,309,536 | 9,031,143 | 0.02% | 0.02% | 0.02% | -0.10% | -0.10% | -0.10% | -0.04% | -0.04% | -0.04% |
| 2025 | 6,683,552 | 2,296,461 | 8,980,013 | 6,760,023 | 2,322,736 | 9,082,759 | 6,734,680 | 2,314,029 | 9,048,709 | 0.15% | 0.15% | 0.15% | 0.23% | 0.23% | 0.23% | 0.19% | 0.19% | 0.19% |
| 2026 | 6,720,864 | 2,309,282 | 9,030,146 | 6,790,927 | 2,333,355 | 9,124,283 | 6,768,699 | 2,325,717 | 9,094,416 | 0.56% | 0.56% | 0.56% | 0.46% | 0.46% | 0.46% | 0.51% | 0.51% | 0.51% |
| 2027 | 6,729,467 | 2,312,237 | 9,041,704 | 6,788,208 | 2,332,421 | 9,120,629 | 6,772,872 | 2,327,151 | 9,100,023 | 0.13% | 0.13% | 0.13% | -0.04% | -0.04% | -0.04% | 0.06% | 0.06% | 0.06% |
| 2028 | 6,732,306 | 2,313,213 | 9,045,519 | 6,788,731 | 2,332,600 | 9,121,331 | 6,775,902 | 2,328,192 | 9,104,094 | 0.04% | 0.04% | 0.04% | 0.01% | 0.01% | 0.01% | 0.04% | 0.04% | 0.04% |
| 2029 | 6,748,911 | 2,318,918 | 9,067,830 | 6,795,432 | 2,334,903 | 9,130,334 | 6,792,274 | 2,333,818 | 9,126,091 | 0.25% | 0.25% | 0.25% | 0.10% | 0.10% | 0.10% | 0.24% | 0.24% | 0.24% |
| 2030 | 6,752,586 | 2,320,181 | 9,072,767 | 6,795,502 | 2,334,927 | 9,130,429 | 6,794,663 | 2,334,639 | 9,129,302 | 0.05% | 0.05% | 0.05% | 0.00% | 0.00% | 0.00% | 0.04% | 0.04% | 0.04% |
| 2031 | 6,753,674 | 2,320,555 | 9,074,229 | 6,796,793 | 2,335,370 | 9,132,163 | 6,804,399 | 2,337,984 | 9,142,383 | 0.02% | 0.02% | 0.02% | 0.02% | 0.02% | 0.02% | 0.14% | 0.14% | 0.14% |
| 2032 | 6,755,706 | 2,321,253 | 9,076,959 | 6,792,017 | 2,333,729 | 9,125,747 | 6,807,796 | 2,339,151 | 9,146,947 | 0.03% | 0.03% | 0.03% | -0.07% | -0.07% | -0.07% | 0.05% | 0.05% | 0.05% |

| Peak Day - Baseload | | | | | | | | | | | | Annual Change | | | | | | |
|---------------------|----------------|--------|-----------------|----------------|--------|-----------------|----------------|--------|-----------------|--------|--------|---------------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 5,995 | 91,995 | 97,991 | 6,154 | 91,953 | 98,107 | 6,041 | 92,274 | 98,314 | 0.07% | -0.04% | -0.03% | 0.07% | 0.09% | 0.09% | 0.06% | 0.31% | 0.30% |
| 2013 | 6,224 | 92,067 | 98,291 | 6,374 | 92,107 | 98,481 | 6,288 | 92,491 | 98,779 | 3.82% | 0.08% | 0.31% | 3.58% | 0.17% | 0.38% | 4.09% | 0.24% | 0.47% |
| 2014 | 6,212 | 92,462 | 98,674 | 6,344 | 92,496 | 98,840 | 6,271 | 92,856 | 99,128 | -0.19% | 0.43% | 0.39% | -0.48% | 0.42% | 0.36% | -0.26% | 0.39% | 0.35% |
| 2015 | 6,203 | 92,837 | 99,040 | 6,322 | 92,860 | 99,181 | 6,260 | 93,200 | 99,460 | -0.14% | 0.41% | 0.37% | -0.35% | 0.39% | 0.35% | -0.18% | 0.37% | 0.33% |
| 2016 | 6,202 | 93,188 | 99,389 | 6,319 | 93,216 | 99,535 | 6,260 | 93,528 | 99,788 | -0.03% | 0.38% | 0.35% | -0.05% | 0.38% | 0.36% | 0.00% | 0.35% | 0.33% |
| 2017 | 6,219 | 93,517 | 99,736 | 6,333 | 93,524 | 99,857 | 6,274 | 93,825 | 100,099 | 0.28% | 0.35% | 0.35% | 0.22% | 0.33% | 0.32% | 0.23% | 0.32% | 0.31% |
| 2018 | 6,236 | 93,829 | 100,065 | 6,344 | 93,831 | 100,175 | 6,294 | 94,101 | 100,393 | 0.27% | 0.33% | 0.33% | 0.18% | 0.33% | 0.32% | 0.29% | 0.29% | 0.29% |
| 2019 | 6,245 | 94,146 | 100,392 | 6,343 | 94,149 | 100,492 | 6,299 | 94,399 | 100,698 | 0.15% | 0.34% | 0.33% | -0.02% | 0.34% | 0.32% | 0.11% | 0.32% | 0.30% |
| 2020 | 6,247 | 94,469 | 100,716 | 6,342 | 94,449 | 100,791 | 6,301 | 94,672 | 100,973 | 0.03% | 0.34% | 0.32% | -0.02% | 0.32% | 0.30% | 0.02% | 0.29% | 0.27% |
| 2021 | 6,260 | 94,763 | 101,023 | 6,353 | 94,735 | 101,088 | 6,312 | 94,948 | 101,260 | 0.21% | 0.31% | 0.30% | 0.18% | 0.30% | 0.29% | 0.18% | 0.29% | 0.28% |
| 2022 | 6,277 | 95,051 | 101,328 | 6,359 | 95,025 | 101,383 | 6,329 | 95,203 | 101,532 | 0.27% | 0.30% | 0.30% | 0.08% | 0.31% | 0.29% | 0.26% | 0.27% | 0.27% |
| 2023 | 6,281 | 95,351 | 101,632 | 6,355 | 95,308 | 101,663 | 6,330 | 95,471 | 101,802 | 0.07% | 0.31% | 0.30% | -0.06% | 0.30% | 0.28% | 0.02% | 0.28% | 0.27% |
| 2024 | 6,282 | 95,636 | 101,939 | 6,349 | 95,590 | 101,939 | 6,327 | 95,740 | 102,067 | 0.02% | 0.30% | 0.28% | -0.10% | 0.30% | 0.27% | -0.04% | 0.28% | 0.26% |
| 2025 | 6,292 | 95,911 | 102,203 | 6,364 | 95,835 | 102,199 | 6,340 | 95,978 | 102,317 | 0.15% | 0.29% | 0.28% | 0.23% | 0.26% | 0.25% | 0.19% | 0.25% | 0.24% |
| 2026 | 6,327 | 96,143 | 102,470 | 6,393 | 96,062 | 102,455 | 6,372 | 96,177 | 102,549 | 0.56% | 0.24% | 0.26% | 0.46% | 0.24% | 0.25% | 0.51% | 0.21% | 0.23% |
| 2027 | 6,335 | 96,400 | 102,735 | 6,390 | 96,319 | 102,709 | 6,376 | 96,402 | 102,778 | 0.13% | 0.27% | 0.26% | -0.04% | 0.27% | 0.25% | 0.06% | 0.23% | 0.22% |
| 2028 | 6,338 | 96,644 | 102,982 | 6,391 | 96,556 | 102,946 | 6,379 | 96,627 | 103,005 | 0.04% | 0.25% | 0.24% | 0.01% | 0.25% | 0.23% | 0.04% | 0.23% | 0.22% |
| 2029 | 6,353 | 96,888 | 103,241 | 6,397 | 96,784 | 103,181 | 6,394 | 96,836 | 103,230 | 0.25% | 0.25% | 0.25% | 0.10% | 0.24% | 0.23% | 0.24% | 0.22% | 0.22% |
| 2030 | 6,357 | 97,127 | 103,484 | 6,397 | 97,017 | 103,414 | 6,396 | 97,042 | 103,439 | 0.05% | 0.25% | 0.23% | 0.00% | 0.24% | 0.23% | 0.04% | 0.21% | 0.20% |
| 2031 | 6,358 | 97,302 | 103,660 | 6,398 | 97,192 | 103,590 | 6,405 | 97,210 | 103,615 | 0.02% | 0.18% | 0.17% | 0.02% | 0.18% | 0.17% | 0.14% | 0.17% | 0.17% |
| 2032 | 6,360 | 97,526 | 103,886 | 6,394 | 97,413 | 103,807 | 6,409 | 97,414 | 103,822 | 0.03% | 0.23% | 0.22% | -0.07% | 0.23% | 0.21% | 0.05% | 0.21% | 0.20% |

| Therm Usage by Class | | | | | | | | | | | | Annual Change | | | | | | |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|---------|---------------|--------|---------|--------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 2,798,370 | 5,758,422 | 8,556,792 | 2,854,316 | 5,928,832 | 8,783,148 | 2,859,726 | 5,762,071 | 8,621,797 | 0.02% | 0.10% | 0.07% | 0.13% | 0.04% | 0.07% | 0.32% | -0.07% | 0.06% |
| 2013 | 3,124,026 | 5,759,565 | 8,883,591 | 3,198,784 | 5,898,819 | 9,097,603 | 3,212,550 | 5,761,796 | 8,974,346 | 11.64% | 0.02% | 3.82% | 12.07% | -0.51% | 3.58% | 12.34% | 0.00% | 4.09% |
| 2014 | 3,104,010 | 5,762,326 | 8,866,335 | 3,178,370 | 5,875,972 | 9,054,342 | 3,192,071 | 5,758,878 | 8,950,949 | -0.64% | 0.05% | -0.19% | -0.64% | -0.39% | -0.48% | -0.64% | -0.05% | -0.26% |
| 2015 | 3,088,500 | 5,765,407 | 8,853,907 | 3,162,469 | 5,860,114 | 9,022,583 | 3,181,465 | 5,753,396 | 8,934,861 | -0.50% | 0.05% | -0.14% | -0.50% | -0.27% | -0.35% | -0.33% | -0.10% | -0.18% |
| 2016 | 3,082,911 | 5,768,178 | 8,851,089 | 3,163,032 | 5,855,454 | 9,018,486 | 3,186,810 | 5,747,855 | 8,934,665 | -0.18% | 0.06% | -0.03% | 0.02% | -0.08% | -0.05% | 0.17% | -0.10% | 0.00% |
| 2017 | 3,104,019 | 5,772,711 | 8,876,730 | 3,183,817 | 5,854,819 | 9,038,636 | 3,213,054 | 5,742,314 | 8,955,368 | 0.68% | 0.06% | 0.28% | 0.66% | -0.01% | 0.22% | 0.82% | -0.10% | 0.23% |
| 2018 | 3,124,618 | 5,775,702 | 8,900,320 | 3,210,056 | 5,844,761 | 9,054,817 | 3,244,198 | 5,736,715 | 8,980,913 | 0.66% | 0.06% | 0.27% | 0.82% | -0.17% | 0.18% | 0.97% | -0.10% | 0.29% |
| 2019 | 3,134,495 | 5,779,287 | 8,913,782 | 3,220,188 | 5,832,616 | 9,052,804 | 3,259,830 | 5,731,024 | 8,990,854 | 0.32% | 0.06% | 0.15% | 0.32% | -0.21% | 0.02% | 0.48% | -0.10% | 0.11% |
| 2020 | 3,133,548 | 5,782,893 | 8,916,441 | 3,224,305 | 5,826,950 | 9,051,255 | 3,268,860 | 5,723,961 | 8,992,821 | -0.03% | 0.06% | 0.03% | 0.13% | -0.10% | -0.02% | 0.28% | -0.12% | 0.02% |
| 2021 | 3,148,240 | 5,786,536 | 8,934,776 | 3,244,695 | 5,823,216 | 9,067,911 | 3,289,384 | 5,719,692 | 9,009,076 | 0.47% | 0.06% | 0.21% | 0.63% | -0.06% | 0.18% | 0.63% | -0.07% | 0.18% |
| 2022 | 3,168,408 | 5,790,223 | 8,958,631 | 3,265,149 | 5,810,349 | 9,075,498 | 3,320,288 | 5,712,646 | 9,002,934 | 0.64% | 0.06% | 0.27% | 0.63% | -0.22% | 0.08% | 0.94% | -0.12% | 0.26% |
| 2023 | 3,172,260 | 5,792,558 | 8,964,818 | 3,274,134 | 5,796,322 | 9,070,456 | 3,329,408 | 5,705,356 | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Walla Walla



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

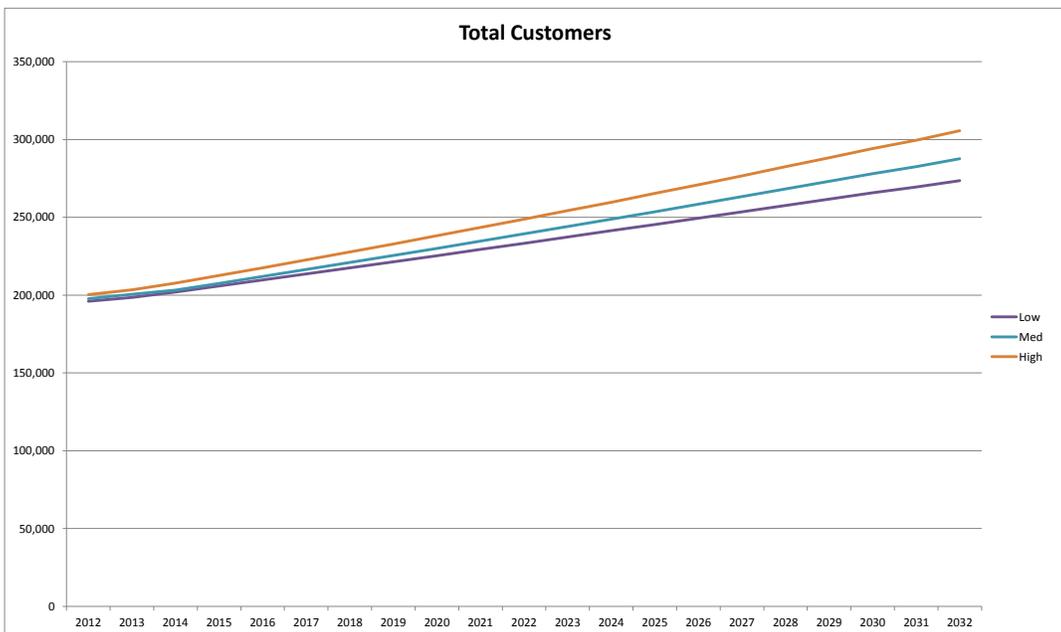
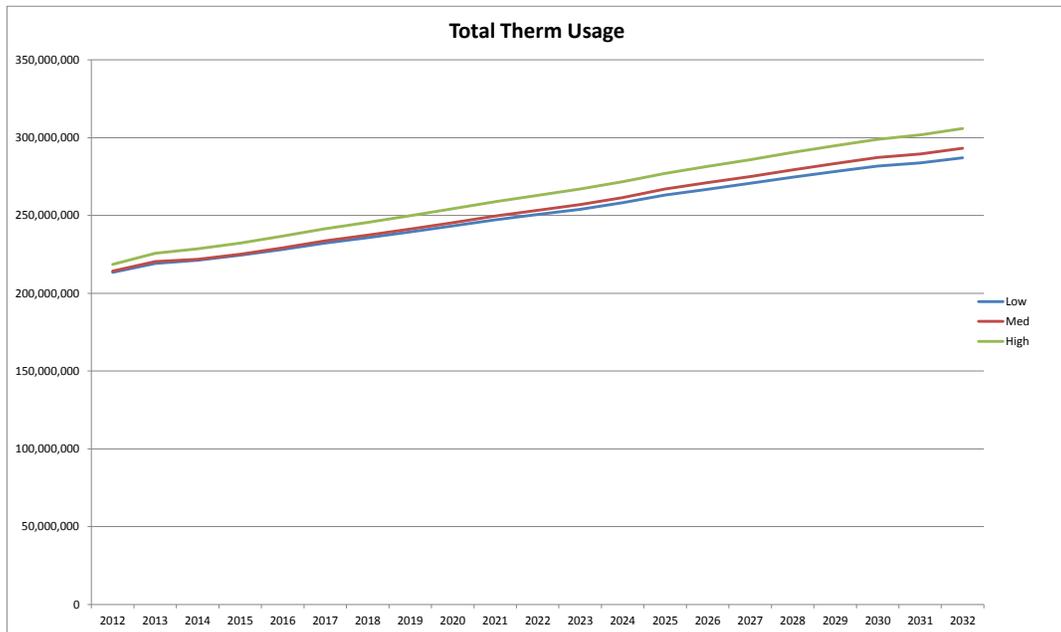
| WA | | | | | | | | | | | | | | | | | | |
|------------------------------|-------------|------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|---------------|----------|-------|---------|----------|-------|---------|----------|-------|
| Annual Requirements (Therms) | | | | | | | | | | Annual Change | | | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 141,773,518 | 71,549,769 | 213,323,288 | 142,410,840 | 71,835,489 | 214,246,329 | 145,195,456 | 73,304,427 | 218,499,883 | 5.61% | 6.17% | 5.79% | 7.02% | 7.66% | 7.24% | 9.11% | 9.87% | 9.36% |
| 2013 | 145,598,410 | 73,560,390 | 219,158,800 | 146,361,866 | 73,912,093 | 220,273,960 | 149,892,645 | 75,769,858 | 225,662,502 | 2.70% | 2.81% | 2.74% | 2.77% | 2.89% | 2.81% | 3.24% | 3.36% | 3.28% |
| 2014 | 146,984,685 | 74,298,048 | 221,282,733 | 147,407,886 | 74,477,474 | 221,885,360 | 151,736,958 | 76,779,135 | 228,516,093 | 0.95% | 1.00% | 0.97% | 0.71% | 0.76% | 0.73% | 1.23% | 1.33% | 1.26% |
| 2015 | 149,009,565 | 75,372,026 | 224,381,591 | 149,414,475 | 75,553,125 | 224,967,600 | 154,194,223 | 78,115,318 | 232,309,542 | 1.38% | 1.45% | 1.40% | 1.36% | 1.44% | 1.39% | 1.62% | 1.74% | 1.66% |
| 2016 | 151,525,921 | 76,695,329 | 228,221,250 | 152,091,562 | 76,974,168 | 229,065,730 | 157,036,272 | 79,645,459 | 236,681,731 | 1.69% | 1.76% | 1.71% | 1.79% | 1.88% | 1.82% | 1.84% | 1.96% | 1.88% |
| 2017 | 154,157,324 | 78,063,136 | 232,220,460 | 155,035,491 | 78,530,891 | 233,566,382 | 160,991,631 | 81,282,850 | 241,374,481 | 1.74% | 1.78% | 1.75% | 1.94% | 2.02% | 1.96% | 1.95% | 2.06% | 1.98% |
| 2018 | 156,486,834 | 79,283,296 | 235,770,131 | 157,529,879 | 79,858,303 | 237,388,182 | 162,831,413 | 82,764,166 | 245,595,579 | 1.51% | 1.56% | 1.53% | 1.61% | 1.69% | 1.64% | 1.71% | 1.82% | 1.75% |
| 2019 | 158,808,207 | 80,508,747 | 239,316,954 | 159,958,418 | 81,163,762 | 241,122,180 | 165,525,088 | 84,234,081 | 249,759,169 | 1.48% | 1.55% | 1.50% | 1.54% | 1.63% | 1.57% | 1.65% | 1.78% | 1.70% |
| 2020 | 161,329,709 | 81,833,130 | 243,162,839 | 162,724,251 | 82,643,906 | 245,368,157 | 168,403,701 | 85,800,442 | 254,204,143 | 1.59% | 1.65% | 1.61% | 1.73% | 1.82% | 1.76% | 1.74% | 1.86% | 1.78% |
| 2021 | 163,938,514 | 83,197,059 | 247,135,572 | 165,335,229 | 84,135,451 | 249,470,680 | 171,380,589 | 87,415,056 | 258,795,645 | 1.62% | 1.67% | 1.63% | 1.73% | 1.80% | 1.75% | 1.77% | 1.88% | 1.81% |
| 2022 | 166,202,672 | 84,390,958 | 250,593,630 | 167,948,515 | 85,433,828 | 253,382,342 | 174,093,650 | 88,899,403 | 262,993,053 | 1.38% | 1.44% | 1.40% | 1.47% | 1.54% | 1.49% | 1.58% | 1.70% | 1.62% |
| 2023 | 168,402,032 | 85,556,295 | 253,958,326 | 170,256,090 | 86,684,097 | 256,940,186 | 176,693,196 | 90,337,540 | 267,030,736 | 1.32% | 1.38% | 1.34% | 1.37% | 1.46% | 1.40% | 1.49% | 1.62% | 1.54% |
| 2024 | 171,111,616 | 86,986,975 | 258,098,591 | 173,172,632 | 88,250,849 | 261,423,481 | 179,728,528 | 92,001,123 | 271,729,650 | 1.61% | 1.67% | 1.63% | 1.71% | 1.81% | 1.74% | 1.72% | 1.84% | 1.76% |
| 2025 | 174,350,345 | 88,664,692 | 263,015,037 | 176,747,671 | 90,136,335 | 266,884,007 | 183,194,349 | 93,868,931 | 277,063,280 | 1.89% | 1.93% | 1.90% | 2.06% | 2.14% | 2.09% | 1.93% | 2.03% | 1.96% |
| 2026 | 176,879,777 | 89,991,899 | 266,871,677 | 179,426,558 | 91,569,767 | 270,996,325 | 186,094,485 | 95,452,217 | 281,546,702 | 1.45% | 1.50% | 1.47% | 1.52% | 1.59% | 1.54% | 1.58% | 1.69% | 1.62% |
| 2027 | 179,310,573 | 91,275,504 | 270,586,076 | 181,971,572 | 92,945,442 | 274,917,014 | 188,870,938 | 96,994,406 | 285,865,344 | 1.37% | 1.43% | 1.39% | 1.42% | 1.50% | 1.45% | 1.49% | 1.62% | 1.53% |
| 2028 | 181,929,003 | 92,652,752 | 274,581,755 | 184,826,515 | 94,485,644 | 279,315,459 | 191,838,011 | 98,629,388 | 290,467,399 | 1.46% | 1.51% | 1.48% | 1.57% | 1.66% | 1.60% | 1.57% | 1.69% | 1.61% |
| 2029 | 184,355,209 | 93,932,156 | 278,287,365 | 187,446,807 | 95,897,577 | 283,344,383 | 194,644,407 | 100,187,014 | 294,828,421 | 1.33% | 1.38% | 1.35% | 1.42% | 1.49% | 1.44% | 1.46% | 1.58% | 1.50% |
| 2030 | 186,644,786 | 95,142,758 | 281,787,544 | 189,895,905 | 97,226,969 | 287,122,875 | 197,285,964 | 101,670,005 | 298,955,969 | 1.24% | 1.29% | 1.26% | 1.31% | 1.39% | 1.33% | 1.36% | 1.48% | 1.40% |
| 2031 | 187,909,682 | 95,803,918 | 283,713,600 | 191,424,902 | 98,047,239 | 289,472,142 | 199,074,281 | 102,637,101 | 301,711,382 | 0.68% | 0.69% | 0.68% | 0.81% | 0.84% | 0.82% | 0.91% | 0.95% | 0.92% |
| 2032 | 190,120,169 | 96,982,918 | 287,103,087 | 193,816,594 | 99,349,201 | 293,165,795 | 201,740,977 | 104,134,539 | 305,875,516 | 1.18% | 1.23% | 1.19% | 1.25% | 1.33% | 1.28% | 1.34% | 1.46% | 1.38% |

| Peak Day - Baseload | | | | | | | | | | Annual Change | | | | | | | | |
|---------------------|----------------|-----------|-----------------|----------------|-----------|-----------------|----------------|-----------|-----------------|---------------|--------|-------|--------|-------|-------|-------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 196,027 | 2,549,643 | 2,745,670 | 196,810 | 2,572,388 | 2,769,197 | 200,834 | 2,604,419 | 2,805,253 | 6.17% | -0.10% | 0.32% | 7.66% | 0.72% | 1.18% | 9.87% | 1.97% | 2.50% |
| 2013 | 201,535 | 2,577,803 | 2,779,338 | 202,499 | 2,605,020 | 2,807,519 | 207,589 | 2,642,559 | 2,850,148 | 2.81% | 1.10% | 1.23% | 2.89% | 1.27% | 1.38% | 3.36% | 1.46% | 1.60% |
| 2014 | 203,556 | 2,624,773 | 2,828,329 | 204,048 | 2,641,875 | 2,845,923 | 210,354 | 2,699,368 | 2,909,722 | 1.00% | 1.82% | 1.76% | 2.89% | 1.41% | 1.37% | 3.33% | 2.15% | 2.09% |
| 2015 | 206,499 | 2,675,723 | 2,882,221 | 206,995 | 2,699,829 | 2,906,824 | 214,015 | 2,763,866 | 2,977,881 | 1.45% | 1.94% | 1.91% | 1.44% | 2.19% | 1.24% | 1.74% | 2.39% | 2.34% |
| 2016 | 210,124 | 2,726,309 | 2,936,433 | 210,888 | 2,757,484 | 2,968,372 | 218,207 | 2,828,668 | 3,046,874 | 1.76% | 1.89% | 1.88% | 1.87% | 2.14% | 2.12% | 1.96% | 2.34% | 2.32% |
| 2017 | 213,872 | 2,777,063 | 2,990,935 | 215,153 | 2,815,320 | 3,030,473 | 222,693 | 2,894,135 | 3,116,827 | 1.78% | 1.86% | 1.86% | 2.02% | 2.10% | 2.09% | 2.06% | 2.31% | 2.30% |
| 2018 | 217,215 | 2,828,538 | 3,045,753 | 218,790 | 2,874,397 | 3,093,187 | 226,751 | 2,960,984 | 3,168,735 | 1.56% | 1.85% | 1.83% | 1.69% | 2.10% | 2.07% | 2.12% | 2.31% | 2.27% |
| 2019 | 220,572 | 2,880,166 | 3,100,738 | 222,366 | 2,934,109 | 3,156,475 | 230,778 | 3,028,676 | 3,259,454 | 1.55% | 1.83% | 1.81% | 1.63% | 2.08% | 2.05% | 1.78% | 2.29% | 2.25% |
| 2020 | 224,200 | 2,931,817 | 3,156,018 | 226,422 | 2,993,976 | 3,220,398 | 235,070 | 3,097,216 | 3,332,285 | 1.65% | 1.79% | 1.78% | 1.82% | 2.04% | 2.03% | 1.86% | 2.26% | 2.23% |
| 2021 | 227,937 | 2,983,634 | 3,211,571 | 230,508 | 3,054,421 | 3,284,929 | 239,493 | 3,166,710 | 3,406,203 | 1.67% | 1.77% | 1.76% | 1.80% | 2.02% | 2.00% | 1.88% | 2.24% | 2.22% |
| 2022 | 231,208 | 3,036,236 | 3,267,444 | 234,065 | 3,116,184 | 3,350,250 | 243,560 | 3,237,754 | 3,481,314 | 1.44% | 1.76% | 1.74% | 1.54% | 2.02% | 1.99% | 1.70% | 2.24% | 2.21% |
| 2023 | 234,401 | 3,089,355 | 3,323,756 | 237,491 | 3,178,756 | 3,416,247 | 247,500 | 3,309,977 | 3,557,477 | 1.38% | 1.75% | 1.72% | 1.46% | 2.01% | 1.97% | 1.62% | 2.23% | 2.19% |
| 2024 | 238,320 | 3,141,946 | 3,380,266 | 241,783 | 3,240,971 | 3,482,755 | 252,058 | 3,382,248 | 3,634,707 | 1.67% | 1.70% | 1.70% | 1.81% | 1.96% | 1.95% | 1.84% | 2.18% | 2.16% |
| 2025 | 242,917 | 3,194,043 | 3,436,960 | 246,949 | 3,302,859 | 3,549,808 | 257,175 | 3,455,142 | 3,712,317 | 1.93% | 1.66% | 1.68% | 2.14% | 1.91% | 1.93% | 2.03% | 2.16% | 2.15% |
| 2026 | 246,553 | 3,247,360 | 3,493,914 | 250,876 | 3,366,610 | 3,617,486 | 261,513 | 3,529,666 | 3,792,179 | 1.50% | 1.67% | 1.66% | 1.59% | 1.93% | 1.91% | 1.69% | 2.16% | 2.12% |
| 2027 | 250,070 | 3,300,926 | 3,550,996 | 254,645 | 3,430,953 | 3,685,598 | 265,738 | 3,605,140 | 3,870,878 | 1.43% | 1.65% | 1.63% | 1.50% | 1.91% | 1.88% | 1.62% | 2.14% | 2.10% |
| 2028 | 253,843 | 3,354,374 | 3,608,217 | 258,865 | 3,495,451 | 3,754,316 | 270,218 | 3,681,499 | 3,951,717 | 1.51% | 1.62% | 1.61% | 1.66% | 1.88% | 1.86% | 1.69% | 2.12% | 2.09% |
| 2029 | 257,348 | 3,408,297 | 3,665,645 | 262,733 | 3,560,845 | 3,823,578 | 274,485 | 3,758,995 | 4,033,480 | 1.38% | 1.61% | 1.59% | 1.49% | 1.87% | 1.84% | 1.58% | 2.11% | 2.07% |
| 2030 | 260,665 | 3,462,588 | 3,723,253 | 266,375 | 3,627,066 | 3,893,441 | 278,548 | 3,837,790 | 4,116,338 | 1.29% | 1.59% | 1.57% | 1.39% | 1.86% | 1.83% | 1.48% | 2.10% | 2.05% |
| 2031 | 262,476 | 3,511,401 | 3,773,878 | 268,623 | 3,686,870 | 3,955,493 | 281,198 | 3,909,534 | 4,190,731 | 0.69% | 1.41% | 1.36% | 0.84% | 1.65% | 1.59% | 0.95% | 1.87% | 1.81% |
| 2032 | 265,707 | 3,566,971 | 3,832,677 | 272,190 | 3,755,121 | 4,027,311 | 285,300 | 3,991,235 | 4,276,535 | 1.23% | 1.58% | 1.56% | 1.33% | 1.85% | 1.82% | 1.65% | 2.09% | 2.05% |

| Therm Usage by Class | | | | | | | | | | Annual Change | | | | | | | | |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------|-------|--------|---------|-------|-------|---------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 109,773,846 | 103,549,442 | 213,323,288 | 110,264,943 | 103,981,386 | 214,246,329 | 113,902,855 | 104,597,028 | 218,499,883 | 3.20% | 8.68% | 5.79% | 5.15% | 9.54% | 7.24% | 8.19% | 10.67% | 9.36% |
| 2013 | 114,654,929 | 104,503,871 | 219,158,800 | 115,511,350 | 104,762,610 | 220,273,960 | 115,910,937 | 105,910,937 | 225,662,502 | 4.45% | 0.92% | 2.74% | 4.76% | 0.75% | 2.81% | 5.13% | 1.26% | 3.28% |
| 2014 | 115,607,605 | 105,675,128 | 221,282,733 | 116,138,183 | 105,747,177 | 221,885,360 | 123,343,129 | 107,172,964 | 228,516,093 | 0.83% | 1.12% | 0.97% | 0.54% | 0.94% | 0.73% | 1.33% | 1.19% | 1.26% |
| 2015 | 117,341,976 | 107,039,615 | 224,381,591 | 117,920,683 | 107,046,917 | 224,967,600 | 127,702,721 | 108,606,821 | 232,309,542 | 1.50% | 1.29% | 1.40% | 1.53% | 1.23% | 1.39% | 1.94% | 1.34% | 1.66% |
| 2016 | 119,522,160 | 108,699,090 | 228,221,250 | 120,285,507 | 108,780,223 | 229,065,730 | 126,365,596 | 110,316,145 | 236,681,731 | 1.86% | 1.55% | 1.71% | 2.01% | 1.62% | 1.82% | 2.15% | 1.57% | 1.88% |
| 2017 | 121,722,836 | 110,497,624 | 232,220,460 | 122,862,561 | 110,703,821 | 233,566,382 | 129,223,816 | 112,150,665 | 241,374,481 | 1.84% | 1.65% | 1.75% | 2.14% | 1.77% | 1.96% | 2.26% | 1.66% | 1.98% |
| 2018 | 123,730,626 | 112,039,505 | 235,770,131 | 125,139,483 | 112,248,699 | 237,388,182 | 131,885,013 | 113,710,563 | 245,595,579 | 1.65% | 1.40% | 1.53% | 1.85% | 1.40% | 1.64% | 2.06% | 1.39% | 1.75% |
| 2019 | 125,775,778 | 113,541,170 | 239,316,954 | 127,408,283 | 113,713,897 | 241,122,180 | | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

WA



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

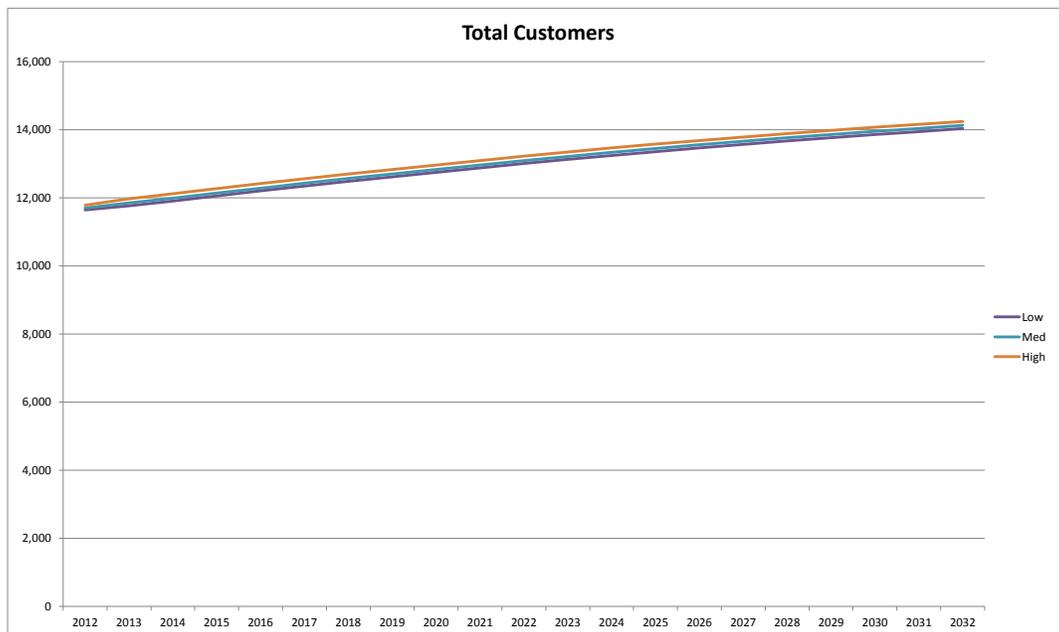
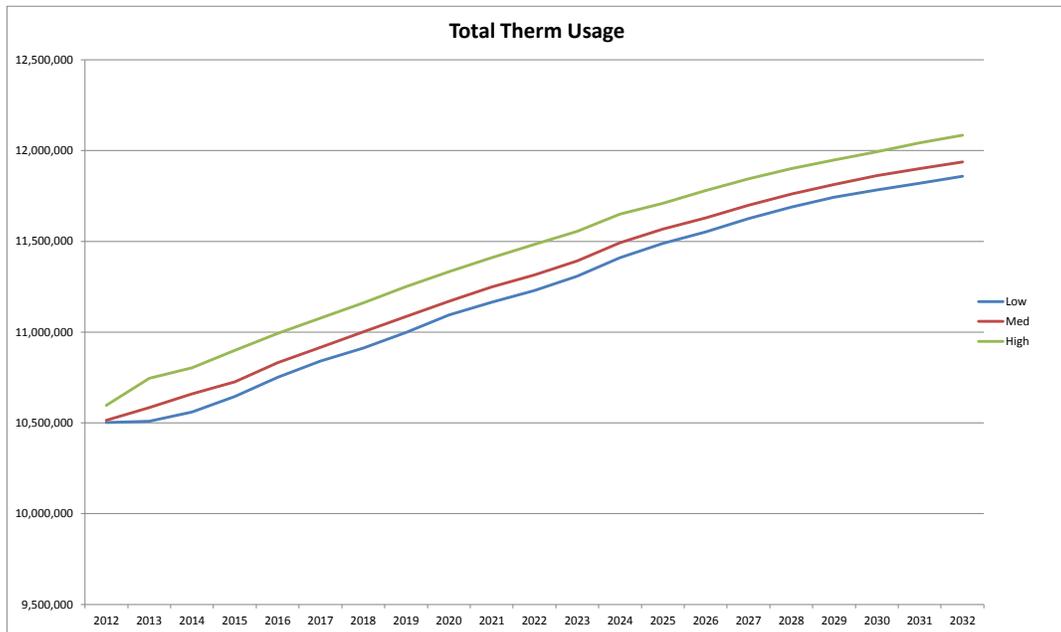
| Wenatchee | | | | | | | | | | | | | | | | | | |
|------------------------------|-----------|-----------|------------|-----------|-----------|------------|-----------|-----------|---------------|---------|----------|-------|---------|----------|-------|---------|----------|-------|
| Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 7,863,767 | 2,637,749 | 10,501,516 | 7,873,618 | 2,641,054 | 10,514,672 | 7,935,536 | 2,661,823 | 10,597,359 | 4.91% | 4.91% | 4.91% | 5.86% | 5.86% | 5.86% | 7.38% | 7.38% | 7.38% |
| 2013 | 7,869,398 | 2,639,638 | 10,509,036 | 7,926,449 | 2,658,775 | 10,585,224 | 8,046,272 | 2,698,967 | 10,745,239 | 0.07% | 0.07% | 0.07% | 0.67% | 0.67% | 0.67% | 1.40% | 1.40% | 1.40% |
| 2014 | 7,907,749 | 2,652,502 | 10,560,251 | 7,982,417 | 2,677,548 | 10,659,965 | 8,090,380 | 2,713,762 | 10,804,142 | 0.49% | 0.49% | 0.49% | 0.71% | 0.71% | 0.71% | 0.55% | 0.55% | 0.55% |
| 2015 | 7,972,275 | 2,674,146 | 10,646,421 | 8,032,272 | 2,694,271 | 10,726,543 | 8,162,426 | 2,737,928 | 10,900,354 | 0.82% | 0.82% | 0.82% | 0.62% | 0.62% | 0.62% | 0.89% | 0.89% | 0.89% |
| 2016 | 8,051,034 | 2,700,564 | 10,751,598 | 8,110,479 | 2,720,504 | 10,830,984 | 8,231,164 | 2,760,986 | 10,992,150 | 0.99% | 0.99% | 0.99% | 0.97% | 0.97% | 0.97% | 0.84% | 0.84% | 0.84% |
| 2017 | 8,117,077 | 2,722,717 | 10,839,794 | 8,174,449 | 2,741,962 | 10,916,411 | 8,295,035 | 2,782,410 | 11,077,445 | 0.82% | 0.82% | 0.82% | 0.79% | 0.79% | 0.79% | 0.78% | 0.78% | 0.78% |
| 2018 | 8,171,568 | 2,740,995 | 10,912,563 | 8,237,852 | 2,763,229 | 11,001,080 | 8,357,114 | 2,803,233 | 11,160,347 | 0.67% | 0.67% | 0.67% | 0.78% | 0.78% | 0.78% | 0.75% | 0.75% | 0.75% |
| 2019 | 8,235,363 | 2,762,394 | 10,997,756 | 8,301,706 | 2,784,648 | 11,086,354 | 8,424,864 | 2,825,598 | 11,250,462 | 0.78% | 0.78% | 0.78% | 0.78% | 0.78% | 0.78% | 0.81% | 0.81% | 0.81% |
| 2020 | 8,308,366 | 2,786,881 | 11,095,248 | 8,364,817 | 2,805,817 | 11,170,634 | 8,485,723 | 2,846,372 | 11,332,095 | 0.89% | 0.89% | 0.89% | 0.76% | 0.76% | 0.76% | 0.72% | 0.72% | 0.72% |
| 2021 | 8,360,110 | 2,804,238 | 11,164,348 | 8,423,423 | 2,825,475 | 11,248,898 | 8,544,354 | 2,866,039 | 11,410,393 | 0.62% | 0.62% | 0.62% | 0.70% | 0.70% | 0.70% | 0.69% | 0.69% | 0.69% |
| 2022 | 8,409,267 | 2,820,727 | 11,229,993 | 8,472,915 | 2,842,076 | 11,314,991 | 8,599,034 | 2,884,381 | 11,483,415 | 0.59% | 0.59% | 0.59% | 0.59% | 0.59% | 0.59% | 0.64% | 0.64% | 0.64% |
| 2023 | 8,468,289 | 2,840,524 | 11,308,813 | 8,531,405 | 2,861,695 | 11,393,100 | 8,652,822 | 2,902,422 | 11,555,244 | 0.70% | 0.70% | 0.70% | 0.69% | 0.69% | 0.69% | 0.63% | 0.63% | 0.63% |
| 2024 | 8,544,013 | 2,865,925 | 11,409,938 | 8,605,114 | 2,886,420 | 11,491,533 | 8,724,036 | 2,926,310 | 11,650,346 | 0.89% | 0.89% | 0.89% | 0.86% | 0.86% | 0.86% | 0.82% | 0.82% | 0.82% |
| 2025 | 8,603,364 | 2,885,833 | 11,489,197 | 8,661,469 | 2,905,323 | 11,566,791 | 8,768,737 | 2,941,304 | 11,710,040 | 0.69% | 0.69% | 0.69% | 0.65% | 0.65% | 0.65% | 0.51% | 0.51% | 0.51% |
| 2026 | 8,650,856 | 2,901,763 | 11,552,619 | 8,708,057 | 2,920,950 | 11,629,006 | 8,821,307 | 2,958,938 | 11,780,244 | 0.55% | 0.55% | 0.55% | 0.54% | 0.54% | 0.54% | 0.60% | 0.60% | 0.60% |
| 2027 | 8,705,824 | 2,920,201 | 11,626,025 | 8,761,015 | 2,938,714 | 11,699,728 | 8,869,664 | 2,975,158 | 11,844,822 | 0.64% | 0.64% | 0.64% | 0.61% | 0.61% | 0.61% | 0.55% | 0.55% | 0.55% |
| 2028 | 8,752,854 | 2,935,976 | 11,688,830 | 8,806,491 | 2,953,968 | 11,760,459 | 8,911,453 | 2,989,175 | 11,900,629 | 0.54% | 0.54% | 0.54% | 0.52% | 0.52% | 0.52% | 0.47% | 0.47% | 0.47% |
| 2029 | 8,793,598 | 2,949,643 | 11,743,241 | 8,845,400 | 2,967,019 | 11,812,419 | 8,946,260 | 3,000,851 | 11,947,111 | 0.47% | 0.47% | 0.47% | 0.44% | 0.44% | 0.44% | 0.39% | 0.39% | 0.39% |
| 2030 | 8,823,269 | 2,959,596 | 11,782,864 | 8,882,912 | 2,979,602 | 11,862,513 | 8,980,757 | 3,012,422 | 11,993,179 | 0.34% | 0.34% | 0.34% | 0.42% | 0.42% | 0.42% | 0.39% | 0.39% | 0.39% |
| 2031 | 8,850,878 | 2,968,857 | 11,819,734 | 8,910,787 | 2,988,952 | 11,899,739 | 9,017,967 | 3,024,903 | 12,042,871 | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.41% | 0.41% | 0.41% |
| 2032 | 8,880,534 | 2,978,804 | 11,859,338 | 8,938,578 | 2,998,274 | 11,936,852 | 9,049,766 | 3,035,570 | 12,085,336 | 0.34% | 0.34% | 0.34% | 0.31% | 0.31% | 0.31% | 0.35% | 0.35% | 0.35% |

| Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | | |
|---------------------|----------------|---------|-----------------|----------------|---------|-----------------|----------------|---------|-----------------|-------|--------|--------|--------|-------|-------|-------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 7,227 | 150,612 | 157,839 | 7,236 | 151,325 | 158,561 | 7,293 | 152,375 | 159,667 | 4.91% | -0.36% | -0.13% | 5.86% | 0.08% | 0.33% | 7.38% | 0.74% | 1.03% |
| 2013 | 7,232 | 152,199 | 159,430 | 7,284 | 153,242 | 160,527 | 7,394 | 154,846 | 162,240 | 0.07% | 1.05% | 1.01% | 0.67% | 1.27% | 1.24% | 1.40% | 1.62% | 1.61% |
| 2014 | 7,267 | 154,142 | 161,409 | 7,336 | 155,128 | 162,463 | 7,435 | 156,793 | 164,228 | 0.49% | 1.28% | 1.24% | 0.71% | 1.23% | 1.21% | 0.55% | 1.26% | 1.23% |
| 2015 | 7,326 | 156,061 | 163,387 | 7,382 | 157,085 | 164,467 | 7,501 | 158,768 | 166,269 | 0.82% | 1.24% | 1.23% | 0.62% | 1.26% | 1.23% | 0.89% | 1.26% | 1.24% |
| 2016 | 7,399 | 157,952 | 165,351 | 7,453 | 158,990 | 166,443 | 7,564 | 160,692 | 168,256 | 0.99% | 1.21% | 1.20% | 0.97% | 1.21% | 1.20% | 0.84% | 1.21% | 1.20% |
| 2017 | 7,459 | 159,812 | 167,272 | 7,512 | 160,877 | 168,389 | 7,623 | 162,576 | 170,199 | 0.82% | 1.18% | 1.16% | 0.79% | 1.19% | 1.17% | 0.78% | 1.17% | 1.15% |
| 2018 | 7,510 | 161,641 | 169,151 | 7,570 | 162,710 | 170,281 | 7,680 | 164,407 | 172,087 | 0.67% | 1.14% | 1.12% | 0.78% | 1.14% | 1.12% | 0.75% | 1.13% | 1.11% |
| 2019 | 7,568 | 163,419 | 170,987 | 7,629 | 164,499 | 172,128 | 7,742 | 166,162 | 173,904 | 0.78% | 1.10% | 1.09% | 0.78% | 1.10% | 1.09% | 0.81% | 1.07% | 1.06% |
| 2020 | 7,635 | 165,132 | 172,768 | 7,687 | 166,234 | 173,921 | 7,798 | 167,895 | 175,694 | 0.89% | 1.05% | 1.04% | 0.76% | 1.05% | 1.04% | 0.72% | 1.04% | 1.03% |
| 2021 | 7,683 | 166,837 | 174,520 | 7,741 | 167,945 | 175,686 | 7,852 | 169,630 | 177,482 | 0.62% | 1.03% | 1.01% | 0.70% | 1.03% | 1.01% | 0.69% | 1.03% | 1.02% |
| 2022 | 7,728 | 168,502 | 176,230 | 7,787 | 169,636 | 177,422 | 7,902 | 171,313 | 179,215 | 0.59% | 1.00% | 0.98% | 0.59% | 1.01% | 0.99% | 0.60% | 0.98% | 0.98% |
| 2023 | 7,782 | 170,116 | 177,898 | 7,840 | 171,262 | 179,102 | 7,952 | 172,927 | 180,878 | 0.70% | 0.96% | 0.95% | 0.69% | 0.96% | 0.95% | 0.63% | 0.94% | 0.93% |
| 2024 | 7,852 | 171,658 | 179,510 | 7,908 | 172,917 | 180,699 | 8,017 | 174,621 | 182,444 | 0.89% | 0.91% | 0.91% | 0.89% | 0.89% | 0.89% | 0.82% | 0.87% | 0.87% |
| 2025 | 7,906 | 173,133 | 181,040 | 7,960 | 174,294 | 182,254 | 8,058 | 175,911 | 183,969 | 0.69% | 0.86% | 0.85% | 0.65% | 0.87% | 0.86% | 0.51% | 0.85% | 0.84% |
| 2026 | 7,950 | 174,577 | 182,527 | 8,003 | 175,737 | 183,740 | 8,107 | 177,331 | 185,139 | 0.55% | 0.83% | 0.82% | 0.54% | 0.83% | 0.81% | 0.60% | 0.81% | 0.80% |
| 2027 | 8,001 | 175,943 | 183,944 | 8,051 | 177,104 | 185,155 | 8,151 | 178,671 | 186,822 | 0.64% | 0.78% | 0.78% | 0.61% | 0.78% | 0.77% | 0.55% | 0.76% | 0.75% |
| 2028 | 8,044 | 177,262 | 185,305 | 8,093 | 178,436 | 186,529 | 8,190 | 180,004 | 188,194 | 0.54% | 0.75% | 0.74% | 0.52% | 0.75% | 0.74% | 0.47% | 0.75% | 0.73% |
| 2029 | 8,081 | 178,531 | 186,612 | 8,129 | 179,719 | 187,848 | 8,222 | 181,274 | 189,496 | 0.47% | 0.72% | 0.70% | 0.44% | 0.72% | 0.71% | 0.39% | 0.71% | 0.69% |
| 2030 | 8,108 | 179,739 | 187,848 | 8,163 | 180,933 | 188,996 | 8,253 | 182,487 | 190,740 | 0.34% | 0.68% | 0.66% | 0.42% | 0.68% | 0.66% | 0.39% | 0.67% | 0.66% |
| 2031 | 8,134 | 180,866 | 189,000 | 8,189 | 182,045 | 190,234 | 8,287 | 183,654 | 191,852 | 0.31% | 0.63% | 0.61% | 0.31% | 0.61% | 0.60% | 0.41% | 0.59% | 0.58% |
| 2032 | 8,161 | 182,060 | 190,222 | 8,214 | 183,240 | 191,455 | 8,317 | 184,739 | 193,056 | 0.34% | 0.66% | 0.65% | 0.31% | 0.66% | 0.64% | 0.35% | 0.64% | 0.63% |

| Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | | |
|----------------------|-----------|-----------|------------|-----------|-----------|------------|-----------|-----------|---------------|--------|---------|-------|--------|---------|-------|-------|---------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 6,277,976 | 4,223,540 | 10,501,516 | 6,370,230 | 4,144,442 | 10,514,672 | 6,459,280 | 4,138,079 | 10,597,359 | 3.84% | 6.56% | 4.91% | 5.36% | 6.63% | 5.86% | 7.95% | 6.49% | 7.38% |
| 2013 | 6,251,070 | 4,257,966 | 10,509,036 | 6,401,505 | 4,183,719 | 10,585,224 | 6,570,414 | 4,174,825 | 10,745,239 | -0.43% | 0.82% | 0.07% | 0.49% | 0.95% | 0.67% | 1.72% | 0.89% | 1.40% |
| 2014 | 6,270,494 | 4,289,575 | 10,560,251 | 6,440,917 | 4,219,049 | 10,659,965 | 6,601,560 | 4,202,582 | 10,804,142 | 0.31% | 0.75% | 0.49% | 0.62% | 0.84% | 0.71% | 0.47% | 0.66% | 0.55% |
| 2015 | 6,331,382 | 4,315,039 | 10,646,421 | 6,482,226 | 4,244,317 | 10,726,543 | 6,677,644 | 4,222,690 | 10,900,354 | 0.97% | 0.59% | 0.82% | 0.64% | 0.60% | 0.62% | 1.15% | 0.88% | 0.89% |
| 2016 | 6,423,900 | 4,327,698 | 10,751,598 | 6,576,206 | 4,254,778 | 10,830,984 | 6,762,176 | 4,229,974 | 10,992,150 | 1.46% | 0.29% | 0.99% | 1.45% | 0.25% | 0.97% | 1.27% | 0.17% | 0.84% |
| 2017 | 6,503,868 | 4,335,926 | 10,839,794 | 6,658,132 | 4,258,279 | 10,916,411 | 6,844,864 | 4,232,581 | 11,077,445 | 1.24% | 0.19% | 0.82% | 1.25% | 0.08% | 0.79% | 1.22% | 0.06% | 0.78% |
| 2018 | 6,559,684 | 4,352,789 | 10,912,563 | 6,726,399 | 4,274,681 | 11,001,080 | 6,913,730 | 4,246,617 | 11,160,347 | 0.86% | 0.39% | 0.67% | 1.03% | 0.39% | 0.78% | 1.01% | 0.33% | 0.75% |
| 2019 | 6,624,540 | 4,373,216 | 10,997,756 | 6,792,612 | 4,293,742 | 11,086,354 | 7,090,819 | 4,260,003 | 11,250,462 | 0.97% | 0.78% | 0.98% | 0.45% | 0.78% | 1.12% | 0.32% | 0.81% | 0.81% |
| 2020 | 6,709,700 | 4,385,548 | 11,095,248 | 6,867,708 | 4,302,926 | 11,170,634 | 7,166,694 | 4,265,401 | 11,332,095 | 1.29% | 0.28% | 0.89% | 1.11% | 0.21% | 0.76% | 1.09% | 0.13% | 0.72% |
| 2021 | 6,770,790 | 4,393,558 | 11,164,348 | 6,941,612 | 4,307,286 | 11,248,898 | 7,142,559 | 4,267,824 | 11,410,393 | 0.91% | 0.18% | 0.62% | 1.08% | 0.10% | 0.70% | 1.07% | 0.06% | 0.69% |
| 2022 | 6,818,185 | 4,411,808 | 11,229,993 | 6,990,786 | 4,324,205 | 11,314,991 | 7,204,128 | 4,279,287 | 11,483,415 | 0.70% | 0.42% | 0.59% | 0.71% | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Wenatchee



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

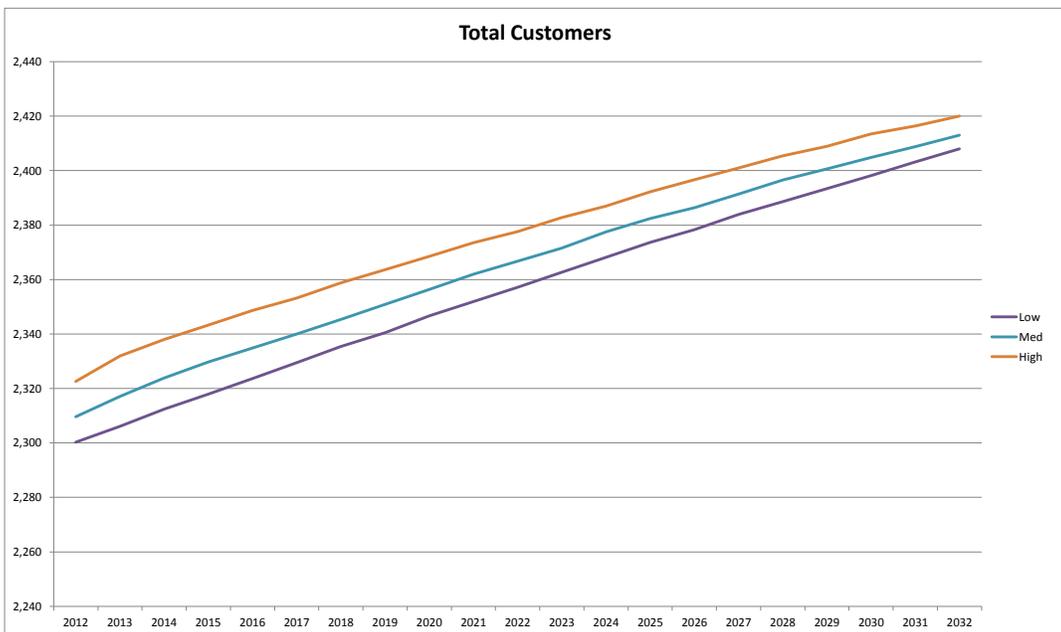
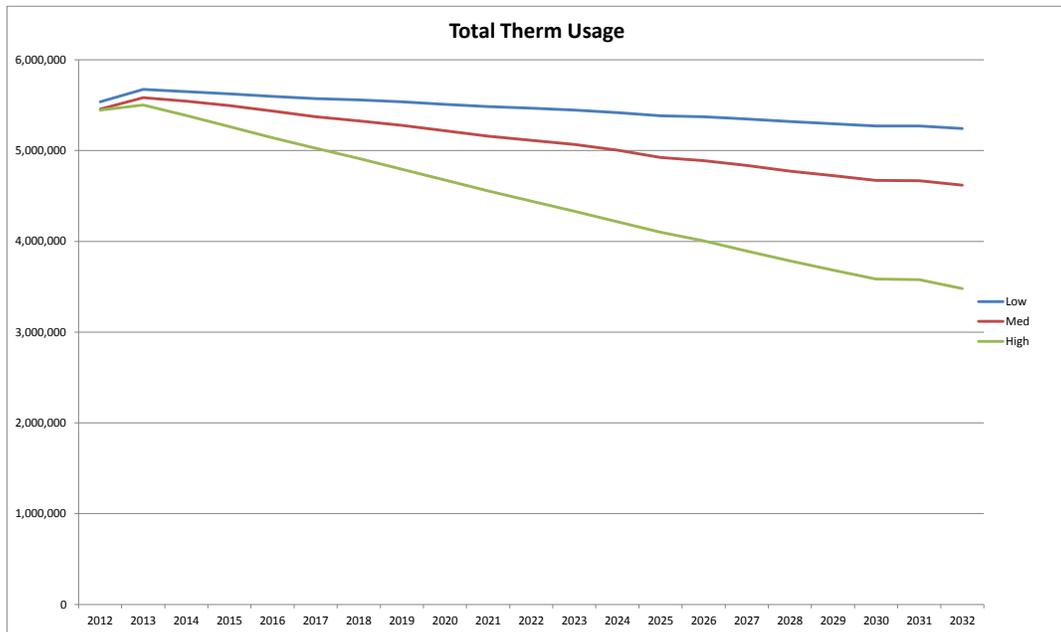
| Yakima | | | | | | | | | | | | | | | | | | |
|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|---------|----------|--------|---------|----------|--------|---------|----------|--------|
| Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 3,729,067 | 1,806,562 | 5,535,629 | 3,674,959 | 1,780,350 | 5,455,309 | 3,669,405 | 1,777,659 | 5,447,064 | -1.11% | -1.11% | -1.11% | -1.82% | -1.82% | -1.82% | -2.52% | -2.52% | -2.52% |
| 2013 | 3,821,468 | 1,851,326 | 5,672,794 | 3,761,220 | 1,822,139 | 5,583,359 | 3,705,466 | 1,795,129 | 5,500,595 | 2.48% | 2.48% | 2.48% | 2.35% | 2.35% | 2.35% | 0.98% | 0.98% | 0.98% |
| 2014 | 3,806,477 | 1,844,064 | 5,650,541 | 3,735,147 | 1,809,508 | 5,544,654 | 3,628,472 | 1,757,828 | 5,386,300 | -0.39% | -0.39% | -0.39% | -0.69% | -0.69% | -0.69% | -2.08% | -2.08% | -2.08% |
| 2015 | 3,789,514 | 1,835,846 | 5,625,360 | 3,701,772 | 1,793,339 | 5,495,111 | 3,546,985 | 1,718,352 | 5,265,336 | -0.45% | -0.45% | -0.45% | -0.89% | -0.89% | -0.89% | -2.25% | -2.25% | -2.25% |
| 2016 | 3,770,398 | 1,826,585 | 5,596,983 | 3,660,743 | 1,773,463 | 5,434,206 | 3,464,316 | 1,678,303 | 5,142,618 | -0.50% | -0.50% | -0.50% | -1.11% | -1.11% | -1.11% | -2.33% | -2.33% | -2.33% |
| 2017 | 3,754,789 | 1,819,023 | 5,573,812 | 3,619,453 | 1,753,459 | 5,372,913 | 3,384,934 | 1,639,846 | 5,024,780 | -0.41% | -0.41% | -0.41% | -1.13% | -1.13% | -1.13% | -2.29% | -2.29% | -2.29% |
| 2018 | 3,744,012 | 1,813,803 | 5,557,815 | 3,589,448 | 1,738,923 | 5,328,371 | 3,309,217 | 1,603,164 | 4,912,381 | -0.29% | -0.29% | -0.29% | -0.83% | -0.83% | -0.83% | -2.24% | -2.24% | -2.24% |
| 2019 | 3,729,958 | 1,806,994 | 5,536,953 | 3,556,502 | 1,722,962 | 5,279,464 | 3,229,629 | 1,564,607 | 4,794,236 | -0.38% | -0.38% | -0.38% | -0.92% | -0.92% | -0.92% | -2.41% | -2.41% | -2.41% |
| 2020 | 3,711,289 | 1,797,950 | 5,509,239 | 3,515,785 | 1,703,237 | 5,219,022 | 3,148,219 | 1,525,168 | 4,673,388 | -0.50% | -0.50% | -0.50% | -1.14% | -1.14% | -1.14% | -2.52% | -2.52% | -2.52% |
| 2021 | 3,695,674 | 1,790,385 | 5,486,059 | 3,475,169 | 1,683,561 | 5,158,730 | 3,069,069 | 1,486,823 | 4,555,892 | -0.42% | -0.42% | -0.42% | -1.16% | -1.16% | -1.16% | -2.51% | -2.51% | -2.51% |
| 2022 | 3,683,749 | 1,784,608 | 5,468,356 | 3,444,946 | 1,668,919 | 5,113,865 | 2,994,456 | 1,450,677 | 4,445,134 | -0.32% | -0.32% | -0.32% | -0.87% | -0.87% | -0.87% | -2.43% | -2.43% | -2.43% |
| 2023 | 3,669,270 | 1,777,593 | 5,446,863 | 3,413,233 | 1,653,555 | 5,066,788 | 2,919,040 | 1,414,141 | 4,333,181 | -0.39% | -0.39% | -0.39% | -0.92% | -0.92% | -0.92% | -2.52% | -2.52% | -2.52% |
| 2024 | 3,649,213 | 1,767,877 | 5,417,090 | 3,372,174 | 1,633,664 | 5,005,838 | 2,840,608 | 1,376,144 | 4,216,752 | -0.55% | -0.55% | -0.55% | -1.20% | -1.20% | -1.20% | -2.69% | -2.69% | -2.69% |
| 2025 | 3,626,496 | 1,756,871 | 5,383,367 | 3,317,795 | 1,607,320 | 4,925,114 | 2,761,135 | 1,337,644 | 4,098,779 | -0.62% | -0.62% | -0.62% | -1.61% | -1.61% | -1.61% | -2.80% | -2.80% | -2.80% |
| 2026 | 3,620,191 | 1,753,817 | 5,374,008 | 3,292,490 | 1,595,061 | 4,887,550 | 2,697,154 | 1,306,648 | 4,003,801 | -0.17% | -0.17% | -0.17% | -0.76% | -0.76% | -0.76% | -2.32% | -2.32% | -2.32% |
| 2027 | 3,602,930 | 1,745,455 | 5,348,384 | 3,257,186 | 1,577,958 | 4,835,144 | 2,622,787 | 1,270,620 | 3,893,407 | -0.48% | -0.48% | -0.48% | -1.07% | -1.07% | -1.07% | -2.76% | -2.76% | -2.76% |
| 2028 | 3,583,280 | 1,735,935 | 5,319,215 | 3,215,504 | 1,557,765 | 4,773,269 | 2,550,458 | 1,235,580 | 3,786,038 | -0.55% | -0.55% | -0.55% | -1.28% | -1.28% | -1.28% | -2.76% | -2.76% | -2.76% |
| 2029 | 3,567,913 | 1,728,491 | 5,296,404 | 3,182,066 | 1,541,565 | 4,723,631 | 2,481,990 | 1,202,411 | 3,684,400 | -0.43% | -0.43% | -0.43% | -1.04% | -1.04% | -1.04% | -2.68% | -2.68% | -2.68% |
| 2030 | 3,551,403 | 1,720,492 | 5,271,895 | 3,147,553 | 1,524,845 | 4,672,398 | 2,414,272 | 1,169,604 | 3,583,876 | -0.46% | -0.46% | -0.46% | -1.08% | -1.08% | -1.08% | -2.73% | -2.73% | -2.73% |
| 2031 | 3,549,829 | 1,719,730 | 5,269,559 | 3,145,580 | 1,523,889 | 4,669,469 | 2,410,801 | 1,167,923 | 3,578,724 | -0.04% | -0.04% | -0.04% | -0.06% | -0.06% | -0.06% | -0.14% | -0.14% | -0.14% |
| 2032 | 3,532,173 | 1,711,176 | 5,243,348 | 3,111,951 | 1,507,598 | 4,619,548 | 2,343,045 | 1,135,098 | 3,478,143 | -0.50% | -0.50% | -0.50% | -1.07% | -1.07% | -1.07% | -2.81% | -2.81% | -2.81% |

| Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | | |
|---------------------|----------------|--------|-----------------|----------------|--------|-----------------|----------------|--------|-----------------|--------|--------|--------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 4,949 | 54,176 | 59,125 | 4,878 | 54,487 | 59,364 | 4,870 | 54,829 | 59,699 | -1.11% | -0.03% | -0.12% | -1.82% | 0.48% | 0.28% | -2.52% | 1.16% | 0.85% |
| 2013 | 5,072 | 54,203 | 59,275 | 4,992 | 54,566 | 59,558 | 4,918 | 55,021 | 59,939 | 2.48% | 0.05% | 0.25% | 2.35% | 0.14% | 0.33% | 0.98% | 0.35% | 0.40% |
| 2014 | 5,052 | 54,386 | 59,438 | 4,958 | 54,774 | 59,731 | 4,816 | 55,279 | 60,095 | -0.39% | 0.34% | 0.27% | -0.69% | 0.38% | 0.29% | -2.08% | 0.47% | 0.26% |
| 2015 | 5,030 | 54,550 | 59,580 | 4,913 | 54,970 | 59,883 | 4,708 | 55,522 | 60,230 | -0.45% | 0.30% | 0.24% | -0.89% | 0.36% | 0.25% | -2.25% | 0.44% | 0.22% |
| 2016 | 5,004 | 54,721 | 59,726 | 4,859 | 55,155 | 60,014 | 4,598 | 55,771 | 60,369 | -0.50% | 0.31% | 0.25% | -1.11% | 0.34% | 0.22% | -2.33% | 0.45% | 0.23% |
| 2017 | 4,984 | 54,892 | 59,875 | 4,804 | 55,343 | 60,147 | 4,493 | 55,993 | 60,485 | -0.41% | 0.31% | 0.25% | -1.13% | 0.34% | 0.22% | -2.29% | 0.40% | 0.19% |
| 2018 | 4,969 | 55,059 | 60,028 | 4,764 | 55,521 | 60,285 | 4,392 | 56,239 | 60,631 | -0.29% | 0.30% | 0.26% | -0.83% | 0.32% | 0.23% | -2.24% | 0.44% | 0.24% |
| 2019 | 4,951 | 55,208 | 60,158 | 4,720 | 55,705 | 60,425 | 4,287 | 56,468 | 60,784 | -0.38% | 0.27% | 0.22% | -0.92% | 0.33% | 0.23% | -2.41% | 0.41% | 0.20% |
| 2020 | 4,926 | 55,391 | 60,317 | 4,666 | 55,901 | 60,568 | 4,179 | 56,701 | 60,850 | -0.56% | 0.33% | 0.26% | -1.14% | 0.35% | 0.24% | -2.52% | 0.41% | 0.21% |
| 2021 | 4,905 | 55,547 | 60,452 | 4,612 | 56,100 | 60,713 | 4,073 | 56,934 | 61,008 | -0.42% | 0.28% | 0.22% | -1.16% | 0.36% | 0.24% | -2.51% | 0.41% | 0.21% |
| 2022 | 4,889 | 55,700 | 60,589 | 4,572 | 56,262 | 60,835 | 3,974 | 57,139 | 61,113 | -0.32% | 0.28% | 0.23% | -0.87% | 0.29% | 0.20% | -2.43% | 0.36% | 0.17% |
| 2023 | 4,870 | 55,858 | 60,729 | 4,530 | 56,428 | 60,959 | 3,874 | 57,372 | 61,246 | -0.39% | 0.29% | 0.23% | -0.92% | 0.30% | 0.20% | -2.52% | 0.41% | 0.22% |
| 2024 | 4,843 | 56,026 | 60,870 | 4,476 | 56,634 | 61,110 | 3,770 | 57,584 | 61,354 | -0.55% | 0.30% | 0.23% | -1.20% | 0.36% | 0.25% | -2.69% | 0.37% | 0.18% |
| 2025 | 4,813 | 56,199 | 61,013 | 4,404 | 56,833 | 61,237 | 3,665 | 57,826 | 61,490 | -0.62% | 0.31% | 0.23% | -1.61% | 0.35% | 0.21% | -2.80% | 0.42% | 0.22% |
| 2026 | 4,805 | 56,326 | 61,131 | 4,370 | 56,970 | 61,340 | 3,580 | 58,022 | 61,602 | -0.17% | 0.23% | 0.19% | -0.76% | 0.24% | 0.17% | -2.32% | 0.34% | 0.18% |
| 2027 | 4,782 | 56,494 | 61,276 | 4,323 | 57,146 | 61,469 | 3,481 | 58,234 | 61,715 | -0.48% | 0.30% | 0.24% | -1.07% | 0.31% | 0.21% | -2.76% | 0.36% | 0.18% |
| 2028 | 4,756 | 56,641 | 61,397 | 4,268 | 57,332 | 61,600 | 3,385 | 58,444 | 61,829 | -0.55% | 0.26% | 0.20% | -1.28% | 0.33% | 0.21% | -2.76% | 0.36% | 0.19% |
| 2029 | 4,736 | 56,784 | 61,519 | 4,223 | 57,483 | 61,707 | 3,294 | 58,624 | 61,919 | -0.43% | 0.25% | 0.20% | -1.04% | 0.26% | 0.17% | -2.68% | 0.31% | 0.15% |
| 2030 | 4,714 | 56,928 | 61,642 | 4,178 | 57,636 | 61,814 | 3,204 | 58,830 | 62,035 | -0.46% | 0.25% | 0.20% | -1.08% | 0.27% | 0.17% | -2.73% | 0.35% | 0.19% |
| 2031 | 4,712 | 57,059 | 61,770 | 4,175 | 57,741 | 61,916 | 3,200 | 58,912 | 62,112 | -0.04% | 0.23% | 0.21% | -0.06% | 0.18% | 0.17% | -0.14% | 0.14% | 0.12% |
| 2032 | 4,688 | 57,206 | 61,894 | 4,130 | 57,894 | 62,025 | 3,110 | 59,094 | 62,204 | -0.50% | 0.26% | 0.20% | -1.07% | 0.26% | 0.17% | -2.81% | 0.31% | 0.15% |

| Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | | |
|----------------------|---------|-----------|-----------|---------|-----------|-----------|---------|-----------|---------------|--------|---------|--------|--------|---------|--------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 667,719 | 4,867,910 | 5,535,629 | 664,680 | 4,790,629 | 5,455,309 | 655,188 | 4,791,876 | 5,447,064 | 0.00% | -1.26% | -1.11% | 0.46% | -2.12% | -1.82% | 1.12% | -2.99% | -2.52% |
| 2013 | 819,544 | 4,853,250 | 5,672,794 | 801,610 | 4,768,749 | 5,583,359 | 801,864 | 4,698,731 | 5,500,595 | 22.74% | -0.30% | 2.48% | 22.56% | -0.46% | 2.35% | 22.39% | -1.94% | 0.98% |
| 2014 | 811,536 | 4,839,005 | 5,650,541 | 804,945 | 4,739,709 | 5,544,654 | 788,940 | 4,596,360 | 5,386,300 | -0.98% | -0.29% | -0.39% | -1.19% | -0.61% | -0.69% | -1.49% | -2.18% | -2.08% |
| 2015 | 804,424 | 4,820,936 | 5,625,360 | 796,176 | 4,698,935 | 5,495,111 | 779,399 | 4,486,397 | 5,265,336 | -0.88% | -0.37% | -0.45% | -1.09% | -0.86% | -0.89% | -1.39% | -2.39% | -2.25% |
| 2016 | 807,047 | 4,795,116 | 5,596,983 | 793,022 | 4,641,184 | 5,434,206 | 774,998 | 4,368,520 | 5,142,618 | -0.32% | -0.54% | -0.50% | -0.40% | -1.23% | -1.11% | -0.62% | -2.63% | -2.33% |
| 2017 | 801,864 | 4,766,768 | 5,573,812 | 796,076 | 4,576,837 | 5,372,913 | 774,996 | 4,249,784 | 5,024,780 | 0.65% | -0.59% | -0.41% | 0.39% | -1.39% | -1.13% | 0.12% | -2.72% | -2.29% |
| 2018 | 813,800 | 4,744,015 | 5,557,815 | 802,270 | 4,526,101 | 5,328,371 | 777,954 | 4,134,427 | 4,912,381 | 0.84% | -0.48% | -0.29% | 0.78% | -1.11% | -0.83% | 0.38% | -2.71% | -2.24% |
| 2019 | 815,349 | 4,721,604 | 5,536,953 | 800,608 | 4,478,856 | 5,279,464 | 774,087 | 4,020,149 | 4,794,236 | 0.19% | -0.47% | -0.38% | -0.21% | -1.04% | -0.92% | -0.50% | -2.76% | -2.41% |
| 2020 | 814,248 | 4,694,991 | 5,509,239 | 798,190 | 4,420,112 | 5,219,022 | 770,180 | 3,903,208 | 4,673,388 | -0.14% | -0.56% | -0.50% | -0.21% | -1.31% | -1.14% | -0.50% | -2.91% | -2.52% |
| 2021 | 818,928 | 4,667,131 | 5,486,059 | 800,352 | 4,358,378 | 5,158,730 | 769,419 | 3,786,473 | 4,555,892 | 0.57% | -0.59% | -0.42% | 0.18% | -1.40% | -1.16% | -0.10% | -2.99% | -2.51% |
| 2022 | 823,620 | 4,644,736 | 5,468,356 | 804,465 | 4,309,400 | 5,113,865 | 769,754 | 3,675,380 | 4,445,134 | 0.57% | -0.48% | -0.32% | 0.51% | -1.12% | -0.87% | 0.04% | -2.93% | -2.43% |
| 2023 | 823,536 | 4,623,327 | 5,446,863 | 802,196 | 4,264,592 | 5,066,788 | 765,756 | 3,567,425 | 4,333,181 | -0.01% | -0.46% | -0.39% | -0.28% | -1.04% | -0.92% | -0.52% | -2.94% | -2.52% |
| 2024 | 820,224 | | | | | | | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

Yakima



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE10 - Sunnyside

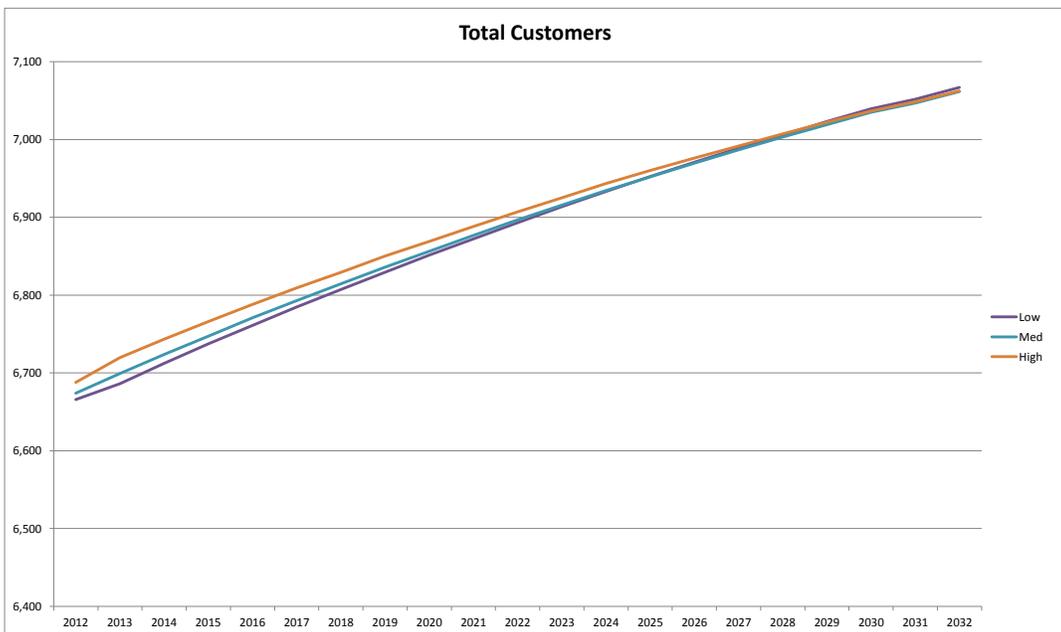
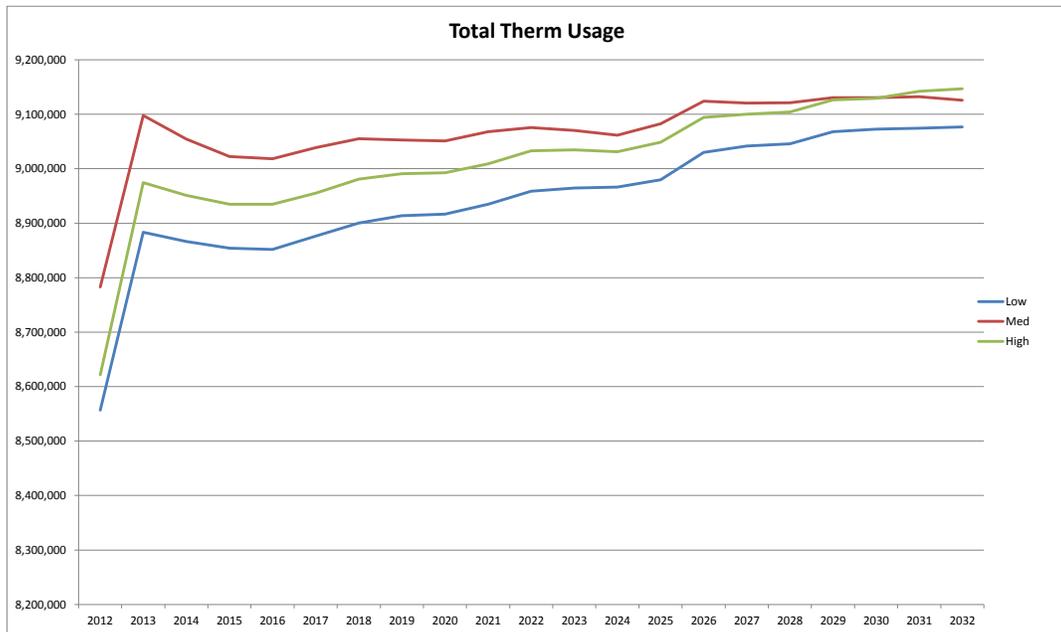
| | Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | |
|------|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|----------|--------|---------|----------|--------|---------|----------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 6,368,561 | 2,188,231 | 8,556,792 | 6,537,031 | 2,246,117 | 8,783,148 | 6,416,943 | 2,204,854 | 8,621,797 | 0.07% | 0.07% | 0.07% | 0.07% | 0.07% | 0.07% | 0.06% | 0.06% | 0.06% |
| 2013 | 6,611,788 | 2,271,803 | 8,883,591 | 6,771,071 | 2,326,532 | 9,097,603 | 6,679,335 | 2,295,012 | 8,974,346 | 3.82% | 3.82% | 3.82% | 3.58% | 3.58% | 3.58% | 4.09% | 4.09% | 4.09% |
| 2014 | 6,598,945 | 2,267,390 | 8,866,335 | 6,738,873 | 2,315,469 | 9,054,342 | 6,661,921 | 2,289,029 | 8,950,949 | -0.19% | -0.19% | -0.19% | -0.48% | -0.48% | -0.48% | -0.26% | -0.26% | -0.26% |
| 2015 | 6,589,695 | 2,264,212 | 8,853,907 | 6,715,236 | 2,307,348 | 9,022,583 | 6,649,947 | 2,284,914 | 8,934,861 | -0.14% | -0.14% | -0.14% | -0.35% | -0.35% | -0.35% | -0.18% | -0.18% | -0.18% |
| 2016 | 6,588,000 | 2,263,629 | 8,851,629 | 6,712,187 | 2,306,300 | 9,018,486 | 6,649,801 | 2,284,864 | 8,934,665 | -0.03% | -0.03% | -0.03% | -0.05% | -0.05% | -0.05% | 0.00% | 0.00% | 0.00% |
| 2017 | 6,606,280 | 2,269,910 | 8,876,190 | 6,727,183 | 2,311,453 | 9,038,636 | 6,665,209 | 2,290,158 | 8,955,368 | 0.28% | 0.28% | 0.28% | 0.22% | 0.22% | 0.22% | 0.23% | 0.23% | 0.23% |
| 2018 | 6,624,239 | 2,276,081 | 8,900,320 | 6,739,226 | 2,315,591 | 9,054,817 | 6,684,222 | 2,296,691 | 8,980,913 | 0.27% | 0.27% | 0.27% | 0.18% | 0.18% | 0.18% | 0.29% | 0.29% | 0.29% |
| 2019 | 6,634,258 | 2,279,524 | 8,913,782 | 6,737,728 | 2,315,076 | 9,052,804 | 6,691,621 | 2,299,233 | 8,990,854 | 0.15% | 0.15% | 0.15% | -0.02% | -0.02% | -0.02% | 0.11% | 0.11% | 0.11% |
| 2020 | 6,636,237 | 2,280,204 | 8,916,441 | 6,736,575 | 2,314,680 | 9,051,255 | 6,693,084 | 2,299,736 | 8,992,821 | 0.03% | 0.03% | 0.03% | -0.02% | -0.02% | -0.02% | 0.02% | 0.02% | 0.02% |
| 2021 | 6,649,884 | 2,284,893 | 8,934,776 | 6,748,972 | 2,318,939 | 9,067,911 | 6,705,183 | 2,303,893 | 9,009,076 | 0.21% | 0.21% | 0.21% | 0.18% | 0.18% | 0.18% | 0.18% | 0.18% | 0.18% |
| 2022 | 6,667,638 | 2,290,993 | 8,958,631 | 6,754,619 | 2,320,880 | 9,075,498 | 6,722,940 | 2,309,994 | 9,032,934 | 0.27% | 0.27% | 0.27% | 0.08% | 0.08% | 0.08% | 0.26% | 0.26% | 0.26% |
| 2023 | 6,672,243 | 2,292,575 | 8,964,818 | 6,750,866 | 2,319,590 | 9,070,456 | 6,724,436 | 2,310,509 | 9,034,944 | 0.07% | 0.07% | 0.07% | -0.06% | -0.06% | -0.06% | 0.02% | 0.02% | 0.02% |
| 2024 | 6,673,340 | 2,292,952 | 8,966,292 | 6,744,354 | 2,317,353 | 9,061,707 | 6,721,606 | 2,309,536 | 9,031,143 | 0.02% | 0.02% | 0.02% | -0.10% | -0.10% | -0.10% | -0.04% | -0.04% | -0.04% |
| 2025 | 6,683,552 | 2,296,461 | 8,980,013 | 6,760,023 | 2,322,736 | 9,082,759 | 6,734,680 | 2,314,029 | 9,048,709 | 0.15% | 0.15% | 0.15% | 0.23% | 0.23% | 0.23% | 0.19% | 0.19% | 0.19% |
| 2026 | 6,720,864 | 2,309,282 | 9,030,146 | 6,790,927 | 2,333,355 | 9,124,283 | 6,768,699 | 2,325,717 | 9,094,416 | 0.56% | 0.56% | 0.56% | 0.46% | 0.46% | 0.46% | 0.51% | 0.51% | 0.51% |
| 2027 | 6,729,467 | 2,312,237 | 9,041,704 | 6,788,208 | 2,332,421 | 9,120,629 | 6,772,872 | 2,327,151 | 9,100,023 | 0.13% | 0.13% | 0.13% | -0.04% | -0.04% | -0.04% | 0.06% | 0.06% | 0.06% |
| 2028 | 6,732,306 | 2,313,213 | 9,045,519 | 6,788,731 | 2,332,600 | 9,121,331 | 6,775,902 | 2,328,192 | 9,104,094 | 0.04% | 0.04% | 0.04% | 0.01% | 0.01% | 0.01% | 0.04% | 0.04% | 0.04% |
| 2029 | 6,748,911 | 2,318,918 | 9,067,830 | 6,795,432 | 2,334,903 | 9,130,334 | 6,792,274 | 2,333,818 | 9,126,091 | 0.25% | 0.25% | 0.25% | 0.10% | 0.10% | 0.10% | 0.24% | 0.24% | 0.24% |
| 2030 | 6,752,586 | 2,320,181 | 9,072,767 | 6,795,502 | 2,334,927 | 9,130,429 | 6,794,663 | 2,334,639 | 9,129,302 | 0.05% | 0.05% | 0.05% | 0.00% | 0.00% | 0.00% | 0.04% | 0.04% | 0.04% |
| 2031 | 6,753,674 | 2,320,555 | 9,074,229 | 6,796,793 | 2,335,370 | 9,132,163 | 6,804,399 | 2,337,984 | 9,142,383 | 0.02% | 0.02% | 0.02% | 0.02% | 0.02% | 0.02% | 0.14% | 0.14% | 0.14% |
| 2032 | 6,755,706 | 2,321,253 | 9,076,959 | 6,792,017 | 2,333,729 | 9,125,747 | 6,807,796 | 2,339,151 | 9,146,947 | 0.03% | 0.03% | 0.03% | -0.07% | -0.07% | -0.07% | 0.05% | 0.05% | 0.05% |

| | Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | |
|------|---------------------|--------|-----------------|----------------|--------|-----------------|----------------|--------|-----------------|---------------|--------|--------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 5,995 | 91,995 | 97,991 | 6,154 | 91,953 | 98,107 | 6,041 | 92,274 | 98,314 | 0.07% | -0.04% | -0.03% | 0.07% | 0.09% | 0.09% | 0.06% | 0.31% | 0.30% |
| 2013 | 6,224 | 92,067 | 98,291 | 6,374 | 92,107 | 98,481 | 6,288 | 92,491 | 98,779 | 3.82% | 0.08% | 0.31% | 3.58% | 0.17% | 0.38% | 4.09% | 0.24% | 0.47% |
| 2014 | 6,212 | 92,462 | 98,674 | 6,344 | 92,496 | 98,840 | 6,271 | 92,856 | 99,128 | -0.19% | 0.43% | 0.39% | -0.48% | 0.42% | 0.36% | -0.26% | 0.39% | 0.35% |
| 2015 | 6,203 | 92,837 | 99,040 | 6,322 | 92,860 | 99,181 | 6,260 | 93,200 | 99,460 | -0.14% | 0.41% | 0.37% | -0.35% | 0.39% | 0.35% | -0.18% | 0.37% | 0.33% |
| 2016 | 6,202 | 93,188 | 99,389 | 6,319 | 93,216 | 99,535 | 6,260 | 93,528 | 99,788 | -0.03% | 0.38% | 0.35% | -0.05% | 0.38% | 0.36% | 0.00% | 0.35% | 0.33% |
| 2017 | 6,219 | 93,517 | 99,736 | 6,333 | 93,524 | 99,857 | 6,274 | 93,825 | 100,099 | 0.28% | 0.35% | 0.35% | 0.22% | 0.33% | 0.32% | 0.23% | 0.32% | 0.31% |
| 2018 | 6,236 | 93,829 | 100,065 | 6,344 | 93,831 | 100,175 | 6,294 | 94,101 | 100,393 | 0.27% | 0.33% | 0.33% | 0.18% | 0.33% | 0.32% | 0.29% | 0.29% | 0.29% |
| 2019 | 6,245 | 94,146 | 100,392 | 6,343 | 94,149 | 100,492 | 6,299 | 94,399 | 100,698 | 0.15% | 0.34% | 0.33% | -0.02% | 0.34% | 0.32% | 0.11% | 0.32% | 0.30% |
| 2020 | 6,247 | 94,469 | 100,716 | 6,342 | 94,449 | 100,791 | 6,301 | 94,672 | 100,973 | 0.03% | 0.34% | 0.32% | -0.02% | 0.32% | 0.30% | 0.02% | 0.29% | 0.27% |
| 2021 | 6,260 | 94,763 | 101,023 | 6,353 | 94,735 | 101,088 | 6,312 | 94,948 | 101,260 | 0.21% | 0.31% | 0.30% | 0.18% | 0.30% | 0.29% | 0.18% | 0.29% | 0.28% |
| 2022 | 6,277 | 95,051 | 101,388 | 6,359 | 95,025 | 101,383 | 6,329 | 95,203 | 101,532 | 0.27% | 0.30% | 0.30% | 0.08% | 0.31% | 0.29% | 0.26% | 0.27% | 0.27% |
| 2023 | 6,281 | 95,351 | 101,632 | 6,355 | 95,308 | 101,663 | 6,330 | 95,471 | 101,802 | 0.07% | 0.31% | 0.30% | -0.06% | 0.30% | 0.28% | 0.02% | 0.28% | 0.27% |
| 2024 | 6,282 | 95,636 | 101,939 | 6,349 | 95,590 | 101,939 | 6,327 | 95,740 | 102,067 | 0.02% | 0.30% | 0.28% | -0.10% | 0.30% | 0.27% | -0.04% | 0.28% | 0.26% |
| 2025 | 6,292 | 95,911 | 102,203 | 6,364 | 95,835 | 102,199 | 6,340 | 95,978 | 102,317 | 0.15% | 0.29% | 0.28% | 0.23% | 0.26% | 0.25% | 0.19% | 0.25% | 0.24% |
| 2026 | 6,327 | 96,143 | 102,470 | 6,393 | 96,062 | 102,455 | 6,372 | 96,177 | 102,549 | 0.56% | 0.24% | 0.26% | 0.46% | 0.24% | 0.25% | 0.51% | 0.21% | 0.23% |
| 2027 | 6,335 | 96,400 | 102,735 | 6,390 | 96,319 | 102,709 | 6,376 | 96,402 | 102,778 | 0.13% | 0.27% | 0.26% | -0.04% | 0.27% | 0.25% | 0.06% | 0.23% | 0.22% |
| 2028 | 6,338 | 96,644 | 102,982 | 6,391 | 96,556 | 102,946 | 6,379 | 96,627 | 103,005 | 0.04% | 0.25% | 0.24% | 0.01% | 0.25% | 0.23% | 0.04% | 0.23% | 0.22% |
| 2029 | 6,353 | 96,888 | 103,241 | 6,397 | 96,784 | 103,181 | 6,394 | 96,836 | 103,230 | 0.25% | 0.25% | 0.25% | 0.10% | 0.24% | 0.23% | 0.24% | 0.23% | 0.22% |
| 2030 | 6,357 | 97,127 | 103,484 | 6,397 | 97,017 | 103,414 | 6,396 | 97,042 | 103,439 | 0.05% | 0.25% | 0.23% | 0.00% | 0.24% | 0.23% | 0.04% | 0.21% | 0.20% |
| 2031 | 6,358 | 97,302 | 103,660 | 6,398 | 97,192 | 103,590 | 6,405 | 97,210 | 103,615 | 0.02% | 0.18% | 0.17% | -0.02% | 0.18% | 0.17% | 0.14% | 0.17% | 0.17% |
| 2032 | 6,360 | 97,526 | 103,886 | 6,394 | 97,413 | 103,807 | 6,409 | 97,414 | 103,822 | 0.03% | 0.23% | 0.22% | -0.07% | 0.23% | 0.21% | 0.05% | 0.21% | 0.20% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|---------|--------|--------|---------|--------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 2,798,370 | 5,758,422 | 8,556,792 | 2,854,316 | 5,928,832 | 8,783,148 | 2,859,726 | 5,762,071 | 8,621,797 | 0.02% | 0.10% | 0.07% | 0.13% | 0.04% | 0.07% | 0.32% | -0.07% | 0.06% |
| 2013 | 3,124,026 | 5,759,565 | 8,883,591 | 3,198,784 | 5,997,603 | 9,196,387 | 3,212,550 | 5,761,796 | 8,974,346 | 11.64% | 0.02% | 0.25% | 12.07% | -0.51% | 3.58% | 12.34% | 0.00% | 4.09% |
| 2014 | 3,104,010 | 5,762,326 | 8,866,335 | 3,178,370 | 5,875,972 | 9,054,342 | 3,192,071 | 5,758,878 | 8,950,949 | -0.64% | 0.05% | -0.19% | -0.64% | -0.39% | -0.48% | -0.64% | -0.05% | -0.26% |
| 2015 | 3,088,500 | 5,765,407 | 8,853,907 | 3,162,469 | 5,860,114 | 9,022,583 | 3,181,465 | 5,753,396 | 8,934,861 | -0.50% | 0.05% | -0.14% | -0.50% | -0.27% | -0.35% | -0.33% | -0.10% | -0.18% |
| 2016 | 3,082,911 | 5,768,178 | 8,851,089 | 3,163,032 | 5,855,454 | 9,018,486 | 3,186,810 | 5,747,855 | 8,934,665 | -0.18% | 0.06% | -0.03% | 0.02% | -0.08% | -0.05% | 0.17% | -0.10% | 0.00% |
| 2017 | 3,104,019 | 5,772,711 | 8,876,730 | 3,183,817 | 5,854,819 | 9,038,636 | 3,212,054 | 5,742,314 | 8,955,368 | 0.68% | 0.06% | 0.28% | 0.66% | -0.01% | 0.22% | 0.82% | -0.10% | 0.23% |
| 2018 | 3,124,618 | 5,775,702 | 8,900,320 | 3,210,056 | 5,844,761 | 9,054,817 | 3,244,198 | 5,736,715 | 8,980,913 | 0.66% | 0.06% | 0.27% | 0.82% | -0.17% | 0.18% | 0.97% | -0.10% | 0.29% |
| 2019 | 3,134,495 | 5,779,287 | 8,913,782 | 3,220,188 | 5,832,616 | 9,052,804 | 3,259,830 | 5,731,024 | 8,990,854 | 0.32% | 0.06% | 0.15% | 0.32% | -0.21% | -0.02% | 0.48% | -0.10% | 0.11% |
| 2020 | 3,133,548 | 5,782,893 | 8,916,441 | 3,224,305 | 5,826,950 | 9,051,255 | 3,268,860 | 5,723,961 | 8,992,821 | -0.03% | 0.06% | 0.03% | 0.13% | -0.10% | -0.02% | 0.28% | -0.12% | 0.02% |
| 2021 | 3,148,240 | 5,786,536 | 8,934,776 | 3,244,695 | 5,823,216 | 9,067,911 | 3,289,384 | 5,719,692 | 9,009,076 | 0.47% | 0.06% | 0.21% | 0.63% | -0.06% | 0.18% | 0.63% | -0.07% | 0.18% |
| 2022 | 3,168,408 | 5,790,223 | 8,958,631 | 3,265,149 | 5,810,349 | 9,075,498 | 3,320,288 | 5,712,646 | 9,002,934 | 0.64% | 0.06% | 0.27% | 0.63% | -0.22% | 0.08% | 0.94% | -0.12% | 0.26% |
| 2023 | 3,172,260 | 5,792,558 | | | | | | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE10 - Sunnyside



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE11 - Yakima, Wenatchee

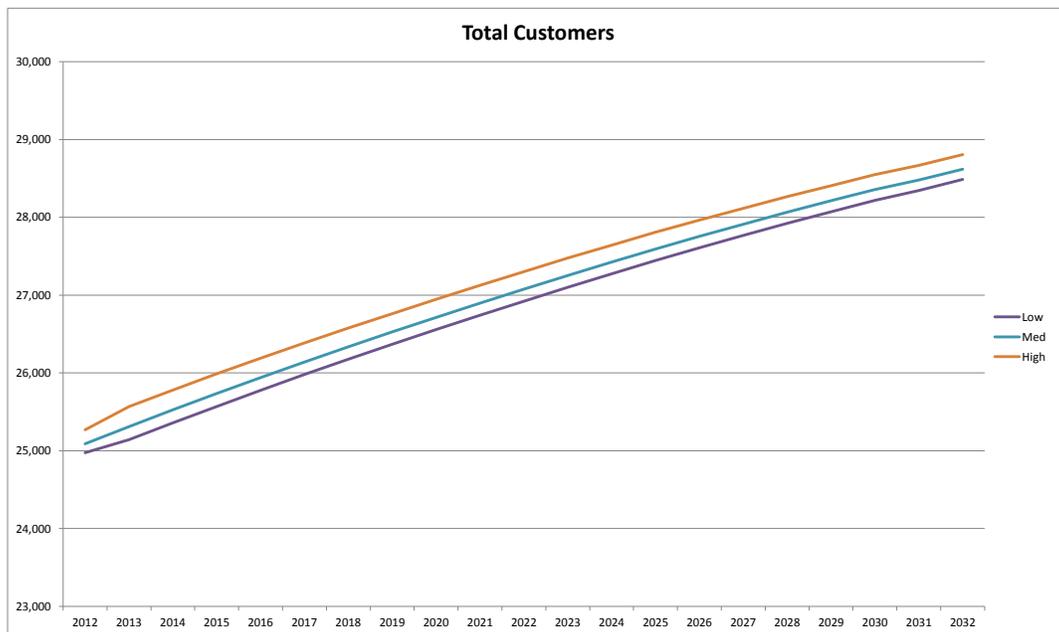
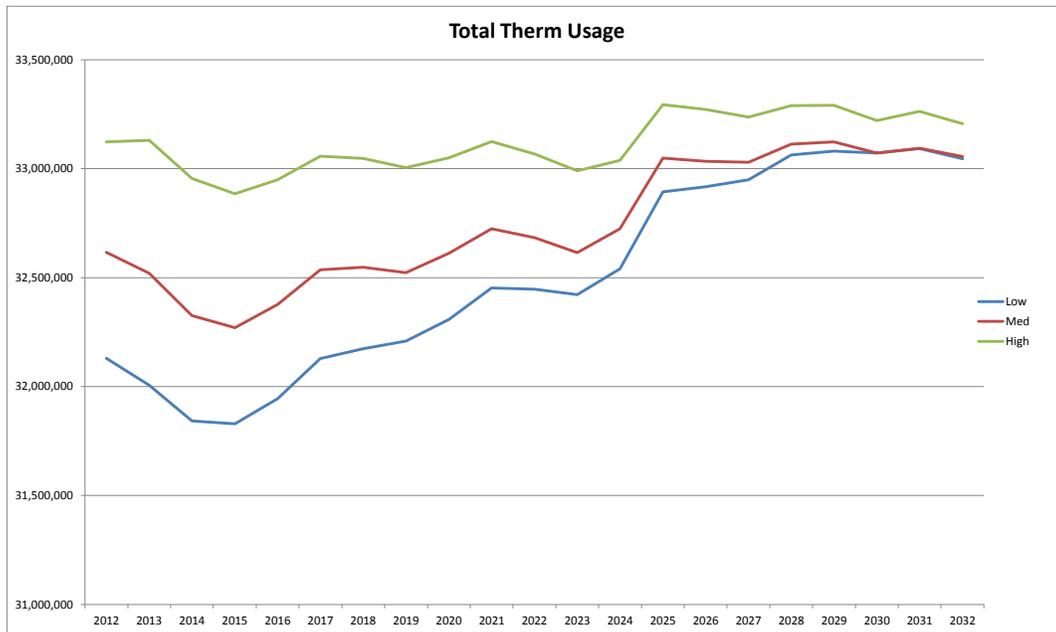
| | Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | |
|------|------------------------------|-----------|------------|------------|-----------|------------|------------|-----------|------------|---------------|----------|--------|---------|----------|--------|---------|----------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 23,314,972 | 8,815,535 | 32,130,507 | 23,678,244 | 8,938,685 | 32,616,929 | 24,051,655 | 9,071,610 | 33,123,265 | 0.92% | 0.81% | 0.89% | 2.13% | 1.92% | 2.07% | 3.84% | 3.50% | 3.75% |
| 2013 | 23,214,064 | 8,791,122 | 32,005,186 | 23,598,700 | 8,921,140 | 32,519,840 | 24,053,695 | 9,076,905 | 33,130,600 | -0.43% | -0.28% | -0.39% | -0.34% | -0.20% | -0.30% | 0.01% | 0.06% | 0.02% |
| 2014 | 23,095,348 | 8,746,741 | 31,842,089 | 23,458,406 | 8,867,634 | 32,326,040 | 23,931,377 | 9,023,386 | 32,954,763 | -0.51% | -0.50% | -0.51% | -0.59% | -0.60% | -0.60% | -0.51% | -0.59% | -0.53% |
| 2015 | 23,087,581 | 8,741,814 | 31,829,394 | 23,420,807 | 8,849,953 | 32,270,760 | 23,887,629 | 8,997,414 | 32,885,044 | -0.03% | -0.06% | -0.04% | -0.16% | -0.20% | -0.17% | -0.18% | -0.29% | -0.21% |
| 2016 | 23,174,346 | 8,770,443 | 31,944,789 | 23,503,284 | 8,874,275 | 32,377,559 | 24,942,270 | 9,006,502 | 32,948,772 | 0.38% | 0.33% | 0.36% | 0.35% | 0.27% | 0.33% | 0.23% | 0.10% | 0.19% |
| 2017 | 23,311,431 | 8,817,524 | 32,128,955 | 23,623,652 | 8,912,122 | 32,535,774 | 24,279,704 | 9,027,742 | 33,057,446 | 0.59% | 0.54% | 0.58% | 0.51% | 0.43% | 0.49% | 0.37% | 0.24% | 0.33% |
| 2018 | 23,345,222 | 8,828,252 | 32,173,474 | 23,634,928 | 8,912,359 | 32,547,287 | 24,028,699 | 9,017,796 | 33,046,495 | 0.14% | 0.12% | 0.14% | 0.05% | 0.00% | 0.04% | 0.00% | -0.11% | -0.03% |
| 2019 | 23,372,552 | 8,836,253 | 32,208,805 | 23,619,691 | 8,902,735 | 32,522,426 | 24,005,240 | 8,999,326 | 33,004,566 | 0.12% | 0.09% | 0.11% | -0.06% | -0.11% | -0.08% | -0.10% | -0.20% | -0.13% |
| 2020 | 23,447,889 | 8,860,850 | 32,308,739 | 23,690,073 | 8,922,410 | 32,612,483 | 24,046,543 | 9,003,800 | 33,050,343 | 0.32% | 0.28% | 0.31% | 0.29% | 0.22% | 0.27% | 0.17% | 0.05% | 0.14% |
| 2021 | 23,555,730 | 8,897,465 | 32,453,195 | 23,775,904 | 8,948,341 | 32,724,244 | 24,108,246 | 9,015,861 | 33,124,107 | 0.46% | 0.41% | 0.45% | 0.37% | 0.29% | 0.35% | 0.26% | 0.13% | 0.22% |
| 2022 | 23,551,887 | 8,894,580 | 32,446,467 | 23,748,872 | 8,934,841 | 32,683,713 | 24,073,353 | 8,993,929 | 33,067,282 | -0.02% | -0.03% | -0.02% | -0.11% | -0.15% | -0.12% | -0.14% | -0.24% | -0.17% |
| 2023 | 23,535,505 | 8,886,884 | 32,422,389 | 23,700,733 | 8,913,599 | 32,614,332 | 24,023,859 | 8,966,669 | 32,990,529 | -0.07% | -0.09% | -0.07% | -0.20% | -0.24% | -0.21% | -0.21% | -0.30% | -0.23% |
| 2024 | 23,623,887 | 8,915,974 | 32,539,860 | 23,785,829 | 8,938,854 | 32,724,683 | 24,066,418 | 8,971,970 | 33,038,389 | 0.38% | 0.33% | 0.36% | 0.36% | 0.28% | 0.34% | 0.18% | 0.06% | 0.15% |
| 2025 | 23,886,714 | 9,007,152 | 32,893,866 | 24,029,189 | 9,019,058 | 33,048,246 | 24,262,347 | 9,032,024 | 33,294,371 | 1.11% | 1.02% | 1.09% | 1.02% | 0.90% | 0.99% | 0.81% | 0.67% | 0.77% |
| 2026 | 23,904,516 | 9,012,725 | 32,917,240 | 24,021,139 | 9,012,974 | 33,034,113 | 24,251,977 | 9,020,213 | 33,272,190 | 0.07% | 0.06% | 0.07% | 0.20% | -0.07% | -0.04% | -0.04% | -0.13% | -0.07% |
| 2027 | 23,929,681 | 9,019,545 | 32,949,226 | 24,021,440 | 9,008,612 | 33,030,051 | 24,233,522 | 9,004,195 | 33,237,717 | 0.11% | 0.08% | 0.10% | 0.00% | -0.05% | -0.01% | -0.18% | -0.10% | -0.10% |
| 2028 | 24,015,009 | 9,047,593 | 33,062,602 | 24,086,285 | 9,026,540 | 33,112,825 | 24,278,168 | 9,011,015 | 33,286,183 | 0.36% | 0.31% | 0.34% | 0.27% | 0.20% | 0.25% | 0.08% | 0.08% | 0.15% |
| 2029 | 24,029,575 | 9,050,860 | 33,080,435 | 24,096,646 | 9,026,015 | 33,122,661 | 24,285,870 | 9,005,103 | 33,290,973 | 0.06% | 0.04% | 0.05% | 0.04% | -0.01% | 0.03% | 0.03% | -0.07% | 0.01% |
| 2030 | 24,024,405 | 9,046,920 | 33,071,325 | 24,063,080 | 9,009,634 | 33,072,714 | 24,240,466 | 8,980,282 | 33,220,748 | -0.02% | -0.04% | -0.03% | -0.17% | -0.18% | -0.15% | -0.19% | -0.28% | -0.21% |
| 2031 | 24,040,199 | 9,052,373 | 33,092,572 | 24,079,100 | 9,015,117 | 33,094,217 | 24,272,623 | 8,991,351 | 33,263,974 | 0.07% | 0.06% | 0.06% | 0.07% | 0.06% | 0.07% | 0.13% | 0.12% | 0.13% |
| 2032 | 24,007,307 | 9,038,367 | 33,045,674 | 24,054,554 | 9,002,076 | 33,056,630 | 24,236,197 | 8,969,738 | 33,205,935 | -0.14% | -0.15% | -0.14% | -0.10% | -0.14% | -0.11% | -0.15% | -0.24% | -0.17% |

| | Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | |
|------|---------------------|---------|-----------------|----------------|---------|-----------------|----------------|---------|-----------------|---------------|-------|-------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 24,152 | 338,340 | 362,492 | 24,490 | 339,652 | 364,141 | 24,854 | 341,825 | 366,679 | 0.81% | 0.10% | 0.15% | 1.92% | 0.51% | 0.60% | 3.50% | 1.15% | 1.30% |
| 2013 | 24,085 | 340,716 | 364,801 | 24,441 | 342,719 | 367,161 | 24,868 | 345,940 | 370,808 | -0.28% | 0.70% | 0.64% | -0.20% | 0.90% | 0.83% | 0.06% | 1.20% | 1.13% |
| 2014 | 23,964 | 343,789 | 367,753 | 24,295 | 345,837 | 370,131 | 24,722 | 348,991 | 373,712 | -0.50% | 0.90% | 0.81% | -0.60% | 0.91% | 0.81% | -0.59% | 0.88% | 0.78% |
| 2015 | 23,950 | 346,691 | 370,641 | 24,246 | 348,765 | 373,011 | 24,650 | 351,901 | 376,552 | -0.06% | 0.84% | 0.79% | -0.20% | 0.85% | 0.78% | -0.29% | 0.83% | 0.76% |
| 2016 | 24,029 | 349,449 | 373,477 | 24,313 | 351,499 | 375,812 | 24,655 | 354,635 | 379,310 | 0.33% | 0.80% | 0.77% | 0.27% | 0.78% | 0.75% | 0.10% | 0.78% | 0.73% |
| 2017 | 24,158 | 352,102 | 376,259 | 24,417 | 354,142 | 378,559 | 24,734 | 357,242 | 381,976 | 0.54% | 0.76% | 0.74% | 0.43% | 0.75% | 0.73% | 0.24% | 0.74% | 0.70% |
| 2018 | 24,187 | 354,800 | 378,987 | 24,417 | 356,821 | 381,239 | 24,706 | 359,907 | 384,614 | 0.12% | 0.77% | 0.73% | 0.00% | 0.76% | 0.71% | 0.11% | 0.75% | 0.69% |
| 2019 | 24,209 | 357,412 | 381,621 | 24,391 | 359,472 | 383,863 | 24,656 | 362,501 | 387,156 | 0.09% | 0.74% | 0.69% | -0.11% | 0.74% | 0.69% | -0.20% | 0.72% | 0.66% |
| 2020 | 24,276 | 359,949 | 384,225 | 24,445 | 361,988 | 386,432 | 24,668 | 364,991 | 389,563 | 0.28% | 0.71% | 0.68% | 0.22% | 0.70% | 0.67% | 0.05% | 0.69% | 0.65% |
| 2021 | 24,377 | 362,373 | 386,749 | 24,516 | 364,432 | 388,948 | 24,701 | 367,344 | 392,135 | 0.41% | 0.67% | 0.66% | 0.29% | 0.68% | 0.65% | 0.13% | 0.67% | 0.64% |
| 2022 | 24,369 | 364,864 | 389,233 | 24,479 | 366,933 | 391,412 | 24,641 | 369,919 | 394,560 | -0.03% | 0.69% | 0.64% | -0.15% | 0.69% | 0.63% | -0.24% | 0.68% | 0.62% |
| 2023 | 24,348 | 367,342 | 391,689 | 24,421 | 369,413 | 393,834 | 24,566 | 372,390 | 396,956 | -0.09% | 0.68% | 0.63% | -0.24% | 0.68% | 0.62% | -0.30% | 0.67% | 0.61% |
| 2024 | 24,427 | 369,650 | 394,077 | 24,490 | 371,723 | 396,213 | 24,581 | 374,647 | 399,227 | 0.33% | 0.63% | 0.61% | 0.28% | 0.63% | 0.60% | 0.06% | 0.61% | 0.57% |
| 2025 | 24,677 | 371,745 | 396,422 | 24,710 | 373,800 | 398,509 | 24,745 | 376,752 | 401,497 | 1.02% | 0.57% | 0.59% | 0.90% | 0.56% | 0.58% | 0.67% | 0.56% | 0.57% |
| 2026 | 24,692 | 373,979 | 398,672 | 24,693 | 376,032 | 400,725 | 24,713 | 378,944 | 403,657 | 0.06% | 0.60% | 0.57% | -0.07% | 0.60% | 0.56% | -0.13% | 0.58% | 0.54% |
| 2027 | 24,711 | 376,166 | 400,877 | 24,681 | 378,200 | 402,881 | 24,669 | 381,076 | 405,745 | 0.08% | 0.58% | 0.55% | -0.05% | 0.58% | 0.54% | -0.18% | 0.56% | 0.52% |
| 2028 | 24,788 | 378,212 | 402,999 | 24,730 | 380,265 | 404,995 | 24,688 | 383,092 | 407,780 | 0.31% | 0.54% | 0.53% | 0.20% | 0.55% | 0.52% | 0.08% | 0.53% | 0.50% |
| 2029 | 24,797 | 380,255 | 405,052 | 24,729 | 382,284 | 407,013 | 24,672 | 385,059 | 409,731 | 0.04% | 0.54% | 0.51% | -0.01% | 0.53% | 0.50% | -0.07% | 0.51% | 0.48% |
| 2030 | 24,786 | 382,262 | 407,048 | 24,684 | 384,291 | 408,974 | 24,604 | 387,062 | 411,665 | -0.04% | 0.53% | 0.49% | -0.18% | 0.52% | 0.48% | -0.28% | 0.52% | 0.47% |
| 2031 | 24,801 | 384,035 | 408,836 | 24,699 | 385,997 | 410,696 | 24,634 | 388,674 | 413,308 | 0.06% | 0.46% | 0.44% | 0.06% | 0.44% | 0.42% | 0.12% | 0.42% | 0.40% |
| 2032 | 24,763 | 386,040 | 410,803 | 24,663 | 387,952 | 412,615 | 24,575 | 390,614 | 415,188 | -0.15% | 0.52% | 0.48% | -0.14% | 0.51% | 0.47% | -0.24% | 0.50% | 0.45% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|---------|--------|--------|---------|--------|-------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 11,761,273 | 20,369,234 | 32,130,507 | 12,121,158 | 20,495,771 | 32,616,929 | 12,686,691 | 20,436,574 | 33,123,265 | -3.78% | 3.80% | 0.89% | -0.78% | 3.84% | 2.07% | 3.96% | 3.62% | 3.75% |
| 2013 | 11,824,004 | 20,181,182 | 32,005,186 | 12,268,262 | 20,251,578 | 32,519,840 | 12,938,296 | 20,192,304 | 33,130,600 | 0.53% | -0.92% | -0.39% | 1.21% | -1.19% | -0.30% | 1.98% | -1.20% | 0.02% |
| 2014 | 11,807,489 | 20,034,600 | 31,842,089 | 12,271,972 | 20,054,068 | 32,326,040 | 12,980,617 | 19,974,092 | 32,954,763 | -0.14% | -0.73% | -0.51% | 0.03% | -0.98% | -0.60% | 0.33% | -1.08% | -0.53% |
| 2015 | 11,866,783 | 19,962,611 | 31,829,394 | 12,331,350 | 19,939,410 | 32,270,760 | 13,061,167 | 19,823,877 | 32,885,044 | 0.50% | -0.36% | -0.04% | 0.48% | -0.57% | -0.17% | 0.62% | -0.75% | -0.21% |
| 2016 | 11,947,547 | 19,997,242 | 31,944,789 | 12,433,257 | 19,944,202 | 32,377,559 | 13,164,038 | 19,784,734 | 32,948,772 | 0.68% | 0.17% | 0.36% | 0.83% | 0.02% | 0.33% | 0.79% | -0.20% | 0.19% |
| 2017 | 12,053,524 | 20,075,431 | 32,128,955 | 12,539,248 | 19,996,526 | 32,535,774 | 13,269,588 | 19,787,858 | 33,057,446 | 0.89% | 0.39% | 0.58% | 0.85% | 0.26% | 0.49% | 0.80% | 0.20% | 0.33% |
| 2018 | 12,118,322 | 20,055,152 | 32,173,474 | 12,604,606 | 19,942,681 | 32,547,287 | 13,354,167 | 19,692,328 | 33,046,495 | 0.54% | -0.10% | 0.14% | 0.52% | -0.27% | 0.04% | 0.64% | -0.48% | -0.03% |
| 2019 | 12,194,859 | 20,013,946 | 32,208,805 | 12,659,112 | 19,863,314 | 32,522,426 | 13,428,537 | 19,576,029 | 33,004,566 | 0.63% | -0.21% | 0.11% | 0.43% | -0.40% | 0.08% | 0.56% | -0.59% | -0.13% |
| 2020 | 12,266,180 | 20,042,559 | 32,308,739 | 12,752,042 | 19,859,441 | 32,612,483 | 13,521,629 | 19,528,723 | 33,050,343 | 0.58% | 0.14% | 0.31% | 0.73% | -0.02% | 0.27% | 0.69% | -0.24% | 0.14% |
| 2021 | 12,361,488 | 20,091,707 | 32,453,195 | 12,845,804 | 19,878,440 | 32,724,244 | 13,616,629 | 19,507,478 | 3 | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE11 - Yakima, Wenatchee



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

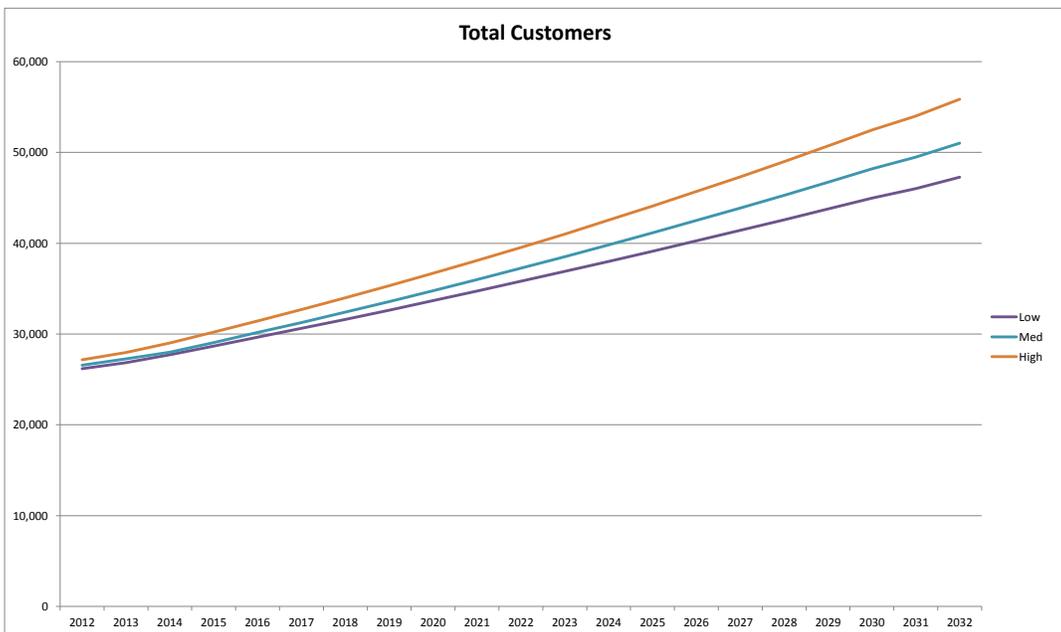
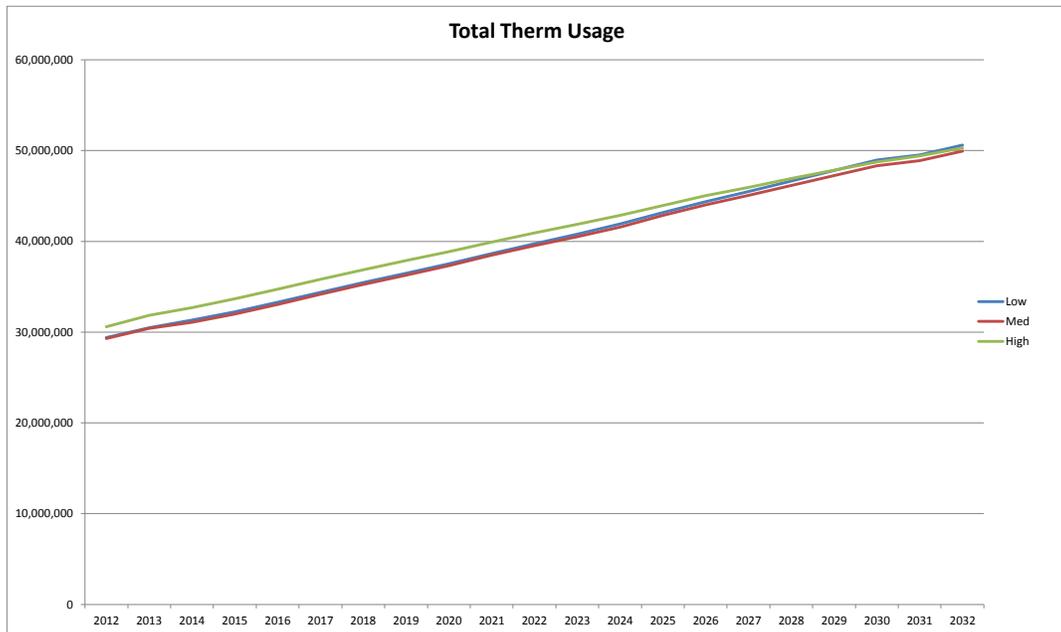
| ZONE20 - Kennewick, Moses Lake | | | | | | | | | | | | | | | | | | |
|--------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---------|----------|---------------|---------|----------|-------|---------|----------|-------|
| Annual Requirements (Therms) | | | | | | | | | | | | Annual Change | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 20,647,564 | 8,738,590 | 29,386,153 | 20,574,951 | 8,708,260 | 29,283,211 | 21,506,983 | 9,098,004 | 30,604,987 | 5.09% | 5.01% | 5.06% | 6.75% | 6.65% | 6.72% | 9.16% | 9.04% | 9.12% |
| 2013 | 21,421,853 | 9,064,506 | 30,486,359 | 21,361,588 | 9,039,520 | 30,401,108 | 22,377,381 | 9,464,453 | 31,841,834 | 3.75% | 3.73% | 3.74% | 3.82% | 3.80% | 3.82% | 4.05% | 4.03% | 4.04% |
| 2014 | 22,016,383 | 9,312,863 | 31,329,246 | 21,831,995 | 9,236,361 | 31,068,356 | 22,990,547 | 9,720,904 | 32,711,451 | 2.78% | 2.74% | 2.76% | 2.20% | 2.18% | 2.19% | 2.74% | 2.71% | 2.73% |
| 2015 | 22,663,250 | 9,583,351 | 32,246,601 | 22,486,748 | 9,510,247 | 31,996,995 | 23,680,387 | 10,009,568 | 33,689,955 | 2.94% | 2.90% | 2.93% | 3.00% | 2.97% | 2.99% | 3.00% | 2.97% | 2.99% |
| 2016 | 23,389,790 | 9,887,483 | 33,277,272 | 23,218,725 | 9,816,810 | 33,035,535 | 24,406,119 | 10,313,753 | 34,719,872 | 3.21% | 3.17% | 3.20% | 3.26% | 3.22% | 3.25% | 3.06% | 3.04% | 3.06% |
| 2017 | 24,158,709 | 10,209,634 | 34,368,343 | 24,015,994 | 10,150,916 | 34,166,910 | 25,187,532 | 10,641,598 | 35,829,130 | 3.29% | 3.26% | 3.28% | 3.43% | 3.40% | 3.42% | 3.20% | 3.18% | 3.19% |
| 2018 | 24,922,560 | 10,529,495 | 35,452,055 | 24,770,937 | 10,467,151 | 35,238,088 | 25,928,661 | 10,952,319 | 36,880,980 | 3.16% | 3.13% | 3.15% | 3.14% | 3.12% | 3.14% | 2.94% | 2.92% | 2.94% |
| 2019 | 25,644,195 | 10,831,415 | 36,475,609 | 25,493,542 | 10,769,625 | 36,263,167 | 26,635,886 | 11,246,721 | 37,884,607 | 2.90% | 2.87% | 2.89% | 2.92% | 2.89% | 2.91% | 2.73% | 2.71% | 2.72% |
| 2020 | 26,398,003 | 11,146,954 | 37,544,956 | 26,241,415 | 11,082,884 | 37,324,299 | 27,328,926 | 11,539,574 | 38,860,500 | 2.94% | 2.91% | 2.93% | 2.93% | 2.91% | 2.93% | 2.60% | 2.59% | 2.60% |
| 2021 | 27,188,756 | 11,478,122 | 38,666,878 | 27,042,248 | 11,418,348 | 38,460,597 | 28,061,447 | 11,846,990 | 39,908,437 | 3.00% | 2.97% | 2.99% | 3.05% | 3.03% | 3.04% | 2.68% | 2.66% | 2.68% |
| 2022 | 27,955,382 | 11,798,930 | 39,754,312 | 27,784,966 | 11,729,392 | 39,514,358 | 28,788,872 | 12,152,089 | 40,940,962 | 2.82% | 2.79% | 2.81% | 2.75% | 2.72% | 2.74% | 2.59% | 2.58% | 2.59% |
| 2023 | 28,692,686 | 12,107,259 | 40,799,946 | 28,487,482 | 12,023,434 | 40,510,916 | 29,454,562 | 12,431,189 | 41,885,751 | 2.64% | 2.61% | 2.63% | 2.53% | 2.51% | 2.52% | 2.31% | 2.30% | 2.31% |
| 2024 | 29,472,007 | 12,433,380 | 41,905,387 | 29,234,927 | 12,336,391 | 41,571,318 | 30,138,378 | 12,718,156 | 42,856,534 | 2.72% | 2.69% | 2.71% | 2.62% | 2.60% | 2.62% | 2.32% | 2.31% | 2.32% |
| 2025 | 30,360,917 | 12,805,993 | 43,166,910 | 30,131,423 | 12,712,286 | 42,843,709 | 30,897,867 | 13,037,528 | 43,935,395 | 3.02% | 3.00% | 3.01% | 3.07% | 3.05% | 3.06% | 2.52% | 2.51% | 2.52% |
| 2026 | 31,210,665 | 13,161,755 | 44,372,420 | 30,962,527 | 13,060,466 | 44,022,993 | 31,664,155 | 13,359,266 | 45,023,421 | 2.80% | 2.78% | 2.79% | 2.74% | 2.72% | 2.74% | 2.48% | 2.47% | 2.48% |
| 2027 | 31,992,184 | 13,488,767 | 45,480,951 | 31,696,683 | 13,367,794 | 45,064,476 | 32,316,036 | 13,633,007 | 45,949,075 | 2.50% | 2.48% | 2.50% | 2.37% | 2.35% | 2.37% | 2.06% | 2.05% | 2.06% |
| 2028 | 32,805,188 | 13,829,066 | 46,634,254 | 32,470,329 | 13,691,872 | 46,162,201 | 32,993,936 | 13,917,889 | 46,911,825 | 2.54% | 2.52% | 2.54% | 2.44% | 2.42% | 2.44% | 2.10% | 2.09% | 2.10% |
| 2029 | 33,624,394 | 14,171,902 | 47,796,296 | 33,238,209 | 14,013,465 | 47,251,674 | 33,642,944 | 14,190,750 | 47,833,693 | 2.50% | 2.48% | 2.49% | 2.36% | 2.35% | 2.36% | 1.97% | 1.96% | 1.97% |
| 2030 | 34,437,859 | 14,512,109 | 48,949,968 | 33,987,309 | 14,327,081 | 48,314,389 | 34,275,698 | 14,456,668 | 48,732,366 | 2.42% | 2.40% | 2.41% | 2.25% | 2.24% | 2.25% | 1.88% | 1.87% | 1.88% |
| 2031 | 34,837,618 | 14,678,458 | 49,516,075 | 34,404,715 | 14,500,627 | 48,905,342 | 34,750,449 | 14,653,858 | 49,404,307 | 1.16% | 1.15% | 1.16% | 1.23% | 1.21% | 1.22% | 1.39% | 1.36% | 1.38% |
| 2032 | 35,607,232 | 15,000,316 | 50,607,548 | 35,133,499 | 14,805,626 | 49,939,125 | 35,381,645 | 14,919,086 | 50,300,731 | 2.21% | 2.19% | 2.20% | 2.12% | 2.10% | 2.11% | 1.82% | 1.81% | 1.81% |

| Peak Day - Baseload | | | | | | | | | | | | Annual Change | | | | | | |
|---------------------|----------------|---------|-----------------|----------------|---------|-----------------|----------------|---------|-----------------|-------|-------|---------------|--------|-------|-------|-------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 23,941 | 427,375 | 451,316 | 23,858 | 433,545 | 457,403 | 24,926 | 441,839 | 466,765 | 5.01% | 0.93% | 1.14% | 6.65% | 2.29% | 2.50% | 9.04% | 4.36% | 4.60% |
| 2013 | 24,834 | 436,898 | 461,733 | 24,766 | 444,078 | 468,844 | 25,930 | 453,764 | 479,694 | 3.73% | 2.23% | 2.31% | 3.80% | 2.43% | 2.50% | 4.03% | 2.70% | 2.77% |
| 2014 | 25,515 | 450,142 | 475,657 | 25,305 | 455,059 | 480,364 | 26,633 | 469,842 | 496,475 | 2.74% | 3.03% | 3.02% | 2.18% | 2.47% | 2.46% | 2.71% | 3.54% | 3.50% |
| 2015 | 26,256 | 464,669 | 490,925 | 26,055 | 471,355 | 497,410 | 27,423 | 488,121 | 515,545 | 2.90% | 3.23% | 3.21% | 2.97% | 3.58% | 3.55% | 2.97% | 3.89% | 3.84% |
| 2016 | 27,089 | 479,360 | 506,449 | 26,895 | 487,985 | 514,881 | 28,257 | 506,884 | 535,141 | 3.17% | 3.16% | 3.16% | 3.22% | 3.53% | 3.51% | 3.04% | 3.84% | 3.80% |
| 2017 | 27,972 | 494,271 | 522,242 | 27,811 | 504,904 | 532,715 | 29,155 | 526,151 | 555,306 | 3.26% | 3.11% | 3.12% | 3.40% | 3.47% | 3.46% | 3.18% | 3.80% | 3.77% |
| 2018 | 28,848 | 509,470 | 538,318 | 28,677 | 522,311 | 550,989 | 30,006 | 545,983 | 575,990 | 3.13% | 3.08% | 3.08% | 3.12% | 3.45% | 3.43% | 2.92% | 3.77% | 3.72% |
| 2019 | 29,675 | 524,938 | 554,613 | 29,506 | 540,099 | 569,605 | 30,818 | 566,380 | 597,199 | 2.87% | 3.04% | 3.03% | 2.89% | 3.41% | 3.38% | 2.71% | 3.74% | 3.68% |
| 2020 | 30,540 | 540,620 | 571,159 | 30,364 | 558,629 | 588,633 | 31,615 | 587,369 | 618,984 | 2.91% | 2.99% | 2.98% | 2.91% | 3.36% | 3.34% | 2.59% | 3.71% | 3.65% |
| 2021 | 31,447 | 556,544 | 587,991 | 31,283 | 576,807 | 608,090 | 32,458 | 608,915 | 641,372 | 2.97% | 2.95% | 2.95% | 3.03% | 3.32% | 3.31% | 2.66% | 3.67% | 3.62% |
| 2022 | 32,326 | 572,737 | 605,063 | 32,135 | 595,874 | 628,009 | 33,293 | 631,108 | 664,701 | 2.79% | 2.91% | 2.90% | 2.72% | 3.31% | 3.28% | 2.58% | 3.64% | 3.59% |
| 2023 | 33,171 | 589,299 | 622,469 | 32,941 | 615,418 | 648,359 | 34,058 | 653,975 | 688,033 | 2.61% | 2.89% | 2.88% | 2.51% | 3.28% | 3.24% | 2.30% | 3.62% | 3.56% |
| 2024 | 34,064 | 606,064 | 640,128 | 33,798 | 635,317 | 669,115 | 34,844 | 677,346 | 712,191 | 2.69% | 2.84% | 2.84% | 2.60% | 3.23% | 3.20% | 2.31% | 3.57% | 3.51% |
| 2025 | 35,085 | 622,937 | 658,022 | 34,828 | 655,440 | 690,268 | 35,719 | 701,284 | 737,004 | 3.00% | 2.78% | 2.80% | 3.05% | 3.17% | 3.16% | 2.51% | 3.53% | 3.48% |
| 2026 | 36,060 | 640,153 | 676,212 | 35,782 | 676,091 | 711,874 | 36,601 | 725,578 | 762,359 | 2.78% | 2.76% | 2.76% | 2.74% | 3.15% | 3.13% | 2.47% | 3.49% | 3.44% |
| 2027 | 36,956 | 657,662 | 694,617 | 36,624 | 697,213 | 733,837 | 37,351 | 750,947 | 788,298 | 2.48% | 2.74% | 2.72% | 2.35% | 3.12% | 3.09% | 2.05% | 3.47% | 3.40% |
| 2028 | 37,888 | 675,367 | 713,255 | 37,512 | 718,761 | 756,273 | 38,131 | 776,769 | 814,900 | 2.52% | 2.69% | 2.68% | 2.42% | 3.09% | 3.06% | 2.09% | 3.44% | 3.37% |
| 2029 | 38,827 | 693,341 | 732,169 | 38,393 | 740,706 | 779,099 | 38,879 | 803,226 | 842,104 | 2.48% | 2.66% | 2.65% | 2.35% | 3.05% | 3.02% | 1.96% | 3.41% | 3.34% |
| 2030 | 39,759 | 711,557 | 751,316 | 39,252 | 763,145 | 802,398 | 39,607 | 830,365 | 869,973 | 2.40% | 2.63% | 2.62% | 2.24% | 3.03% | 2.99% | 1.87% | 3.38% | 3.31% |
| 2031 | 40,215 | 727,654 | 767,869 | 39,728 | 783,027 | 822,755 | 40,148 | 854,491 | 894,638 | 1.15% | 2.26% | 2.20% | 1.21% | 2.61% | 2.54% | 1.36% | 2.91% | 2.84% |
| 2032 | 41,097 | 746,624 | 787,721 | 40,563 | 806,527 | 847,091 | 40,874 | 883,115 | 923,989 | 2.19% | 2.61% | 2.59% | 2.10% | 3.00% | 2.96% | 1.81% | 3.35% | 3.28% |

| Therm Usage by Class | | | | | | | | | | | | Annual Change | | | | | | |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------|---------|---------------|--------|---------|-------|-------|---------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 12,099,312 | 17,286,841 | 29,386,153 | 12,140,252 | 17,142,959 | 29,283,211 | 12,736,344 | 17,868,643 | 30,604,987 | 1.02% | 8.09% | 5.06% | 2.40% | 10.00% | 6.72% | 4.57% | 12.62% | 9.12% |
| 2013 | 12,744,309 | 17,742,050 | 30,486,359 | 12,830,765 | 17,570,343 | 30,401,108 | 13,456,392 | 18,385,442 | 31,841,834 | 5.33% | 2.63% | 3.74% | 5.69% | 2.49% | 3.82% | 5.65% | 2.89% | 4.04% |
| 2014 | 13,073,854 | 18,255,392 | 31,329,246 | 13,040,334 | 18,028,022 | 31,068,356 | 13,850,877 | 18,860,574 | 32,711,451 | 2.59% | 2.89% | 2.76% | 1.63% | 2.60% | 2.19% | 2.93% | 2.58% | 2.73% |
| 2015 | 13,445,960 | 18,800,641 | 32,246,601 | 13,459,013 | 18,537,982 | 31,996,995 | 14,341,446 | 19,348,509 | 33,689,955 | 2.85% | 2.99% | 2.93% | 3.21% | 2.83% | 2.99% | 3.54% | 2.59% | 2.99% |
| 2016 | 13,871,859 | 19,405,413 | 33,277,272 | 13,912,156 | 19,123,379 | 33,035,535 | 14,845,694 | 19,874,178 | 34,719,872 | 3.17% | 3.22% | 3.20% | 3.37% | 3.16% | 3.25% | 3.52% | 2.72% | 3.06% |
| 2017 | 14,334,153 | 20,034,190 | 34,368,343 | 14,427,936 | 19,738,974 | 34,166,910 | 15,420,720 | 20,408,410 | 35,829,130 | 3.33% | 3.34% | 3.28% | 3.71% | 3.22% | 3.42% | 3.87% | 2.69% | 3.19% |
| 2018 | 14,833,523 | 20,618,532 | 35,452,055 | 14,958,610 | 20,279,478 | 35,238,088 | 16,010,236 | 20,870,744 | 36,880,980 | 3.48% | 2.92% | 3.15% | 3.68% | 2.74% | 3.14% | 3.82% | 2.27% | 2.94% |
| 2019 | 15,282,354 | 21,193,255 | 36,475,609 | 15,467,752 | 20,795,415 | 36,263,167 | 16,562,166 | 21,304,943 | 37,884,607 | 3.03% | 2.79% | 2.89% | 3.40% | 2.54% | 2.91% | 3.56% | 2.08% | 2.72% |
| 2020 | 15,737,105 | 21,807,851 | 37,544,956 | 15,959,603 | 21,364,696 | 37,324,299 | 17,105,888 | 21,762,612 | 38,860,500 | 2.98% | 2.90% | 2.93% | 3.18% | 2.74% | 2.93% | 3.17% | 2.15% | 2.60% |
| 2021 | 16,230,335 | 22,436,543 | 38,666,878 | 16,519,609 | 21,940,988 | 38,460,597 | 17,702,334 | 22,205,103 | 39,908,437 | 3.13% | 2 | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE20 - Kennewick, Moses Lake



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE24 - Baker, Ontario

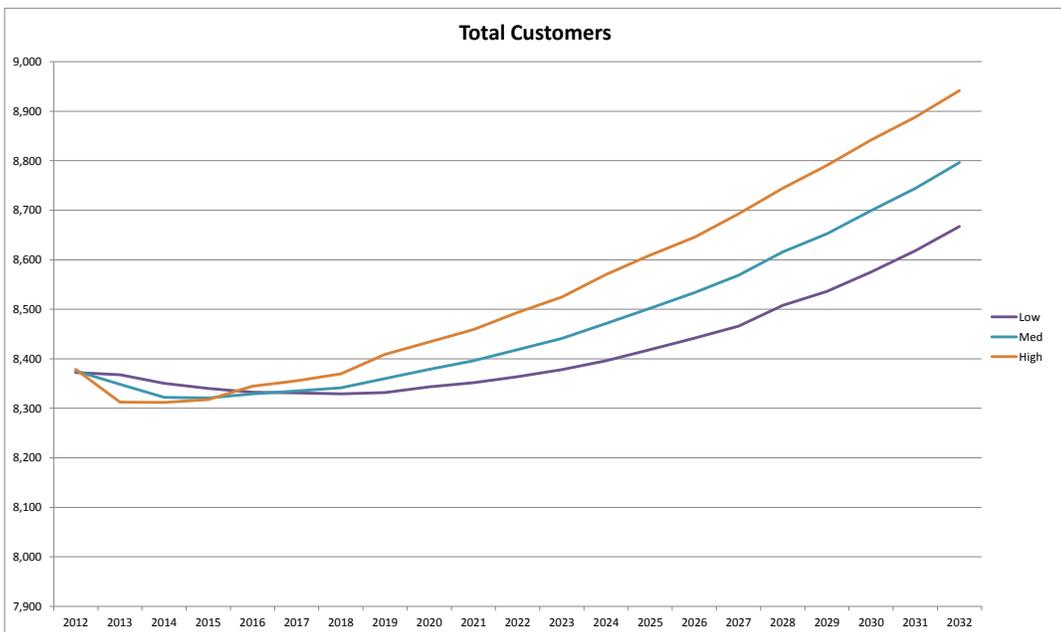
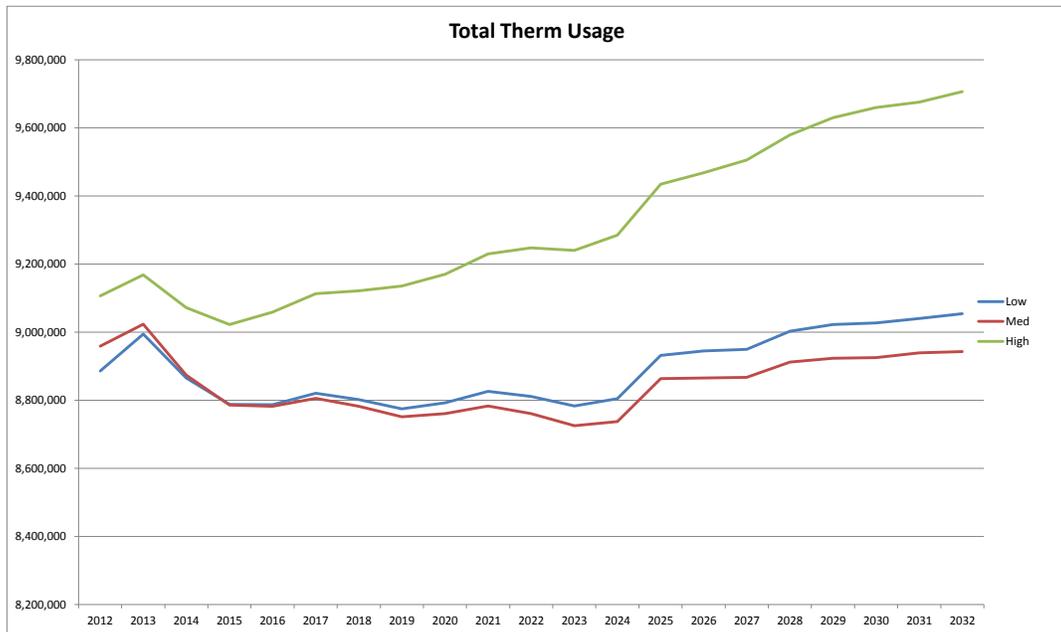
| | Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | |
|------|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|----------|--------|---------|----------|--------|---------|----------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 6,376,467 | 2,509,097 | 8,885,564 | 6,426,746 | 2,532,030 | 8,958,775 | 6,529,693 | 2,576,688 | 9,106,382 | 8.81% | 8.31% | 8.67% | 9.92% | 9.52% | 9.81% | 11.87% | 11.64% | 11.81% |
| 2013 | 6,457,219 | 2,537,475 | 8,994,693 | 6,475,099 | 2,548,124 | 9,023,223 | 6,575,958 | 2,591,950 | 9,167,908 | 1.27% | 1.13% | 1.23% | 0.75% | 0.64% | 0.72% | 0.71% | 0.59% | 0.68% |
| 2014 | 6,364,227 | 2,501,138 | 8,865,365 | 6,367,416 | 2,506,222 | 8,873,638 | 6,506,537 | 2,565,138 | 9,071,674 | -1.44% | -1.43% | -1.44% | -1.66% | -1.64% | -1.66% | -1.06% | -1.03% | -1.05% |
| 2015 | 6,308,380 | 2,479,321 | 8,787,701 | 6,304,142 | 2,481,838 | 8,785,981 | 6,471,046 | 2,551,634 | 9,022,679 | -0.88% | -0.87% | -0.88% | -0.99% | -0.97% | -0.99% | -0.55% | -0.53% | -0.54% |
| 2016 | 6,307,713 | 2,478,673 | 8,786,386 | 6,301,061 | 2,480,586 | 8,781,647 | 6,497,239 | 2,561,365 | 9,058,603 | -0.01% | -0.03% | -0.01% | -0.05% | -0.05% | -0.05% | 0.40% | 0.38% | 0.40% |
| 2017 | 6,332,606 | 2,487,833 | 8,820,439 | 6,318,003 | 2,487,034 | 8,805,037 | 6,536,745 | 2,576,401 | 9,113,146 | 0.39% | 0.37% | 0.39% | 0.27% | 0.26% | 0.27% | 0.61% | 0.59% | 0.60% |
| 2018 | 6,319,378 | 2,482,375 | 8,801,753 | 6,301,479 | 2,480,703 | 8,782,182 | 6,542,976 | 2,578,843 | 9,121,819 | -0.21% | -0.22% | -0.21% | -0.26% | -0.25% | -0.26% | 0.10% | 0.09% | 0.10% |
| 2019 | 6,299,538 | 2,474,621 | 8,774,158 | 6,278,998 | 2,472,107 | 8,751,105 | 6,553,154 | 2,582,567 | 9,135,721 | -0.31% | -0.31% | -0.31% | -0.36% | -0.35% | -0.35% | 0.16% | 0.14% | 0.15% |
| 2020 | 6,312,996 | 2,479,623 | 8,792,619 | 6,285,429 | 2,474,812 | 8,760,241 | 6,577,896 | 2,592,156 | 9,170,052 | 0.21% | 0.20% | 0.21% | 0.10% | 0.10% | 0.10% | 0.38% | 0.37% | 0.38% |
| 2021 | 6,337,416 | 2,488,875 | 8,826,291 | 6,301,927 | 2,481,264 | 8,783,191 | 6,621,100 | 2,608,762 | 9,229,862 | 0.39% | 0.37% | 0.38% | 0.26% | 0.26% | 0.26% | 0.66% | 0.64% | 0.65% |
| 2022 | 6,326,859 | 2,484,502 | 8,811,361 | 6,285,813 | 2,475,073 | 8,760,885 | 6,633,574 | 2,613,590 | 9,247,163 | -0.17% | -0.18% | -0.17% | -0.26% | -0.25% | -0.25% | 0.19% | 0.19% | 0.19% |
| 2023 | 6,306,968 | 2,476,749 | 8,783,717 | 6,259,882 | 2,465,445 | 8,725,327 | 6,628,591 | 2,611,954 | 9,240,545 | -0.32% | -0.31% | -0.32% | -0.41% | -0.39% | -0.41% | -0.08% | -0.06% | -0.07% |
| 2024 | 6,321,813 | 2,482,711 | 8,804,524 | 6,268,360 | 2,468,950 | 8,737,310 | 6,661,135 | 2,624,288 | 9,285,423 | 0.24% | 0.24% | 0.24% | 0.14% | 0.14% | 0.14% | 0.49% | 0.47% | 0.49% |
| 2025 | 6,413,806 | 2,517,865 | 8,931,671 | 6,359,408 | 2,503,928 | 8,863,336 | 6,769,164 | 2,665,555 | 9,434,719 | 1.46% | 1.42% | 1.44% | 1.45% | 1.42% | 1.44% | 1.62% | 1.57% | 1.61% |
| 2026 | 6,423,206 | 2,521,319 | 8,944,525 | 6,360,896 | 2,504,593 | 8,865,489 | 6,793,362 | 2,674,870 | 9,468,232 | 0.15% | 0.14% | 0.14% | 0.02% | 0.03% | 0.02% | 0.36% | 0.35% | 0.36% |
| 2027 | 6,426,682 | 2,522,674 | 8,949,356 | 6,361,918 | 2,505,140 | 8,867,058 | 6,820,183 | 2,685,231 | 9,505,415 | 0.05% | 0.05% | 0.05% | 0.02% | 0.02% | 0.02% | 0.39% | 0.39% | 0.39% |
| 2028 | 6,465,123 | 2,537,330 | 9,002,454 | 6,394,091 | 2,517,707 | 8,911,798 | 6,873,462 | 2,705,641 | 9,575,103 | 0.60% | 0.58% | 0.59% | 0.51% | 0.50% | 0.50% | 0.78% | 0.76% | 0.78% |
| 2029 | 6,479,704 | 2,542,928 | 9,022,632 | 6,402,226 | 2,520,949 | 8,923,174 | 6,909,816 | 2,719,722 | 9,629,538 | 0.23% | 0.22% | 0.22% | 0.13% | 0.13% | 0.13% | 0.53% | 0.52% | 0.53% |
| 2030 | 6,483,036 | 2,544,115 | 9,027,151 | 6,403,176 | 2,521,484 | 8,924,660 | 6,931,288 | 2,728,131 | 9,659,419 | 0.05% | 0.05% | 0.05% | 0.01% | 0.02% | 0.02% | 0.31% | 0.31% | 0.31% |
| 2031 | 6,492,283 | 2,547,674 | 9,039,957 | 6,413,344 | 2,525,631 | 8,938,974 | 6,942,481 | 2,732,921 | 9,675,402 | 0.14% | 0.14% | 0.14% | 0.16% | 0.16% | 0.16% | 0.18% | 0.18% | 0.17% |
| 2032 | 6,502,850 | 2,551,629 | 9,054,479 | 6,415,785 | 2,526,757 | 8,942,542 | 6,964,991 | 2,741,731 | 9,706,722 | 0.16% | 0.16% | 0.16% | 0.04% | 0.04% | 0.04% | 0.32% | 0.32% | 0.32% |

| | Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | |
|------|---------------------|--------|-----------------|----------------|--------|-----------------|----------------|--------|-----------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 6,874 | 50,072 | 56,946 | 6,937 | 50,035 | 56,972 | 7,059 | 49,931 | 56,990 | 8.31% | -0.45% | 0.53% | 9.52% | -0.55% | 0.57% | 11.64% | -0.78% | 0.61% |
| 2013 | 6,952 | 49,965 | 56,917 | 6,981 | 49,804 | 56,785 | 7,101 | 49,440 | 56,541 | 1.13% | -0.21% | -0.05% | 0.64% | -0.46% | -0.33% | 0.59% | -0.98% | -0.79% |
| 2014 | 6,852 | 49,949 | 56,801 | 6,866 | 49,740 | 56,607 | 7,028 | 49,510 | 56,538 | -1.43% | -0.03% | -0.20% | -1.64% | -1.31% | -1.03% | -1.03% | -1.04% | 0.00% |
| 2015 | 6,793 | 49,935 | 56,727 | 6,800 | 49,797 | 56,597 | 6,917 | 49,585 | 56,576 | -0.87% | -0.03% | -0.13% | -0.97% | 0.11% | -0.02% | -0.53% | 0.15% | 0.07% |
| 2016 | 6,791 | 49,886 | 56,677 | 6,796 | 49,859 | 56,655 | 6,901 | 49,744 | 56,762 | -0.03% | -0.10% | -0.09% | -0.05% | 0.12% | -0.10% | 0.38% | 0.32% | 0.33% |
| 2017 | 6,816 | 49,852 | 56,668 | 6,814 | 49,881 | 56,695 | 7,059 | 49,775 | 56,834 | 0.37% | -0.07% | -0.02% | 0.26% | 0.04% | 0.07% | 0.59% | 0.60% | 0.13% |
| 2018 | 6,801 | 49,854 | 56,655 | 6,796 | 49,943 | 56,739 | 7,065 | 49,867 | 56,932 | -0.22% | 0.00% | -0.02% | -0.25% | 0.12% | 0.08% | 0.09% | 0.18% | 0.17% |
| 2019 | 6,780 | 49,892 | 56,672 | 6,773 | 50,091 | 56,864 | 7,076 | 50,121 | 57,197 | -0.31% | 0.08% | 0.03% | -0.35% | 0.30% | 0.22% | 0.14% | 0.51% | 0.46% |
| 2020 | 6,793 | 49,958 | 56,751 | 6,780 | 50,213 | 56,993 | 7,102 | 50,265 | 57,367 | 0.20% | 0.13% | 0.14% | 0.11% | 0.24% | 0.23% | 0.37% | 0.29% | 0.30% |
| 2021 | 6,819 | 49,989 | 56,808 | 6,798 | 50,310 | 57,108 | 7,147 | 50,392 | 57,539 | 0.37% | 0.06% | 0.10% | 0.26% | 0.19% | 0.20% | 0.64% | 0.25% | 0.30% |
| 2022 | 6,807 | 50,086 | 56,893 | 6,781 | 50,480 | 57,261 | 7,161 | 50,613 | 57,773 | -0.18% | 0.19% | 0.15% | -0.25% | 0.34% | 0.27% | 0.19% | 0.44% | 0.41% |
| 2023 | 6,786 | 50,202 | 56,987 | 6,755 | 50,659 | 57,414 | 7,156 | 50,827 | 57,983 | -0.31% | 0.23% | 0.17% | -0.39% | 0.36% | 0.27% | -0.06% | 0.42% | 0.36% |
| 2024 | 6,802 | 50,308 | 57,110 | 6,764 | 50,856 | 57,620 | 7,190 | 51,105 | 58,295 | 0.24% | 0.21% | 0.21% | 0.14% | 0.29% | 0.36% | 0.47% | 0.55% | 0.54% |
| 2025 | 6,898 | 50,365 | 57,263 | 6,860 | 50,970 | 57,830 | 7,303 | 51,256 | 58,559 | 1.42% | 0.11% | 0.27% | 1.42% | 0.22% | 0.36% | 1.57% | 0.30% | 0.45% |
| 2026 | 6,908 | 50,513 | 57,427 | 6,862 | 51,182 | 58,044 | 7,328 | 51,479 | 58,807 | 0.14% | 0.29% | 0.27% | 0.03% | 0.42% | 0.37% | 0.35% | 0.43% | 0.42% |
| 2027 | 6,911 | 50,675 | 57,586 | 6,863 | 51,421 | 58,284 | 7,357 | 51,773 | 59,130 | 0.05% | 0.32% | 0.29% | 0.02% | 0.47% | 0.41% | 0.39% | 0.57% | 0.55% |
| 2028 | 6,952 | 50,918 | 57,869 | 6,898 | 51,706 | 58,604 | 7,483 | 52,064 | 59,477 | 0.58% | 0.48% | 0.49% | 0.50% | 0.55% | 0.55% | 0.76% | 0.56% | 0.59% |
| 2029 | 6,967 | 51,097 | 58,064 | 6,907 | 51,946 | 58,853 | 7,451 | 52,344 | 59,795 | 0.22% | 0.35% | 0.34% | 0.13% | 0.47% | 0.43% | 0.52% | 0.54% | 0.54% |
| 2030 | 6,970 | 51,358 | 58,328 | 6,908 | 52,266 | 59,174 | 7,474 | 52,669 | 60,143 | 0.05% | 0.51% | 0.45% | 0.02% | 0.61% | 0.54% | 0.31% | 0.62% | 0.58% |
| 2031 | 6,980 | 51,641 | 58,621 | 6,920 | 52,560 | 59,480 | 7,487 | 52,969 | 60,456 | 0.14% | 0.55% | 0.50% | 0.16% | 0.56% | 0.52% | 0.18% | 0.57% | 0.52% |
| 2032 | 6,991 | 51,963 | 58,954 | 6,933 | 52,911 | 59,834 | 7,512 | 53,309 | 60,821 | 0.16% | 0.62% | 0.57% | 0.04% | 0.67% | 0.59% | 0.32% | 0.64% | 0.60% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|---------|--------|--------|---------|--------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 3,715,067 | 5,170,497 | 8,885,564 | 3,842,194 | 5,116,581 | 8,958,775 | 3,982,653 | 5,123,729 | 9,106,382 | -5.87% | 22.23% | 8.67% | -3.22% | 22.16% | 9.81% | 1.23% | 21.69% | 11.81% |
| 2013 | 3,919,523 | 5,075,170 | 8,994,693 | 4,046,007 | 4,977,216 | 9,023,223 | 4,168,688 | 4,999,220 | 9,167,908 | 5.50% | -1.84% | 1.23% | 5.30% | -2.72% | 7.24% | 4.67% | -2.43% | 0.68% |
| 2014 | 3,878,864 | 4,986,501 | 8,865,365 | 4,002,102 | 4,871,536 | 8,873,638 | 4,138,589 | 4,933,085 | 9,071,674 | -1.04% | -1.75% | -1.44% | -1.09% | -1.22% | -1.66% | -0.72% | -1.32% | -1.05% |
| 2015 | 3,848,232 | 4,939,469 | 8,787,701 | 3,975,984 | 4,809,997 | 8,785,981 | 4,117,716 | 4,902,963 | 9,022,679 | -0.79% | -0.94% | -0.88% | -0.65% | -1.26% | -0.99% | -0.46% | -0.61% | -0.54% |
| 2016 | 3,836,759 | 4,949,627 | 8,786,386 | 3,968,324 | 4,813,323 | 8,781,647 | 4,117,952 | 4,941,011 | 9,058,603 | -0.30% | 0.21% | -0.01% | -0.19% | 0.07% | -0.05% | -0.05% | 0.78% | 0.40% |
| 2017 | 3,835,130 | 4,985,309 | 8,820,439 | 3,966,430 | 4,838,607 | 8,805,037 | 4,121,966 | 4,991,180 | 9,113,146 | -0.04% | 0.42% | 0.39% | -0.05% | 0.53% | 0.27% | 0.11% | 1.02% | 0.60% |
| 2018 | 3,826,976 | 4,974,777 | 8,801,753 | 3,965,576 | 4,816,606 | 8,782,182 | 4,125,802 | 4,996,017 | 9,121,819 | -0.21% | -0.21% | -0.21% | -0.02% | -0.45% | -0.26% | 0.09% | 0.10% | 0.10% |
| 2019 | 3,817,174 | 4,956,984 | 8,774,158 | 3,963,278 | 4,787,827 | 8,751,105 | 4,130,354 | 5,005,367 | 9,135,721 | -0.26% | -0.36% | -0.31% | -0.06% | -0.60% | -0.35% | 0.11% | 0.19% | 0.15% |
| 2020 | 3,815,158 | 4,977,461 | 8,792,619 | 3,964,608 | 4,795,633 | 8,760,241 | 4,131,917 | 5,038,135 | 9,170,052 | -0.05% | 0.41% | 0.21% | 0.03% | 0.16% | 0.10% | 0.04% | 0.65% | 0.38% |
| 2021 | 3,818,390 | 5,007,901 | 8,826,291 | 3,968,380 | 4,814,811 | 8,783,191 | 4,143,996 | 5,085,866 | 9,229,862 | 0.08% | 0.61% | 0.38% | 0.10% | 0.40% | 0.26% | 0.29% | 0.95% | 0.65% |
| 2022 | 3,814,014 | 4,997,347 | 8,811,361 | 3,968,452 | 4,792,433 | 8,760,885 | 4,153,893 | 5,093,270 | 9,247,163 | -0.11% | -0.21% | -0.17% | 0.00% | -0.46% | -0.25% | 0.24% | 0.15% | 0.19% |
| 2023 | 3,809,616 | 4,973,831 | 8,783,447 | 3,971,618 | 4,753,709 | 8,725,327 | 4,158,303 | 5,082,242 | 9,240,545 | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE24 - Baker, Ontario



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE26 - Longview

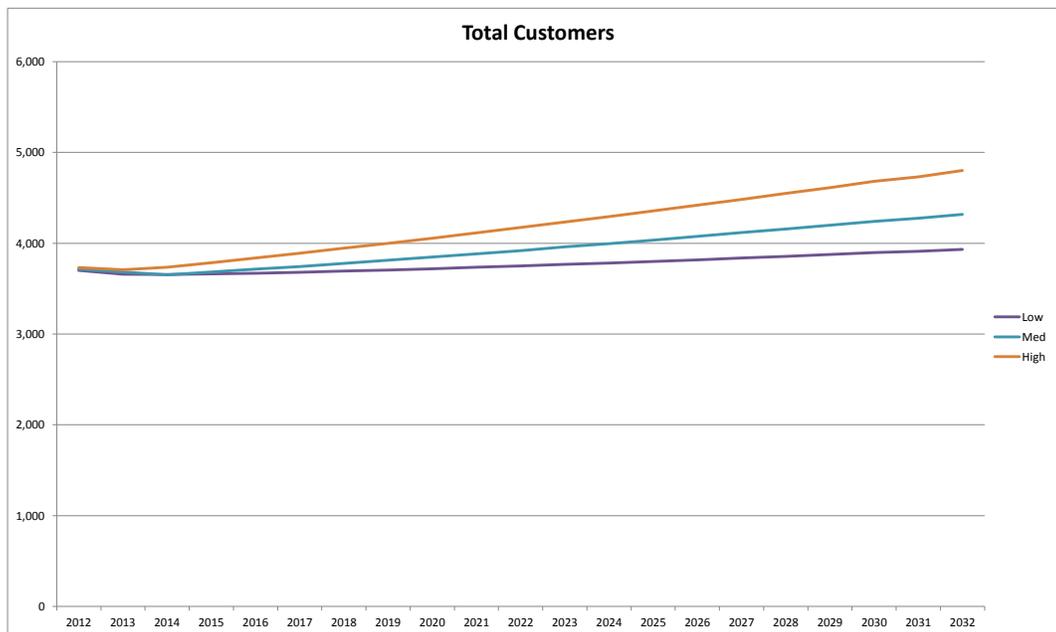
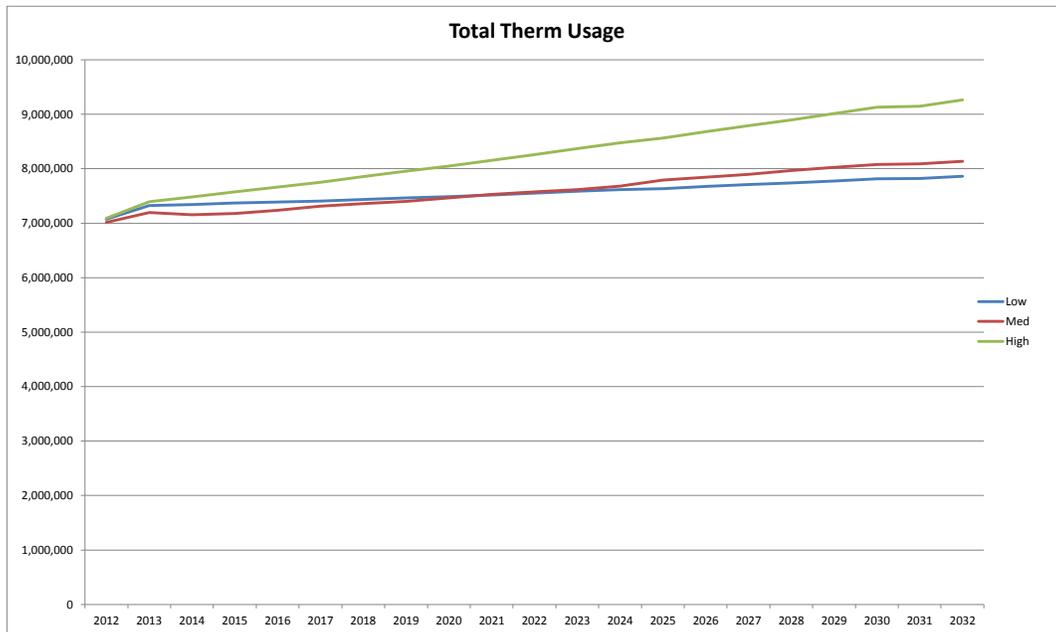
| | Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | |
|------|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|----------|-------|---------|----------|--------|---------|----------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 4,099,415 | 2,974,053 | 7,073,468 | 4,063,893 | 2,948,282 | 7,012,175 | 4,110,098 | 2,981,804 | 7,091,902 | 8.50% | 8.50% | 8.50% | 8.94% | 8.94% | 8.94% | 9.41% | 9.41% | 9.41% |
| 2013 | 4,243,234 | 3,078,391 | 7,321,625 | 4,170,111 | 3,025,342 | 7,195,453 | 4,286,350 | 3,109,671 | 7,396,022 | 3.51% | 3.51% | 3.51% | 2.61% | 2.61% | 2.61% | 4.29% | 4.29% | 4.29% |
| 2014 | 4,255,648 | 3,087,398 | 7,343,046 | 4,146,870 | 3,008,481 | 7,155,350 | 4,334,638 | 3,144,704 | 7,479,342 | 0.29% | 0.29% | 0.29% | -0.56% | -0.56% | -0.56% | 1.13% | 1.13% | 1.13% |
| 2015 | 4,270,421 | 3,098,115 | 7,368,537 | 4,160,366 | 3,018,272 | 7,178,639 | 4,389,586 | 3,184,567 | 7,574,154 | 0.35% | 0.35% | 0.35% | 0.33% | 0.33% | 0.33% | 1.27% | 1.27% | 1.27% |
| 2016 | 4,281,258 | 3,105,977 | 7,387,235 | 4,192,912 | 3,041,884 | 7,234,796 | 4,441,156 | 3,221,980 | 7,663,135 | 0.25% | 0.25% | 0.25% | 0.78% | 0.78% | 0.78% | 1.17% | 1.17% | 1.17% |
| 2017 | 4,292,239 | 3,113,943 | 7,406,182 | 4,236,420 | 3,073,448 | 7,309,867 | 4,492,411 | 3,259,165 | 7,751,576 | 0.26% | 0.26% | 0.26% | 1.04% | 1.04% | 1.04% | 1.15% | 1.15% | 1.15% |
| 2018 | 4,308,024 | 3,125,395 | 7,433,419 | 4,264,708 | 3,093,970 | 7,358,678 | 4,551,531 | 3,302,056 | 7,853,587 | 0.37% | 0.37% | 0.37% | 0.67% | 0.67% | 0.67% | 1.32% | 1.32% | 1.32% |
| 2019 | 4,325,652 | 3,138,184 | 7,463,835 | 4,288,880 | 3,111,507 | 7,400,387 | 4,609,735 | 3,344,281 | 7,954,016 | 0.41% | 0.41% | 0.41% | 0.57% | 0.57% | 0.57% | 1.28% | 1.28% | 1.28% |
| 2020 | 4,340,786 | 3,149,163 | 7,489,949 | 4,324,631 | 3,137,443 | 7,462,074 | 4,666,269 | 3,385,296 | 8,051,565 | 0.35% | 0.35% | 0.35% | 0.83% | 0.83% | 0.83% | 1.23% | 1.23% | 1.23% |
| 2021 | 4,355,586 | 3,159,901 | 7,515,487 | 4,364,587 | 3,166,431 | 7,531,018 | 4,724,494 | 3,427,537 | 8,152,300 | 0.34% | 0.34% | 0.34% | 0.92% | 0.92% | 0.92% | 1.25% | 1.25% | 1.25% |
| 2022 | 4,375,307 | 3,174,208 | 7,549,516 | 4,390,816 | 3,185,460 | 7,576,276 | 4,786,552 | 3,472,559 | 8,259,112 | 0.45% | 0.45% | 0.45% | 0.60% | 0.60% | 0.60% | 1.31% | 1.31% | 1.31% |
| 2023 | 4,397,233 | 3,190,115 | 7,587,348 | 4,414,973 | 3,202,985 | 7,617,957 | 4,851,954 | 3,520,007 | 8,371,962 | 0.50% | 0.50% | 0.50% | 0.55% | 0.55% | 0.55% | 1.37% | 1.37% | 1.37% |
| 2024 | 4,415,623 | 3,203,457 | 7,619,080 | 4,450,594 | 3,228,827 | 7,679,422 | 4,911,835 | 3,563,449 | 8,475,284 | 0.42% | 0.42% | 0.42% | 0.81% | 0.81% | 0.81% | 1.23% | 1.23% | 1.23% |
| 2025 | 4,423,718 | 3,209,330 | 7,633,048 | 4,514,944 | 3,275,512 | 7,790,455 | 4,962,623 | 3,600,324 | 8,562,987 | 0.18% | 0.18% | 0.18% | 1.45% | 1.45% | 1.45% | 1.03% | 1.03% | 1.03% |
| 2026 | 4,447,188 | 3,226,356 | 7,673,544 | 4,547,256 | 3,298,954 | 7,846,211 | 5,030,028 | 3,649,196 | 8,679,224 | 0.53% | 0.53% | 0.53% | 0.72% | 0.72% | 0.72% | 1.36% | 1.36% | 1.36% |
| 2027 | 4,467,830 | 3,241,332 | 7,709,162 | 4,575,810 | 3,319,670 | 7,895,480 | 5,095,257 | 3,696,519 | 8,791,777 | 0.46% | 0.46% | 0.46% | 0.63% | 0.63% | 0.63% | 1.30% | 1.30% | 1.30% |
| 2028 | 4,485,269 | 3,253,984 | 7,739,253 | 4,616,836 | 3,349,433 | 7,966,269 | 5,155,736 | 3,740,396 | 8,896,132 | 0.39% | 0.39% | 0.39% | 0.90% | 0.90% | 0.90% | 1.19% | 1.19% | 1.19% |
| 2029 | 4,506,552 | 3,269,424 | 7,775,976 | 4,650,773 | 3,374,054 | 8,024,827 | 5,223,996 | 3,789,917 | 9,013,914 | 0.47% | 0.47% | 0.47% | 0.74% | 0.74% | 0.74% | 1.32% | 1.32% | 1.32% |
| 2030 | 4,528,310 | 3,285,209 | 7,813,518 | 4,681,115 | 3,396,066 | 8,077,182 | 5,290,788 | 3,838,374 | 9,129,162 | 0.48% | 0.48% | 0.48% | 0.65% | 0.65% | 0.65% | 1.28% | 1.28% | 1.28% |
| 2031 | 4,532,390 | 3,288,169 | 7,820,559 | 4,688,672 | 3,401,549 | 8,090,222 | 5,299,920 | 3,844,998 | 9,144,918 | 0.09% | 0.09% | 0.09% | 0.16% | 0.16% | 0.16% | 0.17% | 0.17% | 0.17% |
| 2032 | 4,555,182 | 3,304,704 | 7,859,887 | 4,716,612 | 3,421,818 | 8,138,430 | 5,367,947 | 3,894,351 | 9,262,297 | 0.50% | 0.50% | 0.50% | 0.60% | 0.60% | 0.60% | 1.28% | 1.28% | 1.28% |

| | Peak Day - Baseload | | | | | | Annual Change | | | | | | | | |
|------|---------------------|--------|----------------|--------|----------------|--------|---------------|--------|--------|--------|--------|--------|-------|--------|--------|
| | Low | | Medium | | High | | Low | | Medium | | High | | | | |
| | Daily Baseload | Peak | Daily Baseload | Peak | Daily Baseload | Peak | Base | Peak | Base | Peak | Base | Peak | | | |
| 2012 | 8,148 | 70,440 | 8,077 | 70,825 | 8,169 | 71,156 | 8.50% | -2.23% | -1.22% | 8.94% | -1.82% | -0.82% | 9.41% | -1.29% | -0.29% |
| 2013 | 8,434 | 69,310 | 8,289 | 69,922 | 8,520 | 70,230 | 3.51% | -1.60% | -1.07% | 2.61% | -1.28% | -0.88% | 4.29% | -1.30% | -0.73% |
| 2014 | 8,459 | 69,171 | 8,242 | 69,369 | 8,616 | 70,759 | 0.29% | -0.20% | -0.15% | -0.56% | -0.79% | -0.77% | 1.13% | 0.75% | 0.79% |
| 2015 | 8,488 | 69,305 | 8,269 | 69,953 | 8,725 | 71,698 | 0.35% | 0.19% | 0.21% | 0.33% | 0.84% | 0.79% | 1.37% | 1.33% | 1.32% |
| 2016 | 8,510 | 69,476 | 8,334 | 70,551 | 8,827 | 72,696 | 0.25% | 0.25% | 0.25% | 0.78% | 0.85% | 0.85% | 1.27% | 1.39% | 1.37% |
| 2017 | 8,531 | 69,669 | 8,420 | 71,128 | 8,929 | 73,696 | 0.26% | 0.28% | 0.28% | 1.04% | 0.82% | 0.84% | 1.15% | 1.38% | 1.35% |
| 2018 | 8,563 | 69,901 | 8,477 | 71,785 | 9,047 | 74,753 | 0.37% | 0.33% | 0.34% | 0.67% | 0.92% | 0.90% | 1.32% | 1.43% | 1.42% |
| 2019 | 8,598 | 70,108 | 8,525 | 72,448 | 9,162 | 75,809 | 0.41% | 0.30% | 0.31% | 0.57% | 0.92% | 0.89% | 1.28% | 1.41% | 1.40% |
| 2020 | 8,628 | 70,388 | 8,596 | 73,135 | 9,275 | 76,895 | 0.35% | 0.40% | 0.39% | 0.83% | 0.95% | 0.94% | 1.23% | 1.43% | 1.41% |
| 2021 | 8,657 | 70,670 | 8,675 | 73,816 | 9,391 | 78,003 | 0.34% | 0.40% | 0.39% | 0.92% | 0.93% | 0.93% | 1.25% | 1.44% | 1.42% |
| 2022 | 8,696 | 70,942 | 8,727 | 74,544 | 9,514 | 79,122 | 0.45% | 0.39% | 0.39% | 0.60% | 0.99% | 0.95% | 1.31% | 1.43% | 1.42% |
| 2023 | 8,740 | 71,259 | 8,775 | 75,327 | 9,644 | 80,309 | 0.50% | 0.45% | 0.45% | 0.55% | 1.05% | 1.00% | 1.37% | 1.50% | 1.49% |
| 2024 | 8,777 | 71,557 | 8,846 | 76,059 | 9,763 | 81,456 | 0.42% | 0.42% | 0.42% | 0.81% | 0.97% | 0.95% | 1.23% | 1.43% | 1.41% |
| 2025 | 8,793 | 71,918 | 8,874 | 76,756 | 9,864 | 82,664 | 0.18% | 0.51% | 0.47% | 1.45% | 0.92% | 0.97% | 1.03% | 1.48% | 1.44% |
| 2026 | 8,839 | 72,254 | 8,908 | 77,543 | 9,998 | 83,890 | 0.53% | 0.47% | 0.47% | 0.72% | 1.03% | 0.99% | 1.36% | 1.48% | 1.47% |
| 2027 | 8,880 | 72,614 | 9,055 | 78,355 | 10,127 | 85,115 | 0.46% | 0.50% | 0.49% | 0.63% | 1.05% | 1.00% | 1.30% | 1.46% | 1.44% |
| 2028 | 8,915 | 73,000 | 9,177 | 79,140 | 10,248 | 86,369 | 0.39% | 0.53% | 0.52% | 0.90% | 1.00% | 0.99% | 1.19% | 1.47% | 1.44% |
| 2029 | 8,957 | 73,381 | 9,304 | 79,964 | 10,383 | 87,633 | 0.47% | 0.52% | 0.52% | 0.74% | 1.04% | 1.01% | 1.32% | 1.46% | 1.45% |
| 2030 | 9,001 | 73,783 | 9,424 | 80,817 | 10,516 | 88,922 | 0.48% | 0.55% | 0.54% | 0.65% | 1.07% | 1.02% | 1.28% | 1.47% | 1.45% |
| 2031 | 9,009 | 74,115 | 9,319 | 81,481 | 10,534 | 90,009 | 0.09% | 0.45% | 0.41% | 0.16% | 0.82% | 0.75% | 0.17% | 1.22% | 1.11% |
| 2032 | 9,054 | 74,511 | 9,355 | 82,333 | 10,669 | 91,310 | 0.50% | 0.53% | 0.53% | 0.60% | 1.05% | 1.00% | 1.28% | 1.45% | 1.43% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|---------|-------|--------|---------|--------|--------|---------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 1,316,484 | 5,756,984 | 7,073,468 | 1,334,364 | 5,677,811 | 7,012,175 | 1,342,796 | 5,749,106 | 7,091,902 | -1.91% | 11.20% | 8.50% | -1.52% | 11.73% | 8.94% | -0.89% | 12.13% | 9.41% |
| 2013 | 1,532,022 | 5,789,603 | 7,321,625 | 1,554,384 | 5,641,069 | 7,195,453 | 1,559,976 | 5,836,046 | 7,396,022 | 16.37% | 0.57% | 3.51% | 16.49% | -0.65% | 2.61% | 16.17% | 1.51% | 4.29% |
| 2014 | 1,521,520 | 5,821,526 | 7,343,046 | 1,523,934 | 5,631,416 | 7,155,350 | 1,557,308 | 5,922,034 | 7,479,342 | -0.69% | 0.55% | 0.29% | -1.96% | -0.17% | -0.56% | -0.17% | 1.47% | 1.13% |
| 2015 | 1,521,510 | 5,847,027 | 7,368,537 | 1,531,406 | 5,647,233 | 7,178,639 | 1,569,280 | 6,004,874 | 7,574,154 | 0.00% | 0.44% | 0.35% | 0.49% | 0.28% | 0.33% | 0.77% | 1.40% | 1.27% |
| 2016 | 1,522,106 | 5,865,129 | 7,387,235 | 1,537,536 | 5,697,260 | 7,234,796 | 1,582,182 | 6,080,953 | 7,663,135 | 0.04% | 0.31% | 0.25% | 0.40% | 0.89% | 0.78% | 0.82% | 1.27% | 1.17% |
| 2017 | 1,525,790 | 5,880,392 | 7,406,182 | 1,548,570 | 5,761,297 | 7,309,867 | 1,597,416 | 6,154,160 | 7,751,576 | 0.24% | 0.26% | 0.26% | 0.72% | 1.12% | 1.04% | 0.96% | 1.20% | 1.15% |
| 2018 | 1,528,209 | 5,905,210 | 7,433,419 | 1,560,788 | 5,797,890 | 7,358,678 | 1,614,231 | 6,239,356 | 7,853,587 | 0.16% | 0.42% | 0.37% | 0.79% | 0.64% | 0.67% | 1.05% | 1.38% | 1.32% |
| 2019 | 1,532,500 | 5,931,335 | 7,463,835 | 1,570,392 | 5,829,995 | 7,400,387 | 1,628,082 | 6,325,934 | 7,954,016 | 0.28% | 0.44% | 0.41% | 0.62% | 0.55% | 0.57% | 0.86% | 1.39% | 1.28% |
| 2020 | 1,536,120 | 5,953,829 | 7,489,949 | 1,581,120 | 5,880,954 | 7,462,074 | 1,642,200 | 6,409,365 | 8,051,565 | 0.24% | 0.38% | 0.35% | 0.68% | 0.87% | 0.83% | 0.87% | 1.32% | 1.23% |
| 2021 | 1,539,720 | 5,975,767 | 7,515,487 | 1,591,744 | 5,939,274 | 7,531,018 | 1,659,376 | 6,492,654 | 8,152,300 | 0.23% | 0.37% | 0.34% | 0.67% | 0.99% | 0.92% | 1.05% | 1.30% | 1.25% |
| 2022 | 1,545,830 | 6,003,686 | 7,549,516 | 1,602,870 | 5,973,406 | 7,576,276 | 1,674,036 | 6,585,076 | 8,259,112 | 0.40% | 0.47% | 0.45% | 0.70% | 0.57% | 0.60% | 0.88% | 1.42% | 1.31% |
| 2023 | 1,550,620 | 6,036,728 | 7,587,348 | 1,615,096 | 6,002,861 | 7,617,957 | 1,690,996 | 6,681,866 | 8,371,962 | 0.31% | 0.55% | 0.50% | 0.76% | 0.49% | 0.55% | 0.96% | 1.47% | 1.37% |
| 2024 | 1,557,330 | 6,061,750 | 7,619,080 | 1,626,604 | 6,052,818 | 7,679,422 | 1,704,620 | 6,770,664 | 8,475,284 | 0.43% | 0.41% | 0.42% | 0.71% | 0.83% | 0.81% | 0.86% | 1.37% | 1.27% |
| 2025 | 1,562,694 | 6,070,354 | 7,633,048 | 1,638,600 | 6,151,855 | 7,790,455 | 1,719,936 | 6,845,051 | 8,562,987 | 0.34% | 0.14% | 0.18% | 0.74% | 1.64% | 1.45% | 0.90% | 1.07% | 1.03% |
| 2026 | 1,573,190 | 6,100,354 | 7,673,544 | 1,653,839 | 6,192,372 | 7,846,211 | 1,739,055 | 6,940,169 | 8,679,224 | 0.67% | 0.49% | 0.53% | 0.93% | 0.66% | 0.72% | 1.11% | 1.42 | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE26 - Longview



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE30S - Aberdeen, Bremerton

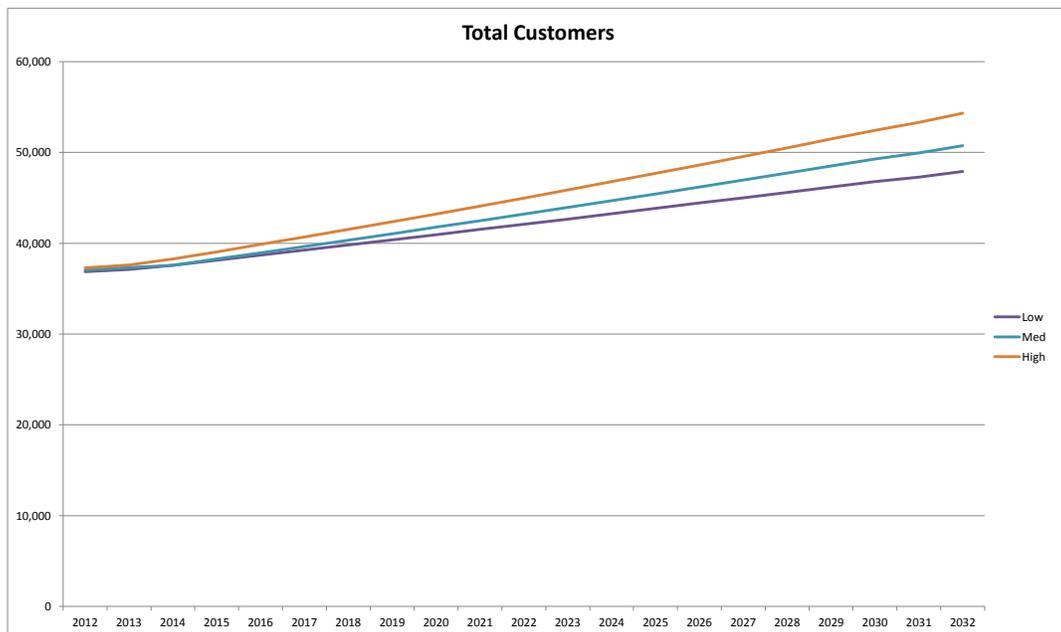
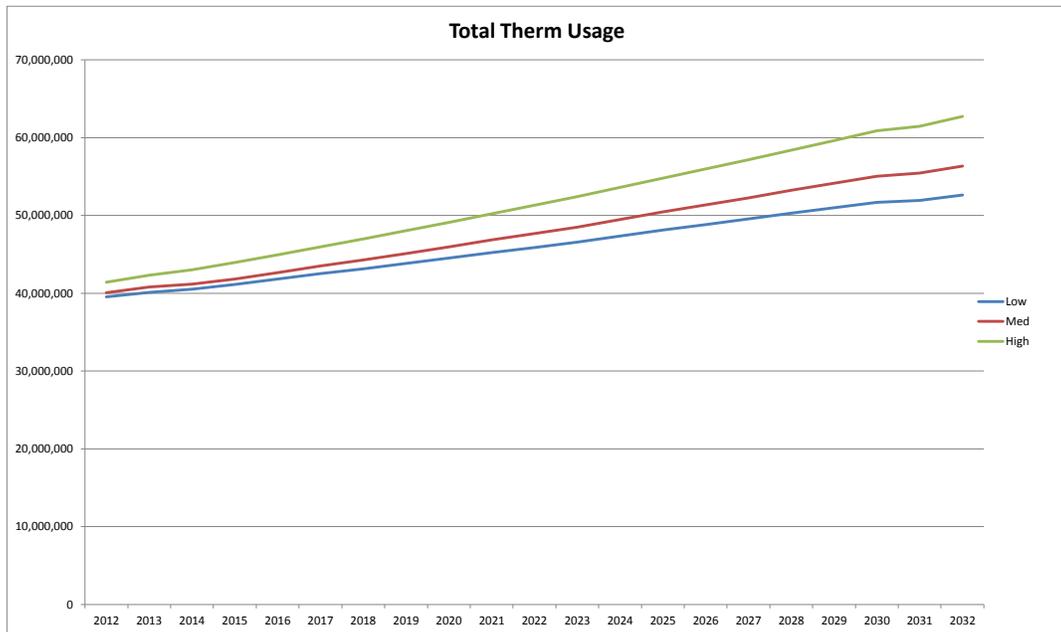
| | Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | |
|------|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|----------|-------|---------|----------|-------|---------|----------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 24,213,105 | 15,307,664 | 39,520,769 | 24,536,680 | 15,530,775 | 40,067,455 | 25,324,843 | 16,071,348 | 41,396,190 | 5.85% | 6.35% | 6.04% | 7.81% | 8.47% | 8.06% | 10.98% | 11.95% | 11.35% |
| 2013 | 24,607,670 | 15,510,648 | 40,118,318 | 24,995,209 | 15,786,101 | 40,781,310 | 25,910,065 | 16,410,499 | 42,320,564 | 1.63% | 1.33% | 1.51% | 1.87% | 1.64% | 1.78% | 2.31% | 2.11% | 2.23% |
| 2014 | 24,846,467 | 15,672,840 | 40,519,307 | 25,230,560 | 15,949,043 | 41,179,602 | 26,332,414 | 16,694,760 | 43,027,173 | 0.97% | 1.05% | 1.00% | 0.94% | 1.03% | 0.98% | 1.63% | 1.73% | 1.67% |
| 2015 | 25,204,341 | 15,916,681 | 41,121,022 | 25,609,943 | 16,207,961 | 41,817,905 | 26,886,110 | 17,069,857 | 43,955,967 | 1.44% | 1.56% | 1.49% | 1.50% | 1.62% | 1.55% | 2.10% | 2.25% | 2.16% |
| 2016 | 25,620,610 | 16,203,126 | 41,823,735 | 26,092,289 | 16,537,860 | 42,630,149 | 27,473,025 | 17,469,142 | 44,942,167 | 1.65% | 1.80% | 1.71% | 1.88% | 2.04% | 1.94% | 2.18% | 2.34% | 2.24% |
| 2017 | 26,024,708 | 16,479,796 | 42,504,503 | 26,599,873 | 16,883,866 | 43,483,739 | 28,086,645 | 17,887,271 | 45,973,917 | 1.58% | 1.71% | 1.63% | 1.95% | 2.09% | 2.00% | 2.23% | 2.39% | 2.30% |
| 2018 | 26,403,184 | 16,738,152 | 43,141,336 | 27,065,156 | 17,201,126 | 44,266,281 | 28,685,867 | 18,293,332 | 46,979,199 | 1.45% | 1.57% | 1.50% | 1.75% | 1.88% | 1.80% | 2.13% | 2.27% | 2.19% |
| 2019 | 26,803,834 | 17,012,236 | 43,816,070 | 27,554,729 | 17,535,368 | 45,090,097 | 29,314,199 | 18,720,333 | 48,034,532 | 1.52% | 1.64% | 1.56% | 1.81% | 1.94% | 1.86% | 2.19% | 2.33% | 2.25% |
| 2020 | 27,218,614 | 17,296,453 | 44,515,068 | 28,079,147 | 17,894,325 | 45,973,473 | 29,948,239 | 19,151,674 | 49,099,914 | 1.55% | 1.67% | 1.60% | 1.90% | 2.05% | 1.96% | 2.16% | 2.30% | 2.22% |
| 2021 | 27,637,317 | 17,582,590 | 45,219,907 | 28,592,225 | 18,245,330 | 46,837,556 | 30,610,688 | 19,603,116 | 50,213,803 | 1.54% | 1.65% | 1.58% | 1.83% | 1.96% | 1.88% | 2.12% | 2.26% | 2.27% |
| 2022 | 28,029,237 | 17,850,173 | 45,879,410 | 29,082,356 | 18,579,386 | 47,661,742 | 31,259,401 | 20,043,572 | 51,302,973 | 1.42% | 1.52% | 1.46% | 1.71% | 1.83% | 1.76% | 2.12% | 2.25% | 2.17% |
| 2023 | 28,425,921 | 18,120,895 | 46,546,815 | 29,576,966 | 18,917,779 | 48,494,744 | 31,918,602 | 20,491,414 | 52,410,016 | 1.42% | 1.52% | 1.45% | 1.70% | 1.82% | 1.75% | 2.11% | 2.23% | 2.16% |
| 2024 | 28,886,769 | 18,438,243 | 47,325,013 | 30,152,063 | 19,311,874 | 49,463,938 | 32,621,284 | 20,970,117 | 53,591,401 | 1.62% | 1.75% | 1.67% | 1.94% | 2.08% | 2.00% | 2.20% | 2.34% | 2.25% |
| 2025 | 29,362,426 | 18,765,191 | 48,127,616 | 30,740,652 | 19,713,950 | 50,454,602 | 33,331,652 | 21,456,524 | 54,788,176 | 1.65% | 1.77% | 1.70% | 1.95% | 2.08% | 2.00% | 2.18% | 2.32% | 2.23% |
| 2026 | 29,782,617 | 19,051,988 | 48,834,605 | 31,272,690 | 20,077,342 | 51,350,032 | 34,025,359 | 21,927,315 | 55,952,675 | 1.43% | 1.53% | 1.47% | 1.73% | 1.84% | 1.77% | 2.08% | 2.19% | 2.13% |
| 2027 | 30,204,511 | 19,340,506 | 49,545,016 | 31,808,126 | 20,443,899 | 52,252,025 | 34,744,926 | 22,417,066 | 57,161,993 | 1.42% | 1.51% | 1.45% | 1.71% | 1.83% | 1.76% | 2.11% | 2.23% | 2.16% |
| 2028 | 30,633,629 | 19,635,969 | 50,269,598 | 32,383,810 | 20,838,435 | 53,222,245 | 35,464,559 | 22,908,035 | 58,372,594 | 1.42% | 1.53% | 1.46% | 1.81% | 1.93% | 1.86% | 2.07% | 2.19% | 2.12% |
| 2029 | 31,059,937 | 19,926,728 | 50,986,665 | 32,931,313 | 21,212,158 | 54,143,471 | 36,210,356 | 23,415,772 | 59,626,128 | 1.39% | 1.48% | 1.43% | 1.69% | 1.79% | 1.73% | 2.10% | 2.22% | 2.15% |
| 2030 | 31,465,676 | 20,203,916 | 51,669,592 | 33,465,705 | 21,577,756 | 55,043,460 | 36,947,520 | 23,917,166 | 60,864,686 | 1.31% | 1.39% | 1.34% | 1.62% | 1.72% | 1.66% | 2.04% | 2.14% | 2.08% |
| 2031 | 31,617,887 | 20,309,493 | 51,927,380 | 33,705,663 | 21,746,062 | 55,451,724 | 37,298,097 | 24,164,443 | 61,462,540 | 0.48% | 0.52% | 0.50% | 0.72% | 0.78% | 0.74% | 0.95% | 1.03% | 0.98% |
| 2032 | 32,025,020 | 20,587,958 | 52,612,978 | 34,244,082 | 22,114,683 | 56,358,765 | 38,050,173 | 24,677,300 | 62,727,473 | 1.29% | 1.37% | 1.32% | 1.60% | 1.70% | 1.64% | 2.02% | 2.12% | 2.06% |

| | Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | |
|------|---------------------|---------|-----------------|----------------|---------|-----------------|----------------|---------|-----------------|---------------|--------|--------|--------|--------|-------|--------|--------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 41,939 | 383,777 | 425,715 | 42,550 | 385,116 | 427,666 | 44,031 | 386,405 | 430,436 | 6.35% | -1.02% | -0.34% | 8.47% | -0.73% | 0.12% | 11.95% | -0.37% | 0.76% |
| 2013 | 42,495 | 385,820 | 428,315 | 43,250 | 387,480 | 430,730 | 44,960 | 389,148 | 434,108 | 1.33% | 0.53% | 0.61% | 1.64% | 0.61% | 0.72% | 2.11% | 0.71% | 0.85% |
| 2014 | 42,939 | 390,704 | 433,643 | 43,696 | 390,102 | 433,798 | 45,739 | 395,788 | 441,528 | 1.05% | 1.27% | 1.24% | 1.03% | 0.68% | 0.71% | 1.73% | 1.71% | 1.71% |
| 2015 | 43,607 | 396,369 | 439,976 | 44,405 | 397,160 | 441,565 | 46,767 | 403,910 | 450,677 | 1.56% | 1.45% | 1.46% | 1.62% | 1.81% | 1.79% | 2.25% | 2.05% | 2.07% |
| 2016 | 44,392 | 401,951 | 446,343 | 45,309 | 404,080 | 449,389 | 47,861 | 412,056 | 459,917 | 1.80% | 1.41% | 1.45% | 2.04% | 1.74% | 1.77% | 2.34% | 2.02% | 2.05% |
| 2017 | 45,150 | 407,578 | 452,728 | 46,257 | 411,024 | 457,281 | 49,006 | 420,289 | 469,295 | 1.71% | 1.40% | 1.43% | 2.09% | 1.72% | 1.73% | 2.39% | 2.00% | 2.04% |
| 2018 | 45,858 | 413,312 | 459,170 | 47,126 | 418,139 | 465,266 | 50,119 | 428,709 | 478,827 | 1.57% | 1.41% | 1.42% | 1.88% | 1.73% | 1.76% | 2.27% | 2.00% | 2.03% |
| 2019 | 46,609 | 419,007 | 465,615 | 48,042 | 425,272 | 473,314 | 51,289 | 437,145 | 488,434 | 1.64% | 1.38% | 1.40% | 1.94% | 1.71% | 1.73% | 2.33% | 1.97% | 2.01% |
| 2020 | 47,388 | 424,715 | 472,103 | 49,026 | 432,430 | 481,455 | 52,470 | 445,738 | 498,209 | 1.67% | 1.36% | 1.39% | 2.05% | 1.68% | 1.72% | 2.30% | 1.97% | 2.00% |
| 2021 | 48,171 | 430,450 | 478,621 | 49,987 | 439,665 | 489,652 | 53,707 | 454,393 | 508,100 | 1.65% | 1.35% | 1.38% | 1.96% | 1.67% | 1.70% | 2.36% | 1.94% | 1.99% |
| 2022 | 48,905 | 436,278 | 485,182 | 50,902 | 447,052 | 497,954 | 54,914 | 463,244 | 518,158 | 1.52% | 1.35% | 1.37% | 1.83% | 1.68% | 1.70% | 2.25% | 1.95% | 1.98% |
| 2023 | 49,646 | 442,127 | 491,774 | 51,830 | 454,503 | 506,332 | 56,141 | 472,198 | 528,339 | 1.52% | 1.34% | 1.36% | 1.82% | 1.67% | 1.68% | 2.23% | 1.93% | 1.96% |
| 2024 | 50,516 | 447,889 | 498,404 | 52,909 | 461,866 | 514,775 | 57,452 | 481,164 | 538,616 | 1.75% | 1.30% | 1.35% | 2.02% | 1.62% | 1.67% | 2.34% | 1.90% | 1.95% |
| 2025 | 51,411 | 453,651 | 505,062 | 54,011 | 469,296 | 523,307 | 58,785 | 490,274 | 549,059 | 1.77% | 1.29% | 1.34% | 2.08% | 1.61% | 1.66% | 2.32% | 1.89% | 1.94% |
| 2026 | 52,197 | 459,538 | 511,736 | 55,006 | 476,907 | 531,913 | 60,075 | 499,534 | 559,609 | 1.53% | 1.30% | 1.32% | 1.84% | 1.62% | 1.64% | 2.19% | 1.89% | 1.92% |
| 2027 | 52,988 | 465,457 | 518,445 | 56,011 | 484,569 | 540,580 | 61,417 | 508,875 | 570,292 | 1.51% | 1.29% | 1.31% | 1.83% | 1.61% | 1.63% | 2.23% | 1.87% | 1.91% |
| 2028 | 53,797 | 471,370 | 525,167 | 57,092 | 492,217 | 549,309 | 62,762 | 518,338 | 581,100 | 1.53% | 1.27% | 1.30% | 1.93% | 1.58% | 1.61% | 2.19% | 1.86% | 1.90% |
| 2029 | 54,594 | 477,321 | 531,915 | 58,116 | 500,011 | 558,126 | 64,153 | 527,888 | 592,041 | 1.48% | 1.26% | 1.28% | 1.79% | 1.58% | 1.61% | 2.22% | 1.84% | 1.88% |
| 2030 | 55,353 | 483,348 | 538,701 | 59,117 | 507,912 | 567,029 | 65,526 | 537,605 | 603,131 | 1.39% | 1.26% | 1.28% | 1.72% | 1.58% | 1.60% | 2.14% | 1.84% | 1.87% |
| 2031 | 55,642 | 488,745 | 544,387 | 59,578 | 515,138 | 574,716 | 66,204 | 546,727 | 612,931 | 0.52% | 1.12% | 1.06% | 0.78% | 1.42% | 1.36% | 1.03% | 1.70% | 1.62% |
| 2032 | 56,405 | 494,847 | 551,253 | 60,588 | 523,216 | 583,804 | 67,609 | 556,725 | 624,334 | 1.37% | 1.25% | 1.26% | 1.70% | 1.57% | 1.58% | 2.12% | 1.83% | 1.86% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|---------|-------|--------|---------|-------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 23,281,786 | 16,238,983 | 39,520,769 | 23,545,625 | 16,521,830 | 40,067,455 | 24,687,710 | 16,708,480 | 41,396,190 | 5.79% | 6.42% | 6.04% | 8.15% | 7.95% | 8.06% | 12.17% | 10.16% | 11.35% |
| 2013 | 23,528,973 | 16,589,345 | 40,118,318 | 23,865,180 | 16,916,130 | 40,781,310 | 25,087,182 | 17,233,482 | 42,320,564 | 1.06% | 2.16% | 1.51% | 1.36% | 2.39% | 1.78% | 1.62% | 3.14% | 2.23% |
| 2014 | 23,557,689 | 16,961,618 | 40,519,307 | 23,859,043 | 17,320,559 | 41,179,602 | 25,295,399 | 17,731,774 | 43,027,173 | 0.12% | 2.24% | 1.00% | -0.04% | 2.39% | 0.88% | 0.83% | 2.89% | 1.67% |
| 2015 | 23,789,829 | 17,331,193 | 41,121,022 | 24,082,836 | 17,735,069 | 41,817,905 | 25,725,451 | 18,230,516 | 43,955,967 | 0.99% | 2.18% | 1.49% | 0.94% | 2.39% | 1.55% | 2.70% | 2.81% | 2.16% |
| 2016 | 24,132,424 | 17,691,311 | 41,823,735 | 24,479,196 | 18,150,953 | 42,630,149 | 26,217,996 | 18,724,171 | 44,942,167 | 1.44% | 2.08% | 1.71% | 1.65% | 2.34% | 1.94% | 1.91% | 2.71% | 2.24% |
| 2017 | 24,457,408 | 18,047,095 | 42,504,503 | 24,914,218 | 18,569,521 | 43,483,739 | 26,749,100 | 19,224,817 | 45,973,917 | 1.35% | 2.01% | 1.63% | 1.78% | 2.31% | 2.00% | 2.03% | 2.67% | 2.30% |
| 2018 | 24,719,450 | 18,421,886 | 43,141,336 | 25,263,462 | 19,002,819 | 44,266,281 | 27,232,469 | 19,746,730 | 46,979,199 | 1.07% | 2.08% | 1.50% | 1.40% | 2.33% | 1.80% | 1.81% | 2.71% | 2.19% |
| 2019 | 25,010,152 | 18,805,918 | 43,816,070 | 25,644,897 | 19,445,200 | 45,090,097 | 27,745,291 | 20,289,241 | 48,034,532 | 1.18% | 2.08% | 1.56% | 1.51% | 2.33% | 1.86% | 1.88% | 2.75% | 2.25% |
| 2020 | 25,333,019 | 19,182,049 | 44,515,068 | 26,087,815 | 19,885,658 | 45,973,473 | 28,267,283 | 20,832,631 | 49,099,914 | 1.29% | 2.00% | 1.60% | 1.73% | 2.27% | 1.96% | 1.88% | 2.68% | 2.22% |
| 2021 | 25,662,702 | 19,557,205 | 45,219,907 | 26,502, | | | | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE30S - Aberdeen, Bremerton



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE30W - Bellingham, Mount Vernon

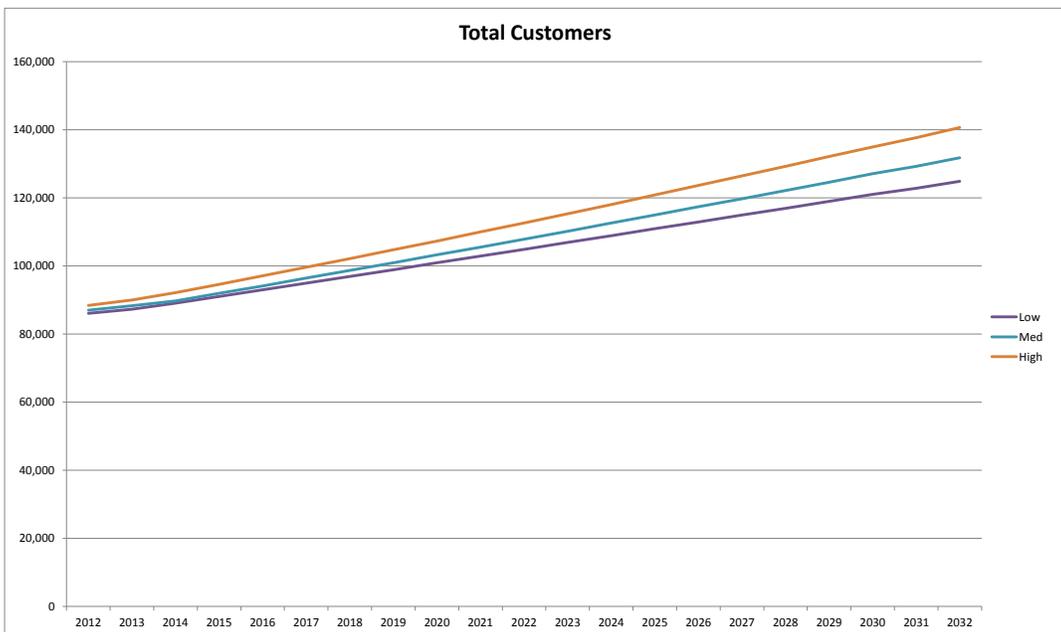
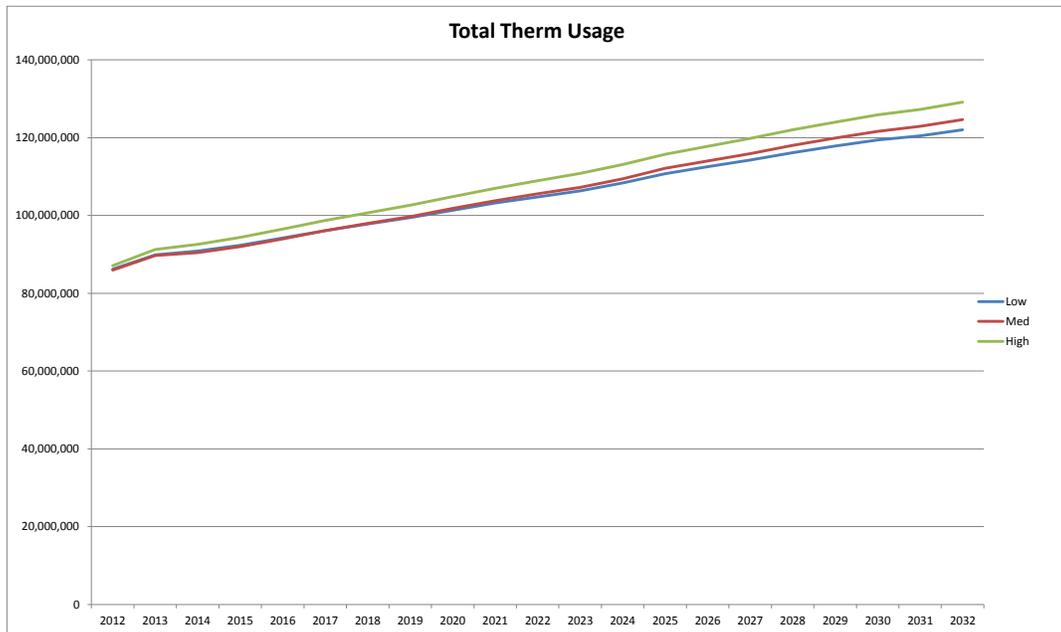
| | Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | |
|------|------------------------------|------------|-------------|------------|------------|-------------|------------|------------|-------------|---------------|----------|-------|---------|----------|-------|---------|----------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 55,266,135 | 30,887,948 | 86,154,082 | 55,146,422 | 30,822,317 | 85,968,739 | 55,849,398 | 31,214,985 | 87,064,383 | 8.39% | 8.41% | 8.40% | 9.97% | 9.99% | 9.98% | 12.08% | 12.10% | 12.08% |
| 2013 | 57,630,402 | 32,204,281 | 89,834,684 | 57,538,738 | 32,154,684 | 89,693,422 | 58,539,546 | 32,714,350 | 91,253,896 | 4.28% | 4.26% | 4.27% | 4.34% | 4.32% | 4.33% | 4.82% | 4.80% | 4.81% |
| 2014 | 58,264,145 | 32,558,314 | 90,822,459 | 58,018,766 | 32,422,939 | 90,441,704 | 59,395,681 | 33,192,592 | 92,588,272 | 1.10% | 1.10% | 1.10% | 0.83% | 0.83% | 0.83% | 1.46% | 1.46% | 1.46% |
| 2015 | 59,222,002 | 33,093,707 | 92,315,709 | 58,989,103 | 32,965,072 | 91,954,175 | 60,538,138 | 33,831,070 | 94,369,208 | 1.64% | 1.64% | 1.64% | 1.67% | 1.67% | 1.67% | 1.92% | 1.92% | 1.92% |
| 2016 | 60,420,884 | 33,764,106 | 94,184,990 | 60,261,685 | 33,676,536 | 93,938,220 | 61,892,738 | 34,588,232 | 96,480,970 | 2.02% | 2.03% | 2.02% | 2.16% | 2.16% | 2.16% | 2.24% | 2.24% | 2.24% |
| 2017 | 61,646,882 | 34,449,611 | 96,096,493 | 61,657,920 | 34,457,125 | 96,115,044 | 63,235,094 | 35,394,505 | 98,729,599 | 2.03% | 2.03% | 2.03% | 2.32% | 2.32% | 2.32% | 2.33% | 2.33% | 2.33% |
| 2018 | 62,712,038 | 35,044,926 | 97,756,964 | 62,817,073 | 35,104,878 | 97,921,951 | 64,595,319 | 36,098,739 | 100,694,058 | 1.73% | 1.73% | 1.73% | 1.88% | 1.88% | 1.88% | 1.99% | 1.99% | 1.99% |
| 2019 | 63,792,354 | 35,648,742 | 99,441,096 | 63,962,142 | 35,744,804 | 99,706,946 | 65,843,543 | 36,796,227 | 102,639,770 | 1.72% | 1.72% | 1.72% | 1.82% | 1.82% | 1.82% | 1.93% | 1.93% | 1.93% |
| 2020 | 64,979,815 | 36,312,625 | 101,292,439 | 65,288,592 | 36,485,347 | 101,774,940 | 67,234,916 | 37,573,989 | 104,808,905 | 1.86% | 1.86% | 1.86% | 2.07% | 2.07% | 2.07% | 2.11% | 2.11% | 2.11% |
| 2021 | 66,191,131 | 36,989,850 | 103,180,982 | 66,587,871 | 37,212,586 | 103,800,457 | 68,626,177 | 38,351,621 | 106,977,798 | 1.86% | 1.86% | 1.86% | 1.99% | 1.99% | 1.99% | 2.07% | 2.07% | 2.07% |
| 2022 | 67,213,952 | 37,561,347 | 104,775,300 | 67,713,970 | 37,841,793 | 105,555,764 | 69,863,498 | 39,042,878 | 108,906,376 | 1.55% | 1.55% | 1.55% | 1.69% | 1.69% | 1.69% | 1.80% | 1.80% | 1.80% |
| 2023 | 68,210,155 | 38,118,042 | 106,328,197 | 68,793,666 | 38,445,015 | 107,238,680 | 71,066,962 | 39,715,329 | 110,782,291 | 1.48% | 1.48% | 1.48% | 1.59% | 1.59% | 1.59% | 1.72% | 1.72% | 1.72% |
| 2024 | 69,495,976 | 38,837,045 | 108,333,021 | 70,199,751 | 39,231,130 | 109,430,881 | 72,544,971 | 40,541,583 | 113,086,554 | 1.89% | 1.89% | 1.89% | 2.04% | 2.04% | 2.04% | 2.08% | 2.08% | 2.08% |
| 2025 | 71,029,654 | 39,694,733 | 110,724,387 | 71,909,974 | 40,187,470 | 112,097,444 | 74,236,404 | 41,487,198 | 115,723,602 | 2.21% | 2.21% | 2.21% | 2.44% | 2.44% | 2.44% | 2.33% | 2.33% | 2.33% |
| 2026 | 72,163,071 | 40,328,031 | 112,491,102 | 73,123,962 | 40,865,727 | 113,989,688 | 75,532,960 | 42,211,571 | 117,744,531 | 1.60% | 1.60% | 1.60% | 1.69% | 1.69% | 1.69% | 1.75% | 1.75% | 1.75% |
| 2027 | 73,281,077 | 40,952,916 | 114,233,993 | 74,320,291 | 41,534,333 | 115,854,624 | 76,838,628 | 42,941,309 | 119,779,937 | 1.55% | 1.55% | 1.55% | 1.64% | 1.64% | 1.64% | 1.73% | 1.73% | 1.73% |
| 2028 | 74,504,747 | 41,636,952 | 116,141,699 | 75,677,333 | 42,292,795 | 117,970,128 | 78,258,256 | 43,734,686 | 121,929,542 | 1.67% | 1.67% | 1.67% | 1.83% | 1.83% | 1.83% | 1.85% | 1.85% | 1.85% |
| 2029 | 75,592,243 | 42,244,680 | 117,836,923 | 76,889,033 | 42,969,964 | 119,858,997 | 79,539,707 | 44,450,804 | 123,990,511 | 1.46% | 1.46% | 1.46% | 1.60% | 1.60% | 1.60% | 1.64% | 1.64% | 1.64% |
| 2030 | 76,612,681 | 42,814,828 | 119,427,509 | 78,020,283 | 43,601,903 | 121,622,187 | 80,756,072 | 45,130,455 | 125,886,527 | 1.35% | 1.35% | 1.35% | 1.47% | 1.47% | 1.47% | 1.53% | 1.53% | 1.53% |
| 2031 | 77,277,036 | 43,186,014 | 120,463,050 | 78,839,172 | 44,059,562 | 122,898,734 | 81,630,826 | 45,619,563 | 127,250,390 | 0.87% | 0.87% | 0.87% | 1.05% | 1.05% | 1.05% | 1.08% | 1.08% | 1.08% |
| 2032 | 78,289,187 | 43,751,516 | 122,040,703 | 79,937,253 | 44,672,994 | 124,610,247 | 82,847,454 | 46,299,343 | 129,146,797 | 1.31% | 1.31% | 1.31% | 1.39% | 1.39% | 1.39% | 1.49% | 1.49% | 1.49% |

| | Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | |
|------|---------------------|-----------|-----------------|----------------|-----------|-----------------|----------------|-----------|-----------------|---------------|--------|-------|--------|-------|-------|--------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 84,625 | 1,087,105 | 1,171,729 | 84,445 | 1,099,972 | 1,184,416 | 85,521 | 1,118,546 | 1,204,067 | 8.41% | -0.06% | 0.50% | 9.99% | 1.00% | 1.59% | 12.10% | 2.66% | 3.28% |
| 2013 | 88,231 | 1,100,794 | 1,189,025 | 88,095 | 1,115,471 | 1,203,566 | 89,628 | 1,136,140 | 1,225,769 | 4.26% | 1.26% | 1.48% | 4.32% | 1.41% | 1.62% | 4.80% | 1.57% | 1.80% |
| 2014 | 89,201 | 1,124,362 | 1,213,563 | 88,830 | 1,133,886 | 1,227,716 | 90,939 | 1,164,339 | 1,252,278 | 1.10% | 2.14% | 2.06% | 0.83% | 1.61% | 1.59% | 1.46% | 2.48% | 2.41% |
| 2015 | 90,668 | 1,149,791 | 1,240,459 | 90,315 | 1,162,651 | 1,252,966 | 92,688 | 1,196,268 | 1,288,956 | 1.64% | 2.26% | 2.22% | 1.67% | 2.54% | 2.47% | 1.92% | 2.74% | 2.68% |
| 2016 | 92,504 | 1,174,933 | 1,267,437 | 92,264 | 1,191,162 | 1,283,426 | 94,762 | 1,228,177 | 1,322,939 | 2.03% | 2.19% | 2.17% | 2.24% | 2.43% | 2.43% | 2.47% | 2.67% | 2.64% |
| 2017 | 94,382 | 1,200,115 | 1,294,497 | 94,403 | 1,219,721 | 1,314,124 | 96,971 | 1,260,356 | 1,357,328 | 2.03% | 2.14% | 2.14% | 2.32% | 2.40% | 2.39% | 2.33% | 2.62% | 2.60% |
| 2018 | 96,013 | 1,225,584 | 1,321,598 | 96,178 | 1,248,798 | 1,344,976 | 98,901 | 1,293,125 | 1,392,025 | 1.73% | 2.12% | 2.09% | 1.86% | 2.35% | 1.99% | 2.60% | 2.60% | 2.56% |
| 2019 | 97,668 | 1,251,136 | 1,348,803 | 97,931 | 1,278,170 | 1,376,101 | 100,812 | 1,326,280 | 1,427,091 | 1.72% | 2.08% | 2.06% | 1.82% | 2.35% | 2.31% | 1.93% | 2.56% | 2.52% |
| 2020 | 99,487 | 1,276,545 | 1,376,031 | 99,963 | 1,307,472 | 1,407,434 | 102,942 | 1,359,655 | 1,462,597 | 1.86% | 2.03% | 2.02% | 1.72% | 2.29% | 2.28% | 2.11% | 2.52% | 2.49% |
| 2021 | 101,342 | 1,301,997 | 1,403,339 | 101,952 | 1,337,022 | 1,438,974 | 105,073 | 1,393,388 | 1,498,461 | 1.86% | 1.99% | 1.98% | 1.99% | 2.26% | 2.24% | 2.07% | 2.48% | 2.45% |
| 2022 | 102,908 | 1,327,862 | 1,430,769 | 103,676 | 1,367,121 | 1,470,797 | 106,967 | 1,427,845 | 1,534,812 | 1.55% | 1.99% | 1.95% | 1.69% | 2.25% | 2.21% | 1.80% | 2.47% | 2.43% |
| 2023 | 104,433 | 1,353,862 | 1,458,295 | 105,329 | 1,397,525 | 1,502,854 | 108,809 | 1,462,707 | 1,571,516 | 1.48% | 1.96% | 1.92% | 1.59% | 2.22% | 2.18% | 1.72% | 2.44% | 2.39% |
| 2024 | 106,403 | 1,379,492 | 1,485,894 | 107,483 | 1,427,626 | 1,535,109 | 111,073 | 1,497,468 | 1,608,514 | 1.89% | 1.89% | 1.89% | 2.04% | 2.15% | 2.15% | 2.08% | 2.38% | 2.36% |
| 2025 | 108,753 | 1,404,748 | 1,513,500 | 110,103 | 1,457,438 | 1,567,541 | 113,664 | 1,532,279 | 1,645,943 | 2.21% | 1.83% | 1.86% | 2.44% | 2.09% | 2.11% | 2.35% | 2.32% | 2.33% |
| 2026 | 110,488 | 1,430,716 | 1,541,204 | 111,961 | 1,488,238 | 1,600,199 | 115,648 | 1,568,032 | 1,689,601 | 1.60% | 1.85% | 1.83% | 1.69% | 2.11% | 2.08% | 1.73% | 2.33% | 2.29% |
| 2027 | 112,200 | 1,456,685 | 1,568,885 | 113,793 | 1,519,194 | 1,632,986 | 117,647 | 1,604,053 | 1,721,700 | 1.55% | 1.82% | 1.80% | 1.64% | 2.08% | 2.05% | 1.73% | 2.30% | 2.26% |
| 2028 | 114,074 | 1,482,520 | 1,596,594 | 115,871 | 1,550,076 | 1,665,947 | 119,821 | 1,640,300 | 1,760,121 | 1.67% | 1.77% | 1.77% | 1.83% | 2.03% | 2.02% | 1.85% | 2.26% | 2.23% |
| 2029 | 115,739 | 1,508,579 | 1,624,318 | 117,726 | 1,581,377 | 1,699,103 | 121,783 | 1,677,079 | 1,798,862 | 1.46% | 1.76% | 1.74% | 1.60% | 2.02% | 1.99% | 1.64% | 2.24% | 2.20% |
| 2030 | 117,301 | 1,534,772 | 1,652,073 | 119,457 | 1,612,952 | 1,732,409 | 123,645 | 1,714,306 | 1,837,951 | 1.35% | 1.74% | 1.71% | 1.47% | 2.00% | 1.96% | 1.53% | 2.22% | 2.17% |
| 2031 | 118,318 | 1,558,684 | 1,677,002 | 120,711 | 1,641,990 | 1,762,701 | 124,985 | 1,748,860 | 1,873,845 | 0.87% | 1.56% | 1.51% | 1.05% | 1.80% | 1.75% | 1.08% | 2.02% | 1.95% |
| 2032 | 119,867 | 1,585,362 | 1,705,229 | 122,392 | 1,674,439 | 1,796,831 | 126,848 | 1,787,319 | 1,914,166 | 1.31% | 1.71% | 1.68% | 1.39% | 1.98% | 1.94% | 1.49% | 2.20% | 2.15% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|------------|------------|------------|------------|------------|------------|------------|-------------|---------------|---------|-------|--------|---------|-------|-------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 52,238,645 | 33,915,437 | 86,154,082 | 51,898,998 | 34,069,741 | 85,968,739 | 53,130,308 | 33,934,075 | 87,064,383 | 4.54% | 14.94% | 8.40% | 6.42% | 15.88% | 9.98% | 9.10% | 17.09% | 12.08% |
| 2013 | 55,650,525 | 34,184,159 | 89,834,684 | 55,392,470 | 34,300,952 | 89,693,422 | 56,926,855 | 34,327,041 | 91,253,896 | 6.53% | 0.79% | 4.27% | 6.73% | 0.68% | 4.33% | 7.15% | 1.16% | 4.81% |
| 2014 | 56,272,549 | 34,549,910 | 90,822,459 | 55,823,613 | 34,618,091 | 90,441,704 | 57,865,243 | 34,723,029 | 92,588,272 | 1.12% | 1.07% | 1.10% | 0.78% | 0.92% | 0.83% | 1.65% | 1.15% | 1.46% |
| 2015 | 57,298,012 | 35,017,697 | 92,315,709 | 56,871,383 | 35,082,792 | 91,954,175 | 59,146,248 | 35,222,960 | 94,369,208 | 1.82% | 1.35% | 1.64% | 1.88% | 1.34% | 1.67% | 2.11% | 1.44% | 1.92% |
| 2016 | 58,541,413 | 35,643,577 | 94,184,990 | 58,184,024 | 35,754,196 | 93,938,220 | 60,606,690 | 35,874,280 | 96,480,970 | 2.17% | 1.79% | 2.02% | 2.31% | 1.91% | 2.16% | 2.47% | 1.85% | 2.24% |
| 2017 | 59,744,074 | 36,352,419 | 96,096,493 | 59,590,640 | 36,524,404 | 96,115,044 | 62,127,074 | 36,600,525 | 98,729,599 | 2.05% | 1.99% | 2.03% | 2.42% | 2.15% | 2.32% | 2.51% | 2.02% | 2.33% |
| 2018 | 60,846,820 | 36,910,144 | 97,756,964 | 60,815,562 | 37,106,389 | 97,921,951 | 63,515,982 | 37,178,076 | 100,694,058 | 1.85% | 1.53% | 1.73% | 2.06% | 1.59% | 1.88% | 2.23% | 1.58% | 1.99% |
| 2019 | 61,996,884 | 37,444,212 | 99,441,096 | 62,053,330 | 37,653,610 | 99,706,946 | 64,910,363 | 37,729,407 | 102,639,770 | 1.89% | 1.45% | 1.72% | 2.04% | 1.47%</ | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONE30W - Bellingham, Mount Vernon



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

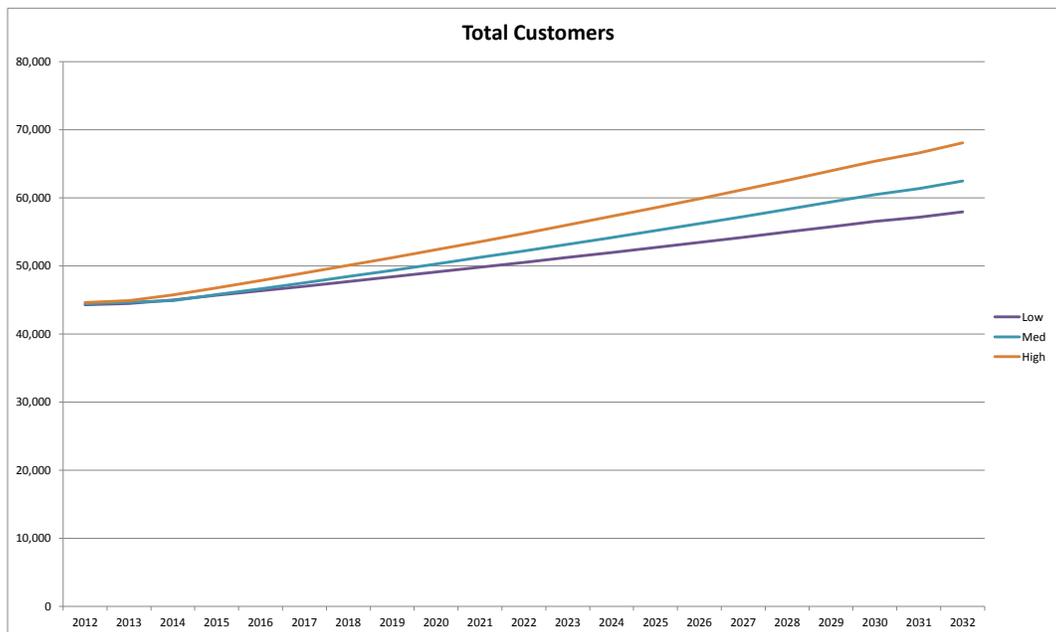
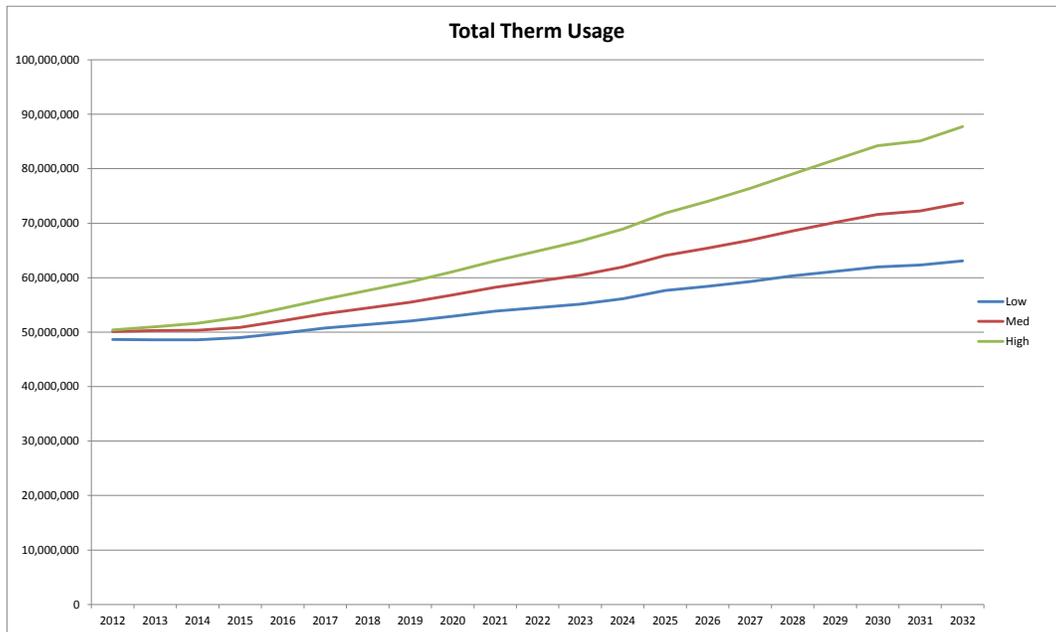
| ZONETN - Bend | | | | | | | | | | | | | | | | | | |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|---------|----------|--------|---------|----------|-------|---------|----------|--------|
| Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 33,668,464 | 14,952,969 | 48,621,433 | 34,699,221 | 15,410,752 | 50,109,973 | 34,897,209 | 15,498,684 | 50,395,893 | 6.46% | 6.46% | 6.46% | 8.21% | 8.21% | 8.21% | 10.88% | 10.88% | 10.88% |
| 2013 | 33,650,788 | 14,945,118 | 48,595,907 | 34,818,315 | 15,463,645 | 50,281,960 | 35,309,114 | 15,681,621 | 50,990,735 | -0.05% | -0.05% | -0.05% | 0.34% | 0.34% | 0.34% | 1.18% | 1.18% | 1.18% |
| 2014 | 33,659,006 | 14,948,768 | 48,607,773 | 34,867,237 | 15,485,372 | 50,352,609 | 35,735,915 | 15,871,173 | 51,607,088 | 0.02% | 0.02% | 0.02% | 0.14% | 0.14% | 0.14% | 1.21% | 1.21% | 1.21% |
| 2015 | 33,941,318 | 15,074,150 | 49,015,468 | 35,232,508 | 15,647,598 | 50,880,106 | 36,536,664 | 16,226,804 | 52,763,468 | 0.84% | 0.84% | 0.84% | 1.05% | 1.05% | 1.05% | 2.24% | 2.24% | 2.24% |
| 2016 | 34,515,720 | 15,329,255 | 49,844,975 | 36,062,469 | 16,016,203 | 52,078,672 | 37,645,922 | 16,719,453 | 54,365,375 | 1.69% | 1.69% | 1.69% | 2.36% | 2.36% | 2.36% | 3.04% | 3.04% | 3.04% |
| 2017 | 35,135,247 | 15,604,402 | 50,739,649 | 36,964,115 | 16,416,646 | 53,380,761 | 38,842,222 | 17,250,758 | 56,092,980 | 1.79% | 1.79% | 1.79% | 2.50% | 2.50% | 2.50% | 3.18% | 3.18% | 3.18% |
| 2018 | 35,587,448 | 15,805,235 | 51,392,683 | 37,710,739 | 16,748,239 | 54,458,978 | 39,915,726 | 17,727,527 | 57,643,253 | 1.29% | 1.29% | 1.29% | 2.02% | 2.02% | 2.02% | 2.76% | 2.76% | 2.76% |
| 2019 | 36,041,253 | 16,006,781 | 52,048,034 | 38,433,239 | 17,069,119 | 55,502,358 | 41,026,501 | 18,220,848 | 59,247,349 | 1.28% | 1.28% | 1.28% | 1.92% | 1.92% | 1.92% | 2.78% | 2.78% | 2.78% |
| 2020 | 36,635,968 | 16,270,908 | 52,906,877 | 39,342,456 | 17,472,524 | 56,815,379 | 42,307,989 | 18,789,988 | 61,097,976 | 1.65% | 1.65% | 1.65% | 2.37% | 2.37% | 2.37% | 3.12% | 3.12% | 3.12% |
| 2021 | 37,279,789 | 16,556,844 | 53,836,634 | 40,310,702 | 17,902,945 | 58,213,646 | 43,685,330 | 19,401,698 | 63,087,028 | 1.76% | 1.76% | 1.76% | 2.46% | 2.46% | 2.46% | 3.26% | 3.26% | 3.26% |
| 2022 | 37,718,412 | 16,751,647 | 54,470,060 | 41,090,034 | 18,249,065 | 59,339,099 | 44,929,616 | 19,954,315 | 64,883,931 | 1.18% | 1.18% | 1.18% | 1.93% | 1.93% | 1.93% | 2.85% | 2.85% | 2.85% |
| 2023 | 38,170,944 | 16,952,627 | 55,123,571 | 41,863,507 | 18,592,583 | 60,456,090 | 46,196,812 | 20,517,107 | 66,713,919 | 1.20% | 1.20% | 1.20% | 1.88% | 1.88% | 1.88% | 2.82% | 2.82% | 2.82% |
| 2024 | 38,861,746 | 17,259,429 | 56,121,175 | 42,914,272 | 19,059,253 | 61,973,525 | 47,716,733 | 21,192,140 | 68,908,873 | 1.81% | 1.81% | 1.81% | 2.51% | 2.51% | 2.51% | 3.29% | 3.29% | 3.29% |
| 2025 | 39,904,838 | 17,722,691 | 57,627,529 | 44,381,552 | 19,710,907 | 64,092,459 | 49,747,546 | 22,094,073 | 71,841,619 | 2.68% | 2.68% | 2.68% | 3.42% | 3.42% | 3.42% | 4.26% | 4.26% | 4.26% |
| 2026 | 40,432,374 | 17,956,982 | 58,389,356 | 45,315,953 | 20,125,896 | 65,441,849 | 51,258,498 | 22,765,123 | 74,023,621 | 1.32% | 1.32% | 1.32% | 2.11% | 2.11% | 2.11% | 3.04% | 3.04% | 3.04% |
| 2027 | 41,042,323 | 18,227,875 | 59,270,198 | 46,297,281 | 20,561,728 | 66,859,009 | 52,890,052 | 23,489,747 | 76,379,829 | 1.51% | 1.51% | 1.51% | 2.17% | 2.17% | 2.17% | 3.18% | 3.18% | 3.18% |
| 2028 | 41,768,105 | 18,500,212 | 60,268,317 | 47,468,890 | 21,082,067 | 68,550,956 | 54,807,710 | 24,309,435 | 79,045,145 | 1.77% | 1.77% | 1.77% | 2.53% | 2.53% | 2.53% | 3.49% | 3.49% | 3.49% |
| 2029 | 42,355,304 | 18,811,002 | 61,166,306 | 48,567,438 | 21,569,959 | 70,137,397 | 56,537,553 | 25,109,677 | 81,647,230 | 1.41% | 1.41% | 1.41% | 2.31% | 2.31% | 2.31% | 3.29% | 3.29% | 3.29% |
| 2030 | 42,899,725 | 19,052,792 | 61,952,518 | 49,568,669 | 22,014,629 | 71,583,298 | 58,311,003 | 25,897,308 | 84,208,312 | 1.29% | 1.29% | 1.29% | 2.06% | 2.06% | 2.06% | 3.14% | 3.14% | 3.14% |
| 2031 | 43,146,146 | 19,162,233 | 62,308,380 | 50,011,009 | 22,211,083 | 72,222,092 | 58,917,318 | 26,166,587 | 85,083,906 | 0.57% | 0.57% | 0.57% | 0.89% | 0.89% | 0.89% | 1.04% | 1.04% | 1.04% |
| 2032 | 43,692,081 | 19,404,696 | 63,096,777 | 51,023,331 | 22,660,679 | 73,684,010 | 60,757,767 | 26,983,974 | 87,741,741 | 1.27% | 1.27% | 1.27% | 2.02% | 2.02% | 2.02% | 3.12% | 3.12% | 3.12% |

| | Peak Day - Baseload | | | | | | Annual Change | | | | | | | | | | | |
|------|---------------------|---------|----------------|--------|----------------|---------|---------------|---------|---------|--------|-------|-------|-------|-------|-------|--------|-------|-------|
| | Low | | Medium | | High | | Low | | | Medium | | | High | | | | | |
| | Daily Baseload | Peak | Daily Baseload | Peak | Daily Baseload | Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total | | | |
| 2012 | 40,967 | 535,366 | 576,333 | 42,221 | 535,817 | 578,038 | 42,462 | 537,930 | 580,392 | 6.46% | 1.11% | 1.47% | 8.21% | 1.30% | 1.77% | 10.88% | 1.56% | 2.19% |
| 2013 | 40,946 | 537,901 | 578,847 | 42,366 | 538,822 | 581,188 | 42,963 | 541,224 | 584,187 | -0.05% | 0.47% | 0.44% | 0.34% | 0.56% | 0.54% | 1.18% | 0.61% | 0.65% |
| 2014 | 40,956 | 544,823 | 585,779 | 42,426 | 541,970 | 584,396 | 43,483 | 551,492 | 594,974 | 0.02% | 1.29% | 1.20% | 0.14% | 0.58% | 0.55% | 1.21% | 1.90% | 1.85% |
| 2015 | 41,299 | 553,107 | 594,406 | 42,870 | 552,751 | 595,621 | 44,457 | 564,246 | 608,703 | 0.84% | 1.52% | 1.47% | 1.05% | 1.99% | 1.92% | 2.24% | 2.31% | 2.31% |
| 2016 | 41,998 | 561,156 | 603,154 | 43,880 | 563,152 | 607,032 | 46,807 | 576,915 | 622,721 | 1.69% | 1.46% | 1.47% | 2.36% | 1.88% | 1.92% | 3.04% | 2.25% | 2.30% |
| 2017 | 42,752 | 569,213 | 611,967 | 44,977 | 573,633 | 618,610 | 47,262 | 589,747 | 637,009 | 1.79% | 1.44% | 1.46% | 2.50% | 1.86% | 1.91% | 3.18% | 2.22% | 2.29% |
| 2018 | 43,302 | 577,585 | 620,885 | 45,886 | 584,500 | 630,386 | 48,569 | 603,019 | 651,588 | 1.29% | 1.47% | 1.46% | 2.02% | 1.89% | 1.90% | 2.76% | 2.25% | 2.29% |
| 2019 | 43,854 | 586,027 | 629,881 | 46,765 | 595,565 | 642,330 | 49,920 | 616,519 | 666,349 | 1.28% | 1.46% | 1.45% | 1.92% | 1.89% | 1.89% | 2.78% | 2.24% | 2.28% |
| 2020 | 44,578 | 594,417 | 638,995 | 47,871 | 606,601 | 654,472 | 51,479 | 630,129 | 681,609 | 1.65% | 1.43% | 1.45% | 2.37% | 1.85% | 1.89% | 3.12% | 2.21% | 2.28% |
| 2021 | 45,361 | 602,840 | 648,201 | 49,049 | 617,764 | 666,813 | 53,155 | 643,941 | 697,096 | 1.76% | 1.42% | 1.44% | 2.46% | 1.84% | 1.89% | 3.26% | 2.19% | 2.27% |
| 2022 | 45,895 | 611,590 | 657,485 | 49,997 | 629,313 | 679,311 | 54,669 | 658,180 | 712,849 | 1.18% | 1.45% | 1.43% | 1.93% | 1.87% | 1.87% | 2.85% | 2.12% | 2.26% |
| 2023 | 46,446 | 620,474 | 666,920 | 50,939 | 641,139 | 692,078 | 56,211 | 672,780 | 728,991 | 1.20% | 1.45% | 1.43% | 1.88% | 1.88% | 1.88% | 2.82% | 2.22% | 2.26% |
| 2024 | 47,286 | 629,116 | 676,402 | 52,217 | 652,753 | 704,970 | 58,061 | 687,326 | 745,386 | 1.81% | 1.39% | 1.42% | 2.51% | 1.81% | 1.86% | 3.29% | 2.26% | 2.25% |
| 2025 | 48,555 | 637,477 | 686,032 | 54,002 | 664,116 | 718,118 | 60,532 | 701,629 | 762,161 | 2.68% | 1.33% | 1.42% | 3.42% | 1.74% | 1.87% | 4.26% | 2.08% | 2.25% |
| 2026 | 49,197 | 646,524 | 695,722 | 55,139 | 676,276 | 731,416 | 62,370 | 716,818 | 779,188 | 1.32% | 1.42% | 1.41% | 2.11% | 1.83% | 1.85% | 3.04% | 2.16% | 2.23% |
| 2027 | 49,939 | 655,591 | 705,530 | 56,334 | 688,633 | 744,967 | 64,355 | 732,261 | 796,617 | 1.51% | 1.40% | 1.41% | 2.17% | 1.83% | 1.85% | 3.18% | 2.15% | 2.24% |
| 2028 | 50,822 | 664,618 | 715,441 | 57,759 | 700,954 | 758,713 | 66,801 | 747,777 | 814,378 | 1.77% | 1.38% | 1.40% | 2.53% | 1.79% | 1.85% | 3.49% | 2.12% | 2.23% |
| 2029 | 51,537 | 673,918 | 725,455 | 59,096 | 713,574 | 772,670 | 68,794 | 763,675 | 832,468 | 1.41% | 1.40% | 1.40% | 2.31% | 1.80% | 1.84% | 3.29% | 2.13% | 2.22% |
| 2030 | 52,199 | 683,373 | 735,573 | 60,314 | 726,537 | 786,851 | 70,952 | 779,995 | 850,946 | 1.29% | 1.40% | 1.39% | 2.06% | 1.82% | 1.84% | 3.14% | 2.14% | 2.22% |
| 2031 | 52,499 | 691,245 | 743,744 | 60,852 | 737,775 | 798,627 | 71,689 | 794,924 | 866,613 | 0.57% | 1.15% | 1.11% | 0.89% | 1.55% | 1.50% | 1.04% | 1.91% | 1.84% |
| 2032 | 53,164 | 700,920 | 754,083 | 62,084 | 751,157 | 813,241 | 73,929 | 811,848 | 885,776 | 1.27% | 1.40% | 1.39% | 2.02% | 1.81% | 1.83% | 3.12% | 2.13% | 2.21% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|---------|--------|--------|---------|-------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 28,051,701 | 20,569,732 | 48,621,433 | 29,578,004 | 20,531,969 | 50,109,973 | 29,716,440 | 20,679,453 | 50,395,893 | 4.41% | 9.37% | 6.46% | 6.83% | 10.26% | 8.21% | 10.61% | 11.26% | 10.88% |
| 2013 | 28,095,302 | 20,560,620 | 48,595,907 | 29,716,440 | 20,560,620 | 50,281,960 | 29,986,215 | 21,004,520 | 50,990,735 | 0.16% | -0.34% | -0.05% | 0.47% | 0.16% | 0.34% | 0.91% | 1.57% | 1.18% |
| 2014 | 28,077,710 | 20,530,631 | 48,607,773 | 29,627,680 | 20,724,929 | 50,352,609 | 30,180,234 | 21,426,854 | 51,607,088 | -0.06% | 0.14% | 0.02% | -0.30% | 0.78% | 0.14% | 0.65% | 2.01% | 1.21% |
| 2015 | 28,302,837 | 20,712,611 | 49,015,468 | 29,817,892 | 21,062,214 | 50,880,106 | 30,733,992 | 22,029,476 | 52,763,468 | 0.80% | 0.80% | 0.84% | 0.64% | 1.63% | 1.05% | 1.83% | 2.81% | 2.24% |
| 2016 | 28,726,880 | 21,118,966 | 49,844,975 | 30,400,512 | 21,678,160 | 52,078,672 | 31,459,575 | 22,905,800 | 54,365,375 | 1.50% | 1.96% | 1.69% | 1.95% | 2.92% | 2.36% | 2.36% | 3.98% | 3.04% |
| 2017 | 29,114,904 | 21,624,744 | 50,739,649 | 30,952,704 | 22,428,057 | 53,380,761 | 32,159,400 | 23,933,580 | 56,092,980 | 1.35% | 2.40% | 1.79% | 1.82% | 3.46% | 2.50% | 2.22% | 4.49% | 3.18% |
| 2018 | 29,426,958 | 21,965,724 | 51,392,683 | 31,473,845 | 22,985,132 | 54,458,978 | 32,831,532 | 24,811,721 | 57,643,253 | 1.07% | 1.58% | 1.29% | 1.68% | 2.48% | 2.02% | 2.09% | 3.67% | 2.76% |
| 2019 | 29,781,550 | 22,266,484 | 52,048,034 | 32,011,948 | 23,500,410 | 55,502,358 | 33,559,092 | 25,688,257 | 59,247,349 | 1.20% | 1.37% | 1.28% | 1.68% | 2.24% | 1.92% | 2.22% | 3.53% | 2.78% |
| 2020 | 30,182,475 | 22,724,402 | 52,906,877 | 32,581,044 | 24,234,335 | 56,815,379 | 34,302,906 | 26,795,070 | 61,097,976 | 1.35% | 2.06% | 1.65% | 1.81% | 3.12% | 2.37% | 2.22% | 4.31% | 3.12% |
| 2021 | 30,587,750 | 23,248,884 | 53,836,634 | 33,170,978 | 25,043,548 | 58,213,646 | 35,062,974 | 28,024,054 | 63,087,028 | 1.34% | 2.3 | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONEGTN - Bend



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

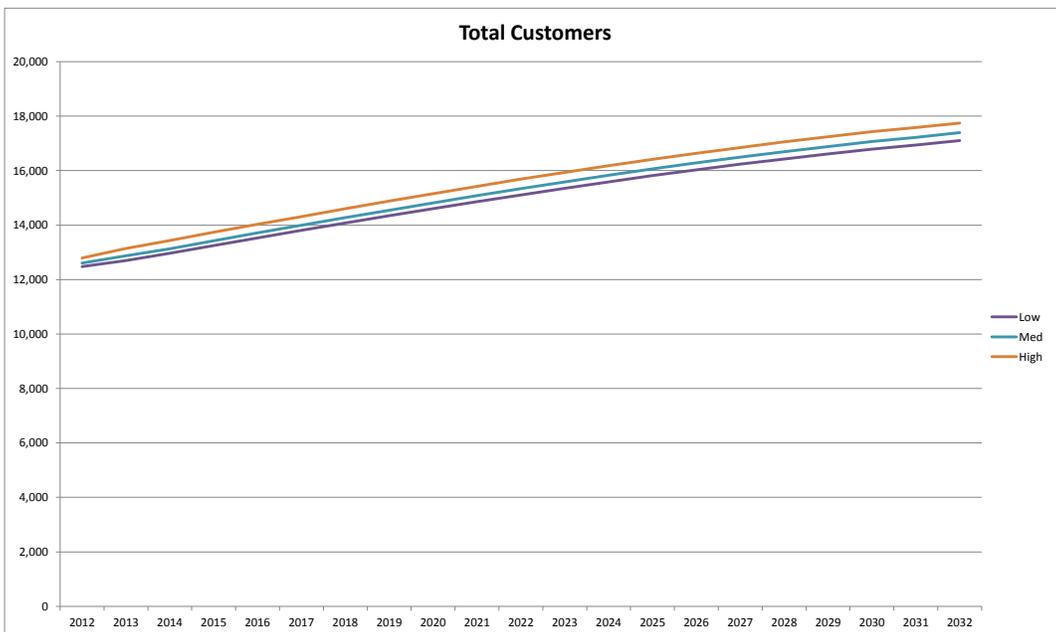
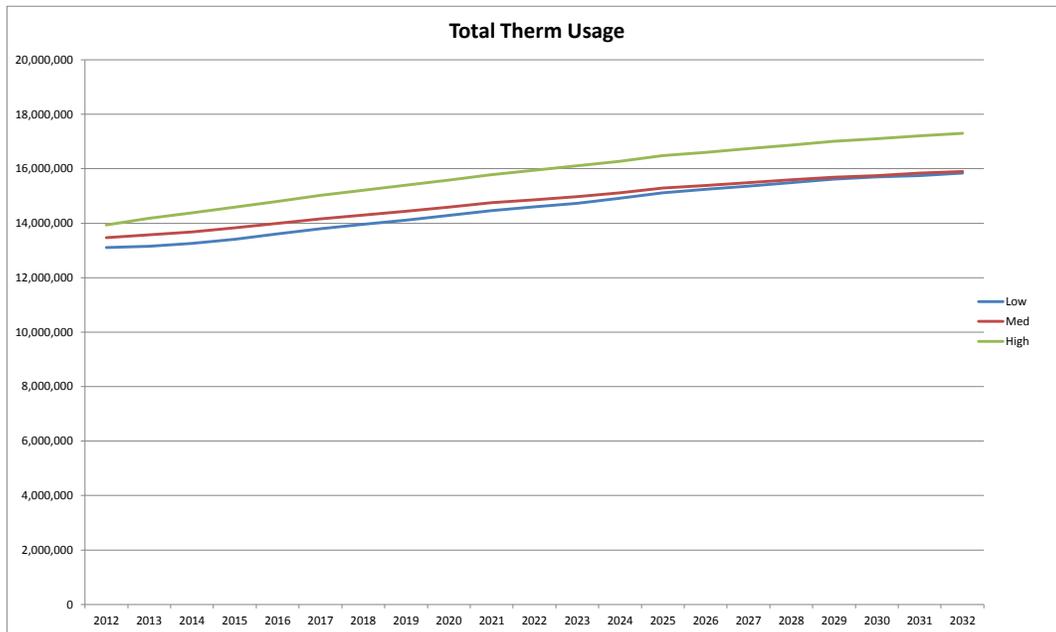
| ZONEMEOR - Pendleton | | | | | | | | | | | | | | | | | | |
|----------------------|------------------------------|-----------|------------|-----------|-----------|------------|------------|-----------|------------|---------------|----------|-------|---------|----------|--------|---------|----------|--------|
| | Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | |
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 8,185,519 | 4,916,579 | 13,102,099 | 8,417,733 | 5,056,057 | 13,473,790 | 8,707,409 | 5,230,049 | 13,937,458 | 8.36% | 8.36% | 8.36% | 11.01% | 11.01% | 11.01% | 15.34% | 15.34% | 15.34% |
| 2013 | 8,214,093 | 4,933,742 | 13,147,835 | 8,477,528 | 5,091,972 | 13,569,500 | 8,862,242 | 5,323,048 | 14,185,291 | 0.35% | 0.35% | 0.35% | 0.71% | 0.71% | 0.71% | 1.78% | 1.78% | 1.78% |
| 2014 | 8,280,774 | 4,973,793 | 13,254,567 | 8,547,404 | 5,133,943 | 13,681,347 | 8,986,687 | 5,397,796 | 14,384,483 | 0.81% | 0.81% | 0.81% | 0.82% | 0.82% | 0.82% | 1.40% | 1.40% | 1.40% |
| 2015 | 8,379,459 | 5,033,068 | 13,412,527 | 8,641,917 | 5,190,711 | 13,832,628 | 9,116,023 | 5,475,480 | 14,591,503 | 1.19% | 1.19% | 1.19% | 1.11% | 1.11% | 1.11% | 1.44% | 1.44% | 1.44% |
| 2016 | 8,500,041 | 5,105,494 | 13,605,535 | 8,744,664 | 5,252,426 | 13,997,090 | 9,245,892 | 5,553,485 | 14,799,378 | 1.44% | 1.44% | 1.44% | 1.19% | 1.19% | 1.19% | 1.42% | 1.42% | 1.42% |
| 2017 | 8,621,364 | 5,178,367 | 13,799,731 | 8,846,690 | 5,313,707 | 14,160,396 | 9,384,913 | 5,636,987 | 15,021,901 | 1.43% | 1.43% | 1.43% | 1.17% | 1.17% | 1.17% | 1.50% | 1.50% | 1.50% |
| 2018 | 8,717,441 | 5,236,074 | 13,953,516 | 8,935,642 | 5,367,135 | 14,302,777 | 9,499,849 | 5,706,023 | 15,205,872 | 1.11% | 1.11% | 1.11% | 1.01% | 1.01% | 1.01% | 1.22% | 1.22% | 1.22% |
| 2019 | 8,818,186 | 5,296,586 | 14,114,772 | 9,021,329 | 5,418,603 | 14,439,931 | 9,617,387 | 5,776,621 | 15,394,008 | 1.16% | 1.16% | 1.16% | 0.96% | 0.96% | 0.96% | 1.24% | 1.24% | 1.24% |
| 2020 | 8,928,369 | 5,362,767 | 14,291,137 | 9,115,059 | 5,474,901 | 14,589,960 | 9,736,204 | 5,847,988 | 15,584,191 | 1.25% | 1.25% | 1.25% | 1.04% | 1.04% | 1.04% | 1.24% | 1.24% | 1.24% |
| 2021 | 9,037,865 | 5,428,535 | 14,466,400 | 9,213,981 | 5,534,318 | 14,748,299 | 9,862,955 | 5,924,120 | 15,787,075 | 1.23% | 1.23% | 1.23% | 1.09% | 1.09% | 1.09% | 1.30% | 1.30% | 1.30% |
| 2022 | 9,123,041 | 5,479,696 | 14,602,737 | 9,283,225 | 5,575,909 | 14,859,134 | 9,964,453 | 5,985,084 | 15,949,537 | 0.94% | 0.94% | 0.94% | 0.75% | 0.75% | 0.75% | 1.03% | 1.03% | 1.03% |
| 2023 | 9,201,191 | 5,526,636 | 14,727,826 | 9,355,244 | 5,619,167 | 14,974,411 | 10,063,061 | 6,044,312 | 16,107,373 | 0.86% | 0.86% | 0.86% | 0.78% | 0.78% | 0.78% | 0.99% | 0.99% | 0.99% |
| 2024 | 9,316,771 | 5,596,058 | 14,912,830 | 9,454,580 | 5,673,427 | 15,119,007 | 10,165,122 | 6,105,614 | 16,270,736 | 1.26% | 1.26% | 1.26% | 0.97% | 0.97% | 0.97% | 1.01% | 1.01% | 1.01% |
| 2025 | 9,443,172 | 5,671,980 | 15,115,152 | 9,549,962 | 5,736,123 | 15,286,085 | 10,297,427 | 6,185,083 | 16,482,509 | 1.36% | 1.36% | 1.36% | 1.11% | 1.11% | 1.11% | 1.30% | 1.30% | 1.30% |
| 2026 | 9,522,324 | 5,719,522 | 15,241,846 | 9,611,627 | 5,773,161 | 15,384,788 | 10,374,191 | 6,231,191 | 16,605,382 | 0.84% | 0.84% | 0.84% | 0.65% | 0.65% | 0.65% | 0.75% | 0.75% | 0.75% |
| 2027 | 9,596,254 | 5,763,928 | 15,360,182 | 9,680,083 | 5,814,279 | 15,494,362 | 10,458,841 | 6,282,035 | 16,740,876 | 0.78% | 0.78% | 0.78% | 0.71% | 0.71% | 0.71% | 0.82% | 0.82% | 0.82% |
| 2028 | 9,680,563 | 5,814,096 | 15,494,659 | 9,746,373 | 5,854,096 | 15,600,469 | 10,541,769 | 6,331,845 | 16,881,601 | 0.88% | 0.88% | 0.88% | 0.68% | 0.68% | 0.68% | 0.79% | 0.79% | 0.79% |
| 2029 | 9,756,587 | 5,860,231 | 15,616,818 | 9,804,298 | 5,888,888 | 15,693,186 | 10,623,842 | 6,381,142 | 17,004,984 | 0.79% | 0.79% | 0.79% | 0.59% | 0.59% | 0.59% | 0.78% | 0.78% | 0.78% |
| 2030 | 9,808,762 | 5,891,569 | 15,700,331 | 9,840,627 | 5,910,709 | 15,751,336 | 10,683,871 | 6,417,198 | 17,101,068 | 0.53% | 0.53% | 0.53% | 0.37% | 0.37% | 0.37% | 0.57% | 0.57% | 0.57% |
| 2031 | 9,839,219 | 5,909,863 | 15,749,082 | 9,894,121 | 5,942,839 | 15,836,960 | 10,750,994 | 6,457,515 | 17,208,508 | 0.31% | 0.31% | 0.31% | 0.54% | 0.54% | 0.54% | 0.63% | 0.63% | 0.63% |
| 2032 | 9,895,053 | 5,943,399 | 15,838,452 | 9,932,875 | 5,966,117 | 15,898,992 | 10,812,011 | 6,494,165 | 17,306,176 | 0.57% | 0.57% | 0.57% | 0.39% | 0.39% | 0.39% | 0.57% | 0.57% | 0.57% |

| | Peak Day - Baseload | | | | | | Annual Change | | | | | |
|------|---------------------|---------|----------------|---------|----------------|---------|---------------|-------|--------|-------|--------|-------|
| | Low | | Medium | | High | | Low | | Medium | | High | |
| | Daily Baseload | Peak | Daily Baseload | Peak | Daily Baseload | Peak | Base | Peak | Base | Peak | Base | Peak |
| 2012 | 13,470 | 184,584 | 13,852 | 186,147 | 14,329 | 188,672 | 8.36% | 0.03% | 11.01% | 0.90% | 15.34% | 2.24% |
| 2013 | 13,517 | 187,935 | 13,951 | 190,296 | 14,584 | 194,048 | 0.35% | 1.82% | 0.71% | 2.23% | 1.78% | 2.85% |
| 2014 | 13,627 | 192,218 | 14,066 | 194,394 | 14,788 | 198,411 | 0.81% | 2.28% | 0.82% | 2.15% | 2.06% | 2.52% |
| 2015 | 13,789 | 196,524 | 14,221 | 198,862 | 15,001 | 202,987 | 1.19% | 2.24% | 1.11% | 2.30% | 2.22% | 2.44% |
| 2016 | 13,988 | 200,744 | 14,390 | 203,233 | 15,215 | 207,381 | 1.44% | 2.15% | 1.19% | 2.20% | 2.13% | 1.42% |
| 2017 | 14,187 | 204,910 | 14,558 | 207,554 | 15,444 | 211,742 | 1.43% | 2.08% | 1.07% | 2.13% | 2.06% | 1.50% |
| 2018 | 14,345 | 209,051 | 14,704 | 211,830 | 15,633 | 216,061 | 1.11% | 2.02% | 1.06% | 2.06% | 1.99% | 1.22% |
| 2019 | 14,511 | 213,100 | 14,845 | 216,028 | 15,826 | 220,307 | 1.16% | 1.94% | 1.09% | 1.98% | 1.92% | 1.24% |
| 2020 | 14,693 | 217,067 | 15,000 | 220,130 | 16,022 | 224,422 | 1.25% | 1.86% | 1.04% | 1.90% | 1.84% | 1.24% |
| 2021 | 14,873 | 220,917 | 15,163 | 224,138 | 16,230 | 228,487 | 1.23% | 1.77% | 1.09% | 1.82% | 1.77% | 1.30% |
| 2022 | 15,013 | 224,741 | 15,276 | 228,130 | 16,397 | 232,526 | 0.94% | 1.73% | 1.06% | 1.78% | 1.72% | 1.30% |
| 2023 | 15,141 | 228,477 | 15,395 | 231,984 | 16,560 | 236,377 | 0.86% | 1.66% | 1.06% | 1.69% | 1.63% | 1.09% |
| 2024 | 15,332 | 232,019 | 15,544 | 235,661 | 16,728 | 240,073 | 1.26% | 1.55% | 0.97% | 1.58% | 1.55% | 1.01% |
| 2025 | 15,540 | 235,395 | 15,715 | 239,198 | 16,945 | 243,604 | 1.36% | 1.46% | 1.11% | 1.50% | 1.48% | 1.30% |
| 2026 | 15,670 | 238,700 | 15,817 | 242,608 | 17,072 | 246,305 | 0.84% | 1.40% | 1.07% | 1.43% | 1.38% | 1.47% |
| 2027 | 15,792 | 241,816 | 15,930 | 245,826 | 17,211 | 250,193 | 0.78% | 1.31% | 1.07% | 1.33% | 1.29% | 1.31% |
| 2028 | 15,930 | 244,768 | 16,039 | 248,901 | 17,348 | 253,265 | 0.88% | 1.22% | 1.06% | 1.25% | 1.22% | 1.20% |
| 2029 | 16,055 | 247,567 | 16,134 | 251,824 | 17,483 | 256,139 | 0.79% | 1.14% | 1.02% | 1.17% | 1.14% | 1.13% |
| 2030 | 16,141 | 250,227 | 16,194 | 254,620 | 17,581 | 258,937 | 0.53% | 1.07% | 1.04% | 1.11% | 1.07% | 1.09% |
| 2031 | 16,191 | 252,573 | 16,282 | 256,976 | 17,692 | 261,238 | 0.31% | 0.94% | 0.90% | 1.04% | 1.00% | 0.89% |
| 2032 | 16,283 | 255,093 | 16,346 | 259,617 | 17,792 | 263,851 | 0.57% | 1.00% | 0.97% | 1.03% | 0.99% | 1.00% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|-----------|------------|-----------|-----------|------------|-----------|-----------|------------|---------------|---------|-------|--------|---------|--------|--------|---------|--------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 5,754,414 | 7,347,685 | 13,102,099 | 6,104,801 | 7,368,989 | 13,473,790 | 6,576,318 | 7,361,140 | 13,937,458 | 4.10% | 11.94% | 8.36% | 9.40% | 12.38% | 11.01% | 17.85% | 13.18% | 15.34% |
| 2013 | 5,775,744 | 7,372,091 | 13,147,835 | 6,191,028 | 7,378,472 | 13,569,500 | 6,786,544 | 7,398,747 | 14,185,291 | 0.37% | 0.33% | 0.35% | 1.41% | 0.13% | 0.71% | 3.20% | 0.51% | 1.78% |
| 2014 | 5,848,128 | 7,406,439 | 13,254,567 | 6,296,103 | 7,385,244 | 13,681,347 | 6,958,710 | 7,425,737 | 14,384,483 | 1.25% | 0.47% | 0.81% | 1.70% | 0.09% | 0.82% | 2.54% | 0.37% | 1.40% |
| 2015 | 5,965,366 | 7,447,161 | 13,412,527 | 6,437,200 | 7,395,428 | 13,832,628 | 7,128,110 | 7,463,393 | 14,591,503 | 2.00% | 0.55% | 1.19% | 2.24% | 0.14% | 1.11% | 2.43% | 0.51% | 1.44% |
| 2016 | 6,103,178 | 7,502,357 | 13,605,535 | 6,586,720 | 7,410,370 | 13,997,090 | 7,290,855 | 7,508,523 | 14,799,378 | 2.31% | 0.74% | 1.44% | 2.32% | 0.20% | 1.19% | 2.28% | 0.60% | 1.42% |
| 2017 | 6,239,412 | 7,560,319 | 13,799,731 | 6,734,560 | 7,425,836 | 14,160,396 | 7,465,314 | 7,556,587 | 15,021,901 | 2.33% | 0.77% | 1.43% | 2.24% | 0.21% | 1.17% | 2.39% | 0.64% | 1.50% |
| 2018 | 6,349,308 | 7,604,208 | 13,953,516 | 6,867,874 | 7,434,903 | 14,302,777 | 7,612,110 | 7,593,762 | 15,205,872 | 1.76% | 0.58% | 1.11% | 1.98% | 0.12% | 1.01% | 1.97% | 0.49% | 1.22% |
| 2019 | 6,467,941 | 7,646,832 | 14,114,772 | 6,997,878 | 7,442,053 | 14,391,931 | 7,768,805 | 7,625,203 | 15,394,008 | 1.87% | 0.56% | 1.16% | 1.89% | 0.10% | 0.96% | 2.06% | 0.41% | 1.24% |
| 2020 | 6,596,599 | 7,694,538 | 14,291,137 | 7,137,378 | 7,452,582 | 14,589,960 | 7,920,660 | 7,663,531 | 15,584,191 | 1.99% | 0.62% | 1.25% | 1.99% | 0.14% | 1.04% | 1.95% | 0.50% | 1.24% |
| 2021 | 6,721,596 | 7,744,804 | 14,466,400 | 7,287,124 | 7,461,175 | 14,748,299 | 8,084,646 | 7,702,429 | 15,787,075 | 1.89% | 0.65% | 1.23% | 2.10% | 0.12% | 1.09% | 2.07% | 0.51% | 1.30% |
| 2022 | 6,818,327 | 7,784,410 | 14,602,737 | 7,395,289 | 7,463,845 | 14,859,134 | 8,219,530 | 7,730,007 | 15,949,537 | 1.44% | 0.51% | 0.94% | 1.48% | 0.04% | 0.75% | 1.67% | 0.36% | 1.03% |
| 2023 | 6,911,004 | 7,816,822 | 14,727,826 | 7,511,560 | 7,462,851 | 14,974,411 | 8,360,495 | 7,746,878 | 16,107,373 | 1.36% | 0.42% | 0.86% | 1.57% | -0.01% | 0.78% | 1.72% | 0.22% | 0.99% |
| 2024 | 7,052,777 | 7,860,053 | 14,912,830 | 7,649,169 | 7,469,169 | 15,119,007 | 8,496,015 | 7,774,721 | 16,270,736 | 2.05% | 0.55% | 1.26% | 1.84% | 0.08% | 0.97% | 1.62% | 0.36% | 1.01% |
| 2025 | 7,190,727 | 7,924,425 | 15,115,152 | 7,788,609 | 7,487,476 | 15,286,085 | 8,655,820 | 7,826,689 | 16,482,509 | 1.96% | 0.82% | 1.36% | 1.94% | 0.25% | 1.11% | 1.88% | 0.67% | 1.30% |
| 2026 | 7,282,944 | 7,958,902 | 15,241,846 | 7,899,048 | 7,485,740 | 15,384,788 | 8,763,366 | 7,842,016 | 16,605,382 | 1.28% | 0.44% | 0.84% | 1.29% | -0.02% | 0.65% | 1.24% | 0.20% | 0.75% |
| 2027 | 7,368,503 | 7,991,679 | 15,360,182 | 8,007,300 | 7,487,062 | 15,494,362 | 8,880,930 | 7,859,946 | 16,740,876 | 1.17% | 0.41% | 0.78% | 1.37% | 0.02% | 0.71% | 1.34% | 0.23% | 0.82% |
| 2028 | 7,463,325 | 8,031,806 | 15,495,131 | 8,110,530 | 7,489,939 | 15,600,469 | 8,992,4 | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONEMEOR - Pendleton



Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONEMEWA - Walla Walla

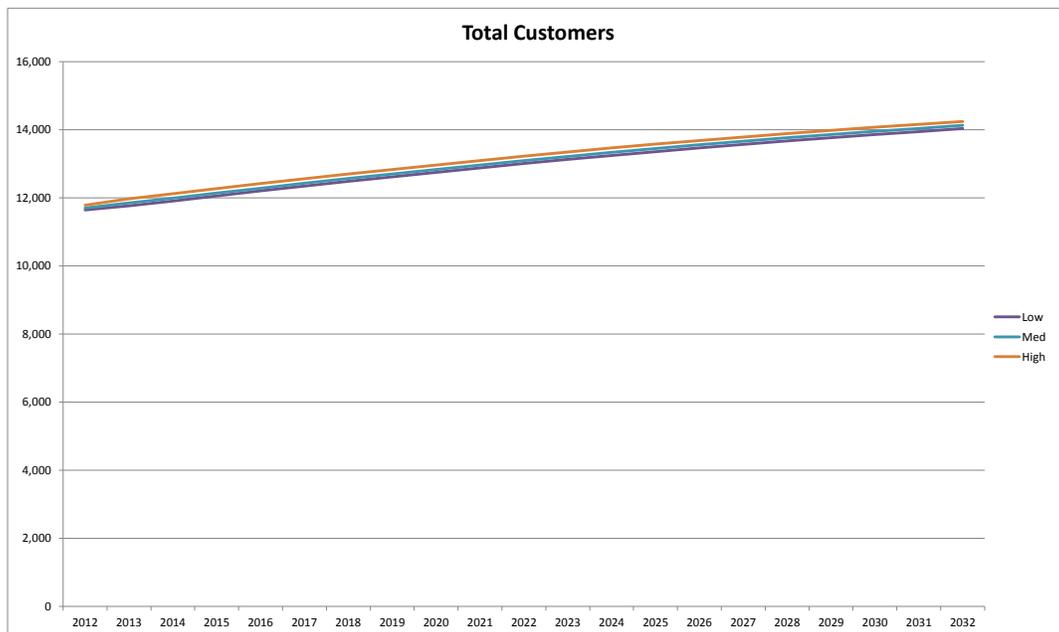
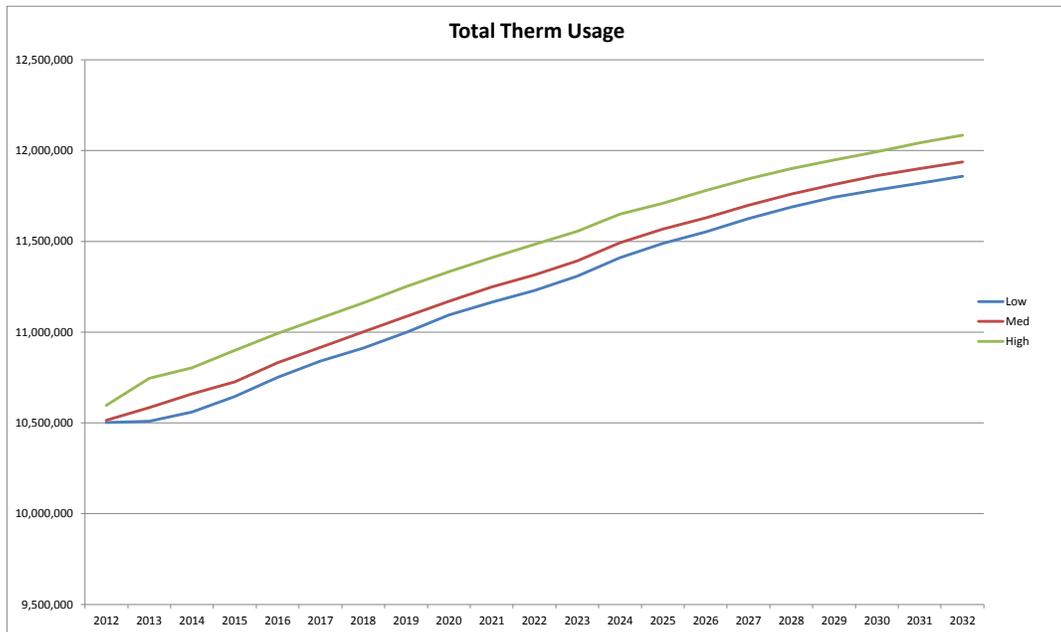
| | Annual Requirements (Therms) | | | | | | | | | Annual Change | | | | | | | | |
|------|------------------------------|-----------|------------|-----------|-----------|------------|-----------|-----------|------------|---------------|----------|-------|---------|----------|-------|---------|----------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total | Heating | Baseload | Total |
| 2012 | 7,863,767 | 2,637,749 | 10,501,516 | 7,873,618 | 2,641,054 | 10,514,672 | 7,935,536 | 2,661,823 | 10,597,359 | 4.91% | 4.91% | 4.91% | 5.86% | 5.86% | 5.86% | 7.38% | 7.38% | 7.38% |
| 2013 | 7,869,398 | 2,639,638 | 10,509,036 | 7,926,449 | 2,658,775 | 10,585,224 | 8,046,272 | 2,698,967 | 10,745,239 | 0.07% | 0.07% | 0.07% | 0.67% | 0.67% | 0.67% | 1.40% | 1.40% | 1.40% |
| 2014 | 7,907,749 | 2,652,502 | 10,560,251 | 7,982,417 | 2,677,548 | 10,659,965 | 8,090,380 | 2,713,762 | 10,804,142 | 0.49% | 0.49% | 0.49% | 0.71% | 0.71% | 0.71% | 0.55% | 0.55% | 0.55% |
| 2015 | 7,972,275 | 2,674,146 | 10,646,421 | 8,032,272 | 2,694,271 | 10,726,543 | 8,162,426 | 2,737,928 | 10,900,354 | 0.82% | 0.82% | 0.82% | 0.62% | 0.62% | 0.62% | 0.89% | 0.89% | 0.89% |
| 2016 | 8,051,034 | 2,700,564 | 10,751,598 | 8,110,479 | 2,720,504 | 10,830,984 | 8,231,164 | 2,760,986 | 10,992,150 | 0.99% | 0.99% | 0.99% | 0.97% | 0.97% | 0.97% | 0.84% | 0.84% | 0.84% |
| 2017 | 8,117,077 | 2,722,717 | 10,839,794 | 8,174,449 | 2,741,962 | 10,916,411 | 8,295,035 | 2,782,410 | 11,077,445 | 0.82% | 0.82% | 0.82% | 0.79% | 0.79% | 0.79% | 0.78% | 0.78% | 0.78% |
| 2018 | 8,171,568 | 2,740,995 | 10,912,563 | 8,237,852 | 2,763,229 | 11,001,080 | 8,357,114 | 2,803,233 | 11,160,347 | 0.67% | 0.67% | 0.67% | 0.78% | 0.78% | 0.78% | 0.75% | 0.75% | 0.75% |
| 2019 | 8,235,363 | 2,762,394 | 10,997,756 | 8,301,706 | 2,784,648 | 11,086,354 | 8,424,864 | 2,825,598 | 11,250,462 | 0.78% | 0.78% | 0.78% | 0.78% | 0.78% | 0.78% | 0.81% | 0.81% | 0.81% |
| 2020 | 8,308,366 | 2,786,881 | 11,095,248 | 8,364,817 | 2,805,817 | 11,170,634 | 8,485,723 | 2,846,372 | 11,332,095 | 0.89% | 0.89% | 0.89% | 0.76% | 0.76% | 0.76% | 0.72% | 0.72% | 0.72% |
| 2021 | 8,360,110 | 2,804,238 | 11,164,348 | 8,423,423 | 2,825,475 | 11,248,898 | 8,544,354 | 2,866,039 | 11,410,393 | 0.62% | 0.62% | 0.62% | 0.70% | 0.70% | 0.70% | 0.69% | 0.69% | 0.69% |
| 2022 | 8,409,267 | 2,820,727 | 11,229,993 | 8,472,915 | 2,842,076 | 11,314,991 | 8,599,034 | 2,884,381 | 11,483,415 | 0.59% | 0.59% | 0.59% | 0.59% | 0.59% | 0.59% | 0.64% | 0.64% | 0.64% |
| 2023 | 8,468,289 | 2,840,524 | 11,308,813 | 8,531,405 | 2,861,695 | 11,393,100 | 8,652,822 | 2,902,422 | 11,555,244 | 0.70% | 0.70% | 0.70% | 0.69% | 0.69% | 0.69% | 0.63% | 0.63% | 0.63% |
| 2024 | 8,544,013 | 2,865,225 | 11,409,238 | 8,605,114 | 2,886,420 | 11,491,533 | 8,724,036 | 2,926,310 | 11,650,346 | 0.89% | 0.89% | 0.89% | 0.86% | 0.86% | 0.86% | 0.82% | 0.82% | 0.82% |
| 2025 | 8,603,364 | 2,885,833 | 11,489,197 | 8,661,469 | 2,905,323 | 11,566,791 | 8,768,737 | 2,941,304 | 11,710,040 | 0.69% | 0.69% | 0.69% | 0.65% | 0.65% | 0.65% | 0.51% | 0.51% | 0.51% |
| 2026 | 8,650,856 | 2,901,763 | 11,552,619 | 8,708,057 | 2,920,950 | 11,629,006 | 8,821,307 | 2,958,938 | 11,780,244 | 0.55% | 0.55% | 0.55% | 0.54% | 0.54% | 0.54% | 0.60% | 0.60% | 0.60% |
| 2027 | 8,705,824 | 2,920,201 | 11,626,025 | 8,761,015 | 2,938,714 | 11,699,728 | 8,869,664 | 2,975,158 | 11,844,822 | 0.64% | 0.64% | 0.64% | 0.61% | 0.61% | 0.61% | 0.55% | 0.55% | 0.55% |
| 2028 | 8,752,854 | 2,935,976 | 11,688,830 | 8,806,491 | 2,953,968 | 11,760,459 | 8,911,453 | 2,989,175 | 11,900,629 | 0.54% | 0.54% | 0.54% | 0.52% | 0.52% | 0.52% | 0.47% | 0.47% | 0.47% |
| 2029 | 8,793,598 | 2,949,643 | 11,743,241 | 8,845,400 | 2,967,019 | 11,812,419 | 8,946,260 | 3,000,851 | 11,947,111 | 0.47% | 0.47% | 0.47% | 0.44% | 0.44% | 0.44% | 0.39% | 0.39% | 0.39% |
| 2030 | 8,823,269 | 2,959,596 | 11,782,864 | 8,882,912 | 2,979,602 | 11,862,513 | 8,980,757 | 3,012,422 | 11,993,179 | 0.34% | 0.34% | 0.34% | 0.42% | 0.42% | 0.42% | 0.39% | 0.39% | 0.39% |
| 2031 | 8,850,878 | 2,968,857 | 11,819,734 | 8,910,787 | 2,988,952 | 11,899,739 | 9,017,967 | 3,024,903 | 12,042,871 | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.31% | 0.41% | 0.41% | 0.41% |
| 2032 | 8,880,534 | 2,978,804 | 11,859,338 | 8,938,578 | 2,998,274 | 11,936,852 | 9,049,766 | 3,035,570 | 12,085,336 | 0.34% | 0.34% | 0.34% | 0.31% | 0.31% | 0.31% | 0.35% | 0.35% | 0.35% |

| | Peak Day - Baseload | | | | | | | | | Annual Change | | | | | | | | |
|------|---------------------|---------|-----------------|----------------|---------|-----------------|----------------|---------|-----------------|---------------|--------|--------|--------|-------|-------|-------|-------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Daily Baseload | Peak | Total Core Peak | Base | Peak | Total | Base | Peak | Total | Base | Peak | Total |
| 2012 | 7,227 | 150,612 | 157,839 | 7,236 | 151,325 | 158,561 | 7,293 | 152,375 | 159,667 | 4.91% | -0.36% | -0.13% | 5.86% | 0.08% | 0.33% | 7.38% | 0.74% | 1.03% |
| 2013 | 7,232 | 152,199 | 159,430 | 7,284 | 153,242 | 160,527 | 7,394 | 154,846 | 162,240 | 0.07% | 1.05% | 1.01% | 0.67% | 1.27% | 1.24% | 1.40% | 1.62% | 1.61% |
| 2014 | 7,267 | 154,142 | 161,409 | 7,336 | 155,128 | 162,463 | 7,435 | 156,793 | 164,228 | 0.49% | 1.28% | 1.24% | 0.71% | 1.23% | 1.21% | 0.55% | 1.26% | 1.23% |
| 2015 | 7,326 | 156,061 | 163,387 | 7,382 | 157,085 | 164,467 | 7,501 | 158,768 | 166,269 | 0.82% | 1.24% | 1.23% | 0.62% | 1.26% | 1.23% | 0.89% | 1.26% | 1.24% |
| 2016 | 7,399 | 157,952 | 165,351 | 7,453 | 158,990 | 166,443 | 7,564 | 160,692 | 168,256 | 0.99% | 1.21% | 1.20% | 0.97% | 1.21% | 1.20% | 0.84% | 1.21% | 1.20% |
| 2017 | 7,459 | 159,812 | 167,272 | 7,512 | 160,877 | 168,389 | 7,623 | 162,576 | 170,199 | 0.82% | 1.18% | 1.16% | 0.79% | 1.19% | 1.17% | 0.78% | 1.17% | 1.15% |
| 2018 | 7,510 | 161,641 | 169,151 | 7,570 | 162,710 | 170,281 | 7,680 | 164,407 | 172,087 | 0.67% | 1.14% | 1.12% | 0.78% | 1.14% | 1.12% | 0.75% | 1.13% | 1.11% |
| 2019 | 7,568 | 163,419 | 170,987 | 7,629 | 164,499 | 172,128 | 7,742 | 166,162 | 173,904 | 0.78% | 1.10% | 1.09% | 0.78% | 1.10% | 1.09% | 0.81% | 1.07% | 1.06% |
| 2020 | 7,635 | 165,132 | 172,768 | 7,687 | 166,234 | 173,921 | 7,798 | 167,895 | 175,694 | 0.89% | 1.05% | 1.04% | 0.76% | 1.05% | 1.04% | 0.72% | 1.04% | 1.03% |
| 2021 | 7,683 | 166,837 | 174,520 | 7,741 | 167,945 | 175,686 | 7,852 | 169,630 | 177,482 | 0.62% | 1.03% | 1.01% | 0.70% | 1.03% | 1.01% | 0.69% | 1.03% | 1.02% |
| 2022 | 7,728 | 168,502 | 176,230 | 7,787 | 169,636 | 177,422 | 7,902 | 171,313 | 179,215 | 0.59% | 1.00% | 0.98% | 0.59% | 1.01% | 0.99% | 0.93% | 0.98% | 0.98% |
| 2023 | 7,782 | 170,116 | 177,898 | 7,840 | 171,262 | 179,102 | 7,952 | 172,927 | 180,788 | 0.70% | 0.96% | 0.95% | 0.69% | 0.96% | 0.95% | 0.63% | 0.94% | 0.93% |
| 2024 | 7,852 | 171,658 | 179,510 | 7,908 | 172,912 | 180,699 | 8,017 | 174,511 | 182,444 | 0.89% | 0.91% | 0.91% | 0.89% | 0.89% | 0.89% | 0.82% | 0.87% | 0.87% |
| 2025 | 7,906 | 173,133 | 181,040 | 7,960 | 174,294 | 182,254 | 8,058 | 175,911 | 183,969 | 0.69% | 0.86% | 0.85% | 0.65% | 0.87% | 0.86% | 0.51% | 0.85% | 0.84% |
| 2026 | 7,950 | 174,577 | 182,527 | 8,003 | 175,737 | 183,740 | 8,107 | 177,331 | 185,369 | 0.55% | 0.83% | 0.82% | 0.54% | 0.83% | 0.81% | 0.60% | 0.81% | 0.80% |
| 2027 | 8,001 | 175,943 | 183,944 | 8,051 | 177,104 | 185,155 | 8,151 | 178,671 | 186,822 | 0.64% | 0.78% | 0.78% | 0.61% | 0.78% | 0.77% | 0.55% | 0.76% | 0.75% |
| 2028 | 8,044 | 177,262 | 185,305 | 8,093 | 178,436 | 186,529 | 8,190 | 180,004 | 188,194 | 0.54% | 0.75% | 0.74% | 0.52% | 0.75% | 0.74% | 0.47% | 0.75% | 0.73% |
| 2029 | 8,081 | 178,531 | 186,612 | 8,129 | 179,719 | 187,848 | 8,222 | 181,274 | 189,496 | 0.47% | 0.72% | 0.70% | 0.44% | 0.72% | 0.71% | 0.39% | 0.71% | 0.69% |
| 2030 | 8,108 | 179,739 | 187,848 | 8,163 | 180,933 | 189,096 | 8,253 | 182,487 | 190,740 | 0.34% | 0.68% | 0.66% | 0.42% | 0.68% | 0.66% | 0.39% | 0.67% | 0.66% |
| 2031 | 8,134 | 180,866 | 189,000 | 8,189 | 182,045 | 190,234 | 8,287 | 183,564 | 191,852 | 0.31% | 0.63% | 0.61% | 0.31% | 0.61% | 0.60% | 0.41% | 0.59% | 0.58% |
| 2032 | 8,161 | 182,060 | 190,222 | 8,214 | 183,240 | 191,455 | 8,317 | 184,739 | 193,056 | 0.34% | 0.66% | 0.65% | 0.31% | 0.66% | 0.64% | 0.35% | 0.64% | 0.63% |

| | Therm Usage by Class | | | | | | | | | Annual Change | | | | | | | | |
|------|----------------------|-----------|------------|-----------|-----------|------------|-----------|-----------|------------|---------------|---------|-------|--------|---------|-------|-------|---------|-------|
| | Low | | | Medium | | | High | | | Low | | | Medium | | | High | | |
| | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total | RES | COM/IND | Total |
| 2012 | 6,277,976 | 4,223,540 | 10,501,516 | 6,370,230 | 4,144,442 | 10,514,672 | 6,459,280 | 4,138,079 | 10,597,359 | 3.84% | 6.56% | 4.91% | 5.36% | 6.63% | 5.86% | 7.95% | 6.49% | 7.38% |
| 2013 | 6,251,070 | 4,257,966 | 10,509,036 | 6,401,505 | 4,183,719 | 10,585,224 | 6,570,414 | 4,174,825 | 10,745,239 | -0.43% | 0.82% | 0.07% | 0.49% | 0.95% | 0.67% | 1.72% | 0.89% | 1.40% |
| 2014 | 6,270,494 | 4,289,575 | 10,560,251 | 6,440,917 | 4,219,049 | 10,659,965 | 6,601,560 | 4,202,582 | 10,804,142 | 0.31% | 0.75% | 0.49% | 0.62% | 0.84% | 0.71% | 0.47% | 0.66% | 0.55% |
| 2015 | 6,331,382 | 4,315,039 | 10,646,421 | 6,482,226 | 4,244,317 | 10,726,543 | 6,677,644 | 4,222,690 | 10,900,354 | 0.97% | 0.59% | 0.82% | 0.64% | 0.60% | 0.62% | 1.15% | 0.88% | 0.89% |
| 2016 | 6,423,900 | 4,327,698 | 10,751,598 | 6,576,206 | 4,254,778 | 10,830,984 | 6,762,176 | 4,229,974 | 10,992,150 | 1.46% | 0.29% | 0.99% | 1.45% | 0.25% | 0.97% | 1.27% | 0.17% | 0.84% |
| 2017 | 6,503,868 | 4,335,926 | 10,839,794 | 6,658,132 | 4,258,279 | 11,016,411 | 6,844,864 | 4,232,581 | 11,077,445 | 1.24% | 0.19% | 0.82% | 1.25% | 0.08% | 0.79% | 1.22% | 0.06% | 0.78% |
| 2018 | 6,559,684 | 4,352,789 | 10,912,563 | 6,726,399 | 4,274,681 | 11,001,080 | 6,913,730 | 4,246,617 | 11,160,347 | 0.86% | 0.39% | 0.67% | 1.03% | 0.39% | 0.78% | 1.01% | 0.33% | 0.75% |
| 2019 | 6,624,540 | 4,373,216 | 10,997,756 | 6,792,612 | 4,293,742 | 11,086,354 | 7,090,819 | 4,260,003 | 11,250,462 | 0.97% | 0.78% | 0.98% | 0.45% | 0.78% | 1.12% | 0.32% | 0.81% | 0.81% |
| 2020 | 6,709,700 | 4,385,548 | 11,095,248 | 6,867,708 | 4,302,926 | 11,170,634 | 7,166,694 | 4,265,401 | 11,332,095 | 1.29% | 0.28% | 0.89% | 1.11% | 0.21% | 0.76% | 1.09% | 0.13% | 0.72% |
| 2021 | 6,770,790 | 4,393,558 | 11,164,348 | 6,941,612 | 4,307,286 | 11,248,898 | 7,142,559 | 4,267,824 | 11,410,393 | 0.91% | 0.18% | 0.62% | 1.08% | 0.10% | 0.70% | 1.07% | 0.06% | 0.69% |
| 2022 | 6,818,185 | 4,411,808 | 11,229,993 | 6,990,786 | 4,324,205 | 11,314, | | | | | | | | | | | | |

Cascade Natural Gas
2012 IRP Demand Forecast Summary Tables

ZONEMEWA - Walla Walla



Appendix B-2
Demand Forecast Model
Results & Summary
Tables

A Note on Low, Medium & High Scenarios

Included in the following pages are tables and charts illustrating Cascade's best guess estimate of future therm demand under low, medium and high scenarios. To form these scenarios, the underlying economic variables (employment, income and number of households) that form the basis for Cascade's forecasts are modified based on economic patterns from the past three decades. Simply put, a medium forecast is created then these base economic variables are decreased or increased and the regressions re-run to create low and high scenarios, respectively. Further details about how these scenarios are created can be found in the text of this IRP under the chapter entitled "Demand Forecast."

A somewhat counter-intuitive result of this method of constructing the low and high scenarios is that Cascade's customers' estimated requirements under the high scenario, which represents good economic conditions, can be *lower* than estimated requirements under the medium scenario (see the charts for Aberdeen, Baker and Yakima). What the high scenario represents under this methodology is a historically-based representation of the load during good economic times. Under certain circumstances high economic growth can lead to lower or negative demand growth among certain classes of customers. The non-linear appearance of forecasted load is primarily a result of the response of industrial customers to robust growth in the underlying economic indicators.

There are several hypotheses that can be used to explain this phenomenon. First, high exogenous income growth may have a negative effect on industrial output. As labor becomes more expensive, factories can become victim to decreased competitiveness and may scale back production as a response. Alternatively, high endogenous income growth can result from increased production on the part of industrial customers who may be able to save money by taking their increased gas demand to non-core rate schedules.

The pattern of divergence between scenarios across Cascade's districts is illustrative of the structural diversity of the regional economies within Cascade's geographically disparate service territory. While we do not know the true cause of decreased demand that can occur under a strong economy in some districts, the projections published here are based on the relationship between Cascade's historic load and the economics that produced these loads and are Cascade's best estimate of future load.

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|--------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Core Thems | 37,335,433 | 39,086,212 | 42,503,689 | 42,858,912 | 43,621,044 | 44,452,406 | 45,366,211 | 46,230,565 | 47,068,721 | 47,948,584 | 48,851,581 | 49,718,685 | 50,571,112 |
| Daily Baseload Thems | 36,575 | 38,290 | 41,638 | 41,986 | 42,733 | 43,547 | 44,442 | 45,289 | 46,110 | 46,972 | 47,857 | 48,706 | 49,541 |
| Peak Day Thems | 488,053 | 492,233 | 497,858 | 503,544 | 515,346 | 527,290 | 539,300 | 551,591 | 563,971 | 576,492 | 589,152 | 601,980 | 614,959 |
| Thems Per Residential Customer | 626 | 626 | 710 | 708 | 706 | 704 | 703 | 702 | 700 | 698 | 696 | 694 | 692 |
| Thems Per Commercial Customer | 2,977 | 3,232 | 3,211 | 3,193 | 3,183 | 3,183 | 3,188 | 3,182 | 3,176 | 3,175 | 3,176 | 3,169 | 3,158 |
| Thems Per Industrial Customer | 13,987 | 18,032 | 17,882 | 17,785 | 17,703 | 17,724 | 17,778 | 17,759 | 17,721 | 17,737 | 17,769 | 17,787 | 17,878 |
| Residential Customers | 35,623 | 35,938 | 36,298 | 36,661 | 37,027 | 37,393 | 37,760 | 38,127 | 38,494 | 38,861 | 39,228 | 39,595 | 40,000 |
| Commercial Customers | 4,581 | 4,617 | 4,727 | 4,838 | 4,951 | 5,066 | 5,182 | 5,299 | 5,417 | 5,537 | 5,658 | 5,781 | 5,905 |
| Industrial Customers | 91 | 85 | 70 | 75 | 70 | 66 | 62 | 58 | 55 | 52 | 49 | 47 | 44 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 40,297 | 40,642 | 41,107 | 41,576 | 42,551 | 43,537 | 44,536 | 45,543 | 46,565 | 47,599 | 48,644 | 49,704 | 50,775 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Sunnyside | | | | | | | | | | | | | |
| Total Thems Pct. Growth | | 0.07% | 3.58% | -0.48% | -0.35% | -0.05% | 0.22% | 0.18% | -0.02% | -0.02% | 0.18% | 0.08% | -0.06% |
| Residential Thems | 2,850,529 | 2,854,316 | 3,198,794 | 3,178,370 | 3,162,469 | 3,163,032 | 3,183,817 | 3,210,056 | 3,220,188 | 3,224,305 | 3,244,695 | 3,265,149 | 3,274,134 |
| Commercial Thems | 4,485,425 | 4,594,782 | 4,611,801 | 4,629,665 | 4,645,392 | 4,660,434 | 4,674,734 | 4,688,253 | 4,701,019 | 4,713,165 | 4,724,759 | 4,734,467 | 4,745,099 |
| Industrial Thems | 1,363,824 | 1,256,690 | 1,209,658 | 1,169,047 | 1,137,363 | 1,117,660 | 1,102,725 | 1,079,149 | 1,054,237 | 1,036,425 | 1,021,097 | 998,522 | 973,864 |
| Ind., Inst., & Cncl. Interup. Thems | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 |
| Total Core Thems | 8,777,138 | 8,783,148 | 9,097,683 | 9,054,242 | 9,022,585 | 9,016,486 | 9,038,636 | 9,054,817 | 9,052,804 | 9,051,255 | 9,067,911 | 9,075,498 | 9,070,456 |
| Daily Baseload Thems | 6,150 | 6,154 | 6,374 | 6,344 | 6,322 | 6,319 | 6,333 | 6,344 | 6,345 | 6,342 | 6,353 | 6,359 | 6,355 |
| Peak Day Thems | 98,021 | 98,107 | 98,401 | 98,401 | 99,181 | 99,535 | 99,957 | 100,175 | 100,492 | 100,791 | 101,088 | 101,383 | 101,683 |
| Thems Per Residential Customer | 541 | 541 | 604 | 598 | 593 | 592 | 591 | 590 | 589 | 588 | 587 | 586 | 585 |
| Thems Per Commercial Customer | 3,325 | 3,408 | 3,405 | 3,403 | 3,400 | 3,397 | 3,394 | 3,391 | 3,388 | 3,385 | 3,382 | 3,378 | 3,375 |
| Thems Per Industrial Customer | 24,413 | 26,419 | 25,708 | 25,279 | 24,924 | 24,807 | 24,777 | 24,533 | 24,237 | 24,086 | 23,978 | 23,685 | 23,328 |
| Residential Customers | 5,269 | 5,276 | 5,296 | 5,315 | 5,333 | 5,352 | 5,369 | 5,386 | 5,403 | 5,419 | 5,435 | 5,451 | 5,466 |
| Commercial Customers | 1,349 | 1,348 | 1,354 | 1,360 | 1,366 | 1,372 | 1,377 | 1,383 | 1,388 | 1,392 | 1,397 | 1,402 | 1,406 |
| Industrial Customers | 48 | 48 | 47 | 46 | 46 | 45 | 45 | 44 | 43 | 43 | 43 | 42 | 42 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 6,668 | 6,674 | 6,699 | 6,724 | 6,747 | 6,771 | 6,793 | 6,815 | 6,836 | 6,856 | 6,877 | 6,897 | 6,916 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------------------------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Walla Walla | | | | | | | | | | | | | |
| Total Thems Pct. Growth | | 5.86% | 0.67% | 0.71% | 0.62% | 0.97% | 0.79% | 0.78% | 0.78% | 0.76% | 0.70% | 0.59% | 0.69% |
| Residential Thems | 6,045,886 | 6,370,230 | 6,401,505 | 6,440,917 | 6,482,226 | 6,576,206 | 6,658,132 | 6,726,399 | 6,792,612 | 6,867,708 | 6,941,612 | 6,990,796 | 7,046,991 |
| Commercial Thems | 3,816,638 | 4,029,094 | 4,086,813 | 4,099,808 | 4,125,940 | 4,140,655 | 4,149,354 | 4,168,096 | 4,188,774 | 4,201,426 | 4,209,651 | 4,228,162 | 4,246,811 |
| Industrial Thems | 70,074 | 115,447 | 117,905 | 119,239 | 118,736 | 114,121 | 108,924 | 106,585 | 104,967 | 101,499 | 97,634 | 96,042 | 95,297 |
| Ind., Inst., & Cncl. Interup. Thems | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Thems | 9,932,599 | 10,514,672 | 10,586,224 | 10,659,966 | 10,726,543 | 10,830,984 | 10,916,411 | 11,001,080 | 11,086,354 | 11,170,634 | 11,248,988 | 11,314,991 | 11,393,100 |
| Daily Baseload Thems | 6,835 | 7,236 | 7,294 | 7,336 | 7,382 | 7,453 | 7,512 | 7,570 | 7,629 | 7,687 | 7,741 | 7,787 | 7,840 |
| Peak Day Thems | 158,044 | 158,561 | 160,527 | 162,463 | 164,467 | 166,443 | 168,389 | 170,281 | 172,128 | 173,921 | 175,686 | 177,422 | 179,102 |
| Thems Per Residential Customer | 581 | 610 | 605 | 601 | 597 | 598 | 598 | 597 | 596 | 596 | 596 | 594 | 593 |
| Thems Per Commercial Customer | 3,046 | 3,212 | 3,223 | 3,232 | 3,235 | 3,229 | 3,219 | 3,217 | 3,217 | 3,211 | 3,202 | 3,201 | 3,202 |
| Thems Per Industrial Customer | 23,358 | 41,069 | 43,141 | 44,819 | 45,677 | 45,231 | 44,288 | 44,466 | 44,905 | 44,586 | 43,914 | 44,285 | 45,034 |
| Residential Customers | 10,406 | 10,443 | 10,581 | 10,717 | 10,858 | 10,997 | 11,134 | 11,267 | 11,397 | 11,523 | 11,647 | 11,769 | 11,887 |
| Commercial Customers | 1,253 | 1,254 | 1,261 | 1,269 | 1,275 | 1,282 | 1,289 | 1,296 | 1,302 | 1,308 | 1,315 | 1,321 | 1,327 |
| Industrial Customers | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 11,663 | 11,701 | 11,846 | 11,899 | 12,137 | 12,283 | 12,426 | 12,566 | 12,702 | 12,835 | 12,965 | 13,093 | 13,217 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Wenatchee | | | | | | | | | | | | | |
| Total Thems Pct. Growth | | -1.82% | 2.35% | -0.69% | -0.89% | -1.11% | -1.13% | -0.83% | -0.92% | -1.14% | -1.15% | -0.87% | -0.92% |
| Residential Thems | 661,635 | 664,680 | 814,810 | 804,945 | 796,176 | 793,022 | 796,076 | 802,270 | 800,609 | 798,910 | 800,352 | 804,465 | 802,196 |
| Commercial Thems | 3,526,400 | 3,791,105 | 3,748,332 | 3,701,479 | 3,648,835 | 3,588,813 | 3,525,704 | 3,468,075 | 3,411,697 | 3,349,805 | 3,286,910 | 3,229,004 | 3,172,251 |
| Industrial Thems | 1,272,440 | 903,808 | 924,701 | 942,514 | 954,383 | 956,655 | 955,351 | 962,310 | 974,443 | 974,591 | 975,752 | 984,681 | 996,625 |
| Ind., Inst., & Cncl. Interup. Thems | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 |
| Total Core Thems | 5,556,191 | 5,455,309 | 5,583,559 | 5,544,654 | 5,495,111 | 5,434,206 | 5,372,931 | 5,328,371 | 5,279,464 | 5,219,022 | 5,158,739 | 5,113,865 | 5,068,788 |
| Daily Baseload Thems | 4,968 | 4,878 | 4,992 | 4,958 | 4,913 | 4,859 | 4,804 | 4,764 | 4,720 | 4,666 | 4,612 | 4,572 | 4,530 |
| Peak Day Thems | 59,196 | 59,364 | 59,558 | 59,731 | 59,883 | 60,014 | 60,147 | 60,285 | 60,425 | 60,568 | 60,713 | 60,835 | 60,959 |
| Thems Per Residential Customer | 435 | 435 | 530 | 521 | 513 | 509 | 509 | 511 | 508 | 505 | 504 | 505 | 502 |
| Thems Per Commercial Customer | 4,640 | 4,988 | 4,941 | 4,887 | 4,824 | 4,750 | 4,671 | 4,598 | 4,526 | 4,446 | 4,364 | 4,288 | 4,213 |
| Thems Per Industrial Customer | 63,622 | 46,313 | 47,501 | 48,557 | 49,328 | 49,631 | 49,761 | 50,351 | 51,073 | 51,498 | 51,833 | 52,599 | 53,543 |
| Residential Customers | 11,521 | 11,529 | 1,537 | 1,545 | 1,552 | 1,559 | 1,564 | 1,570 | 1,576 | 1,582 | 1,588 | 1,593 | 1,598 |
| Commercial Customers | 760 | 760 | 759 | 757 | 756 | 756 | 755 | 754 | 754 | 753 | 753 | 753 | 753 |
| Industrial Customers | 20 | 20 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 2,303 | 2,310 | 2,317 | 2,324 | 2,330 | 2,335 | 2,340 | 2,345 | 2,351 | 2,356 | 2,362 | 2,367 | 2,372 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Yakima | | | | | | | | | | | | | |
| Total Thems Pct. Growth | | 2.89% | -0.83% | -0.02% | -0.58% | 0.63% | 0.81% | 0.21% | 0.09% | 0.55% | 0.63% | 0.02% | -0.08% |
| Residential Thems | 11,555,289 | 11,456,478 | 11,453,652 | 11,467,027 | 11,535,174 | 11,640,335 | 11,743,172 | 11,802,336 | 11,858,504 | 11,953,132 | 12,045,452 | 12,073,516 | 12,120,108 |
| Commercial Thems | 11,851,113 | 13,014,424 | 12,886,204 | 12,799,615 | 12,790,133 | 12,893,821 | 13,042,230 | 13,087,869 | 13,106,922 | 13,199,244 | 13,312,417 | 13,335,249 | 13,316,886 |
| Industrial Thems | 2,841,993 | 2,540,233 | 2,446,140 | 2,364,258 | 2,299,857 | 2,258,712 | 2,226,974 | 2,178,2 | | | | | |

| | | | | | | | | | | | | | |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Commercial Customers | 6,226 | 6,351 | 6,516 | 6,683 | 6,851 | 7,022 | 7,194 | 7,369 | 7,545 | 7,723 | 7,904 | 8,086 | 8,271 |
| Industrial Customers | 55 | 53 | 51 | 48 | 46 | 45 | 43 | 42 | 40 | 39 | 38 | 37 | 36 |
| Interruptible Customers | 1 | | | | | | | | | | | | |
| Total Core Customers | 43,648 | 44,422 | 44,665 | 44,911 | 45,774 | 46,651 | 47,541 | 48,445 | 49,363 | 50,297 | 51,245 | 52,205 | 53,187 |

Ontario

| | | | | | | | | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | 15.21% | 2.23% | -1.90% | -1.25% | -0.03% | 0.38% | -0.35% | -0.49% | 0.01% | 0.28% | -0.33% | -0.71% |
| Residential Therms | 1,894,038 | 1,904,051 | 2,122,167 | 2,102,490 | 2,084,628 | 2,077,452 | 2,073,286 | 2,075,136 | 2,074,442 | 2,069,568 | 2,067,700 | 2,071,150 | 2,070,418 |
| Commercial Therms | 2,301,150 | 2,727,565 | 2,644,072 | 2,562,231 | 2,551,788 | 2,572,113 | 2,609,112 | 2,604,993 | 2,597,636 | 2,618,029 | 2,648,552 | 2,643,917 | 2,624,832 |
| Industrial Therms | 286,620 | 531,684 | 512,415 | 493,654 | 477,228 | 462,604 | 449,258 | 433,608 | 416,851 | 402,064 | 387,908 | 372,058 | 355,812 |
| Ind., Inst., & Cncl. Interrup. Therms | | | | | | | | | | | | | |
| Total Core Therms | 4,481,808 | 5,163,299 | 5,278,654 | 5,178,376 | 5,113,644 | 5,112,169 | 5,131,656 | 5,113,737 | 5,088,929 | 5,088,661 | 5,104,160 | 5,087,124 | 5,051,062 |
| Daily Baseload Therms | 3,323 | 3,836 | 3,521 | 3,847 | 3,798 | 3,798 | 3,812 | 3,799 | 3,781 | 3,781 | 3,792 | 3,779 | 3,752 |
| Peak Day Therms | 30,432 | 30,665 | 30,590 | 30,521 | 30,471 | 30,476 | 30,470 | 30,447 | 30,493 | 30,529 | 30,559 | 30,612 | 30,660 |
| Therms Per Residential Customer | 527 | 527 | 589 | 585 | 581 | 579 | 578 | 579 | 578 | 576 | 575 | 575 | 574 |
| Therms Per Commercial Customer | 2,645 | 3,081 | 2,991 | 2,925 | 2,895 | 2,916 | 2,958 | 2,955 | 2,941 | 2,960 | 2,990 | 2,979 | 2,961 |
| Therms Per Industrial Customer | 28,662 | 53,069 | 50,602 | 48,271 | 46,209 | 44,378 | 42,725 | 40,895 | 38,997 | 37,321 | 35,746 | 34,038 | 32,337 |
| Residential Customers | 3,594 | 3,613 | 3,603 | 3,594 | 3,588 | 3,588 | 3,587 | 3,584 | 3,589 | 3,593 | 3,596 | 3,602 | 3,607 |
| Commercial Customers | 870 | 885 | 884 | 883 | 881 | 882 | 882 | 882 | 883 | 884 | 885 | 888 | 889 |
| Industrial Customers | 10 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| Interruptible Customers | | | | | | | | | | | | | |
| Total Core Customers | 4,474 | 4,508 | 4,497 | 4,487 | 4,480 | 4,480 | 4,480 | 4,476 | 4,483 | 4,488 | 4,493 | 4,500 | 4,507 |

Pendleton

| | | | | | | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | 11.01% | 0.71% | 0.82% | 1.11% | 1.19% | 1.17% | 1.01% | 0.96% | 1.04% | 1.09% | 0.75% | 0.78% |
| Residential Therms | 5,580,432 | 6,104,801 | 6,191,028 | 6,296,103 | 6,437,200 | 6,586,720 | 6,734,560 | 6,887,874 | 6,997,878 | 7,137,378 | 7,287,124 | 7,395,289 | 7,511,560 |
| Commercial Therms | 5,889,520 | 6,122,353 | 6,153,528 | 6,185,503 | 6,225,833 | 6,278,366 | 6,333,776 | 6,376,804 | 6,416,477 | 6,463,273 | 6,508,698 | 6,543,202 | 6,572,071 |
| Industrial Therms | 667,621 | 1,246,596 | 1,224,944 | 1,199,741 | 1,169,556 | 1,132,004 | 1,092,660 | 1,058,098 | 1,025,577 | 989,309 | 952,477 | 920,642 | 890,760 |
| Ind., Inst., & Cncl. Interrup. Therms | | | | | | | | | | | | | |
| Total Core Therms | 12,137,573 | 13,473,790 | 13,569,500 | 13,681,347 | 13,832,628 | 13,997,090 | 14,160,396 | 14,302,777 | 14,439,931 | 14,589,960 | 14,748,299 | 14,859,134 | 14,974,411 |
| Daily Baseload Therms | 12,478 | 13,852 | 13,951 | 14,066 | 14,221 | 14,390 | 14,704 | 14,858 | 15,000 | 15,145 | 15,276 | 15,376 | 15,395 |
| Peak Day Therms | 196,962 | 199,999 | 204,246 | 208,460 | 213,083 | 217,624 | 222,112 | 226,535 | 230,873 | 235,129 | 239,301 | 243,406 | 247,379 |
| Therms Per Residential Customer | 528 | 569 | 564 | 561 | 560 | 560 | 560 | 559 | 558 | 559 | 559 | 557 | 556 |
| Therms Per Commercial Customer | 3,236 | 3,307 | 3,289 | 3,272 | 3,260 | 3,255 | 3,252 | 3,243 | 3,233 | 3,227 | 3,221 | 3,210 | 3,197 |
| Therms Per Industrial Customer | 29,027 | 54,086 | 53,071 | 51,903 | 50,522 | 48,825 | 47,032 | 45,502 | 44,040 | 42,423 | 40,788 | 39,372 | 38,047 |
| Residential Customers | 10,569 | 10,729 | 10,977 | 11,223 | 11,495 | 11,762 | 12,026 | 12,286 | 12,541 | 12,791 | 13,036 | 13,277 | 13,510 |
| Commercial Customers | 1,820 | 1,851 | 1,871 | 1,890 | 1,910 | 1,929 | 1,948 | 1,966 | 1,985 | 2,003 | 2,021 | 2,038 | 2,056 |
| Industrial Customers | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Interruptible Customers | | | | | | | | | | | | | |
| Total Core Customers | 12,412 | 12,603 | 12,871 | 13,137 | 13,428 | 13,714 | 13,997 | 14,276 | 14,549 | 14,817 | 15,080 | 15,339 | 15,589 |

Washington

| | | | | | | | | | | | | | |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | | 7.24% | 2.81% | 0.73% | 1.39% | 1.82% | 1.96% | 1.64% | 1.57% | 1.76% | 1.75% | 1.49% | 1.40% |
| Residential Therms | 104,862,526 | 110,264,943 | 115,511,350 | 116,138,183 | 117,920,683 | 120,285,507 | 122,862,561 | 125,139,483 | 127,408,283 | 129,915,131 | 132,384,634 | 134,603,448 | 136,806,138 |
| Commercial Therms | 83,638,683 | 92,277,826 | 93,551,311 | 94,917,433 | 96,467,627 | 98,290,097 | 100,234,318 | 101,921,235 | 103,547,788 | 105,349,211 | 107,208,088 | 108,832,800 | 110,350,919 |
| Industrial Therms | 9,250,442 | 9,669,738 | 9,177,477 | 8,795,923 | 8,545,468 | 8,456,304 | 8,435,682 | 8,293,643 | 8,132,288 | 8,069,993 | 8,044,136 | 7,912,272 | 7,749,308 |
| Ind., Inst., & Cncl. Interrup. Therms | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 |
| Total Core Therms | 199,785,473 | 214,246,329 | 220,273,360 | 221,885,366 | 224,967,600 | 229,065,730 | 233,566,352 | 237,388,182 | 241,122,180 | 245,368,157 | 249,670,690 | 253,382,342 | 256,940,168 |
| Daily Baseload Therms | 182,798 | 196,810 | 202,499 | 204,048 | 206,995 | 210,888 | 215,153 | 218,790 | 222,396 | 226,422 | 230,508 | 234,965 | 237,491 |
| Peak Day Therms | 2,736,839 | 2,789,197 | 2,807,519 | 2,845,023 | 2,906,824 | 2,963,372 | 3,030,473 | 3,093,187 | 3,156,475 | 3,220,398 | 3,284,929 | 3,350,250 | 3,416,247 |
| Therms Per Residential Customer | 615 | 640 | 662 | 657 | 653 | 652 | 652 | 651 | 649 | 648 | 647 | 645 | 643 |
| Therms Per Commercial Customer | 3,394 | 3,687 | 3,663 | 3,642 | 3,624 | 3,624 | 3,614 | 3,602 | 3,596 | 3,592 | 3,589 | 3,579 | 3,565 |
| Therms Per Industrial Customer | 26,131 | 27,566 | 26,702 | 26,079 | 25,782 | 25,924 | 26,241 | 26,144 | 25,946 | 26,030 | 26,203 | 26,003 | 25,671 |
| Residential Customers | 170,540 | 172,372 | 174,570 | 176,765 | 180,611 | 184,495 | 188,414 | 192,368 | 196,360 | 200,390 | 204,457 | 208,574 | 212,732 |
| Commercial Customers | 24,642 | 25,026 | 25,542 | 26,064 | 26,591 | 27,123 | 27,659 | 28,201 | 28,745 | 29,294 | 29,848 | 30,408 | 30,972 |
| Industrial Customers | 354 | 351 | 344 | 337 | 331 | 326 | 321 | 317 | 313 | 310 | 307 | 304 | 302 |
| Interruptible Customers | 28 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Total Core Customers | 195,564 | 197,773 | 200,479 | 203,190 | 207,557 | 211,968 | 216,419 | 220,910 | 225,442 | 230,018 | 234,636 | 239,310 | 244,030 |

Oregon

| | | | | | | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | 8.91% | 0.46% | 0.05% | 0.81% | 1.85% | 1.99% | 1.57% | 1.48% | 1.87% | 1.97% | 1.49% | 1.44% |
| Residential Therms | 37,238,802 | 39,524,999 | 39,953,475 | 39,925,886 | 40,231,078 | 40,955,556 | 41,653,694 | 42,307,295 | 42,963,104 | 43,663,030 | 44,425,602 | 45,042,389 | 45,725,857 |
| Commercial Therms | 26,582,494 | 28,900,123 | 29,053,142 | 29,322,945 | 29,775,916 | 30,534,196 | 31,428,492 | 32,093,839 | 32,706,313 | 33,553,534 | 34,474,949 | 35,171,303 | 35,785,035 |
| Industrial Therms | 2,784,621 | 4,117,416 | 3,888,066 | 3,658,763 | 3,491,723 | 3,367,658 | 3,264,008 | 3,143,002 | 3,022,977 | 2,929,017 | 2,844,886 | 2,745,427 | 2,644,937 |
| Ind., Inst., & Cncl. Interrup. Therms | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 66,605,919 | 72,542,539 | 72,874,683 | 72,907,594 | 73,498,715 | 74,857,410 | 76,346,194 | 77,543,936 | 78,693,394 | 80,165,580 | 81,745,136 | 82,959,118 | 84,155,827 |
| Daily Baseload Therms | 57,832 | 63,011 | 63,298 | 63,638 | 63,891 | 65,066 | 66,349 | 67,387 | 68,383 | 69,651 | 71,010 | 72,055 | 73,088 |
| Peak Day Therms | 821,569 | 835,009 | 842,219 | 849,462 | 855,301 | 881,311 | 897,417 | 913,660 | 930,667 | 946,596 | 963,222 | 979,978 | 996,871 |
| Therms Per Residential Customer | 679 | 709 | 713 | 709 | 702 | 703 | 703 | 702 | 701 | 701 | 702 | 700 | 699 |
| Therms Per Commercial Customer | 2,825 | 3,013 | 2,971 | 2,942 | 2,932 | 2,950 | 2,980 | 2,988 | 2,990 | 3,012 | 3,040 | 3,046 | 3,045 |
| Therms Per Industrial Customer | 30,268 | 45,631 | 44,367 | 43,274 | 42,439 | 41,940 | 41,548 | 40,788 | 39,921 | 39,263 | 38,661 | 37,772 | 36,789 |
| Residential Customers | 54,883 | 55,719 | 56,018 | 56,318 | 57,283 | 58,263 | 59,249 | 60,245 | 61,257 | 62,278 | 63,305 | 64,343 | 65,391 |
| Commercial Customers | 9,411 | 9,592 | 9,779 | 9,967 | 10,157 | 10,351 | 10,545 | 10,741 | 10,940 | 11,140 | 11,342 | 11,547 | 11,754 |
| Industrial Customers | 92 | 90 | 87 | 85 | 82 | 80 | 79 | 77 | 76 | 75 | 74 | 73 | 72 |
| Interruptible Customers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 64,386 | 65,402 | 65,884 | 66,370 | 67,322 | 68,694 | 69,872 | 71,063 | 72,272 | 73,493</ | | | |

| | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Aberdeen | | | | | | | | | |
| Total Therms Pct. Growth | 0.45% | 0.53% | 0.48% | 0.43% | 0.44% | 0.50% | 0.44% | -0.03% | 0.39% |
| Residential Therms | 3,962,052 | 3,973,815 | 3,984,749 | 3,989,112 | 3,992,598 | 4,002,401 | 4,005,554 | 4,001,976 | 4,004,063 |
| Commercial Therms | 5,457,943 | 5,491,978 | 5,537,445 | 5,584,162 | 5,628,503 | 5,675,877 | 5,724,798 | 5,724,798 | 5,773,417 |
| Industrial Therms | 101,479 | 109,637 | 102,318 | 95,713 | 93,222 | 87,910 | 81,644 | 81,644 | 75,527 |
| Ind., Inst., & Cmcl. Interrup. Therms | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 |
| Total Core Therms | 10,280,773 | 10,314,729 | 10,353,811 | 10,400,286 | 10,453,621 | 10,505,486 | 10,551,294 | 10,547,716 | 10,592,306 |
| Daily BaseLoad Therms | 8,725 | 8,772 | 8,814 | 8,852 | 8,890 | 8,935 | 8,974 | 8,970 | 9,008 |
| Peak Day Therms | 87,199 | 87,700 | 88,199 | 88,696 | 89,129 | 89,607 | 90,072 | 90,439 | 90,890 |
| Therms Per Residential Customer | 701 | 699 | 697 | 694 | 691 | 689 | 686 | 682 | 679 |
| Therms Per Commercial Customer | 4,450 | 4,454 | 4,467 | 4,481 | 4,493 | 4,507 | 4,522 | 4,522 | 4,537 |
| Therms Per Industrial Customer | 7,159 | 7,692 | 7,128 | 6,617 | 6,390 | 5,967 | 5,484 | 5,484 | 5,019 |
| Residential Customers | 5,652 | 5,685 | 5,717 | 5,748 | 5,778 | 5,809 | 5,839 | 5,868 | 5,897 |
| Commercial Customers | 1,227 | 1,233 | 1,240 | 1,246 | 1,253 | 1,259 | 1,266 | 1,266 | 1,273 |
| Industrial Customers | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 6,896 | 6,935 | 6,974 | 7,012 | 7,048 | 7,086 | 7,123 | 7,152 | 7,188 |

| | | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bellingham | | | | | | | | | |
| Total Therms Pct. Growth | 2.26% | 2.80% | 1.57% | 1.65% | 1.87% | 1.60% | 1.32% | 1.06% | 2.34% |
| Residential Therms | 37,074,884 | 38,093,580 | 38,784,168 | 39,530,674 | 40,335,931 | 41,082,999 | 41,708,254 | 42,302,386 | 43,022,768 |
| Commercial Therms | 19,908,487 | 20,434,359 | 20,694,783 | 20,962,052 | 21,291,536 | 21,555,438 | 21,786,193 | 21,786,193 | 21,996,675 |
| Industrial Therms | 793,725 | 872,797 | 858,135 | 845,589 | 859,758 | 852,691 | 836,112 | 836,112 | 817,744 |
| Ind., Inst., & Cmcl. Interrup. Therms | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 |
| Total Core Therms | 57,946,520 | 59,570,161 | 60,506,510 | 61,507,739 | 62,656,649 | 63,660,551 | 64,499,894 | 65,184,116 | 66,006,611 |
| Daily BaseLoad Therms | 57,047 | 58,645 | 59,657 | 60,552 | 61,684 | 62,672 | 63,498 | 64,172 | 64,981 |
| Peak Day Therms | 907,005 | 926,181 | 945,044 | 964,674 | 983,977 | 1,003,312 | 1,022,712 | 1,040,517 | 1,060,310 |
| Therms Per Residential Customer | 682 | 686 | 684 | 683 | 683 | 682 | 679 | 677 | 674 |
| Therms Per Commercial Customer | 3,151 | 3,176 | 3,160 | 3,146 | 3,142 | 3,129 | 3,112 | 3,112 | 3,093 |
| Therms Per Industrial Customer | 21,572 | 23,782 | 23,424 | 23,134 | 23,558 | 23,394 | 22,961 | 22,961 | 22,472 |
| Residential Customers | 54,362 | 55,530 | 56,702 | 57,878 | 59,057 | 60,239 | 61,426 | 62,618 | 63,832 |
| Commercial Customers | 6,318 | 6,434 | 6,549 | 6,663 | 6,776 | 6,889 | 7,001 | 7,001 | 7,112 |
| Industrial Customers | 37 | 37 | 37 | 37 | 36 | 36 | 36 | 36 | 36 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 60,721 | 62,005 | 63,292 | 64,582 | 65,874 | 67,168 | 68,467 | 69,659 | 70,984 |

| | | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bremerton | | | | | | | | | |
| Total Therms Pct. Growth | 2.41% | 2.39% | 2.11% | 2.09% | 2.21% | 2.03% | 1.96% | 0.93% | 2.86% |
| Residential Therms | 23,748,184 | 24,276,700 | 24,672,603 | 25,071,462 | 25,546,353 | 25,952,338 | 26,324,808 | 26,736,650 | 27,116,397 |
| Commercial Therms | 14,932,951 | 15,345,775 | 15,796,509 | 16,255,645 | 16,707,415 | 17,171,686 | 17,653,922 | 17,653,922 | 18,137,127 |
| Industrial Therms | 164,405 | 159,774 | 159,484 | 159,007 | 159,007 | 156,336 | 155,812 | 155,812 | 155,311 |
| Ind., Inst., & Cmcl. Interrup. Therms | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 |
| Total Core Therms | 39,203,165 | 40,139,874 | 40,886,220 | 41,843,739 | 42,768,624 | 43,637,985 | 44,492,166 | 44,904,008 | 45,766,459 |
| Daily BaseLoad Therms | 44,183 | 45,238 | 46,192 | 47,159 | 48,201 | 49,181 | 50,144 | 50,608 | 51,580 |
| Peak Day Therms | 427,576 | 435,807 | 443,724 | 451,914 | 460,180 | 468,519 | 476,957 | 484,277 | 492,914 |
| Therms Per Residential Customer | 697 | 700 | 699 | 698 | 698 | 696 | 696 | 695 | 693 |
| Therms Per Commercial Customer | 4,020 | 4,022 | 4,033 | 4,045 | 4,054 | 4,065 | 4,079 | 4,079 | 4,092 |
| Therms Per Industrial Customer | 125,138 | 119,389 | 117,012 | 114,568 | 111,274 | 108,688 | 106,428 | 106,428 | 104,246 |
| Residential Customers | 34,072 | 34,681 | 35,297 | 35,919 | 36,547 | 37,181 | 37,823 | 38,470 | 39,129 |
| Commercial Customers | 3,715 | 3,815 | 3,917 | 4,019 | 4,121 | 4,224 | 4,328 | 4,328 | 4,432 |
| Industrial Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 37,791 | 38,501 | 39,218 | 39,942 | 40,673 | 41,410 | 42,155 | 42,802 | 43,566 |

| | | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Kennewick | | | | | | | | | |
| Total Therms Pct. Growth | 2.81% | 3.24% | 2.93% | 2.53% | 2.59% | 2.51% | 2.39% | 1.37% | 3.65% |
| Residential Therms | 17,086,932 | 17,660,955 | 18,348,360 | 18,910,307 | 19,480,797 | 20,097,070 | 20,724,104 | 21,320,312 | 21,933,450 |
| Commercial Therms | 19,227,492 | 19,782,575 | 20,213,796 | 20,644,641 | 21,093,294 | 21,506,775 | 21,894,881 | 21,894,881 | 22,273,997 |
| Industrial Therms | 453,570 | 521,610 | 520,702 | 521,421 | 543,483 | 549,018 | 546,794 | 546,794 | 542,911 |
| Ind., Inst., & Cmcl. Interrup. Therms | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 |
| Total Core Therms | 36,969,378 | 38,168,525 | 39,284,214 | 40,277,755 | 41,318,959 | 42,354,248 | 43,367,155 | 44,363,363 | 44,951,743 |
| Daily BaseLoad Therms | 29,768 | 30,732 | 31,632 | 32,432 | 33,270 | 34,104 | 34,920 | 35,400 | 36,196 |
| Peak Day Therms | 586,183 | 606,956 | 628,151 | 649,739 | 671,768 | 694,220 | 717,115 | 737,317 | 761,281 |
| Therms Per Residential Customer | 534 | 533 | 535 | 533 | 531 | 530 | 529 | 527 | 525 |
| Therms Per Commercial Customer | 3,752 | 3,730 | 3,685 | 3,641 | 3,601 | 3,556 | 3,508 | 3,508 | 3,460 |
| Therms Per Industrial Customer | 26,492 | 30,252 | 29,974 | 29,780 | 30,783 | 30,830 | 30,430 | 30,430 | 29,936 |
| Residential Customers | 31,998 | 33,136 | 34,296 | 35,479 | 36,687 | 37,919 | 39,176 | 40,456 | 41,778 |
| Commercial Customers | 5,125 | 5,304 | 5,485 | 5,670 | 5,858 | 6,048 | 6,241 | 6,241 | 6,438 |
| Industrial Customers | 17 | 17 | 17 | 18 | 18 | 18 | 18 | 18 | 18 |
| Interruptible Customers | | | | | | | | | |
| Total Core Customers | 37,140 | 38,456 | 39,799 | 41,167 | 42,562 | 43,985 | 45,435 | 46,715 | 48,234 |

| | | | | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Longview | | | | | | | | | |
| Total Therms Pct. Growth | 0.81% | 1.45% | 0.72% | 0.63% | 0.90% | 0.74% | 0.65% | 0.16% | 0.76% |
| Residential Therms | 1,626,604 | 1,638,600 | 1,653,839 | 1,664,032 | 1,678,862 | 1,690,160 | 1,703,920 | 1,716,960 | 1,727,505 |
| Commercial Therms | 5,410,707 | 5,443,175 | 5,499,608 | 5,502,902 | 5,602,120 | 5,657,220 | 5,713,896 | 5,713,896 | 5,771,028 |
| Industrial Therms | 524,565 | 591,136 | 575,218 | 561,011 | 569,742 | 559,902 | 541,820 | 541,820 | 522,352 |
| Ind., Inst., & Cmcl. Interrup. Therms | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 |
| Total Core Therms | 7,679,422 | 7,790,455 | 7,846,211 | 7,895,480 | 7,966,269 | 8,024,827 | 8,077,182 | 8,090,222 | 8,138,430 |
| Daily BaseLoad Therms | 8,846 | 8,974 | 9,038 | 9,095 | 9,177 | 9,244 | 9,304 | 9,319 | 9,375 |
| Peak Day Therms | 84,905 | 85,730 | 86,581 | 87,450 | 88,317 | 89,208 | 90,121 | 90,801 | 91,708 |
| Therms Per Residential Customer | 602 | 600 | 599 | 596 | 594 | 592 | 590 | 588 | 585 |
| Therms Per Commercial Customer | 4,288 | 4,281 | 4,292 | 4,301 | 4,307 | 4,317 | 4,328 | 4,328 | 4,340 |
| Therms Per Industrial Customer | 16,931 | 18,973 | 18,354 | 17,794 | 17,962 | 17,542 | 16,888 | 16,888 | 16,159 |
| Residential Customers | 2,702 | 2,731 | 2,761 | 2,792 | 2,823 | 2,855 | 2,888 | 2,920 | 2,953 |
| Commercial Customers | 1,262 | 1,271 | 1,281 | 1,291 | 1,301 | 1,310 | 1,320 | 1,320 | 1,330 |
| Industrial Customers | 31 | 31 | 31 | 32 | 32 | 32 | 32 | 32 | 32 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 3,997 | 4,036 | 4,076 | 4,117 | 4,157 | 4,199 | 4,242 | 4,274 | 4,317 |

| | | | | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Moses Lake | | | | | | | | | |
| Total Therms Pct. Growth | 1.11% | 1.64% | 1.32% | 1.01% | 1.18% | 1.12% | 1.02% | -0.11% | 0.81% |
| Residential Therms | 1,027,091 | 1,025,892 | 1,034,892 | 1,029,790 | 1,025,174 | 1,023,896 | 1,021,160 | 1,015,905 | 1,008,640 |
| Commercial Therms | 2,629,109 | 2,673,259 | 2,693,150 | 2,713,346 | 2,740,795 | 2,761,993 | 2,779,905 | 2,779,905 | 2,797,494 |
| Industrial Therms | 945,739 | 978,033 | 1,010,737 | 1,043,585 | 1,077,272 | 1,111,536 | 1,146,168 | 1,146,168 | 1,181,247 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 4,601,940 | 4,677,184 | 4,738,739 | 4,796,722 | 4,843,242 | 4,897,426 | 4,947,235 | 4,941,880 | 4,987,382 |
| Daily BaseLoad Therms | 4,030 | 4,096 | 4,150 | 4,192 | 4,242 | 4,289 | 4,333 | 4,328 | 4,368 |
| Peak Day Therms | 82,933 | 83,312 | 83,722 | 84,098 | 84,505 | 84,879 | 85,263 | 85,437 | 85,809 |
| Therms Per Residential Customer | 533 | 531 | 534 | 530 | 526 | | | | |

| | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Core Therms | 51,484,361 | 52,527,283 | 53,483,178 | 54,346,885 | 55,313,479 | 56,198,446 | 57,122,203 | 57,714,618 | 58,603,635 |
| Daily Baseload Therms | 50,436 | 51,458 | 52,394 | 53,240 | 54,187 | 55,054 | 55,959 | 56,539 | 57,410 |
| Peak Day Therms | 628,103 | 641,360 | 654,795 | 668,313 | 681,970 | 695,791 | 709,697 | 722,184 | 736,521 |
| Therms Per Residential Customer | 690 | 688 | 687 | 684 | 682 | 679 | 677 | 675 | 672 |
| Therms Per Commercial Customer | 3,155 | 3,171 | 3,164 | 3,157 | 3,157 | 3,151 | 3,143 | 3,143 | 3,135 |
| Therms Per Industrial Customer | 17,684 | 17,831 | 17,805 | 17,782 | 17,807 | 17,793 | 17,761 | 17,761 | 17,724 |
| Residential Customers | 45,786 | 46,796 | 47,739 | 48,728 | 49,727 | 50,738 | 51,755 | 52,786 | 53,837 |
| Commercial Customers | 6,031 | 6,157 | 6,286 | 6,414 | 6,545 | 6,676 | 6,809 | 6,945 | 7,083 |
| Industrial Customers | 42 | 40 | 38 | 36 | 34 | 33 | 31 | 31 | 30 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 51,861 | 52,955 | 54,064 | 55,181 | 56,308 | 57,449 | 58,597 | 59,628 | 60,812 |

| | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Core Therms | 9,061,707 | 9,082,759 | 9,124,283 | 9,120,629 | 9,121,331 | 9,130,334 | 9,130,429 | 9,132,163 | 9,125,747 |
| Daily Baseload Therms | 6,249 | 6,364 | 6,393 | 6,390 | 6,391 | 6,397 | 6,397 | 6,398 | 6,394 |
| Peak Day Therms | 101,939 | 102,199 | 102,456 | 102,709 | 102,961 | 103,181 | 103,314 | 103,509 | 103,607 |
| Therms Per Residential Customer | 597 | 598 | 596 | 596 | 596 | 596 | 599 | 608 | 608 |
| Therms Per Commercial Customer | 3,372 | 3,368 | 3,365 | 3,361 | 3,357 | 3,354 | 3,350 | 3,350 | 3,346 |
| Therms Per Industrial Customer | 23,141 | 23,331 | 23,051 | 22,777 | 22,629 | 22,378 | 22,079 | 22,079 | 21,772 |
| Residential Customers | 5,481 | 5,495 | 5,509 | 5,523 | 5,536 | 5,549 | 5,562 | 5,574 | 5,586 |
| Commercial Customers | 1,410 | 1,414 | 1,418 | 1,422 | 1,425 | 1,428 | 1,431 | 1,431 | 1,434 |
| Industrial Customers | 41 | 41 | 41 | 40 | 40 | 40 | 39 | 39 | 39 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 6,935 | 6,952 | 6,970 | 6,987 | 7,003 | 7,019 | 7,035 | 7,047 | 7,062 |

| | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Core Therms | 11,491,533 | 11,566,791 | 11,629,006 | 11,699,728 | 11,760,459 | 11,812,419 | 11,862,513 | 11,899,739 | 11,936,852 |
| Daily Baseload Therms | 7,908 | 7,960 | 8,003 | 8,051 | 8,093 | 8,129 | 8,163 | 8,189 | 8,214 |
| Peak Day Therms | 180,699 | 182,254 | 183,740 | 185,155 | 186,529 | 187,848 | 189,096 | 190,234 | 191,455 |
| Therms Per Residential Customer | 595 | 597 | 596 | 596 | 596 | 595 | 594 | 593 | 591 |
| Therms Per Commercial Customer | 3,196 | 3,177 | 3,174 | 3,171 | 3,163 | 3,159 | 3,156 | 3,156 | 3,154 |
| Therms Per Industrial Customer | 44,786 | 42,429 | 42,662 | 42,848 | 42,333 | 42,382 | 42,695 | 42,695 | 43,072 |
| Residential Customers | 11,999 | 12,108 | 12,212 | 12,311 | 12,407 | 12,499 | 12,586 | 12,670 | 12,755 |
| Commercial Customers | 1,333 | 1,339 | 1,344 | 1,350 | 1,355 | 1,361 | 1,366 | 1,366 | 1,371 |
| Industrial Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 13,335 | 13,450 | 13,559 | 13,664 | 13,765 | 13,862 | 13,955 | 14,039 | 14,129 |

| | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Core Therms | 5,055,838 | 4,925,114 | 4,887,550 | 4,835,144 | 4,773,269 | 4,723,631 | 4,672,398 | 4,669,469 | 4,619,548 |
| Daily Baseload Therms | 4,476 | 4,404 | 4,370 | 4,323 | 4,268 | 4,223 | 4,178 | 4,175 | 4,130 |
| Peak Day Therms | 61,110 | 61,237 | 61,340 | 61,469 | 61,600 | 61,703 | 61,814 | 61,916 | 62,025 |
| Therms Per Residential Customer | 497 | 496 | 503 | 500 | 497 | 497 | 494 | 491 | 488 |
| Therms Per Commercial Customer | 4,133 | 4,041 | 3,962 | 3,884 | 3,801 | 3,722 | 3,644 | 3,644 | 3,567 |
| Therms Per Industrial Customer | 54,107 | 53,763 | 54,564 | 55,375 | 55,987 | 56,681 | 57,623 | 57,623 | 58,522 |
| Residential Customers | 1,604 | 1,609 | 1,613 | 1,618 | 1,623 | 1,627 | 1,631 | 1,635 | 1,639 |
| Commercial Customers | 753 | 753 | 753 | 753 | 754 | 754 | 754 | 754 | 754 |
| Industrial Customers | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 2,377 | 2,382 | 2,386 | 2,391 | 2,397 | 2,401 | 2,405 | 2,409 | 2,413 |

| | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Core Therms | 27,718,845 | 28,123,439 | 28,146,563 | 28,194,968 | 28,339,586 | 28,399,639 | 28,469,314 | 28,424,748 | 28,433,862 |
| Daily Baseload Therms | 20,014 | 20,306 | 20,323 | 20,358 | 20,462 | 20,505 | 20,506 | 20,524 | 20,533 |
| Peak Day Therms | 335,103 | 337,273 | 339,385 | 341,411 | 343,935 | 345,306 | 347,161 | 348,780 | 350,591 |
| Therms Per Residential Customer | 574 | 576 | 574 | 573 | 573 | 572 | 570 | 568 | 567 |
| Therms Per Commercial Customer | 3,680 | 3,740 | 3,722 | 3,722 | 3,732 | 3,728 | 3,716 | 3,716 | 3,702 |
| Therms Per Industrial Customer | 29,420 | 29,668 | 29,340 | 29,019 | 28,853 | 28,558 | 28,207 | 28,207 | 27,844 |
| Residential Customers | 21,339 | 21,485 | 21,627 | 21,763 | 21,896 | 22,024 | 22,148 | 22,269 | 22,390 |
| Commercial Customers | 3,640 | 3,657 | 3,673 | 3,689 | 3,705 | 3,721 | 3,736 | 3,736 | 3,751 |
| Industrial Customers | 65 | 65 | 64 | 63 | 62 | 62 | 62 | 62 | 61 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 25,048 | 25,210 | 25,368 | 25,520 | 25,668 | 25,811 | 25,950 | 26,071 | 26,206 |

| | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Core Therms | 3,683,716 | 3,713,464 | 3,716,467 | 3,720,935 | 3,737,011 | 3,742,812 | 3,747,699 | 3,757,486 | 3,763,361 |
| Daily Baseload Therms | 3,010 | 3,034 | 3,037 | 3,041 | 3,054 | 3,058 | 3,062 | 3,070 | 3,075 |
| Peak Day Therms | 26,872 | 27,002 | 27,146 | 27,280 | 27,450 | 27,601 | 27,783 | 27,947 | 28,117 |
| Therms Per Residential Customer | 560 | 562 | 560 | 559 | 559 | 558 | 556 | 555 | 554 |
| Therms Per Commercial Customer | 3,233 | 3,243 | 3,231 | 3,218 | 3,211 | 3,199 | 3,185 | 3,185 | 3,171 |
| Therms Per Industrial Customer | 28,033 | 29,270 | 28,554 | 27,884 | 27,376 | 27,166 | 26,420 | 26,420 | 25,646 |
| Residential Customers | 3,410 | 3,427 | 3,446 | 3,464 | 3,487 | 3,508 | 3,533 | 3,557 | 3,581 |
| Commercial Customers | 539 | 542 | 544 | 546 | 548 | 549 | 550 | 550 | 551 |
| Industrial Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 3,951 | 3,970 | 3,991 | 4,011 | 4,036 | 4,058 | 4,085 | 4,109 | 4,134 |

| | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Core Therms | 61,973,523 | 64,092,439 | 65,441,849 | 66,859,009 | 68,550,956 | 70,137,397 | 71,583,298 | 72,222,092 | 73,684,010 |
| Daily Baseload Therms | 52,217 | 54,002 | 55,139 | 56,334 | 57,759 | 59,096 | 60,314 | 60,852 | 62,084 |
| Peak Day Therms | 704,970 | 718,118 | 731,416 | 744,967 | 758,713 | 772,670 | 786,851 | 798,627 | 813,241 |
| Therms Per Residential Customer | 765 | 767 | 766 | 765 | 765 | 765 | 763 | 762 | 760 |
| Therms Per Commercial Customer | 3,037 | 3,130 | 3,152 | 3,176 | 3,178 | 3,224 | 3,256 | 3,281 | 3,304 |
| Therms Per Industrial Customer | 37,594 | 38,831 | 38,553 | 38,300 | 38,465 | 38,289 | 37,954 | 37,954 | 37,585 |
| Residential Customers | 45,684 | 46,506 | 47,338 | 48,187 | 49,049 | 49,925 | 50,816 | 51,721 | 52,643 |

2012 CNGC IRP

APPENDIX B
Medium Scenario

PAGE 6

| | | | | | | | | | |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
| Commercial Customers | 8,458 | 8,647 | 8,837 | 9,030 | 9,225 | 9,422 | 9,621 | 9,821 | 9,822 |
| Industrial Customers | 36 | 35 | 34 | 34 | 33 | 33 | 33 | 33 | 33 |
| Interruptible Customers | | | | | | | | | |
| Total Core Customers | 54,177 | 55,188 | 56,210 | 57,251 | 58,307 | 59,380 | 60,470 | 61,375 | 62,498 |

| | | | | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Ontario | | | | | | | | | |
| Total Therms Pct. Growth | 0.05% | 1.91% | -0.02% | -0.06% | 0.56% | 0.11% | -0.07% | 0.09% | 0.04% |
| Residential Therms | 2,065,307 | 2,070,446 | 2,082,282 | 2,085,512 | 2,087,910 | 2,094,180 | 2,099,610 | 2,104,137 | 2,108,580 |
| Commercial Therms | 2,646,836 | 2,748,499 | 2,750,248 | 2,758,312 | 2,797,576 | 2,809,897 | 2,814,179 | 2,814,179 | 2,820,405 |
| Industrial Therms | 341,431 | 330,927 | 316,491 | 302,299 | 289,301 | 276,285 | 263,172 | 263,172 | 260,196 |
| Ind., Inst., & Cncl. Interrup. Therms | | | | | | | | | |
| Total Core Therms | 5,053,594 | 5,148,872 | 5,149,022 | 5,146,123 | 5,174,786 | 5,180,362 | 5,176,962 | 5,181,489 | 5,179,182 |
| Daily BaseLoad Therms | 3,754 | 3,826 | 3,825 | 3,823 | 3,844 | 3,848 | 3,846 | 3,849 | 3,847 |
| Peak Day Therms | 30,748 | 30,828 | 30,908 | 31,004 | 31,153 | 31,252 | 31,390 | 31,533 | 31,717 |
| Therms Per Residential Customer | 571 | 571 | 573 | 572 | 570 | 569 | 569 | 567 | 565 |
| Therms Per Commercial Customer | 2,966 | 3,071 | 3,065 | 3,062 | 3,089 | 3,091 | 3,081 | 3,081 | 3,068 |
| Therms Per Industrial Customer | 30,821 | 29,681 | 28,215 | 26,788 | 25,486 | 24,202 | 22,925 | 22,925 | 21,672 |
| Residential Customers | 3,617 | 3,626 | 3,634 | 3,646 | 3,663 | 3,674 | 3,690 | 3,711 | 3,732 |
| Commercial Customers | 892 | 895 | 897 | 901 | 906 | 909 | 913 | 913 | 919 |
| Industrial Customers | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 |
| Interruptible Customers | | | | | | | | | |
| Total Core Customers | 4,520 | 4,532 | 4,543 | 4,558 | 4,580 | 4,594 | 4,615 | 4,636 | 4,663 |

| | | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Pendleton | | | | | | | | | |
| Total Therms Pct. Growth | 0.97% | 1.11% | 0.65% | 0.71% | 0.68% | 0.59% | 0.37% | 0.54% | 0.94% |
| Residential Therms | 7,649,838 | 7,798,609 | 7,899,048 | 8,007,300 | 8,110,530 | 8,208,180 | 8,270,500 | 8,366,124 | 8,427,675 |
| Commercial Therms | 6,612,025 | 6,671,616 | 6,700,334 | 6,731,699 | 6,766,511 | 6,790,772 | 6,814,113 | 6,814,113 | 6,831,266 |
| Industrial Therms | 857,144 | 815,860 | 785,407 | 755,363 | 723,428 | 694,234 | 666,723 | 666,723 | 640,051 |
| Ind., Inst., & Cncl. Interrup. Therms | | | | | | | | | |
| Total Core Therms | 15,119,007 | 15,286,085 | 15,384,788 | 15,494,362 | 15,600,469 | 15,693,186 | 15,751,336 | 15,836,960 | 15,898,992 |
| Daily BaseLoad Therms | 15,544 | 15,715 | 15,817 | 15,930 | 16,039 | 16,134 | 16,194 | 16,282 | 16,346 |
| Peak Day Therms | 251,204 | 254,913 | 258,425 | 261,755 | 264,940 | 267,958 | 270,814 | 273,257 | 275,963 |
| Therms Per Residential Customer | 557 | 559 | 558 | 558 | 558 | 558 | 556 | 556 | 555 |
| Therms Per Commercial Customer | 3,190 | 3,193 | 3,182 | 3,173 | 3,166 | 3,155 | 3,144 | 3,144 | 3,131 |
| Therms Per Industrial Customer | 36,567 | 34,767 | 33,436 | 32,128 | 30,744 | 29,482 | 28,295 | 28,295 | 27,148 |
| Residential Customers | 13,734 | 13,951 | 14,156 | 14,350 | 14,535 | 14,710 | 14,875 | 15,029 | 15,185 |
| Commercial Customers | 2,073 | 2,089 | 2,106 | 2,122 | 2,137 | 2,152 | 2,167 | 2,167 | 2,182 |
| Industrial Customers | 23 | 23 | 23 | 24 | 24 | 24 | 24 | 24 | 24 |
| Interruptible Customers | | | | | | | | | |
| Total Core Customers | 15,830 | 16,064 | 16,285 | 16,495 | 16,696 | 16,886 | 17,066 | 17,220 | 17,390 |

| | | | | | | | | | |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Washington | | | | | | | | | |
| Total Therms Pct. Growth | 1.74% | 2.09% | 1.54% | 1.45% | 1.60% | 1.44% | 1.33% | 0.82% | 2.10% |
| Residential Therms | 139,575,423 | 142,525,580 | 145,117,347 | 147,488,822 | 150,073,956 | 152,517,009 | 154,819,351 | 157,168,618 | 159,420,742 |
| Commercial Therms | 112,114,760 | 114,430,780 | 116,046,150 | 117,678,949 | 119,487,860 | 121,131,248 | 122,690,147 | 122,690,147 | 124,216,100 |
| Industrial Therms | 7,699,476 | 7,893,825 | 7,799,006 | 7,715,421 | 7,719,821 | 7,662,305 | 7,579,555 | 7,579,555 | 7,495,131 |
| Ind., Inst., & Cncl. Interrup. Therms | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 |
| Total Core Therms | 261,423,481 | 266,884,007 | 270,996,325 | 274,917,014 | 279,315,459 | 283,344,383 | 287,122,875 | 289,472,142 | 293,165,795 |
| Daily BaseLoad Therms | 241,783 | 246,949 | 250,878 | 254,645 | 258,865 | 262,733 | 266,375 | 268,623 | 272,190 |
| Peak Day Therms | 3,482,755 | 3,546,938 | 3,617,486 | 3,685,598 | 3,754,316 | 3,823,578 | 3,893,441 | 3,955,493 | 4,027,311 |
| Therms Per Residential Customer | 643 | 644 | 644 | 642 | 641 | 640 | 638 | 636 | 633 |
| Therms Per Commercial Customer | 3,555 | 3,564 | 3,550 | 3,538 | 3,531 | 3,518 | 3,504 | 3,504 | 3,489 |
| Therms Per Industrial Customer | 25,684 | 26,493 | 26,309 | 26,140 | 26,247 | 26,122 | 25,892 | 25,892 | 25,639 |
| Residential Customers | 216,922 | 221,147 | 225,411 | 229,702 | 234,030 | 238,394 | 242,794 | 247,231 | 251,766 |
| Commercial Customers | 31,539 | 32,111 | 32,686 | 33,263 | 33,844 | 34,428 | 35,015 | 35,015 | 35,606 |
| Industrial Customers | 300 | 298 | 296 | 295 | 294 | 293 | 293 | 293 | 292 |
| Interruptible Customers | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Total Core Customers | 248,785 | 253,580 | 258,417 | 263,284 | 268,192 | 273,139 | 278,126 | 282,563 | 287,688 |

| | | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Oregon | | | | | | | | | |
| Total Therms Pct. Growth | 1.99% | 2.81% | 1.64% | 1.70% | 2.02% | 1.82% | 1.59% | 0.77% | 2.35% |
| Residential Therms | 46,573,005 | 47,465,131 | 48,171,998 | 48,892,243 | 49,670,128 | 50,452,449 | 51,107,096 | 51,845,798 | 52,528,809 |
| Commercial Therms | 36,688,967 | 38,241,164 | 39,952,949 | 39,943,339 | 41,063,861 | 42,034,022 | 42,948,252 | 42,948,252 | 43,853,580 |
| Industrial Therms | 2,567,870 | 2,535,585 | 2,467,580 | 2,384,847 | 2,329,204 | 2,267,287 | 2,203,976 | 2,203,976 | 2,143,156 |
| Ind., Inst., & Cncl. Interrup. Therms | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 85,828,842 | 88,241,880 | 89,692,126 | 91,220,429 | 93,063,223 | 94,753,757 | 96,259,294 | 96,998,026 | 98,525,544 |
| Daily BaseLoad Therms | 74,525 | 76,578 | 77,818 | 79,126 | 80,696 | 82,136 | 83,416 | 84,054 | 85,352 |
| Peak Day Therms | 1,013,794 | 1,030,861 | 1,047,884 | 1,065,006 | 1,082,257 | 1,099,480 | 1,116,838 | 1,131,364 | 1,149,037 |
| Therms Per Residential Customer | 701 | 703 | 702 | 702 | 702 | 703 | 701 | 700 | 699 |
| Therms Per Commercial Customer | 3,067 | 3,142 | 3,154 | 3,171 | 3,204 | 3,225 | 3,241 | 3,241 | 3,254 |
| Therms Per Industrial Customer | 36,059 | 35,894 | 35,037 | 34,200 | 33,560 | 32,787 | 31,960 | 31,960 | 31,133 |
| Residential Customers | 66,445 | 67,510 | 68,574 | 69,647 | 70,734 | 71,817 | 72,914 | 74,018 | 75,141 |
| Commercial Customers | 11,962 | 12,173 | 12,384 | 12,598 | 12,816 | 13,032 | 13,252 | 13,252 | 13,475 |
| Industrial Customers | 71 | 71 | 70 | 70 | 69 | 69 | 69 | 69 | 69 |
| Interruptible Customers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 78,479 | 79,754 | 81,028 | 82,315 | 83,619 | 84,918 | 86,235 | 87,339 | 88,685 |

| | | | | | | | | | |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| System | | | | | | | | | |
| Total Therms Pct. Growth | 1.81% | 2.27% | 1.57% | 1.51% | 1.70% | 1.54% | 1.40% | 0.81% | 2.17% |
| Residential Therms | 186,148,428 | 189,990,711 | 193,289,345 | 196,381,065 | 199,744,114 | 202,969,458 | 205,926,417 | 209,014,416 | 211,949,551 |
| Commercial Therms | 148,803,727 | 152,671,944 | 155,108,699 | 157,622,288 | 160,551,721 | 163,165,270 | 165,638,399 | 165,638,399 | 168,069,680 |
| Industrial Therms | 10,267,347 | 10,429,410 | 10,256,586 | 10,100,269 | 10,049,025 | 9,929,592 | 9,783,531 | 9,783,531 | 9,638,287 |
| Ind., Inst., & Cncl. Interrup. Therms | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 |
| Total Core Therms | 347,253,323 | 355,125,887 | 360,688,452 | 366,137,443 | 372,378,681 | 378,098,141 | 383,382,169 | 386,470,168 | 391,691,339 |
| Daily BaseLoad Therms | 316,308 | 323,527 | 328,694 | 333,771 | 339,560 | 344,870 | 349,791 | 352,676 | 357,542 |
| Peak Day Therms | 4,496,549 | 4,580,669 | 4,665,370 | 4,750,604 | 4,836,573 | 4,923,059 | 5,010,279 | 5,086,857 | 5,176,348 |
| Therms Per Residential Customer | 657 | 658 | 657 | 656 | 655 | 654 | 652 | 651 | 648 |
| Therms Per Commercial Customer | 3,421 | 3,448 | 3,442 | 3,437 | 3,441 | 3,438 | 3,432 | 3,432 | 3,424 |
| Therms Per Industrial Customer | 271,975 | 26,295 | 27,979 | 27,680 | 27,643 | 27,284 | 27,049 | 27,049 | 26,585 |
| Residential Customers | 283,367 | 288,657 | 293,865 | 299,349 | 304,764 | 310,211 | 315,708 | 321,349 | 326,907 |
| Commercial Customers | 283,502 | 44,284 | 45,070 | 45,861 | 46,659 | 47,460 | 48,268 | 48,268 | 49,081 |
| Industrial Customers | 43,971 | 369 | 367 | 365 | 364 | 362 | 362 | 362 | 361 |
| Interruptible Customers | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Total Core Customers | 327,264 | 333,333 | 339,445 | 345,599 | 351,811 | 358,058 | 364,361 | 369,902 | 376,373 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Aberdeen | | | | | | | | |
| Total Therms Pct. Growth | | 1.40% | 4.51% | 0.28% | 0.37% | 0.26% | 0.34% | 0.36% |
| Residential Therms | 3,536,478 | 3,546,588 | 3,947,979 | 3,956,859 | 3,974,688 | 3,987,096 | 4,008,672 | 4,025,574 |
| Commercial Therms | 4,885,689 | 4,856,648 | 4,882,915 | 4,906,883 | 4,930,497 | 4,948,649 | 4,964,598 | 4,987,057 |
| Industrial Therms | 117,234 | 265,887 | 262,488 | 256,980 | 252,017 | 247,464 | 243,350 | 239,781 |
| Ind., Inst., & Cmcl. Interrup. Therms | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 |
| Total Core Therms | 9,278,700 | 9,408,421 | 9,832,681 | 9,860,021 | 9,896,501 | 9,922,507 | 9,955,919 | 9,991,711 |
| Daily Baseload Therms | 7,891 | 8,002 | 8,362 | 8,386 | 8,417 | 8,439 | 8,467 | 8,498 |
| Peak Day Therms | 80,931 | 81,240 | 81,392 | 81,761 | 82,196 | 82,632 | 83,043 | 83,469 |
| Therms Per Residential Customer | 674 | 674 | 749 | 747 | 746 | 744 | 744 | 743 |
| Therms Per Commercial Customer | 4,297 | 4,241 | 4,252 | 4,260 | 4,267 | 4,269 | 4,269 | 4,274 |
| Therms Per Industrial Customer | 9,018 | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 |
| Residential Customers | 5,247 | 5,262 | 5,271 | 5,297 | 5,328 | 5,359 | 5,388 | 5,418 |
| Commercial Customers | 1,137 | 1,145 | 1,148 | 1,152 | 1,155 | 1,159 | 1,163 | 1,167 |
| Industrial Customers | 13 | 14 | 14 | 14 | 14 | 13 | 13 | 13 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 6,400 | 6,424 | 6,436 | 6,466 | 6,500 | 6,534 | 6,567 | 6,601 |

| | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bellingham | | | | | | | | |
| Total Therms Pct. Growth | | 12.52% | 0.33% | 1.02% | 1.75% | 2.37% | 2.32% | 1.79% |
| Residential Therms | 26,993,646 | 29,259,230 | 29,238,300 | 29,479,200 | 30,011,248 | 30,759,027 | 31,463,874 | 32,029,340 |
| Commercial Therms | 13,318,719 | 16,068,777 | 16,254,326 | 16,499,298 | 16,803,467 | 17,202,617 | 17,649,029 | 17,991,211 |
| Industrial Therms | 859,287 | 1,021,197 | 1,010,038 | 998,385 | 987,448 | 977,155 | 967,492 | 958,414 |
| Ind., Inst., & Cmcl. Interrup. Therms | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 |
| Total Core Therms | 41,341,076 | 46,518,628 | 46,672,089 | 47,146,307 | 47,971,588 | 49,108,223 | 50,249,819 | 51,148,390 |
| Daily Baseload Therms | 40,699 | 45,796 | 45,947 | 46,414 | 47,227 | 48,346 | 49,469 | 50,354 |
| Peak Day Therms | 677,809 | 683,817 | 696,375 | 712,354 | 729,390 | 746,434 | 763,486 | 780,544 |
| Therms Per Residential Customer | 666 | 715 | 702 | 692 | 688 | 689 | 689 | 686 |
| Therms Per Commercial Customer | 2,773 | 3,338 | 3,299 | 3,269 | 3,252 | 3,254 | 3,265 | 3,257 |
| Therms Per Industrial Customer | 22,033 | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 |
| Residential Customers | 40,531 | 40,922 | 41,650 | 42,600 | 43,621 | 44,643 | 45,666 | 46,690 |
| Commercial Customers | 4,803 | 4,814 | 4,927 | 5,047 | 5,167 | 5,287 | 5,406 | 5,524 |
| Industrial Customers | 39 | 39 | 39 | 38 | 38 | 38 | 37 | 37 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 45,377 | 45,779 | 46,620 | 47,690 | 48,830 | 49,971 | 51,113 | 52,255 |

| | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bremerton | | | | | | | | |
| Total Therms Pct. Growth | | 7.58% | 0.58% | 1.23% | 1.84% | 2.17% | 2.03% | 1.85% |
| Residential Therms | 18,472,034 | 19,735,198 | 19,580,994 | 19,600,830 | 19,815,141 | 20,145,328 | 20,448,736 | 20,693,876 |
| Commercial Therms | 9,052,125 | 9,859,831 | 10,184,602 | 10,535,670 | 10,883,845 | 11,227,617 | 11,568,817 | 11,921,960 |
| Industrial Therms | 108,059 | 159,695 | 162,417 | 165,162 | 167,912 | 170,658 | 173,407 | 176,165 |
| Ind., Inst., & Cmcl. Interrup. Therms | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 |
| Total Core Therms | 27,989,843 | 30,112,348 | 30,285,638 | 30,659,286 | 31,224,522 | 31,901,228 | 32,548,585 | 33,149,625 |
| Daily Baseload Therms | 31,545 | 33,937 | 34,133 | 34,554 | 35,191 | 35,953 | 36,683 | 37,360 |
| Peak Day Therms | 346,238 | 344,475 | 346,922 | 351,882 | 357,780 | 363,711 | 369,685 | 375,701 |
| Therms Per Residential Customer | 658 | 707 | 698 | 690 | 687 | 688 | 688 | 686 |
| Therms Per Commercial Customer | 3,585 | 3,900 | 3,909 | 3,917 | 3,922 | 3,924 | 3,924 | 3,927 |
| Therms Per Industrial Customer | 108,059 | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 |
| Residential Customers | 28,073 | 27,914 | 28,053 | 28,407 | 28,843 | 29,281 | 29,722 | 30,166 |
| Commercial Customers | 2,525 | 2,528 | 2,605 | 2,690 | 2,775 | 2,861 | 2,948 | 3,036 |
| Industrial Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 30,602 | 30,446 | 30,662 | 31,101 | 31,622 | 32,146 | 32,674 | 33,206 |

| | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Kennewick | | | | | | | | |
| Total Therms Pct. Growth | | 5.83% | 3.94% | 3.10% | 3.24% | 3.50% | 3.55% | 3.42% |
| Residential Therms | 10,997,180 | 11,116,962 | 11,687,676 | 12,024,985 | 12,402,500 | 12,830,679 | 13,289,643 | 13,781,350 |
| Commercial Therms | 12,588,930 | 13,580,287 | 14,013,583 | 14,498,382 | 15,007,592 | 15,565,860 | 16,142,922 | 16,684,527 |
| Industrial Therms | 238,832 | 528,857 | 525,485 | 521,727 | 518,338 | 515,345 | 512,744 | 510,482 |
| Ind., Inst., & Cmcl. Interrup. Therms | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 |
| Total Core Therms | 24,026,327 | 25,427,491 | 26,428,130 | 27,246,480 | 28,129,815 | 29,113,269 | 30,146,694 | 31,177,744 |
| Daily Baseload Therms | 19,346 | 20,474 | 21,280 | 21,939 | 22,650 | 23,442 | 24,274 | 25,105 |
| Peak Day Therms | 368,869 | 373,703 | 383,695 | 397,207 | 412,034 | 427,149 | 442,536 | 458,176 |
| Therms Per Residential Customer | 542 | 542 | 556 | 553 | 550 | 549 | 549 | 550 |
| Therms Per Commercial Customer | 4,110 | 4,314 | 4,284 | 4,260 | 4,242 | 4,236 | 4,233 | 4,219 |
| Therms Per Industrial Customer | 14,927 | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 |
| Residential Customers | 20,290 | 20,511 | 21,021 | 21,745 | 22,550 | 23,371 | 24,207 | 25,057 |
| Commercial Customers | 3,063 | 3,148 | 3,271 | 3,403 | 3,538 | 3,675 | 3,814 | 3,955 |
| Industrial Customers | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 23,371 | 23,677 | 24,310 | 25,166 | 26,106 | 27,064 | 28,038 | 29,029 |

| | | | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Longview | | | | | | | | |
| Total Therms Pct. Growth | | 8.50% | 3.51% | 0.29% | 0.35% | 0.25% | 0.26% | 0.37% |
| Residential Therms | 1,342,062 | 1,316,484 | 1,532,022 | 1,521,520 | 1,521,510 | 1,522,106 | 1,525,790 | 1,528,209 |
| Commercial Therms | 4,535,424 | 4,879,551 | 4,911,710 | 4,943,335 | 4,968,265 | 4,985,449 | 4,999,529 | 5,022,863 |
| Industrial Therms | 524,175 | 759,889 | 760,348 | 760,646 | 761,216 | 762,135 | 763,318 | 764,802 |
| Ind., Inst., & Cmcl. Interrup. Therms | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 |
| Total Core Therms | 6,519,206 | 7,073,468 | 7,321,625 | 7,343,046 | 7,368,537 | 7,387,235 | 7,406,182 | 7,433,419 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Daily Baseload Therms | 7,510 | 8,148 | 8,434 | 8,459 | 8,488 | 8,510 | 8,531 | 8,563 |
| Peak Day Therms | 79,556 | 78,588 | 77,744 | 77,630 | 77,793 | 77,985 | 78,200 | 78,464 |
| Therms Per Residential Customer | 522 | 522 | 618 | 616 | 615 | 614 | 614 | 613 |
| Therms Per Commercial Customer | 3,968 | 4,257 | 4,273 | 4,287 | 4,295 | 4,295 | 4,292 | 4,296 |
| Therms Per Industrial Customer | 18,075 | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 |
| Residential Customers | 2,571 | 2,522 | 2,479 | 2,470 | 2,474 | 2,479 | 2,485 | 2,493 |
| Commercial Customers | 1,143 | 1,146 | 1,149 | 1,153 | 1,157 | 1,161 | 1,165 | 1,169 |
| Industrial Customers | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 3,745 | 3,699 | 3,660 | 3,654 | 3,662 | 3,671 | 3,681 | 3,694 |

Moses Lake

| | | 0.38% | 2.52% | 0.60% | 0.83% | 1.15% | 1.38% | 1.25% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | | | |
| Residential Therms | 980,226 | 982,350 | 1,056,633 | 1,048,869 | 1,043,460 | 1,041,180 | 1,044,510 | 1,052,173 |
| Commercial Therms | 2,403,109 | 2,404,815 | 2,408,643 | 2,418,823 | 2,435,766 | 2,462,379 | 2,493,474 | 2,514,861 |
| Industrial Therms | 560,422 | 571,496 | 592,953 | 615,074 | 637,559 | 660,443 | 683,664 | 707,276 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 3,943,758 | 3,958,662 | 4,058,229 | 4,082,767 | 4,116,786 | 4,164,003 | 4,221,649 | 4,274,311 |
| Daily Baseload Therms | 3,454 | 3,467 | 3,554 | 3,576 | 3,605 | 3,647 | 3,697 | 3,743 |
| Peak Day Therms | 77,360 | 77,613 | 78,038 | 78,450 | 78,891 | 79,300 | 79,707 | 80,142 |
| Therms Per Residential Customer | 531 | 531 | 569 | 563 | 558 | 555 | 555 | 557 |
| Therms Per Commercial Customer | 3,749 | 3,733 | 3,704 | 3,682 | 3,671 | 3,675 | 3,686 | 3,683 |
| Therms Per Industrial Customer | 32,966 | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 |
| Residential Customers | 1,846 | 1,850 | 1,857 | 1,863 | 1,870 | 1,876 | 1,882 | 1,889 |
| Commercial Customers | 641 | 644 | 650 | 657 | 664 | 670 | 676 | 683 |
| Industrial Customers | 17 | 18 | 19 | 19 | 20 | 21 | 22 | 22 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 2,505 | 2,513 | 2,527 | 2,540 | 2,555 | 2,568 | 2,581 | 2,595 |

Mount Vernon

| | | 3.93% | 8.90% | 1.19% | 1.53% | 1.65% | 1.71% | 1.66% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | | | |
| Residential Therms | 22,976,835 | 22,979,415 | 26,412,225 | 26,793,349 | 27,286,764 | 27,782,386 | 28,280,200 | 28,817,480 |
| Commercial Therms | 13,775,067 | 14,939,540 | 15,131,701 | 15,361,958 | 15,625,919 | 15,944,682 | 16,291,550 | 16,584,626 |
| Industrial Therms | 1,260,259 | 1,591,519 | 1,493,688 | 1,395,864 | 1,306,458 | 1,224,718 | 1,149,943 | 1,081,487 |
| Ind., Inst., & Cmcl. Interrup. Therms | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 |
| Total Core Therms | 38,137,142 | 39,635,455 | 43,162,595 | 43,676,152 | 44,344,121 | 45,076,767 | 45,846,674 | 46,608,574 |
| Daily Baseload Therms | 37,361 | 38,828 | 42,284 | 42,787 | 43,441 | 44,159 | 44,913 | 45,659 |
| Peak Day Therms | 488,053 | 487,912 | 492,650 | 501,209 | 511,069 | 521,003 | 531,012 | 541,054 |
| Therms Per Residential Customer | 645 | 645 | 735 | 733 | 732 | 731 | 730 | 730 |
| Therms Per Commercial Customer | 3,007 | 3,271 | 3,250 | 3,234 | 3,225 | 3,227 | 3,234 | 3,230 |
| Therms Per Industrial Customer | 13,849 | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 |
| Residential Customers | 35,623 | 35,627 | 35,935 | 36,553 | 37,277 | 38,006 | 38,740 | 39,476 |
| Commercial Customers | 4,581 | 4,567 | 4,656 | 4,750 | 4,845 | 4,941 | 5,038 | 5,135 |
| Industrial Customers | 91 | 89 | 84 | 78 | 73 | 69 | 64 | 61 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 40,297 | 40,285 | 40,677 | 41,383 | 42,197 | 43,018 | 43,844 | 44,673 |

Sunnyside

| | | 0.07% | 3.82% | -0.19% | -0.14% | -0.03% | 0.28% | 0.27% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | | | |
| Residential Therms | 2,797,839 | 2,798,370 | 3,124,026 | 3,104,010 | 3,088,500 | 3,082,911 | 3,104,019 | 3,124,618 |
| Commercial Therms | 4,351,874 | 4,453,286 | 4,469,936 | 4,490,902 | 4,511,318 | 4,531,109 | 4,550,191 | 4,568,536 |
| Industrial Therms | 1,323,312 | 1,227,776 | 1,212,269 | 1,194,064 | 1,176,728 | 1,160,249 | 1,144,619 | 1,129,806 |
| Ind., Inst., & Cmcl. Interrup. Therms | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 |
| Total Core Therms | 8,550,385 | 8,556,792 | 8,883,591 | 8,866,336 | 8,853,907 | 8,851,629 | 8,876,190 | 8,900,320 |
| Daily Baseload Therms | 5,991 | 5,995 | 6,224 | 6,212 | 6,203 | 6,202 | 6,219 | 6,236 |
| Peak Day Therms | 98,021 | 97,991 | 98,291 | 98,674 | 99,040 | 99,389 | 99,736 | 100,065 |
| Therms Per Residential Customer | 531 | 531 | 591 | 585 | 580 | 577 | 579 | 581 |
| Therms Per Commercial Customer | 3,226 | 3,308 | 3,308 | 3,307 | 3,306 | 3,305 | 3,304 | 3,303 |
| Therms Per Industrial Customer | 27,569 | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 |
| Residential Customers | 5,269 | 5,270 | 5,286 | 5,306 | 5,325 | 5,343 | 5,361 | 5,378 |
| Commercial Customers | 1,349 | 1,346 | 1,351 | 1,358 | 1,365 | 1,371 | 1,377 | 1,383 |
| Industrial Customers | 48 | 48 | 47 | 46 | 46 | 45 | 44 | 44 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 6,668 | 6,666 | 6,686 | 6,712 | 6,737 | 6,761 | 6,785 | 6,807 |

Walla Walla

| | | 4.91% | 0.07% | 0.49% | 0.82% | 0.99% | 0.82% | 0.67% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | | | |
| Residential Therms | 6,045,886 | 6,277,976 | 6,251,070 | 6,270,494 | 6,331,382 | 6,423,900 | 6,503,868 | 6,559,684 |
| Commercial Therms | 3,894,324 | 4,106,296 | 4,143,276 | 4,177,293 | 4,204,701 | 4,219,479 | 4,229,685 | 4,248,590 |
| Industrial Therms | 69,381 | 117,243 | 114,689 | 112,463 | 110,337 | 108,218 | 106,240 | 104,288 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 10,009,592 | 10,501,516 | 10,509,036 | 10,560,251 | 10,646,421 | 10,751,598 | 10,839,794 | 10,912,563 |
| Daily Baseload Therms | 6,888 | 7,227 | 7,232 | 7,267 | 7,326 | 7,399 | 7,459 | 7,510 |
| Peak Day Therms | 158,044 | 157,839 | 159,430 | 161,409 | 163,387 | 165,351 | 167,272 | 169,151 |
| Therms Per Residential Customer | 581 | 604 | 595 | 589 | 587 | 588 | 588 | 586 |
| Therms Per Commercial Customer | 3,108 | 3,285 | 3,300 | 3,311 | 3,317 | 3,313 | 3,306 | 3,306 |
| Therms Per Industrial Customer | 23,127 | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 |
| Residential Customers | 10,406 | 10,394 | 10,506 | 10,646 | 10,786 | 10,925 | 11,061 | 11,194 |
| Commercial Customers | 1,253 | 1,250 | 1,256 | 1,262 | 1,268 | 1,274 | 1,279 | 1,285 |
| Industrial Customers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 11,663 | 11,648 | 11,765 | 11,911 | 12,057 | 12,202 | 12,344 | 12,483 |

Wenatchee

| | | | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | -1.11% | 2.48% | -0.39% | -0.45% | -0.50% | -0.41% | -0.29% |
| Residential Therms | 667,719 | 667,719 | 819,544 | 811,536 | 804,424 | 801,867 | 807,044 | 813,800 |
| Commercial Therms | 3,562,120 | 3,871,559 | 3,854,944 | 3,837,836 | 3,817,224 | 3,789,291 | 3,759,121 | 3,735,018 |
| Industrial Therms | 1,272,440 | 900,635 | 902,590 | 905,453 | 907,996 | 910,109 | 911,932 | 913,281 |
| Ind., Inst., & Cmcl. Interrup. Therms | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 |
| Total Core Therms | 5,597,995 | 5,535,629 | 5,672,794 | 5,650,541 | 5,625,360 | 5,596,983 | 5,573,812 | 5,557,815 |
| Daily Baseload Therms | 5,005 | 4,949 | 5,072 | 5,052 | 5,030 | 5,004 | 4,984 | 4,969 |
| Peak Day Therms | 59,196 | 59,125 | 59,275 | 59,438 | 59,580 | 59,726 | 59,875 | 60,028 |
| Therms Per Residential Customer | 439 | 439 | 536 | 528 | 521 | 517 | 518 | 520 |
| Therms Per Commercial Customer | 4,687 | 5,110 | 5,103 | 5,092 | 5,075 | 5,047 | 5,015 | 4,990 |
| Therms Per Industrial Customer | 63,622 | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 |
| Residential Customers | 1,521 | 1,521 | 1,529 | 1,537 | 1,544 | 1,551 | 1,558 | 1,565 |
| Commercial Customers | 760 | 758 | 755 | 754 | 752 | 751 | 750 | 749 |
| Industrial Customers | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 2,303 | 2,300 | 2,306 | 2,312 | 2,318 | 2,324 | 2,329 | 2,335 |

Yakima

| | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | 1.32% | -0.99% | -0.53% | 0.05% | 0.55% | 0.79% | 0.23% |
| Residential Therms | 11,555,289 | 11,093,554 | 11,004,460 | 10,995,953 | 11,062,359 | 11,145,680 | 11,246,480 | 11,304,522 |
| Commercial Therms | 11,614,023 | 12,707,239 | 12,566,363 | 12,473,426 | 12,457,281 | 12,553,883 | 12,694,893 | 12,730,245 |
| Industrial Therms | 2,929,003 | 2,643,600 | 2,611,084 | 2,571,683 | 2,533,909 | 2,497,758 | 2,463,283 | 2,430,407 |
| Ind., Inst., & Cmcl. Interrup. Therms | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 |
| Total Core Therms | 26,248,800 | 26,594,877 | 26,332,393 | 26,191,547 | 26,204,035 | 26,347,806 | 26,555,142 | 26,615,659 |
| Daily Baseload Therms | 18,953 | 19,203 | 19,013 | 18,911 | 18,920 | 19,024 | 19,174 | 19,218 |
| Peak Day Therms | 302,764 | 303,366 | 305,526 | 308,315 | 311,062 | 313,752 | 316,384 | 318,959 |
| Therms Per Residential Customer | 603 | 578 | 569 | 563 | 561 | 560 | 560 | 558 |
| Therms Per Commercial Customer | 3,429 | 3,735 | 3,677 | 3,630 | 3,606 | 3,615 | 3,637 | 3,629 |
| Therms Per Industrial Customer | 38,039 | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 |
| Residential Customers | 19,163 | 19,193 | 19,340 | 19,531 | 19,719 | 19,903 | 20,083 | 20,259 |
| Commercial Customers | 3,387 | 3,402 | 3,418 | 3,436 | 3,455 | 3,473 | 3,490 | 3,508 |
| Industrial Customers | 77 | 77 | 76 | 75 | 74 | 73 | 72 | 71 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 22,631 | 22,676 | 22,837 | 23,046 | 23,251 | 23,452 | 23,649 | 23,842 |

Baker

| | | | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | 0.35% | -1.21% | -1.29% | -0.78% | -0.30% | -0.08% | -0.41% |
| Residential Therms | 2,052,648 | 1,809,962 | 1,786,083 | 1,764,576 | 1,752,450 | 1,748,064 | 1,747,016 | 1,737,014 |
| Commercial Therms | 1,540,935 | 1,721,666 | 1,713,248 | 1,711,497 | 1,713,877 | 1,721,488 | 1,731,089 | 1,735,419 |
| Industrial Therms | 75,220 | 150,177 | 137,783 | 114,188 | 95,955 | 81,995 | 70,747 | 61,954 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 3,668,804 | 3,681,806 | 3,637,116 | 3,590,262 | 3,562,283 | 3,551,548 | 3,548,853 | 3,534,389 |
| Daily Baseload Therms | 2,998 | 3,009 | 2,972 | 2,934 | 2,911 | 2,902 | 2,850 | 2,888 |
| Peak Day Therms | 26,215 | 26,284 | 26,241 | 26,192 | 26,178 | 26,177 | 26,176 | 26,189 |
| Therms Per Residential Customer | 612 | 539 | 533 | 528 | 525 | 524 | 524 | 521 |
| Therms Per Commercial Customer | 3,113 | 3,435 | 3,411 | 3,391 | 3,380 | 3,380 | 3,385 | 3,379 |
| Therms Per Industrial Customer | 18,805 | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 |
| Residential Customers | 3,354 | 3,358 | 3,351 | 3,342 | 3,338 | 3,336 | 3,334 | 3,334 |
| Commercial Customers | 495 | 501 | 502 | 505 | 507 | 509 | 511 | 514 |
| Industrial Customers | 4 | 4 | 4 | 3 | 3 | 2 | 2 | 2 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 3,854 | 3,864 | 3,858 | 3,851 | 3,849 | 3,848 | 3,848 | 3,850 |

Bend

| | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | 6.46% | -0.05% | 0.02% | 0.84% | 1.69% | 1.79% | 1.29% |
| Residential Therms | 26,866,154 | 28,051,701 | 28,095,302 | 28,077,710 | 28,302,837 | 28,726,880 | 29,114,904 | 29,426,958 |
| Commercial Therms | 17,034,336 | 18,290,229 | 18,357,185 | 18,519,899 | 18,821,756 | 19,334,079 | 19,936,805 | 20,364,171 |
| Industrial Therms | 1,772,705 | 2,279,502 | 2,143,419 | 2,010,163 | 1,890,874 | 1,784,016 | 1,687,939 | 1,601,552 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 45,673,196 | 48,621,433 | 48,595,907 | 48,607,773 | 49,015,468 | 49,844,976 | 50,739,648 | 51,392,682 |
| Daily Baseload Therms | 38,483 | 40,967 | 40,946 | 40,956 | 41,299 | 41,998 | 42,752 | 43,302 |
| Peak Day Therms | 567,960 | 576,333 | 578,847 | 585,779 | 594,406 | 603,154 | 611,967 | 620,885 |
| Therms Per Residential Customer | 719 | 739 | 739 | 731 | 727 | 728 | 728 | 726 |
| Therms Per Commercial Customer | 2,736 | 2,914 | 2,862 | 2,824 | 2,808 | 2,823 | 2,850 | 2,851 |
| Therms Per Industrial Customer | 32,231 | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 |
| Residential Customers | 37,366 | 37,959 | 38,018 | 38,410 | 38,931 | 39,460 | 39,993 | 40,533 |
| Commercial Customers | 6,226 | 6,277 | 6,414 | 6,558 | 6,703 | 6,849 | 6,995 | 7,143 |
| Industrial Customers | 55 | 55 | 52 | 48 | 45 | 43 | 41 | 39 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 43,648 | 44,291 | 44,485 | 45,017 | 45,680 | 46,353 | 47,030 | 47,715 |

Ontario

| | | | | | | | | |
|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total Therms Pct. Growth | | 15.43% | 2.96% | -1.54% | -0.94% | 0.18% | 0.70% | -0.08% |
| Residential Therms | 1,894,038 | 1,905,105 | 2,133,440 | 2,114,288 | 2,095,782 | 2,088,695 | 2,088,114 | 2,089,962 |
| Commercial Therms | 2,324,640 | 2,741,950 | 2,660,779 | 2,591,230 | 2,554,179 | 2,564,970 | 2,596,735 | 2,585,306 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Industrial Therms | 289,480 | 566,703 | 563,359 | 569,585 | 575,456 | 581,174 | 586,736 | 592,096 |
| Ind., Inst., & Cmcl. Interrup. Therms | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 4,508,158 | 5,203,758 | 5,357,578 | 5,275,103 | 5,225,418 | 5,234,839 | 5,271,585 | 5,267,364 |
| Daily Baseload Therms | 3,349 | 3,866 | 3,980 | 3,919 | 3,882 | 3,889 | 3,916 | 3,913 |
| Peak Day Therms | 30,432 | 30,662 | 30,676 | 30,609 | 30,549 | 30,500 | 30,492 | 30,466 |
| Therms Per Residential Customer | 527 | 527 | 590 | 586 | 582 | 581 | 581 | 582 |
| Therms Per Commercial Customer | 2,672 | 3,106 | 3,011 | 2,939 | 2,903 | 2,920 | 2,957 | 2,947 |
| Therms Per Industrial Customer | 28,948 | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 |
| Residential Customers | 3,594 | 3,615 | 3,616 | 3,608 | 3,601 | 3,595 | 3,594 | 3,591 |
| Commercial Customers | 870 | 883 | 884 | 882 | 880 | 878 | 878 | 877 |
| Industrial Customers | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 |
| Interruptible Customers | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 4,474 | 4,508 | 4,510 | 4,500 | 4,491 | 4,484 | 4,483 | 4,479 |

Pendleton

| | | 8.36% | 0.35% | 0.81% | 1.19% | 1.44% | 1.43% | 1.11% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | | | |
| Residential Therms | 5,527,587 | 5,754,414 | 5,775,744 | 5,848,128 | 5,965,366 | 6,103,178 | 6,239,412 | 6,349,308 |
| Commercial Therms | 5,889,520 | 6,089,511 | 6,113,504 | 6,146,398 | 6,185,628 | 6,239,293 | 6,295,754 | 6,338,145 |
| Industrial Therms | 674,429 | 1,258,174 | 1,258,586 | 1,260,041 | 1,261,532 | 1,263,064 | 1,264,565 | 1,266,063 |
| Ind., Inst., & Cmcl. Interrup. Therms | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 12,091,536 | 13,102,099 | 13,147,835 | 13,254,567 | 13,412,527 | 13,605,535 | 13,799,731 | 13,953,516 |
| Daily Baseload Therms | 12,431 | 13,470 | 13,517 | 13,627 | 13,789 | 13,988 | 14,187 | 14,345 |
| Peak Day Therms | 196,962 | 198,054 | 201,452 | 205,845 | 210,314 | 214,732 | 219,097 | 223,396 |
| Therms Per Residential Customer | 523 | 542 | 534 | 528 | 526 | 526 | 526 | 524 |
| Therms Per Commercial Customer | 3,236 | 3,308 | 3,294 | 3,282 | 3,274 | 3,274 | 3,276 | 3,271 |
| Therms Per Industrial Customer | 29,323 | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 |
| Residential Customers | 10,569 | 10,617 | 10,816 | 11,076 | 11,341 | 11,603 | 11,862 | 12,117 |
| Commercial Customers | 1,820 | 1,841 | 1,856 | 1,873 | 1,889 | 1,906 | 1,922 | 1,938 |
| Industrial Customers | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Interruptible Customers | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 12,412 | 12,481 | 12,695 | 12,972 | 13,253 | 13,532 | 13,807 | 14,078 |

Washington

| | | 5.79% | 2.74% | 0.97% | 1.40% | 1.71% | 1.75% | 1.53% |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | | | | | | | | |
| Residential Therms | 106,365,194 | 109,773,846 | 114,654,929 | 115,607,605 | 117,341,976 | 119,522,160 | 121,722,836 | 123,730,626 |
| Commercial Therms | 83,981,404 | 91,727,826 | 92,822,000 | 94,143,805 | 95,645,875 | 97,431,016 | 99,343,810 | 100,989,493 |
| Industrial Therms | 9,262,404 | 9,787,794 | 9,648,050 | 9,497,501 | 9,359,918 | 9,234,252 | 9,119,993 | 9,016,190 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 |
| Total Core Therms | 201,642,824 | 213,323,288 | 219,158,800 | 221,282,733 | 224,381,591 | 228,221,250 | 232,220,460 | 235,770,131 |
| Daily Baseload Therms | 184,643 | 196,027 | 201,535 | 203,556 | 206,499 | 210,124 | 213,872 | 217,215 |
| Peak Day Therms | 2,736,839 | 2,745,670 | 2,779,338 | 2,828,329 | 2,882,221 | 2,936,433 | 2,990,935 | 3,045,753 |
| Therms Per Residential Customer | 624 | 642 | 664 | 657 | 654 | 654 | 654 | 653 |
| Therms Per Commercial Customer | 3,408 | 3,706 | 3,685 | 3,669 | 3,659 | 3,660 | 3,665 | 3,660 |
| Therms Per Industrial Customer | 26,165 | 27,622 | 27,781 | 27,947 | 28,107 | 28,258 | 28,403 | 28,540 |
| Residential Customers | 170,540 | 170,986 | 172,927 | 175,955 | 179,337 | 182,737 | 186,153 | 189,585 |
| Commercial Customers | 24,642 | 24,749 | 25,187 | 25,662 | 26,140 | 26,622 | 27,106 | 27,592 |
| Industrial Customers | 354 | 354 | 347 | 340 | 333 | 327 | 321 | 316 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 195,564 | 196,117 | 198,490 | 201,985 | 205,838 | 209,713 | 213,608 | 217,521 |

Oregon

| | | 7.08% | 0.18% | -0.02% | 0.69% | 1.43% | 1.55% | 1.07% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | | | |
| Residential Therms | 36,340,427 | 37,521,182 | 37,790,569 | 37,804,702 | 38,116,435 | 38,666,817 | 39,189,446 | 39,603,242 |
| Commercial Therms | 26,789,431 | 28,843,356 | 28,844,716 | 28,969,024 | 29,275,441 | 29,859,830 | 30,560,383 | 31,023,042 |
| Industrial Therms | 2,811,834 | 4,244,556 | 4,103,148 | 3,953,978 | 3,823,817 | 3,710,249 | 3,609,987 | 3,521,665 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Therms | 65,941,694 | 70,609,095 | 70,738,435 | 70,727,706 | 71,215,695 | 72,236,897 | 73,359,818 | 74,147,951 |
| Daily Baseload Therms | 57,261 | 61,311 | 61,415 | 61,435 | 61,881 | 62,777 | 63,755 | 64,448 |
| Peak Day Therms | 821,569 | 831,334 | 837,216 | 848,425 | 861,447 | 874,562 | 887,732 | 900,936 |
| Therms Per Residential Customer | 662 | 675 | 677 | 670 | 666 | 667 | 667 | 665 |
| Therms Per Commercial Customer | 2,847 | 3,036 | 2,987 | 2,951 | 2,934 | 2,944 | 2,965 | 2,963 |
| Therms Per Industrial Customer | 30,563 | 46,254 | 46,468 | 46,726 | 46,970 | 47,199 | 47,417 | 47,621 |
| Residential Customers | 54,883 | 55,549 | 55,801 | 56,436 | 57,211 | 57,994 | 58,783 | 59,575 |
| Commercial Customers | 9,411 | 9,502 | 9,656 | 9,817 | 9,979 | 10,142 | 10,307 | 10,471 |
| Industrial Customers | 92 | 92 | 88 | 85 | 81 | 79 | 76 | 74 |
| Interruptible Customers | | | | | | | | |
| Total Core Customers | 64,386 | 65,142 | 65,545 | 66,338 | 67,272 | 68,215 | 69,166 | 70,120 |

System

| | | 6.11% | 2.10% | 0.73% | 1.23% | 1.64% | 1.70% | 1.42% |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | | | | | | | | |
| Residential Therms | 142,705,621 | 147,295,028 | 152,445,498 | 153,412,307 | 155,458,411 | 158,188,977 | 160,912,282 | 163,333,868 |
| Commercial Therms | 110,770,835 | 120,571,182 | 121,666,716 | 123,112,829 | 124,921,316 | 127,290,846 | 129,904,193 | 132,012,535 |
| Industrial Therms | 12,074,238 | 14,032,350 | 13,751,198 | 13,451,479 | 13,183,735 | 12,944,501 | 12,729,980 | 12,537,855 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 |
| Total Core Therms | 267,584,518 | 283,932,383 | 289,897,235 | 292,010,439 | 295,597,286 | 300,458,147 | 305,590,278 | 309,918,082 |
| Daily Baseload Therms | 241,903 | 257,338 | 262,950 | 264,991 | 268,380 | 272,901 | 277,627 | 281,663 |
| Peak Day Therms | 3,558,409 | 3,577,004 | 3,616,554 | 3,676,754 | 3,743,668 | 3,810,995 | 3,878,666 | 3,946,689 |
| Therms Per Residential Customer | 633 | 650 | 666 | 660 | 657 | 657 | 657 | 656 |
| Therms Per Commercial Customer | 3,253 | 3,520 | 3,492 | 3,470 | 3,459 | 3,462 | 3,472 | 3,468 |
| Therms Per Industrial Customer | 27,072 | 31,455 | 31,569 | 31,691 | 31,812 | 31,931 | 32,047 | 32,159 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Residential Customers | 225,423 | 226,535 | 228,728 | 232,391 | 236,548 | 240,731 | 244,936 | 249,160 |
| Commercial Customers | 34,053 | 34,250 | 34,843 | 35,479 | 36,119 | 36,764 | 37,413 | 38,064 |
| Industrial Customers | 446 | 446 | 436 | 424 | 414 | 405 | 397 | 390 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 259,950 | 261,260 | 264,035 | 268,323 | 273,110 | 277,928 | 282,774 | 287,642 |

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Aberdeen | | | | | | | | |
| Total Therms Pct. Growth | 0.34% | 0.33% | 0.38% | 0.36% | 0.37% | 0.27% | 0.31% | 0.39% |
| Residential Therms | 4,040,932 | 4,056,234 | 4,076,982 | 4,091,460 | 4,105,884 | 4,113,934 | 4,133,096 | 4,151,521 |
| Commercial Therms | 5,009,397 | 5,029,831 | 5,049,319 | 5,073,841 | 5,099,378 | 5,120,534 | 5,134,646 | 5,157,329 |
| Industrial Therms | 236,523 | 233,715 | 231,202 | 228,977 | 226,899 | 225,161 | 223,726 | 222,557 |
| Ind., Inst., & Cmcl. Interrup. Therms | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 |
| Total Core Therms | 10,026,150 | 10,059,078 | 10,096,801 | 10,133,577 | 10,171,460 | 10,198,927 | 10,230,767 | 10,270,705 |
| Daily Baseload Therms | 8,527 | 8,555 | 8,587 | 8,618 | 8,650 | 8,674 | 8,701 | 8,735 |
| Peak Day Therms | 83,870 | 84,272 | 84,675 | 85,066 | 85,457 | 85,836 | 86,216 | 86,584 |
| Therms Per Residential Customer | 742 | 741 | 741 | 740 | 739 | 737 | 737 | 737 |
| Therms Per Commercial Customer | 4,279 | 4,282 | 4,284 | 4,290 | 4,297 | 4,300 | 4,297 | 4,301 |
| Therms Per Industrial Customer | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 |
| Residential Customers | 5,446 | 5,474 | 5,502 | 5,529 | 5,556 | 5,582 | 5,608 | 5,633 |
| Commercial Customers | 1,171 | 1,175 | 1,179 | 1,183 | 1,187 | 1,191 | 1,195 | 1,199 |
| Industrial Customers | 13 | 13 | 12 | 12 | 12 | 12 | 12 | 12 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 6,632 | 6,664 | 6,696 | 6,727 | 6,758 | 6,788 | 6,818 | 6,847 |

| | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bellingham | | | | | | | | |
| Total Therms Pct. Growth | 1.80% | 2.07% | 2.07% | 1.48% | 1.47% | 2.17% | 2.60% | 1.53% |
| Residential Therms | 32,637,744 | 33,338,844 | 34,041,312 | 34,542,640 | 35,088,910 | 35,946,160 | 36,863,496 | 37,459,532 |
| Commercial Therms | 18,312,463 | 18,697,957 | 19,105,392 | 19,416,601 | 19,687,283 | 20,051,337 | 20,621,600 | 20,925,833 |
| Industrial Therms | 949,924 | 941,948 | 934,424 | 927,347 | 920,666 | 914,388 | 908,497 | 902,976 |
| Ind., Inst., & Cmcl. Interrup. Therms | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 |
| Total Core Therms | 52,069,555 | 53,148,174 | 54,250,552 | 55,056,013 | 55,866,283 | 57,081,310 | 58,563,017 | 59,457,765 |
| Daily Baseload Therms | 51,261 | 52,323 | 53,408 | 54,201 | 54,999 | 56,195 | 57,653 | 58,534 |
| Peak Day Therms | 797,623 | 814,676 | 831,752 | 848,865 | 866,003 | 883,130 | 900,245 | 917,349 |
| Therms Per Residential Customer | 684 | 684 | 684 | 680 | 677 | 680 | 684 | 682 |
| Therms Per Commercial Customer | 3,246 | 3,247 | 3,252 | 3,241 | 3,224 | 3,223 | 3,255 | 3,245 |
| Therms Per Industrial Customer | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 |
| Residential Customers | 47,716 | 48,741 | 49,768 | 50,798 | 51,830 | 52,862 | 53,894 | 54,926 |
| Commercial Customers | 5,642 | 5,759 | 5,875 | 5,991 | 6,106 | 6,221 | 6,335 | 6,449 |
| Industrial Customers | 37 | 36 | 36 | 36 | 35 | 35 | 35 | 35 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 53,398 | 54,540 | 55,683 | 56,829 | 57,976 | 59,123 | 60,268 | 61,413 |

| | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bremerton | | | | | | | | |
| Total Therms Pct. Growth | 1.93% | 1.97% | 1.94% | 1.77% | 1.76% | 2.06% | 2.08% | 1.76% |
| Residential Therms | 20,969,220 | 21,276,785 | 21,585,720 | 21,833,461 | 22,080,744 | 22,460,455 | 22,876,728 | 23,161,905 |
| Commercial Therms | 12,284,154 | 12,639,893 | 12,995,306 | 13,367,513 | 13,746,966 | 14,115,190 | 14,466,878 | 14,845,937 |
| Industrial Therms | 178,922 | 181,687 | 184,455 | 187,235 | 190,021 | 192,815 | 195,619 | 198,434 |
| Ind., Inst., & Cmcl. Interrup. Therms | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 |
| Total Core Therms | 33,789,920 | 34,455,989 | 35,123,106 | 35,745,833 | 36,375,355 | 37,126,085 | 37,896,850 | 38,563,901 |
| Daily Baseload Therms | 38,082 | 38,833 | 39,584 | 40,286 | 40,996 | 41,842 | 42,711 | 43,462 |
| Peak Day Therms | 381,746 | 387,831 | 393,947 | 400,116 | 406,317 | 412,568 | 418,846 | 425,151 |
| Therms Per Residential Customer | 685 | 685 | 685 | 683 | 681 | 683 | 686 | 685 |
| Therms Per Commercial Customer | 3,932 | 3,934 | 3,935 | 3,940 | 3,946 | 3,948 | 3,945 | 3,949 |
| Therms Per Industrial Customer | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 |
| Residential Customers | 30,612 | 31,061 | 31,512 | 31,967 | 32,424 | 32,885 | 33,348 | 33,813 |
| Commercial Customers | 3,124 | 3,213 | 3,302 | 3,393 | 3,484 | 3,575 | 3,667 | 3,759 |
| Industrial Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 33,740 | 34,278 | 34,819 | 35,364 | 35,912 | 36,465 | 37,019 | 37,577 |

| | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Kennewick | | | | | | | | |
| Total Therms Pct. Growth | 3.15% | 3.17% | 3.21% | 3.04% | 2.85% | 2.91% | 3.19% | 2.98% |
| Residential Therms | 14,230,629 | 14,685,852 | 15,175,764 | 15,673,896 | 16,151,816 | 16,635,528 | 17,156,958 | 17,751,364 |
| Commercial Therms | 17,218,202 | 17,785,169 | 18,362,853 | 18,906,306 | 19,435,431 | 20,010,061 | 20,678,758 | 21,233,333 |
| Industrial Therms | 508,526 | 506,882 | 505,518 | 504,398 | 503,513 | 502,852 | 502,429 | 502,223 |
| Ind., Inst., & Cmcl. Interrup. Therms | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 |
| Total Core Therms | 32,158,742 | 33,179,287 | 34,245,521 | 35,285,986 | 36,292,145 | 37,349,825 | 38,539,529 | 39,688,305 |
| Daily Baseload Therms | 25,894 | 26,716 | 27,575 | 28,413 | 29,223 | 30,074 | 31,032 | 31,957 |
| Peak Day Therms | 474,069 | 490,215 | 506,648 | 523,353 | 540,364 | 557,629 | 575,162 | 592,962 |
| Therms Per Residential Customer | 549 | 548 | 548 | 548 | 547 | 546 | 546 | 548 |
| Therms Per Commercial Customer | 4,202 | 4,192 | 4,183 | 4,165 | 4,143 | 4,130 | 4,135 | 4,116 |
| Therms Per Industrial Customer | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 |
| Residential Customers | 25,921 | 26,799 | 27,693 | 28,602 | 29,528 | 30,468 | 31,423 | 32,393 |
| Commercial Customers | 4,098 | 4,243 | 4,390 | 4,539 | 4,691 | 4,845 | 5,001 | 5,159 |
| Industrial Customers | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 30,036 | 31,059 | 32,100 | 33,159 | 34,237 | 35,331 | 36,441 | 37,569 |

| | | | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Longview | | | | | | | | |
| Total Therms Pct. Growth | 0.41% | 0.35% | 0.34% | 0.45% | 0.50% | 0.42% | 0.18% | 0.53% |
| Residential Therms | 1,532,500 | 1,536,120 | 1,539,720 | 1,545,830 | 1,550,620 | 1,557,330 | 1,562,694 | 1,573,190 |
| Commercial Therms | 5,047,296 | 5,067,843 | 5,087,622 | 5,113,225 | 5,143,705 | 5,166,076 | 5,171,858 | 5,198,830 |
| Industrial Therms | 766,494 | 768,441 | 770,600 | 772,915 | 775,478 | 778,129 | 780,951 | 783,980 |
| Ind., Inst., & Cmcl. Interrup. Therms | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 |
| Total Core Therms | 7,463,835 | 7,489,949 | 7,515,487 | 7,549,516 | 7,587,348 | 7,619,080 | 7,633,048 | 7,673,544 |

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Daily Baseload Therms | 8,598 | 8,628 | 8,657 | 8,696 | 8,740 | 8,777 | 8,793 | 8,839 |
| Peak Day Therms | 78,706 | 79,016 | 79,327 | 79,639 | 79,999 | 80,333 | 80,711 | 81,093 |
| Therms Per Residential Customer | 613 | 612 | 611 | 611 | 610 | 610 | 609 | 610 |
| Therms Per Commercial Customer | 4,301 | 4,302 | 4,302 | 4,307 | 4,315 | 4,317 | 4,305 | 4,310 |
| Therms Per Industrial Customer | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 |
| Residential Customers | 2,500 | 2,510 | 2,520 | 2,530 | 2,542 | 2,553 | 2,566 | 2,579 |
| Commercial Customers | 1,174 | 1,178 | 1,183 | 1,187 | 1,192 | 1,197 | 1,201 | 1,206 |
| Industrial Customers | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 3,705 | 3,720 | 3,734 | 3,749 | 3,766 | 3,782 | 3,799 | 3,817 |

Moses Lake

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | 1.00% | 1.13% | 1.28% | 1.06% | 0.88% | 1.06% | 1.58% | 1.23% |
| Residential Therms | 1,051,725 | 1,051,253 | 1,054,571 | 1,057,336 | 1,056,818 | 1,054,352 | 1,057,092 | 1,068,120 |
| Commercial Therms | 2,533,834 | 2,558,669 | 2,586,123 | 2,604,945 | 2,619,181 | 2,643,121 | 2,685,619 | 2,704,072 |
| Industrial Therms | 731,308 | 755,746 | 780,662 | 806,045 | 831,801 | 858,088 | 884,668 | 911,922 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 4,316,868 | 4,365,669 | 4,421,357 | 4,468,326 | 4,507,801 | 4,555,562 | 4,627,380 | 4,684,115 |
| Daily Baseload Therms | 3,781 | 3,823 | 3,872 | 3,913 | 3,948 | 3,990 | 4,053 | 4,102 |
| Peak Day Therms | 80,545 | 80,945 | 81,343 | 81,710 | 82,105 | 82,499 | 82,860 | 83,250 |
| Therms Per Residential Customer | 555 | 553 | 553 | 553 | 551 | 548 | 548 | 552 |
| Therms Per Commercial Customer | 3,677 | 3,680 | 3,687 | 3,682 | 3,671 | 3,674 | 3,703 | 3,699 |
| Therms Per Industrial Customer | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 |
| Residential Customers | 1,895 | 1,901 | 1,907 | 1,912 | 1,918 | 1,924 | 1,929 | 1,935 |
| Commercial Customers | 689 | 695 | 701 | 707 | 713 | 719 | 725 | 731 |
| Industrial Customers | 23 | 24 | 25 | 25 | 26 | 27 | 28 | 29 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 2,608 | 2,621 | 2,634 | 2,646 | 2,659 | 2,671 | 2,683 | 2,696 |

Mount Vernon

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 1.64% | 1.63% | 1.63% | 1.61% | 1.49% | 1.57% | 1.77% | 1.67% |
| Residential Therms | 29,359,140 | 29,862,027 | 30,366,336 | 30,915,976 | 31,426,029 | 31,938,918 | 32,451,000 | 33,058,410 |
| Commercial Therms | 16,868,724 | 17,196,290 | 17,531,372 | 17,819,797 | 18,097,934 | 18,417,003 | 18,853,617 | 19,154,358 |
| Industrial Therms | 1,018,696 | 960,968 | 907,740 | 858,533 | 812,970 | 770,810 | 731,772 | 695,588 |
| Ind., Inst., & Cmcl. Interrup. Therms | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 |
| Total Core Therms | 47,371,541 | 48,144,265 | 48,930,430 | 49,719,287 | 50,461,914 | 51,251,711 | 52,161,369 | 53,033,337 |
| Daily Baseload Therms | 46,407 | 47,164 | 47,934 | 48,707 | 49,434 | 50,208 | 51,099 | 51,953 |
| Peak Day Therms | 551,181 | 561,355 | 571,587 | 581,904 | 592,292 | 602,765 | 613,255 | 623,855 |
| Therms Per Residential Customer | 730 | 729 | 728 | 728 | 726 | 726 | 725 | 726 |
| Therms Per Commercial Customer | 3,224 | 3,226 | 3,229 | 3,223 | 3,215 | 3,214 | 3,233 | 3,228 |
| Therms Per Industrial Customer | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 |
| Residential Customers | 40,218 | 40,963 | 41,712 | 42,467 | 43,227 | 43,993 | 44,760 | 45,535 |
| Commercial Customers | 5,232 | 5,331 | 5,429 | 5,529 | 5,629 | 5,730 | 5,832 | 5,934 |
| Industrial Customers | 57 | 54 | 51 | 48 | 46 | 43 | 41 | 39 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 45,509 | 46,349 | 47,194 | 48,046 | 48,904 | 49,768 | 50,635 | 51,510 |

Sunnyside

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | 0.15% | 0.03% | 0.21% | 0.27% | 0.07% | 0.02% | 0.15% | 0.56% |
| Residential Therms | 3,134,495 | 3,133,548 | 3,148,240 | 3,168,408 | 3,172,260 | 3,170,025 | 3,178,710 | 3,225,344 |
| Commercial Therms | 4,586,183 | 4,603,148 | 4,619,531 | 4,635,406 | 4,649,442 | 4,664,325 | 4,679,998 | 4,693,613 |
| Industrial Therms | 1,115,744 | 1,102,385 | 1,089,645 | 1,077,457 | 1,065,756 | 1,054,582 | 1,043,945 | 1,033,829 |
| Ind., Inst., & Cmcl. Interrup. Therms | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 |
| Total Core Therms | 8,913,782 | 8,916,441 | 8,934,776 | 8,958,631 | 8,964,818 | 8,966,292 | 8,980,013 | 9,030,146 |
| Daily Baseload Therms | 6,245 | 6,247 | 6,260 | 6,277 | 6,281 | 6,282 | 6,292 | 6,327 |
| Peak Day Therms | 100,392 | 100,716 | 101,023 | 101,328 | 101,632 | 101,919 | 102,203 | 102,470 |
| Therms Per Residential Customer | 581 | 579 | 580 | 582 | 581 | 579 | 579 | 586 |
| Therms Per Commercial Customer | 3,302 | 3,301 | 3,300 | 3,299 | 3,297 | 3,296 | 3,296 | 3,295 |
| Therms Per Industrial Customer | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 |
| Residential Customers | 5,395 | 5,412 | 5,428 | 5,444 | 5,460 | 5,475 | 5,490 | 5,504 |
| Commercial Customers | 1,389 | 1,394 | 1,400 | 1,405 | 1,410 | 1,415 | 1,420 | 1,424 |
| Industrial Customers | 43 | 43 | 42 | 42 | 41 | 41 | 41 | 40 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 6,829 | 6,851 | 6,872 | 6,893 | 6,914 | 6,933 | 6,952 | 6,971 |

Walla Walla

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.78% | 0.89% | 0.62% | 0.59% | 0.70% | 0.89% | 0.69% | 0.55% |
| Residential Therms | 6,624,540 | 6,709,700 | 6,770,790 | 6,818,185 | 6,875,166 | 6,965,368 | 7,052,510 | 7,101,900 |
| Commercial Therms | 4,270,796 | 4,284,982 | 4,294,775 | 4,314,780 | 4,338,318 | 4,350,906 | 4,344,694 | 4,360,346 |
| Industrial Therms | 102,419 | 100,565 | 98,781 | 97,028 | 95,328 | 93,663 | 91,992 | 90,372 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 10,997,756 | 11,095,248 | 11,164,348 | 11,229,993 | 11,308,813 | 11,409,938 | 11,489,197 | 11,552,619 |
| Daily Baseload Therms | 7,568 | 7,635 | 7,683 | 7,728 | 7,782 | 7,852 | 7,906 | 7,950 |
| Peak Day Therms | 170,987 | 172,768 | 174,520 | 176,230 | 177,898 | 179,510 | 181,040 | 182,527 |
| Therms Per Residential Customer | 585 | 586 | 585 | 583 | 582 | 584 | 586 | 585 |
| Therms Per Commercial Customer | 3,309 | 3,306 | 3,300 | 3,302 | 3,307 | 3,304 | 3,287 | 3,287 |
| Therms Per Industrial Customer | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 |
| Residential Customers | 11,324 | 11,450 | 11,574 | 11,695 | 11,813 | 11,927 | 12,035 | 12,140 |
| Commercial Customers | 1,291 | 1,296 | 1,301 | 1,307 | 1,312 | 1,317 | 1,322 | 1,327 |
| Industrial Customers | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 12,618 | 12,750 | 12,879 | 13,005 | 13,128 | 13,247 | 13,360 | 13,470 |

Wenatchee

| | | | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | -0.38% | -0.50% | -0.42% | -0.32% | -0.39% | -0.55% | -0.62% | -0.17% |
| Residential Therms | 815,349 | 814,248 | 818,928 | 823,620 | 823,536 | 820,224 | 823,296 | 838,760 |
| Commercial Therms | 3,711,533 | 3,684,114 | 3,655,761 | 3,633,137 | 3,611,744 | 3,585,513 | 3,549,192 | 3,525,126 |
| Industrial Therms | 914,355 | 915,161 | 915,655 | 915,883 | 915,867 | 915,637 | 915,163 | 914,406 |
| Ind., Inst., & Cmcl. Interrup. Therms | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 |
| Total Core Therms | 5,536,953 | 5,509,239 | 5,486,059 | 5,468,356 | 5,446,863 | 5,417,090 | 5,383,367 | 5,374,008 |
| Daily Baseload Therms | 4,951 | 4,926 | 4,905 | 4,889 | 4,870 | 4,843 | 4,813 | 4,805 |
| Peak Day Therms | 60,158 | 60,317 | 60,452 | 60,589 | 60,729 | 60,870 | 61,013 | 61,131 |
| Therms Per Residential Customer | 519 | 516 | 517 | 518 | 516 | 512 | 512 | 520 |
| Therms Per Commercial Customer | 4,965 | 4,934 | 4,901 | 4,875 | 4,850 | 4,818 | 4,772 | 4,742 |
| Therms Per Industrial Customer | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 |
| Residential Customers | 1,571 | 1,578 | 1,584 | 1,590 | 1,596 | 1,602 | 1,608 | 1,613 |
| Commercial Customers | 748 | 747 | 746 | 745 | 745 | 744 | 744 | 743 |
| Industrial Customers | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 2,340 | 2,347 | 2,352 | 2,357 | 2,363 | 2,368 | 2,374 | 2,378 |

Yakima

| | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.21% | 0.48% | 0.63% | 0.04% | -0.01% | 0.55% | 1.43% | 0.12% |
| Residential Therms | 11,379,510 | 11,451,932 | 11,542,560 | 11,568,760 | 11,613,978 | 11,719,512 | 11,866,455 | 11,903,878 |
| Commercial Therms | 12,742,797 | 12,827,932 | 12,933,609 | 12,945,960 | 12,924,742 | 12,991,952 | 13,257,086 | 13,275,686 |
| Industrial Therms | 2,399,060 | 2,369,150 | 2,340,482 | 2,312,905 | 2,286,321 | 2,260,821 | 2,236,472 | 2,213,183 |
| Ind., Inst., & Cmcl. Interrup. Therms | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 |
| Total Core Therms | 26,671,852 | 26,799,500 | 26,967,136 | 26,978,111 | 26,975,526 | 27,122,770 | 27,510,499 | 27,543,233 |
| Daily Baseload Therms | 19,258 | 19,350 | 19,471 | 19,479 | 19,478 | 19,584 | 19,864 | 19,887 |
| Peak Day Therms | 321,463 | 323,909 | 326,298 | 328,644 | 330,961 | 333,207 | 335,409 | 337,541 |
| Therms Per Residential Customer | 557 | 556 | 556 | 553 | 551 | 552 | 555 | 553 |
| Therms Per Commercial Customer | 3,615 | 3,622 | 3,635 | 3,622 | 3,600 | 3,603 | 3,661 | 3,651 |
| Therms Per Industrial Customer | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 |
| Residential Customers | 20,430 | 20,597 | 20,760 | 20,920 | 21,078 | 21,231 | 21,381 | 21,526 |
| Commercial Customers | 3,525 | 3,542 | 3,558 | 3,574 | 3,590 | 3,606 | 3,621 | 3,636 |
| Industrial Customers | 70 | 69 | 68 | 67 | 66 | 66 | 65 | 64 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 24,029 | 24,212 | 24,390 | 24,565 | 24,739 | 24,907 | 25,071 | 25,231 |

Baker

| | | | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | -0.28% | 0.00% | 0.13% | -0.34% | -0.19% | 0.26% | 0.71% | -0.03% |
| Residential Therms | 1,731,384 | 1,730,638 | 1,732,710 | 1,722,414 | 1,719,296 | 1,726,758 | 1,739,155 | 1,738,557 |
| Commercial Therms | 1,737,716 | 1,743,498 | 1,750,194 | 1,751,942 | 1,751,060 | 1,754,877 | 1,768,880 | 1,769,123 |
| Industrial Therms | 55,257 | 50,110 | 45,857 | 42,421 | 39,605 | 37,441 | 36,081 | 35,299 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 3,524,359 | 3,524,247 | 3,528,762 | 3,516,779 | 3,509,962 | 3,519,077 | 3,544,117 | 3,542,981 |
| Daily Baseload Therms | 2,880 | 2,880 | 2,884 | 2,874 | 2,868 | 2,866 | 2,896 | 2,895 |
| Peak Day Therms | 26,214 | 26,260 | 26,298 | 26,350 | 26,408 | 26,472 | 26,556 | 26,645 |
| Therms Per Residential Customer | 519 | 518 | 518 | 514 | 512 | 513 | 515 | 513 |
| Therms Per Commercial Customer | 3,371 | 3,370 | 3,372 | 3,364 | 3,352 | 3,350 | 3,368 | 3,361 |
| Therms Per Industrial Customer | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 |
| Residential Customers | 3,336 | 3,341 | 3,345 | 3,351 | 3,358 | 3,366 | 3,377 | 3,389 |
| Commercial Customers | 515 | 517 | 519 | 521 | 522 | 524 | 525 | 526 |
| Industrial Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 3,854 | 3,861 | 3,866 | 3,874 | 3,882 | 3,892 | 3,904 | 3,917 |

Bend

| | | | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 1.28% | 1.65% | 1.76% | 1.18% | 1.20% | 1.81% | 2.68% | 1.32% |
| Residential Therms | 29,781,550 | 30,182,475 | 30,587,750 | 30,868,388 | 31,239,488 | 31,743,315 | 32,301,192 | 32,640,092 |
| Commercial Therms | 20,742,951 | 21,271,350 | 21,859,786 | 22,271,038 | 22,606,664 | 23,149,233 | 24,142,017 | 24,605,635 |
| Industrial Therms | 1,523,532 | 1,453,051 | 1,389,097 | 1,330,632 | 1,277,418 | 1,228,627 | 1,184,318 | 1,143,628 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 52,048,034 | 52,906,877 | 53,836,634 | 54,470,060 | 55,123,571 | 56,121,175 | 57,627,529 | 58,389,356 |
| Daily Baseload Therms | 43,854 | 44,578 | 45,361 | 45,895 | 46,446 | 47,286 | 48,555 | 49,197 |
| Peak Day Therms | 629,881 | 638,995 | 648,201 | 657,485 | 666,920 | 676,402 | 686,032 | 695,722 |
| Therms Per Residential Customer | 725 | 725 | 725 | 722 | 721 | 723 | 726 | 724 |
| Therms Per Commercial Customer | 2,845 | 2,859 | 2,880 | 2,877 | 2,864 | 2,877 | 2,944 | 2,945 |
| Therms Per Industrial Customer | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 |
| Residential Customers | 41,078 | 41,631 | 42,190 | 42,754 | 43,328 | 43,905 | 44,492 | 45,083 |
| Commercial Customers | 7,291 | 7,440 | 7,590 | 7,741 | 7,893 | 8,046 | 8,200 | 8,355 |
| Industrial Customers | 37 | 35 | 33 | 32 | 31 | 30 | 28 | 27 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 48,407 | 49,107 | 49,815 | 50,528 | 51,253 | 51,982 | 52,722 | 53,467 |

Ontario

| | | | | | | | | |
|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total Therms Pct. Growth | -0.33% | 0.35% | 0.55% | -0.06% | -0.40% | 0.23% | 1.93% | 0.26% |
| Residential Therms | 2,085,790 | 2,084,520 | 2,085,680 | 2,091,600 | 2,090,320 | 2,087,158 | 2,091,782 | 2,107,287 |
| Commercial Therms | 2,566,751 | 2,581,454 | 2,604,584 | 2,590,903 | 2,566,529 | 2,577,094 | 2,670,099 | 2,664,304 |

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Industrial Therms | 597,259 | 602,397 | 607,266 | 612,079 | 616,636 | 621,194 | 625,673 | 629,953 |
| Ind., Inst., & Cmcl. Interrup. Therms | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 5,249,800 | 5,268,371 | 5,297,529 | 5,294,583 | 5,273,485 | 5,285,447 | 5,387,553 | 5,401,544 |
| Daily Baseload Therms | 3,900 | 3,914 | 3,935 | 3,933 | 3,917 | 3,926 | 4,002 | 4,013 |
| Peak Day Therms | 30,457 | 30,491 | 30,510 | 30,543 | 30,579 | 30,637 | 30,707 | 30,775 |
| Therms Per Residential Customer | 581 | 580 | 580 | 581 | 580 | 578 | 578 | 581 |
| Therms Per Commercial Customer | 2,927 | 2,941 | 2,965 | 2,947 | 2,915 | 2,922 | 3,020 | 3,007 |
| Therms Per Industrial Customer | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 |
| Residential Customers | 3,590 | 3,594 | 3,596 | 3,600 | 3,604 | 3,611 | 3,619 | 3,627 |
| Commercial Customers | 877 | 878 | 878 | 879 | 880 | 882 | 884 | 886 |
| Industrial Customers | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| Interruptible Customers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 4,478 | 4,483 | 4,485 | 4,490 | 4,496 | 4,504 | 4,514 | 4,524 |

Pendleton

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 1.16% | 1.25% | 1.23% | 0.94% | 0.86% | 1.26% | 1.36% | 0.84% |
| Residential Therms | 6,467,941 | 6,596,599 | 6,721,596 | 6,818,327 | 6,911,004 | 7,052,777 | 7,190,727 | 7,282,944 |
| Commercial Therms | 6,379,315 | 6,425,601 | 6,474,518 | 6,512,802 | 6,543,954 | 6,586,018 | 6,649,322 | 6,682,843 |
| Industrial Therms | 1,267,517 | 1,268,937 | 1,270,286 | 1,271,608 | 1,272,868 | 1,274,035 | 1,275,103 | 1,276,059 |
| Ind., Inst., & Cmcl. Interrup. Therms | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 14,114,773 | 14,291,137 | 14,466,400 | 14,602,737 | 14,727,826 | 14,912,830 | 15,115,152 | 15,241,846 |
| Daily Baseload Therms | 14,511 | 14,693 | 14,873 | 15,013 | 15,141 | 15,332 | 15,540 | 15,670 |
| Peak Day Therms | 227,611 | 231,759 | 235,790 | 239,754 | 243,619 | 247,351 | 250,935 | 254,370 |
| Therms Per Residential Customer | 523 | 523 | 523 | 521 | 519 | 521 | 523 | 522 |
| Therms Per Commercial Customer | 3,266 | 3,264 | 3,264 | 3,259 | 3,251 | 3,249 | 3,258 | 3,253 |
| Therms Per Industrial Customer | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 |
| Residential Customers | 12,367 | 12,613 | 12,852 | 13,087 | 13,316 | 13,537 | 13,749 | 13,952 |
| Commercial Customers | 1,953 | 1,969 | 1,984 | 1,998 | 2,013 | 2,027 | 2,041 | 2,054 |
| Industrial Customers | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Interruptible Customers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 14,343 | 14,605 | 14,859 | 15,109 | 15,352 | 15,587 | 15,813 | 16,030 |

Washington

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | 1.50% | 1.61% | 1.63% | 1.40% | 1.34% | 1.63% | 1.90% | 1.47% |
| Residential Therms | 125,775,784 | 127,916,543 | 130,120,923 | 132,039,572 | 133,945,761 | 136,381,806 | 139,022,035 | 141,293,924 |
| Commercial Therms | 102,585,377 | 104,375,828 | 106,221,663 | 107,831,513 | 109,354,124 | 111,116,018 | 113,443,947 | 115,074,462 |
| Industrial Therms | 8,921,971 | 8,836,647 | 8,759,165 | 8,688,723 | 8,624,620 | 8,566,946 | 8,515,234 | 8,469,469 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 |
| Total Core Therms | 239,316,954 | 243,162,839 | 247,135,572 | 250,593,630 | 253,958,326 | 258,098,591 | 263,015,037 | 266,871,677 |
| Daily Baseload Therms | 220,572 | 224,200 | 227,937 | 231,208 | 234,401 | 238,320 | 242,917 | 246,553 |
| Peak Day Therms | 3,100,738 | 3,156,018 | 3,211,571 | 3,267,444 | 3,323,756 | 3,380,266 | 3,436,960 | 3,493,914 |
| Therms Per Residential Customer | 652 | 651 | 651 | 649 | 647 | 648 | 650 | 649 |
| Therms Per Commercial Customer | 3,653 | 3,653 | 3,655 | 3,648 | 3,638 | 3,636 | 3,652 | 3,645 |
| Therms Per Industrial Customer | 28,670 | 28,793 | 28,911 | 29,022 | 29,128 | 29,228 | 29,323 | 29,413 |
| Residential Customers | 193,028 | 196,486 | 199,960 | 203,454 | 206,972 | 210,502 | 214,042 | 217,597 |
| Commercial Customers | 28,081 | 28,572 | 29,065 | 29,561 | 30,060 | 30,561 | 31,063 | 31,568 |
| Industrial Customers | 311 | 307 | 303 | 299 | 296 | 293 | 290 | 288 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 221,448 | 225,392 | 229,356 | 233,342 | 237,356 | 241,384 | 245,424 | 249,480 |

Oregon

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 1.06% | 1.41% | 1.50% | 0.98% | 0.96% | 1.53% | 2.30% | 1.10% |
| Residential Therms | 40,066,665 | 40,594,232 | 41,127,736 | 41,500,729 | 41,960,108 | 42,610,008 | 43,322,866 | 43,768,880 |
| Commercial Therms | 31,426,732 | 32,021,903 | 32,689,081 | 33,126,686 | 33,468,207 | 34,067,222 | 35,230,318 | 35,721,905 |
| Industrial Therms | 3,443,566 | 3,374,495 | 3,312,506 | 3,256,741 | 3,206,527 | 3,161,297 | 3,121,175 | 3,084,939 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Therms | 74,936,966 | 75,990,632 | 77,129,325 | 77,884,158 | 78,634,844 | 79,838,529 | 81,674,351 | 82,575,727 |
| Daily Baseload Therms | 65,145 | 66,064 | 67,053 | 67,715 | 68,373 | 69,420 | 70,993 | 71,775 |
| Peak Day Therms | 914,164 | 927,505 | 940,799 | 954,132 | 967,526 | 980,863 | 994,230 | 1,007,512 |
| Therms Per Residential Customer | 664 | 664 | 664 | 661 | 660 | 661 | 664 | 663 |
| Therms Per Commercial Customer | 2,955 | 2,964 | 2,980 | 2,974 | 2,959 | 2,968 | 3,024 | 3,022 |
| Therms Per Industrial Customer | 47,813 | 47,994 | 48,164 | 48,326 | 48,478 | 48,622 | 48,755 | 48,879 |
| Residential Customers | 60,371 | 61,179 | 61,983 | 62,792 | 63,606 | 64,419 | 65,237 | 66,051 |
| Commercial Customers | 10,637 | 10,804 | 10,971 | 11,139 | 11,309 | 11,479 | 11,651 | 11,822 |
| Industrial Customers | 72 | 70 | 69 | 67 | 66 | 65 | 64 | 63 |
| Interruptible Customers | | | | | | | | |
| Total Core Customers | 71,080 | 72,053 | 73,023 | 73,999 | 74,981 | 75,963 | 76,952 | 77,936 |

System

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | 1.40% | 1.56% | 1.60% | 1.30% | 1.25% | 1.61% | 2.00% | 1.38% |
| Residential Therms | 165,842,449 | 168,510,775 | 171,248,659 | 173,540,301 | 175,905,869 | 178,991,814 | 182,344,891 | 185,062,804 |
| Commercial Therms | 134,012,110 | 136,397,731 | 138,910,744 | 140,958,199 | 142,822,331 | 145,183,240 | 148,674,265 | 150,796,367 |
| Industrial Therms | 12,365,537 | 12,211,142 | 12,071,671 | 11,945,463 | 11,831,147 | 11,728,243 | 11,636,409 | 11,554,408 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 |
| Total Core Therms | 314,253,920 | 319,153,471 | 324,264,897 | 328,477,787 | 332,593,170 | 337,937,121 | 344,689,388 | 349,447,403 |
| Daily Baseload Therms | 285,717 | 290,264 | 294,990 | 298,923 | 302,773 | 307,740 | 313,910 | 318,328 |
| Peak Day Therms | 4,014,901 | 4,083,523 | 4,152,370 | 4,221,577 | 4,291,282 | 4,361,129 | 4,431,190 | 4,501,426 |
| Therms Per Residential Customer | 654 | 654 | 654 | 652 | 650 | 651 | 653 | 652 |
| Therms Per Commercial Customer | 3,461 | 3,464 | 3,470 | 3,463 | 3,452 | 3,453 | 3,481 | 3,475 |
| Therms Per Industrial Customer | 32,268 | 32,372 | 32,473 | 32,569 | 32,661 | 32,749 | 32,833 | 32,913 |

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Residential Customers | 253,399 | 257,665 | 261,943 | 266,246 | 270,578 | 274,921 | 279,279 | 283,648 |
| Commercial Customers | 38,718 | 39,375 | 40,036 | 40,700 | 41,369 | 42,040 | 42,714 | 43,389 |
| Industrial Customers | 383 | 377 | 372 | 367 | 362 | 358 | 354 | 351 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 292,528 | 297,446 | 302,379 | 307,341 | 312,337 | 317,347 | 322,375 | 327,416 |

| | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Aberdeen | | | | | | |
| Total Therms Pct. Growth | 0.36% | 0.25% | 0.40% | 0.36% | 0.40% | 0.38% |
| Residential Therms | 4,164,288 | 4,170,588 | 4,187,470 | 4,199,357 | 4,203,981 | 4,214,290 |
| Commercial Therms | 5,182,323 | 5,202,519 | 5,227,827 | 5,253,239 | 5,253,239 | 5,278,378 |
| Industrial Therms | 221,638 | 220,923 | 220,494 | 220,277 | 220,277 | 220,147 |
| Ind., Inst., & Cmcl. Interrup. Therms | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 |
| Total Core Therms | 10,307,547 | 10,333,328 | 10,375,089 | 10,412,171 | 10,416,795 | 10,452,113 |
| Daily Baseload Therms | 8,766 | 8,788 | 8,824 | 8,855 | 8,859 | 8,889 |
| Peak Day Therms | 86,952 | 87,307 | 87,651 | 88,007 | 88,285 | 88,616 |
| Therms Per Residential Customer | 736 | 734 | 734 | 733 | 731 | 730 |
| Therms Per Commercial Customer | 4,307 | 4,309 | 4,315 | 4,321 | 4,321 | 4,327 |
| Therms Per Industrial Customer | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 |
| Residential Customers | 5,658 | 5,682 | 5,705 | 5,729 | 5,751 | 5,773 |
| Commercial Customers | 1,203 | 1,207 | 1,212 | 1,216 | 1,216 | 1,220 |
| Industrial Customers | 12 | 12 | 12 | 12 | 12 | 12 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 6,876 | 6,904 | 6,931 | 6,960 | 6,982 | 7,008 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bellingham | | | | | | |
| Total Therms Pct. Growth | 1.61% | 1.78% | 1.45% | 1.28% | | 2.06% |
| Residential Therms | 38,107,398 | 38,809,509 | 39,394,222 | 39,916,448 | 40,432,494 | 40,954,420 |
| Commercial Therms | 21,237,943 | 21,618,736 | 21,929,638 | 22,208,723 | 22,208,723 | 22,475,882 |
| Industrial Therms | 897,824 | 893,003 | 888,475 | 884,266 | 884,266 | 880,330 |
| Ind., Inst., & Cmcl. Interrup. Therms | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 |
| Total Core Therms | 60,412,590 | 61,490,672 | 62,381,760 | 63,178,861 | 63,694,907 | 64,480,056 |
| Daily Baseload Therms | 59,474 | 60,536 | 61,413 | 62,198 | 62,706 | 63,479 |
| Peak Day Therms | 934,440 | 951,502 | 968,522 | 985,545 | 1,000,930 | 1,018,210 |
| Therms Per Residential Customer | 681 | 681 | 679 | 676 | 673 | 670 |
| Therms Per Commercial Customer | 3,237 | 3,240 | 3,233 | 3,222 | 3,222 | 3,210 |
| Therms Per Industrial Customer | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 |
| Residential Customers | 55,958 | 56,989 | 58,018 | 59,048 | 60,078 | 61,126 |
| Commercial Customers | 6,561 | 6,672 | 6,783 | 6,893 | 6,893 | 7,002 |
| Industrial Customers | 35 | 34 | 34 | 34 | 34 | 34 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 62,558 | 63,700 | 64,839 | 65,979 | 67,009 | 68,166 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bremerton | | | | | | |
| Total Therms Pct. Growth | 1.75% | 1.78% | 1.69% | 1.59% | 2.21% | 2.19% |
| Residential Therms | 23,448,204 | 23,769,684 | 24,057,992 | 24,311,019 | 24,564,183 | 24,819,497 |
| Commercial Therms | 15,230,385 | 15,604,876 | 15,989,031 | 16,378,996 | 16,378,996 | 16,771,100 |
| Industrial Therms | 201,256 | 204,086 | 206,928 | 209,782 | 209,782 | 212,644 |
| Ind., Inst., & Cmcl. Interrup. Therms | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 |
| Total Core Therms | 39,237,469 | 39,936,270 | 40,611,576 | 41,257,421 | 41,510,585 | 42,160,865 |
| Daily Baseload Therms | 44,221 | 45,009 | 45,770 | 46,498 | 46,783 | 47,516 |
| Peak Day Therms | 431,493 | 437,860 | 444,264 | 450,694 | 456,102 | 462,637 |
| Therms Per Residential Customer | 684 | 684 | 683 | 681 | 679 | 677 |
| Therms Per Commercial Customer | 3,954 | 3,956 | 3,960 | 3,965 | 3,965 | 3,970 |
| Therms Per Industrial Customer | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 |
| Residential Customers | 34,281 | 34,751 | 35,224 | 35,699 | 36,177 | 36,661 |
| Commercial Customers | 3,852 | 3,945 | 4,038 | 4,131 | 4,131 | 4,224 |
| Industrial Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 38,137 | 38,700 | 39,266 | 39,834 | 40,312 | 40,890 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Kennewick | | | | | | |
| Total Therms Pct. Growth | 2.67% | 2.70% | 2.66% | 2.58% | 3.90% | 3.67% |
| Residential Therms | 18,257,219 | 18,768,204 | 19,320,210 | 19,880,406 | 20,447,700 | 20,954,336 |
| Commercial Therms | 21,788,869 | 22,378,846 | 22,937,570 | 23,486,122 | 23,486,122 | 24,028,511 |
| Industrial Therms | 502,235 | 502,473 | 502,888 | 503,500 | 503,500 | 504,275 |
| Ind., Inst., & Cmcl. Interrup. Therms | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 |
| Total Core Therms | 40,749,708 | 41,850,908 | 42,962,053 | 44,071,413 | 44,638,707 | 45,688,507 |
| Daily Baseload Therms | 32,812 | 33,699 | 34,593 | 35,487 | 35,943 | 36,789 |
| Peak Day Therms | 611,010 | 629,294 | 647,824 | 666,622 | 683,020 | 702,523 |
| Therms Per Residential Customer | 547 | 546 | 546 | 546 | 546 | 544 |
| Therms Per Commercial Customer | 4,097 | 4,084 | 4,065 | 4,044 | 4,044 | 4,022 |
| Therms Per Industrial Customer | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 |
| Residential Customers | 33,377 | 34,374 | 35,385 | 36,411 | 37,450 | 38,519 |
| Commercial Customers | 5,318 | 5,480 | 5,643 | 5,808 | 5,808 | 5,974 |
| Industrial Customers | 16 | 16 | 16 | 16 | 16 | 16 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 38,713 | 39,871 | 41,045 | 42,236 | 43,275 | 44,511 |

| | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Longview | | | | | | |
| Total Therms Pct. Growth | 0.46% | 0.39% | 0.47% | 0.48% | 0.57% | 0.59% |
| Residential Therms | 1,579,137 | 1,585,664 | 1,592,161 | 1,599,234 | 1,606,275 | 1,613,284 |
| Commercial Therms | 5,225,346 | 5,245,628 | 5,272,409 | 5,299,301 | 5,299,301 | 5,327,981 |
| Industrial Therms | 787,134 | 790,417 | 793,861 | 797,438 | 797,438 | 801,076 |
| Ind., Inst., & Cmcl. Interrup. Therms | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 |
| Total Core Therms | 7,709,162 | 7,739,253 | 7,775,976 | 7,813,518 | 7,820,559 | 7,859,887 |

| | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Daily Baseload Therms | 8,880 | 8,915 | 8,957 | 9,001 | 9,009 | 9,054 |
| Peak Day Therms | 81,494 | 81,915 | 82,338 | 82,783 | 83,123 | 83,565 |
| Therms Per Residential Customer | 609 | 608 | 607 | 606 | 605 | 604 |
| Therms Per Commercial Customer | 4,315 | 4,315 | 4,320 | 4,325 | 4,325 | 4,332 |
| Therms Per Industrial Customer | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 |
| Residential Customers | 2,593 | 2,608 | 2,623 | 2,639 | 2,655 | 2,671 |
| Commercial Customers | 1,211 | 1,216 | 1,220 | 1,225 | 1,225 | 1,230 |
| Industrial Customers | 30 | 30 | 31 | 31 | 31 | 31 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 3,836 | 3,856 | 3,876 | 3,897 | 3,913 | 3,934 |

Moses Lake

| | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | 1.01% | 1.10% | 1.06% | 0.92% | 0.89% | 0.83% |
| Residential Therms | 1,068,940 | 1,067,805 | 1,071,099 | 1,069,932 | 1,068,745 | 1,065,572 |
| Commercial Therms | 2,722,856 | 2,747,969 | 2,766,880 | 2,783,207 | 2,783,207 | 2,798,457 |
| Industrial Therms | 939,446 | 967,571 | 996,262 | 1,025,415 | 1,025,415 | 1,055,012 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 4,731,243 | 4,783,346 | 4,834,242 | 4,878,555 | 4,877,368 | 4,919,041 |
| Daily Baseload Therms | 4,144 | 4,189 | 4,234 | 4,273 | 4,272 | 4,308 |
| Peak Day Therms | 83,607 | 83,961 | 84,344 | 84,695 | 84,849 | 85,198 |
| Therms Per Residential Customer | 551 | 549 | 549 | 547 | 545 | 542 |
| Therms Per Commercial Customer | 3,696 | 3,702 | 3,700 | 3,695 | 3,695 | 3,689 |
| Therms Per Industrial Customer | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 |
| Residential Customers | 1,940 | 1,945 | 1,951 | 1,956 | 1,961 | 1,966 |
| Commercial Customers | 737 | 742 | 748 | 753 | 753 | 759 |
| Industrial Customers | 30 | 30 | 31 | 32 | 32 | 33 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 2,707 | 2,719 | 2,731 | 2,743 | 2,748 | 2,759 |

Mount Vernon

| | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 1.49% | 1.54% | 1.47% | 1.43% | 2.37% | 2.33% |
| Residential Therms | 33,574,025 | 34,090,988 | 34,609,287 | 35,127,466 | 35,646,961 | 36,174,240 |
| Commercial Therms | 19,460,346 | 19,804,157 | 20,118,969 | 20,421,267 | 20,421,267 | 20,711,688 |
| Industrial Therms | 662,051 | 630,901 | 601,926 | 574,934 | 574,934 | 549,738 |
| Ind., Inst., & Cmcl. Interrup. Therms | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 |
| Total Core Therms | 53,821,403 | 54,651,027 | 55,455,163 | 56,248,648 | 56,768,143 | 57,560,647 |
| Daily Baseload Therms | 52,725 | 53,538 | 54,326 | 55,103 | 55,612 | 56,389 |
| Peak Day Therms | 634,445 | 645,092 | 655,796 | 666,528 | 676,072 | 687,019 |
| Therms Per Residential Customer | 725 | 724 | 723 | 722 | 721 | 720 |
| Therms Per Commercial Customer | 3,224 | 3,226 | 3,223 | 3,218 | 3,218 | 3,211 |
| Therms Per Industrial Customer | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 |
| Residential Customers | 46,309 | 47,087 | 47,869 | 48,653 | 49,441 | 50,242 |
| Commercial Customers | 6,036 | 6,139 | 6,242 | 6,346 | 6,346 | 6,450 |
| Industrial Customers | 37 | 35 | 34 | 32 | 32 | 31 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 52,384 | 53,263 | 54,147 | 55,033 | 55,821 | 56,725 |

Sunnyside

| | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | 0.13% | 0.04% | 0.25% | 0.05% | 0.07% | 0.05% |
| Residential Therms | 3,233,548 | 3,235,635 | 3,254,915 | 3,256,988 | 3,258,450 | 3,259,888 |
| Commercial Therms | 4,706,583 | 4,717,421 | 4,729,146 | 4,740,285 | 4,740,285 | 4,749,486 |
| Industrial Therms | 1,024,214 | 1,015,103 | 1,006,408 | 998,134 | 998,134 | 990,225 |
| Ind., Inst., & Cmcl. Interrup. Therms | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 |
| Total Core Therms | 9,041,704 | 9,045,519 | 9,067,830 | 9,072,767 | 9,074,229 | 9,076,959 |
| Daily Baseload Therms | 6,335 | 6,338 | 6,353 | 6,357 | 6,358 | 6,360 |
| Peak Day Therms | 102,735 | 102,982 | 103,241 | 103,484 | 103,660 | 103,886 |
| Therms Per Residential Customer | 586 | 585 | 587 | 586 | 585 | 584 |
| Therms Per Commercial Customer | 3,294 | 3,292 | 3,291 | 3,290 | 3,290 | 3,288 |
| Therms Per Industrial Customer | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 |
| Residential Customers | 5,518 | 5,531 | 5,545 | 5,558 | 5,570 | 5,582 |
| Commercial Customers | 1,429 | 1,433 | 1,437 | 1,441 | 1,441 | 1,444 |
| Industrial Customers | 40 | 39 | 39 | 39 | 39 | 38 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 6,989 | 7,005 | 7,023 | 7,040 | 7,052 | 7,067 |

Walla Walla

| | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.64% | 0.54% | 0.47% | 0.34% | 0.65% | 0.65% |
| Residential Therms | 7,160,400 | 7,216,560 | 7,257,952 | 7,283,730 | 7,320,600 | 7,345,194 |
| Commercial Therms | 4,376,834 | 4,385,060 | 4,399,629 | 4,414,967 | 4,414,967 | 4,431,464 |
| Industrial Therms | 88,790 | 87,210 | 85,659 | 84,167 | 84,167 | 82,679 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 11,626,025 | 11,688,830 | 11,743,241 | 11,782,864 | 11,819,734 | 11,859,338 |
| Daily Baseload Therms | 8,001 | 8,044 | 8,081 | 8,108 | 8,134 | 8,161 |
| Peak Day Therms | 183,944 | 185,305 | 186,612 | 187,848 | 189,000 | 190,222 |
| Therms Per Residential Customer | 585 | 585 | 584 | 582 | 581 | 579 |
| Therms Per Commercial Customer | 3,288 | 3,283 | 3,283 | 3,284 | 3,284 | 3,286 |
| Therms Per Industrial Customer | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 |
| Residential Customers | 12,240 | 12,336 | 12,428 | 12,515 | 12,600 | 12,686 |
| Commercial Customers | 1,331 | 1,336 | 1,340 | 1,344 | 1,344 | 1,349 |
| Industrial Customers | 2 | 2 | 2 | 2 | 2 | 2 |

| | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 13,574 | 13,675 | 13,771 | 13,862 | 13,947 | 14,038 |

Wenatchee

| | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | -0.48% | -0.55% | -0.43% | -0.46% | -0.51% | -0.54% |
| Residential Therms | 838,642 | 837,984 | 842,193 | 843,144 | 840,807 | 840,084 |
| Commercial Therms | 3,500,544 | 3,473,270 | 3,447,721 | 3,423,801 | 3,423,801 | 3,400,133 |
| Industrial Therms | 913,483 | 912,245 | 910,775 | 909,235 | 909,235 | 907,416 |
| Ind., Inst., & Cmcl. Interrup. Therms | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 |
| Total Core Therms | 5,348,384 | 5,319,215 | 5,296,404 | 5,271,896 | 5,269,559 | 5,243,348 |
| Daily Baseload Therms | 4,782 | 4,756 | 4,736 | 4,714 | 4,712 | 4,688 |
| Peak Day Therms | 61,276 | 61,397 | 61,519 | 61,642 | 61,770 | 61,894 |
| Therms Per Residential Customer | 518 | 516 | 517 | 516 | 513 | 511 |
| Therms Per Commercial Customer | 4,711 | 4,676 | 4,643 | 4,612 | 4,612 | 4,581 |
| Therms Per Industrial Customer | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 |
| Residential Customers | 1,619 | 1,624 | 1,629 | 1,634 | 1,639 | 1,644 |
| Commercial Customers | 743 | 743 | 743 | 742 | 742 | 742 |
| Industrial Customers | 20 | 20 | 20 | 20 | 20 | 20 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 2,384 | 2,389 | 2,393 | 2,398 | 2,403 | 2,408 |

Yakima

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.21% | 0.52% | 0.15% | 0.06% | 0.14% | 0.01% |
| Residential Therms | 11,959,632 | 12,034,704 | 12,063,150 | 12,088,880 | 12,112,464 | 12,113,787 |
| Commercial Therms | 13,299,711 | 13,388,310 | 13,420,712 | 13,429,691 | 13,429,691 | 13,426,202 |
| Industrial Therms | 2,191,013 | 2,169,888 | 2,149,684 | 2,130,373 | 2,130,373 | 2,111,851 |
| Ind., Inst., & Cmcl. Interrup. Therms | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 |
| Total Core Therms | 27,600,842 | 27,743,387 | 27,784,031 | 27,799,429 | 27,823,013 | 27,802,326 |
| Daily Baseload Therms | 19,929 | 20,032 | 20,061 | 20,072 | 20,089 | 20,074 |
| Peak Day Therms | 339,600 | 341,602 | 343,533 | 345,406 | 347,065 | 348,908 |
| Therms Per Residential Customer | 552 | 552 | 550 | 548 | 546 | 543 |
| Therms Per Commercial Customer | 3,643 | 3,653 | 3,648 | 3,637 | 3,637 | 3,623 |
| Therms Per Industrial Customer | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 |
| Residential Customers | 21,666 | 21,802 | 21,933 | 22,060 | 22,184 | 22,309 |
| Commercial Customers | 3,651 | 3,665 | 3,679 | 3,693 | 3,693 | 3,706 |
| Industrial Customers | 64 | 63 | 62 | 62 | 62 | 61 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 25,384 | 25,534 | 25,678 | 25,818 | 25,942 | 26,080 |

Baker

| | | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | 0.05% | 0.27% | 0.13% | -0.04% | 0.05% | 0.11% |
| Residential Therms | 1,741,312 | 1,747,109 | 1,752,360 | 1,751,685 | 1,754,875 | 1,757,985 |
| Commercial Therms | 1,768,498 | 1,771,588 | 1,769,760 | 1,767,857 | 1,767,857 | 1,763,329 |
| Industrial Therms | 34,824 | 35,499 | 36,739 | 37,899 | 37,899 | 39,973 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 3,544,635 | 3,554,197 | 3,558,860 | 3,557,442 | 3,560,632 | 3,561,287 |
| Daily Baseload Therms | 2,896 | 2,904 | 2,908 | 2,907 | 2,910 | 2,910 |
| Peak Day Therms | 26,733 | 26,862 | 26,979 | 27,114 | 27,250 | 27,387 |
| Therms Per Residential Customer | 512 | 511 | 510 | 507 | 505 | 503 |
| Therms Per Commercial Customer | 3,354 | 3,354 | 3,349 | 3,341 | 3,341 | 3,332 |
| Therms Per Industrial Customer | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 |
| Residential Customers | 3,401 | 3,419 | 3,436 | 3,455 | 3,475 | 3,495 |
| Commercial Customers | 527 | 528 | 528 | 529 | 529 | 529 |
| Industrial Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 3,930 | 3,949 | 3,966 | 3,986 | 4,006 | 4,026 |

Bend

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 1.51% | 1.77% | 1.41% | 1.29% | 1.87% | 1.85% |
| Residential Therms | 33,073,768 | 33,512,512 | 33,862,522 | 34,215,120 | 34,570,982 | 34,930,060 |
| Commercial Therms | 25,089,715 | 25,732,881 | 26,261,796 | 26,723,705 | 26,723,705 | 27,178,975 |
| Industrial Therms | 1,106,714 | 1,072,923 | 1,041,987 | 1,013,691 | 1,013,691 | 987,741 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 59,270,198 | 60,318,317 | 61,166,306 | 61,952,518 | 62,308,380 | 63,096,777 |
| Daily Baseload Therms | 49,939 | 50,822 | 51,537 | 52,199 | 52,499 | 53,164 |
| Peak Day Therms | 705,530 | 715,441 | 725,455 | 735,573 | 743,744 | 754,083 |
| Therms Per Residential Customer | 724 | 724 | 722 | 720 | 718 | 716 |
| Therms Per Commercial Customer | 2,948 | 2,969 | 2,976 | 2,975 | 2,975 | 2,973 |
| Therms Per Industrial Customer | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 |
| Residential Customers | 45,682 | 46,288 | 46,901 | 47,521 | 48,149 | 48,785 |
| Commercial Customers | 8,511 | 8,667 | 8,825 | 8,983 | 8,983 | 9,142 |
| Industrial Customers | 27 | 26 | 25 | 24 | 24 | 24 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 54,220 | 54,982 | 55,752 | 56,529 | 57,157 | 57,952 |

Ontario

| | | | | | | |
|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total Therms Pct. Growth | 0.06% | 0.81% | 0.28% | 0.11% | 0.28% | 0.43% |
| Residential Therms | 2,108,880 | 2,115,666 | 2,124,540 | 2,129,562 | 2,139,178 | 2,148,748 |
| Commercial Therms | 2,661,669 | 2,694,167 | 2,696,775 | 2,693,618 | 2,693,618 | 2,693,766 |

| | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Industrial Therms | 634,173 | 638,424 | 642,457 | 646,529 | 646,529 | 650,678 |
| Ind., Inst., & Cmcl. Interrup. Therms | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 5,404,722 | 5,448,257 | 5,463,772 | 5,469,709 | 5,479,325 | 5,493,192 |
| Daily Baseload Therms | 4,015 | 4,047 | 4,059 | 4,063 | 4,070 | 4,081 |
| Peak Day Therms | 30,853 | 31,007 | 31,085 | 31,215 | 31,371 | 31,568 |
| Therms Per Residential Customer | 580 | 579 | 580 | 579 | 578 | 577 |
| Therms Per Commercial Customer | 2,996 | 3,017 | 3,012 | 2,995 | 2,995 | 2,976 |
| Therms Per Industrial Customer | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 |
| Residential Customers | 3,636 | 3,654 | 3,663 | 3,678 | 3,701 | 3,724 |
| Commercial Customers | 888 | 893 | 895 | 899 | 899 | 905 |
| Industrial Customers | 11 | 12 | 12 | 12 | 12 | 12 |
| Interruptible Customers | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 4,536 | 4,559 | 4,570 | 4,589 | 4,612 | 4,641 |

Pendleton

| | 0.78% | 0.88% | 0.79% | 0.53% | 0.85% | 0.88% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.78% | 0.88% | 0.79% | 0.53% | 0.85% | 0.88% |
| Residential Therms | 7,368,503 | 7,463,325 | 7,552,937 | 7,607,502 | 7,656,253 | 7,720,392 |
| Commercial Therms | 6,714,801 | 6,754,201 | 6,785,683 | 6,814,131 | 6,814,131 | 6,838,979 |
| Industrial Therms | 1,276,878 | 1,277,605 | 1,278,199 | 1,278,698 | 1,278,698 | 1,279,081 |
| Ind., Inst., & Cmcl. Interrup. Therms | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 15,360,182 | 15,495,131 | 15,616,818 | 15,700,331 | 15,749,082 | 15,838,452 |
| Daily Baseload Therms | 15,792 | 15,930 | 16,055 | 16,141 | 16,191 | 16,283 |
| Peak Day Therms | 257,607 | 260,698 | 263,623 | 266,368 | 268,765 | 271,377 |
| Therms Per Residential Customer | 521 | 521 | 521 | 519 | 517 | 516 |
| Therms Per Commercial Customer | 3,248 | 3,247 | 3,243 | 3,238 | 3,238 | 3,232 |
| Therms Per Industrial Customer | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 |
| Residential Customers | 14,143 | 14,325 | 14,497 | 14,658 | 14,809 | 14,962 |
| Commercial Customers | 2,067 | 2,080 | 2,092 | 2,104 | 2,104 | 2,116 |
| Industrial Customers | 23 | 23 | 23 | 23 | 23 | 23 |
| Interruptible Customers | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 16,234 | 16,428 | 16,613 | 16,786 | 16,937 | 17,101 |

Washington

| | 1.39% | 1.48% | 1.35% | 1.26% | 1.95% | 1.89% |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | 1.39% | 1.48% | 1.35% | 1.26% | 1.95% | 1.89% |
| Residential Therms | 143,391,433 | 145,587,325 | 147,650,651 | 149,576,604 | 151,502,660 | 153,354,592 |
| Commercial Therms | 116,731,740 | 118,566,790 | 120,239,532 | 121,839,597 | 121,839,597 | 123,399,282 |
| Industrial Therms | 8,429,082 | 8,393,818 | 8,363,361 | 8,337,521 | 8,337,521 | 8,315,392 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 |
| Total Core Therms | 270,586,076 | 274,581,755 | 278,287,365 | 281,787,544 | 283,713,600 | 287,103,087 |
| Daily Baseload Therms | 250,070 | 253,843 | 257,348 | 260,665 | 262,476 | 265,707 |
| Peak Day Therms | 3,550,996 | 3,608,217 | 3,665,645 | 3,723,253 | 3,773,878 | 3,832,677 |
| Therms Per Residential Customer | 648 | 648 | 647 | 645 | 643 | 641 |
| Therms Per Commercial Customer | 3,640 | 3,640 | 3,634 | 3,627 | 3,627 | 3,619 |
| Therms Per Industrial Customer | 29,498 | 29,578 | 29,653 | 29,725 | 29,725 | 29,792 |
| Residential Customers | 221,159 | 224,729 | 228,310 | 231,902 | 235,506 | 239,179 |
| Commercial Customers | 32,072 | 32,577 | 33,084 | 33,592 | 33,592 | 34,100 |
| Industrial Customers | 286 | 284 | 282 | 280 | 280 | 279 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 253,545 | 257,618 | 261,704 | 265,802 | 269,406 | 273,586 |

Oregon

| | 1.22% | 1.48% | 1.17% | 1.02% | 1.51% | 1.51% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 1.22% | 1.48% | 1.17% | 1.02% | 1.51% | 1.51% |
| Residential Therms | 44,292,463 | 44,838,612 | 45,292,359 | 45,703,869 | 46,121,288 | 46,557,185 |
| Commercial Therms | 36,234,683 | 36,952,838 | 37,514,014 | 37,999,311 | 37,999,311 | 38,475,050 |
| Industrial Therms | 3,052,588 | 3,024,450 | 2,999,382 | 2,976,817 | 2,976,817 | 2,957,472 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Therms | 83,579,736 | 84,815,902 | 85,805,756 | 86,680,000 | 87,097,419 | 87,989,708 |
| Daily Baseload Therms | 72,642 | 73,704 | 74,559 | 75,311 | 75,671 | 76,438 |
| Peak Day Therms | 1,020,724 | 1,034,008 | 1,047,142 | 1,060,270 | 1,071,130 | 1,084,414 |
| Therms Per Residential Customer | 662 | 662 | 661 | 659 | 658 | 656 |
| Therms Per Commercial Customer | 3,021 | 3,037 | 3,040 | 3,036 | 3,036 | 3,031 |
| Therms Per Industrial Customer | 48,995 | 49,098 | 49,193 | 49,281 | 49,281 | 49,360 |
| Residential Customers | 66,862 | 67,686 | 68,497 | 69,312 | 70,134 | 70,966 |
| Commercial Customers | 11,994 | 12,169 | 12,341 | 12,516 | 12,516 | 12,692 |
| Industrial Customers | 62 | 62 | 61 | 60 | 60 | 60 |
| Interruptible Customers | | | | | | |
| Total Core Customers | 78,918 | 79,916 | 80,899 | 81,888 | 82,710 | 83,718 |

System

| | 1.35% | 1.48% | 1.31% | 1.20% | 1.85% | 1.80% |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | 1.35% | 1.48% | 1.31% | 1.20% | 1.85% | 1.80% |
| Residential Therms | 187,683,896 | 190,425,937 | 192,943,010 | 195,280,473 | 197,623,948 | 199,911,777 |
| Commercial Therms | 152,966,423 | 155,519,628 | 157,753,545 | 159,838,909 | 159,838,909 | 161,874,331 |
| Industrial Therms | 11,481,670 | 11,418,268 | 11,362,743 | 11,314,338 | 11,314,338 | 11,272,863 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 |
| Total Core Therms | 354,165,813 | 359,397,657 | 364,093,122 | 368,467,543 | 370,811,018 | 375,092,795 |
| Daily Baseload Therms | 322,712 | 327,548 | 331,908 | 335,976 | 338,147 | 342,144 |
| Peak Day Therms | 4,571,720 | 4,642,226 | 4,712,787 | 4,783,523 | 4,845,008 | 4,917,091 |
| Therms Per Residential Customer | 652 | 651 | 650 | 648 | 647 | 645 |
| Therms Per Commercial Customer | 3,471 | 3,476 | 3,473 | 3,467 | 3,467 | 3,459 |
| Therms Per Industrial Customer | 32,988 | 33,059 | 33,127 | 33,190 | 33,190 | 33,250 |

| | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Residential Customers | 288,021 | 292,415 | 296,807 | 301,214 | 305,640 | 310,145 |
| Commercial Customers | 44,066 | 44,746 | 45,425 | 46,107 | 46,107 | 46,793 |
| Industrial Customers | 348 | 345 | 343 | 341 | 341 | 339 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 332,463 | 337,534 | 342,603 | 347,690 | 352,116 | 357,305 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---------------------------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|
| Aberdeen | | | | | | |
| Total Therms Pct. Growth | | 2.24% | 4.29% | 0.64% | 0.69% | 0.63% |
| Residential Therms | 3,536,478 | 3,565,460 | 3,909,632 | 3,908,657 | 3,913,866 | 3,917,193 |
| Commercial Therms | 4,885,689 | 4,971,756 | 5,037,346 | 5,101,092 | 5,163,926 | 5,222,560 |
| Industrial Therms | 116,038 | 209,125 | 206,543 | 207,293 | 208,341 | 209,788 |
| Ind., Inst., & Cmcl. Interrup. Therms | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 |
| Total Core Therms | 9,277,504 | 9,485,640 | 9,892,820 | 9,956,341 | 10,025,432 | 10,088,840 |
| Daily Baseload Therms | 7,890 | 8,067 | 8,414 | 8,468 | 8,526 | 8,580 |
| Peak Day Therms | 80,931 | 81,757 | 82,137 | 82,681 | 83,342 | 83,979 |
| Therms Per Residential Customer | 674 | 674 | 736 | 731 | 726 | 721 |
| Therms Per Commercial Customer | 4,297 | 4,294 | 4,320 | 4,345 | 4,368 | 4,387 |
| Therms Per Industrial Customer | 8,926 | 14,437 | 14,437 | 14,437 | 14,437 | 14,437 |
| Residential Customers | 5,247 | 5,290 | 5,312 | 5,347 | 5,391 | 5,433 |
| Commercial Customers | 1,137 | 1,158 | 1,166 | 1,174 | 1,182 | 1,190 |
| Industrial Customers | 13 | 14 | 14 | 14 | 14 | 15 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 6,400 | 6,465 | 6,495 | 6,538 | 6,591 | 6,641 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bellingham | | | | | | |
| Total Therms Pct. Growth | | 18.07% | 1.59% | 1.31% | 1.94% | 2.35% |
| Residential Therms | 26,183,026 | 30,112,236 | 30,686,807 | 31,152,250 | 31,871,208 | 32,727,462 |
| Commercial Therms | 12,920,070 | 16,093,685 | 16,280,124 | 16,449,168 | 16,682,116 | 16,999,472 |
| Industrial Therms | 868,023 | 1,018,347 | 1,012,202 | 1,008,399 | 1,005,196 | 1,002,519 |
| Ind., Inst., & Cmcl. Interrup. Therms | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 |
| Total Core Therms | 40,140,543 | 47,393,692 | 48,148,558 | 48,779,242 | 49,727,944 | 50,898,877 |
| Daily Baseload Therms | 39,517 | 46,658 | 47,401 | 48,022 | 48,956 | 50,108 |
| Peak Day Therms | 677,809 | 705,237 | 720,161 | 738,215 | 758,132 | 778,143 |
| Therms Per Residential Customer | 646 | 714 | 713 | 706 | 703 | 703 |
| Therms Per Commercial Customer | 2,690 | 3,221 | 3,173 | 3,131 | 3,103 | 3,092 |
| Therms Per Industrial Customer | 22,257 | 26,284 | 26,284 | 26,284 | 26,284 | 26,284 |
| Residential Customers | 40,531 | 42,174 | 43,039 | 44,125 | 45,336 | 46,554 |
| Commercial Customers | 4,803 | 4,996 | 5,131 | 5,254 | 5,376 | 5,498 |
| Industrial Customers | 39 | 39 | 39 | 38 | 38 | 38 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 45,377 | 47,213 | 48,212 | 49,421 | 50,754 | 52,094 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bremerton | | | | | | |
| Total Therms Pct. Growth | | 14.38% | 1.62% | 1.98% | 2.60% | 2.72% |
| Residential Therms | 18,472,034 | 21,122,250 | 21,177,450 | 21,386,742 | 21,811,585 | 22,300,803 |
| Commercial Therms | 8,963,750 | 10,279,320 | 10,737,486 | 11,167,458 | 11,598,437 | 12,028,094 |
| Industrial Therms | 104,850 | 151,356 | 155,183 | 159,008 | 162,888 | 166,806 |
| Ind., Inst., & Cmcl. Interrup. Therms | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 |
| Total Core Therms | 27,898,259 | 31,910,551 | 32,427,744 | 33,070,832 | 33,930,535 | 34,853,327 |
| Daily Baseload Therms | 31,442 | 35,964 | 36,547 | 37,272 | 38,240 | 39,280 |
| Peak Day Therms | 346,238 | 348,679 | 351,971 | 358,847 | 367,335 | 375,938 |
| Therms Per Residential Customer | 658 | 750 | 747 | 741 | 739 | 739 |
| Therms Per Commercial Customer | 3,550 | 3,878 | 3,898 | 3,918 | 3,935 | 3,949 |
| Therms Per Industrial Customer | 104,850 | 144,856 | 144,856 | 144,856 | 144,856 | 144,856 |
| Residential Customers | 28,073 | 28,163 | 28,350 | 28,862 | 29,515 | 30,177 |
| Commercial Customers | 2,525 | 2,651 | 2,755 | 2,850 | 2,948 | 3,046 |
| Industrial Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 30,602 | 30,818 | 31,109 | 31,716 | 32,467 | 33,227 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Kennewick | | | | | | |
| Total Therms Pct. Growth | | 10.30% | 4.22% | 3.02% | 3.28% | 3.30% |
| Residential Therms | 11,220,370 | 11,772,264 | 12,423,537 | 12,829,081 | 13,331,360 | 13,843,121 |
| Commercial Therms | 12,463,347 | 14,113,860 | 14,582,746 | 15,008,832 | 15,438,535 | 15,893,798 |
| Industrial Therms | 231,728 | 512,321 | 514,920 | 519,160 | 523,707 | 528,717 |
| Ind., Inst., & Cmcl. Interrup. Therms | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 |
| Total Core Therms | 24,116,830 | 26,599,830 | 27,722,587 | 28,558,458 | 29,494,988 | 30,467,021 |
| Daily Baseload Therms | 19,419 | 21,418 | 22,322 | 22,996 | 23,750 | 24,532 |
| Peak Day Therms | 368,869 | 388,695 | 401,124 | 417,439 | 436,074 | 455,206 |
| Therms Per Residential Customer | 553 | 553 | 567 | 563 | 560 | 557 |
| Therms Per Commercial Customer | 4,069 | 4,250 | 4,184 | 4,120 | 4,058 | 4,004 |
| Therms Per Industrial Customer | 14,483 | 31,551 | 31,551 | 31,551 | 31,551 | 31,551 |
| Residential Customers | 20,290 | 21,288 | 21,911 | 22,787 | 23,806 | 24,853 |
| Commercial Customers | 3,063 | 3,321 | 3,485 | 3,643 | 3,804 | 3,969 |
| Industrial Customers | 16 | 16 | 16 | 16 | 17 | 17 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 23,371 | 24,627 | 25,415 | 26,448 | 27,629 | 28,841 |

Longview

| | | 9.41% | 4.29% | 1.13% | 1.27% | 1.17% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 1,354,917 | 1,342,796 | 1,559,976 | 1,557,308 | 1,569,280 | 1,582,182 |
| Commercial Therms | 4,490,847 | 4,879,476 | 4,964,041 | 5,046,400 | 5,125,425 | 5,197,309 |
| Industrial Therms | 518,868 | 752,085 | 754,460 | 758,089 | 761,904 | 766,099 |
| Ind., Inst., & Cmcl. Interrup. Therms | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 |
| Total Core Therms | 6,482,177 | 7,091,902 | 7,396,022 | 7,479,342 | 7,574,154 | 7,663,135 |
| Daily Baseload Therms | 7,467 | 8,169 | 8,520 | 8,616 | 8,725 | 8,827 |
| Peak Day Therms | 79,556 | 79,325 | 78,750 | 79,375 | 80,422 | 81,523 |
| Therms Per Residential Customer | 527 | 527 | 622 | 617 | 613 | 609 |
| Therms Per Commercial Customer | 3,929 | 4,227 | 4,253 | 4,275 | 4,294 | 4,305 |
| Therms Per Industrial Customer | 17,892 | 25,252 | 25,252 | 25,252 | 25,252 | 25,252 |
| Residential Customers | 2,571 | 2,548 | 2,508 | 2,524 | 2,560 | 2,598 |
| Commercial Customers | 1,143 | 1,154 | 1,167 | 1,180 | 1,194 | 1,207 |
| Industrial Customers | 29 | 30 | 30 | 30 | 30 | 30 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 3,745 | 3,734 | 3,707 | 3,736 | 3,786 | 3,838 |

Moses Lake

| | | 1.93% | 2.85% | 0.82% | 1.01% | 1.38% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 959,920 | 964,080 | 1,032,855 | 1,021,796 | 1,010,086 | 1,002,573 |
| Commercial Therms | 2,403,109 | 2,443,822 | 2,457,023 | 2,469,171 | 2,489,015 | 2,519,338 |
| Industrial Therms | 566,134 | 597,253 | 629,368 | 662,025 | 695,865 | 730,939 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 3,929,164 | 4,005,157 | 4,119,247 | 4,152,993 | 4,194,967 | 4,252,851 |
| Daily Baseload Therms | 3,441 | 3,508 | 3,608 | 3,637 | 3,674 | 3,725 |
| Peak Day Therms | 77,360 | 78,070 | 78,569 | 79,035 | 79,470 | 79,935 |
| Therms Per Residential Customer | 520 | 520 | 555 | 547 | 539 | 533 |
| Therms Per Commercial Customer | 3,749 | 3,735 | 3,709 | 3,688 | 3,679 | 3,686 |
| Therms Per Industrial Customer | 33,302 | 31,941 | 31,941 | 31,941 | 31,941 | 31,941 |
| Residential Customers | 1,846 | 1,854 | 1,861 | 1,868 | 1,874 | 1,881 |
| Commercial Customers | 641 | 654 | 662 | 670 | 677 | 683 |
| Industrial Customers | 17 | 19 | 20 | 21 | 22 | 23 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 2,505 | 2,528 | 2,544 | 2,559 | 2,573 | 2,588 |

Mount Vernon

| | | 5.69% | 8.66% | 1.63% | 1.90% | 2.11% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 22,513,736 | 23,018,072 | 26,240,048 | 26,712,993 | 27,275,040 | 27,879,228 |
| Commercial Therms | 13,637,637 | 15,095,167 | 15,411,295 | 15,725,073 | 16,071,174 | 16,477,371 |
| Industrial Therms | 1,260,259 | 1,432,471 | 1,329,014 | 1,245,984 | 1,170,069 | 1,100,513 |
| Ind., Inst., & Cmcl. Interrup. Therms | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 |
| Total Core Therms | 37,536,613 | 39,670,691 | 43,105,339 | 43,809,030 | 44,641,264 | 45,582,093 |
| Daily Baseload Therms | 36,772 | 38,863 | 42,228 | 42,917 | 43,732 | 44,654 |
| Peak Day Therms | 488,053 | 498,830 | 505,608 | 517,062 | 530,824 | 544,796 |
| Therms Per Residential Customer | 632 | 632 | 712 | 709 | 705 | 702 |
| Therms Per Commercial Customer | 2,977 | 3,223 | 3,200 | 3,181 | 3,168 | 3,166 |
| Therms Per Industrial Customer | 13,849 | 17,850 | 17,850 | 17,850 | 17,850 | 17,850 |
| Residential Customers | 35,623 | 36,421 | 36,854 | 37,677 | 38,688 | 39,714 |
| Commercial Customers | 4,581 | 4,684 | 4,816 | 4,943 | 5,073 | 5,204 |
| Industrial Customers | 91 | 80 | 74 | 70 | 66 | 62 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 40,297 | 41,187 | 41,746 | 42,692 | 43,829 | 44,982 |

Sunnyside

| | | 0.06% | 4.09% | -0.26% | -0.18% | 0.00% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 2,850,529 | 2,859,726 | 3,212,550 | 3,192,071 | 3,181,465 | 3,186,810 |
| Commercial Therms | 4,351,874 | 4,469,261 | 4,490,376 | 4,502,375 | 4,511,066 | 4,518,797 |
| Industrial Therms | 1,336,800 | 1,215,451 | 1,194,060 | 1,179,144 | 1,164,970 | 1,151,698 |
| Ind., Inst., & Cmcl. Interrup. Therms | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 |
| Total Core Therms | 8,616,563 | 8,621,797 | 8,974,346 | 8,950,949 | 8,934,861 | 8,934,665 |
| Daily Baseload Therms | 6,037 | 6,041 | 6,288 | 6,271 | 6,260 | 6,260 |
| Peak Day Therms | 98,021 | 98,314 | 98,779 | 99,128 | 99,460 | 99,788 |
| Therms Per Residential Customer | 541 | 541 | 605 | 599 | 595 | 594 |
| Therms Per Commercial Customer | 3,226 | 3,304 | 3,299 | 3,295 | 3,289 | 3,283 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Therms Per Industrial Customer | 27,850 | 25,724 | 25,724 | 25,724 | 25,724 | 25,724 |
| Residential Customers | 5,269 | 5,286 | 5,310 | 5,329 | 5,347 | 5,365 |
| Commercial Customers | 1,349 | 1,353 | 1,361 | 1,366 | 1,372 | 1,376 |
| Industrial Customers | 48 | 47 | 46 | 46 | 45 | 45 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 6,668 | 6,688 | 6,720 | 6,743 | 6,766 | 6,788 |

Walla Walla

| | | 7.38% | 1.40% | 0.55% | 0.89% | 0.84% |
|---------------------------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 5,983,450 | 6,459,280 | 6,570,414 | 6,601,560 | 6,677,664 | 6,762,176 |
| Commercial Therms | 3,816,638 | 4,026,480 | 4,066,558 | 4,097,851 | 4,121,289 | 4,131,882 |
| Industrial Therms | 69,381 | 111,598 | 108,266 | 104,730 | 101,400 | 98,091 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 9,869,470 | 10,597,359 | 10,745,239 | 10,804,142 | 10,900,354 | 10,992,150 |
| Daily Baseload Therms | 6,792 | 7,293 | 7,394 | 7,435 | 7,501 | 7,564 |
| Peak Day Therms | 158,044 | 159,667 | 162,240 | 164,228 | 166,269 | 168,256 |
| Therms Per Residential Customer | 575 | 614 | 614 | 609 | 608 | 608 |
| Therms Per Commercial Customer | 3,046 | 3,198 | 3,207 | 3,212 | 3,211 | 3,200 |
| Therms Per Industrial Customer | 23,127 | 40,337 | 40,337 | 40,337 | 40,337 | 40,337 |
| Residential Customers | 10,406 | 10,520 | 10,701 | 10,840 | 10,983 | 11,122 |
| Commercial Customers | 1,253 | 1,259 | 1,268 | 1,276 | 1,283 | 1,291 |
| Industrial Customers | 3 | 3 | 3 | 3 | 3 | 2 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 11,663 | 11,783 | 11,973 | 12,119 | 12,270 | 12,417 |

Wenatchee

| | | -2.52% | 0.98% | -2.08% | -2.25% | -2.33% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 647,946 | 655,188 | 801,864 | 789,940 | 778,939 | 774,098 |
| Commercial Therms | 3,597,080 | 3,797,689 | 3,709,438 | 3,614,306 | 3,511,800 | 3,401,799 |
| Industrial Therms | 1,247,000 | 898,472 | 893,577 | 886,338 | 878,882 | 871,006 |
| Ind., Inst., & Cmcl. Interrup. Therms | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 |
| Total Core Therms | 5,587,742 | 5,447,064 | 5,500,595 | 5,386,300 | 5,265,336 | 5,142,618 |
| Daily Baseload Therms | 4,996 | 4,870 | 4,918 | 4,816 | 4,708 | 4,598 |
| Peak Day Therms | 59,196 | 59,699 | 59,939 | 60,095 | 60,230 | 60,369 |
| Therms Per Residential Customer | 426 | 426 | 518 | 508 | 499 | 494 |
| Therms Per Commercial Customer | 4,733 | 4,977 | 4,865 | 4,745 | 4,614 | 4,472 |
| Therms Per Industrial Customer | 62,350 | 45,986 | 45,986 | 45,986 | 45,986 | 45,986 |
| Residential Customers | 1,521 | 1,538 | 1,548 | 1,555 | 1,561 | 1,567 |
| Commercial Customers | 760 | 763 | 762 | 762 | 761 | 761 |
| Industrial Customers | 20 | 20 | 19 | 19 | 19 | 19 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 2,303 | 2,323 | 2,332 | 2,338 | 2,343 | 2,349 |

Yakima

| | | 5.08% | -0.17% | -0.22% | 0.19% | 0.68% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 11,555,289 | 12,031,503 | 12,136,432 | 12,190,731 | 12,282,228 | 12,389,940 |
| Commercial Therms | 11,732,568 | 12,942,845 | 12,841,752 | 12,761,368 | 12,755,116 | 12,866,034 |
| Industrial Therms | 2,899,974 | 2,551,367 | 2,501,336 | 2,465,879 | 2,431,878 | 2,399,694 |
| Ind., Inst., & Cmcl. Interrup. Therms | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 |
| Total Core Therms | 26,338,316 | 27,676,201 | 27,630,005 | 27,568,463 | 27,619,707 | 27,806,153 |
| Daily Baseload Therms | 19,017 | 19,983 | 19,950 | 19,906 | 19,943 | 20,077 |
| Peak Day Therms | 302,764 | 306,980 | 310,870 | 313,617 | 316,322 | 318,942 |
| Therms Per Residential Customer | 603 | 619 | 616 | 613 | 612 | 612 |
| Therms Per Commercial Customer | 3,464 | 3,774 | 3,715 | 3,669 | 3,645 | 3,655 |
| Therms Per Industrial Customer | 37,662 | 33,729 | 33,729 | 33,729 | 33,729 | 33,729 |
| Residential Customers | 19,163 | 19,437 | 19,702 | 19,887 | 20,069 | 20,245 |
| Commercial Customers | 3,387 | 3,429 | 3,457 | 3,478 | 3,499 | 3,520 |
| Industrial Customers | 77 | 76 | 74 | 73 | 72 | 71 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 22,631 | 22,946 | 23,237 | 23,442 | 23,644 | 23,840 |

Baker

| | | 7.92% | -1.32% | -0.68% | -0.21% | -0.01% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 2,076,126 | 2,116,800 | 2,104,880 | 2,095,551 | 2,098,530 | 2,101,489 |
| Commercial Therms | 1,525,590 | 1,706,161 | 1,707,909 | 1,705,406 | 1,704,749 | 1,710,526 |
| Industrial Therms | 73,716 | 143,492 | 101,268 | 86,573 | 76,165 | 67,088 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 3,675,433 | 3,966,453 | 3,914,058 | 3,887,531 | 3,879,444 | 3,879,103 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Daily Baseload Therms | 3,003 | 3,241 | 3,198 | 3,177 | 3,170 | 3,170 |
| Peak Day Therms | 26,215 | 26,340 | 26,103 | 26,136 | 26,228 | 26,322 |
| Therms Per Residential Customer | 619 | 630 | 634 | 631 | 630 | 629 |
| Therms Per Commercial Customer | 3,082 | 3,363 | 3,325 | 3,293 | 3,267 | 3,253 |
| Therms Per Industrial Customer | 18,429 | 35,528 | 35,528 | 35,528 | 35,528 | 35,528 |
| Residential Customers | 3,354 | 3,360 | 3,320 | 3,321 | 3,331 | 3,341 |
| Commercial Customers | 495 | 507 | 514 | 518 | 522 | 526 |
| Industrial Customers | 4 | 4 | 3 | 2 | 2 | 2 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 3,854 | 3,872 | 3,838 | 3,842 | 3,856 | 3,870 |

Bend

| | | 10.88% | 1.18% | 1.21% | 2.24% | 3.04% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 26,866,154 | 29,716,440 | 29,986,215 | 30,180,234 | 30,733,992 | 31,459,575 |
| Commercial Therms | 16,866,234 | 18,673,438 | 19,077,793 | 19,553,925 | 20,203,536 | 21,120,381 |
| Industrial Therms | 1,720,070 | 2,006,014 | 1,926,726 | 1,872,928 | 1,825,938 | 1,785,418 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 45,452,459 | 50,395,893 | 50,990,735 | 51,607,088 | 52,763,468 | 54,365,375 |
| Daily Baseload Therms | 38,297 | 42,462 | 42,963 | 43,483 | 44,457 | 45,807 |
| Peak Day Therms | 567,960 | 580,392 | 584,187 | 594,974 | 608,703 | 622,721 |
| Therms Per Residential Customer | 719 | 780 | 785 | 777 | 774 | 775 |
| Therms Per Commercial Customer | 2,709 | 2,893 | 2,870 | 2,861 | 2,876 | 2,926 |
| Therms Per Industrial Customer | 31,274 | 40,338 | 40,338 | 40,338 | 40,338 | 40,338 |
| Residential Customers | 37,366 | 38,098 | 38,199 | 38,842 | 39,708 | 40,593 |
| Commercial Customers | 6,226 | 6,455 | 6,647 | 6,835 | 7,025 | 7,218 |
| Industrial Customers | 55 | 50 | 48 | 46 | 45 | 44 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 43,648 | 44,603 | 44,895 | 45,724 | 46,779 | 47,856 |

Ontario

| | | 15.00% | 2.22% | -1.33% | -0.79% | 0.71% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 1,858,098 | 1,865,853 | 2,063,808 | 2,043,038 | 2,021,186 | 2,016,103 |
| Commercial Therms | 2,324,640 | 2,770,318 | 2,681,539 | 2,627,658 | 2,604,126 | 2,640,810 |
| Industrial Therms | 286,620 | 503,758 | 508,503 | 513,448 | 517,923 | 522,587 |
| Ind., Inst., & Cmcl. Interrup. Therms | | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 4,469,358 | 5,139,928 | 5,253,850 | 5,184,143 | 5,143,235 | 5,179,500 |
| Daily Baseload Therms | 3,320 | 3,818 | 3,903 | 3,851 | 3,821 | 3,848 |
| Peak Day Therms | 30,432 | 30,650 | 30,438 | 30,403 | 30,348 | 30,440 |
| Therms Per Residential Customer | 517 | 517 | 576 | 571 | 566 | 563 |
| Therms Per Commercial Customer | 2,672 | 3,123 | 3,041 | 2,981 | 2,958 | 2,988 |
| Therms Per Industrial Customer | 28,662 | 50,452 | 50,452 | 50,452 | 50,452 | 50,452 |
| Residential Customers | 3,594 | 3,609 | 3,583 | 3,578 | 3,571 | 3,581 |
| Commercial Customers | 870 | 887 | 882 | 881 | 880 | 884 |
| Industrial Customers | 10 | 10 | 10 | 10 | 10 | 10 |
| Interruptible Customers | | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 4,474 | 4,506 | 4,475 | 4,470 | 4,462 | 4,475 |

Pendleton

| | | 15.34% | 1.78% | 1.40% | 1.44% | 1.42% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 5,580,432 | 6,576,318 | 6,786,544 | 6,958,710 | 7,128,110 | 7,290,855 |
| Commercial Therms | 5,829,460 | 6,100,766 | 6,134,762 | 6,159,681 | 6,195,062 | 6,238,077 |
| Industrial Therms | 674,429 | 1,260,374 | 1,263,984 | 1,266,092 | 1,268,331 | 1,270,446 |
| Ind., Inst., & Cmcl. Interrup. Therms | | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 12,084,321 | 13,937,458 | 14,185,291 | 14,384,483 | 14,591,503 | 14,799,378 |
| Daily Baseload Therms | 12,424 | 14,329 | 14,584 | 14,788 | 15,001 | 15,215 |
| Peak Day Therms | 196,962 | 203,001 | 208,632 | 213,199 | 217,988 | 222,596 |
| Therms Per Residential Customer | 528 | 603 | 604 | 605 | 605 | 605 |
| Therms Per Commercial Customer | 3,203 | 3,274 | 3,249 | 3,225 | 3,207 | 3,194 |
| Therms Per Industrial Customer | 29,323 | 54,495 | 54,495 | 54,495 | 54,495 | 54,495 |
| Residential Customers | 10,569 | 10,906 | 11,236 | 11,502 | 11,782 | 12,051 |
| Commercial Customers | 1,820 | 1,863 | 1,888 | 1,910 | 1,932 | 1,953 |
| Industrial Customers | 23 | 23 | 23 | 23 | 23 | 23 |
| Interruptible Customers | | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 12,412 | 12,793 | 13,147 | 13,435 | 13,737 | 14,027 |

Washington

| | | 9.36% | 3.28% | 1.26% | 1.66% | 1.88% |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 105,277,695 | 113,902,855 | 119,751,565 | 121,343,129 | 123,702,721 | 126,365,586 |

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Commercial Therms | 83,262,609 | 93,113,362 | 94,578,185 | 95,943,094 | 97,467,899 | 99,256,453 |
| Industrial Therms | 9,219,055 | 9,449,845 | 9,298,930 | 9,196,048 | 9,105,099 | 9,025,870 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 |
| Total Core Therms | 199,793,181 | 218,499,883 | 225,662,502 | 228,516,093 | 232,309,542 | 236,681,731 |
| Daily Baseload Therms | 182,791 | 200,834 | 207,589 | 210,354 | 214,015 | 218,207 |
| Peak Day Therms | 2,736,839 | 2,805,253 | 2,850,148 | 2,909,722 | 2,977,881 | 3,046,874 |
| Therms Per Residential Customer | 617 | 653 | 676 | 671 | 668 | 667 |
| Therms Per Commercial Customer | 3,379 | 3,663 | 3,633 | 3,607 | 3,587 | 3,577 |
| Therms Per Industrial Customer | 26,043 | 27,435 | 27,598 | 27,729 | 27,851 | 27,966 |
| Residential Customers | 170,540 | 174,519 | 177,096 | 180,801 | 185,130 | 189,509 |
| Commercial Customers | 24,642 | 25,422 | 26,031 | 26,596 | 27,169 | 27,747 |
| Industrial Customers | 354 | 344 | 337 | 332 | 327 | 323 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 195,564 | 200,314 | 203,492 | 207,757 | 212,654 | 217,607 |

Oregon

| | | 11.81% | 1.23% | 0.97% | 1.75% | 2.42% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 36,380,810 | 40,275,411 | 40,941,447 | 41,277,533 | 41,981,818 | 42,868,022 |
| Commercial Therms | 26,545,924 | 29,250,682 | 29,602,003 | 30,046,669 | 30,707,473 | 31,709,793 |
| Industrial Therms | 2,754,835 | 3,913,638 | 3,800,482 | 3,739,040 | 3,688,357 | 3,645,538 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Therms | 65,681,571 | 73,439,733 | 74,343,934 | 75,063,245 | 76,377,651 | 78,223,356 |
| Daily Baseload Therms | 57,044 | 63,850 | 64,648 | 65,299 | 66,449 | 68,039 |
| Peak Day Therms | 821,569 | 840,383 | 849,360 | 864,712 | 883,268 | 902,079 |
| Therms Per Residential Customer | 663 | 720 | 727 | 721 | 719 | 720 |
| Therms Per Commercial Customer | 2,821 | 3,012 | 2,981 | 2,962 | 2,964 | 2,997 |
| Therms Per Industrial Customer | 29,944 | 45,045 | 45,304 | 45,444 | 45,564 | 45,671 |
| Residential Customers | 54,883 | 55,973 | 56,338 | 57,243 | 58,392 | 59,566 |
| Commercial Customers | 9,411 | 9,712 | 9,931 | 10,144 | 10,359 | 10,581 |
| Industrial Customers | 92 | 87 | 84 | 82 | 81 | 80 |
| Interruptible Customers | | | | | | |
| Total Core Customers | 64,386 | 65,772 | 66,353 | 67,469 | 68,832 | 70,227 |

System

| | | 9.97% | 2.76% | 1.19% | 1.68% | 2.01% |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 141,658,505 | 154,178,266 | 160,693,012 | 162,620,662 | 165,684,539 | 169,233,608 |
| Commercial Therms | 109,808,533 | 122,364,044 | 124,180,188 | 125,989,764 | 128,175,373 | 130,966,246 |
| Industrial Therms | 11,973,890 | 13,363,482 | 13,099,412 | 12,935,088 | 12,793,457 | 12,671,409 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 |
| Total Core Therms | 265,474,752 | 291,939,616 | 300,006,436 | 303,579,338 | 308,687,192 | 314,905,087 |
| Daily Baseload Therms | 239,835 | 264,685 | 272,237 | 275,653 | 280,464 | 286,246 |
| Peak Day Therms | 3,558,409 | 3,645,636 | 3,699,508 | 3,774,434 | 3,861,149 | 3,948,954 |
| Therms Per Residential Customer | 628 | 669 | 688 | 683 | 680 | 679 |
| Therms Per Commercial Customer | 3,225 | 3,483 | 3,453 | 3,429 | 3,415 | 3,417 |
| Therms Per Industrial Customer | 26,847 | 30,982 | 31,128 | 31,250 | 31,367 | 31,476 |
| Residential Customers | 225,423 | 230,492 | 233,434 | 238,044 | 243,522 | 249,075 |
| Commercial Customers | 34,053 | 35,135 | 35,962 | 36,740 | 37,528 | 38,328 |
| Industrial Customers | 446 | 431 | 421 | 414 | 408 | 403 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 259,950 | 266,086 | 269,845 | 275,226 | 281,486 | 287,834 |

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Aberdeen | | | | | | |
| Total Therms Pct. Growth | 0.62% | 0.73% | 0.69% | 0.67% | 0.65% | 0.72% |
| Residential Therms | 3,920,100 | 3,928,104 | 3,928,799 | 3,929,796 | 3,929,686 | 3,929,176 |
| Commercial Therms | 5,280,322 | 5,344,290 | 5,411,812 | 5,476,798 | 5,541,206 | 5,613,896 |
| Industrial Therms | 211,472 | 213,552 | 215,900 | 218,447 | 221,229 | 224,212 |
| Ind., Inst., & Cmcl. Interrup. Therms | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 |
| Total Core Therms | 10,151,193 | 10,225,245 | 10,295,810 | 10,364,339 | 10,431,420 | 10,506,582 |
| Daily Baseload Therms | 8,633 | 8,696 | 8,756 | 8,815 | 8,872 | 8,936 |
| Peak Day Therms | 84,615 | 85,256 | 85,870 | 86,499 | 87,116 | 87,734 |
| Therms Per Residential Customer | 716 | 712 | 707 | 702 | 697 | 692 |
| Therms Per Commercial Customer | 4,405 | 4,427 | 4,452 | 4,474 | 4,495 | 4,522 |
| Therms Per Industrial Customer | 14,437 | 14,437 | 14,437 | 14,437 | 14,437 | 14,437 |
| Residential Customers | 5,475 | 5,517 | 5,557 | 5,598 | 5,638 | 5,678 |
| Commercial Customers | 1,199 | 1,207 | 1,216 | 1,224 | 1,233 | 1,241 |
| Industrial Customers | 15 | 15 | 15 | 15 | 15 | 16 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 6,691 | 6,742 | 6,791 | 6,840 | 6,889 | 6,938 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bellingham | | | | | | |
| Total Therms Pct. Growth | 2.49% | 1.96% | 1.88% | 2.25% | 2.16% | 1.66% |
| Residential Therms | 33,639,232 | 34,412,742 | 35,186,900 | 36,119,726 | 37,007,893 | 37,744,350 |
| Commercial Therms | 17,357,764 | 17,610,386 | 17,837,799 | 18,124,763 | 18,431,459 | 18,636,748 |
| Industrial Therms | 1,000,321 | 998,583 | 997,379 | 996,517 | 996,005 | 995,816 |
| Ind., Inst., & Cmcl. Interrup. Therms | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 |
| Total Core Therms | 52,166,742 | 53,191,135 | 54,191,502 | 55,410,430 | 56,604,781 | 57,546,339 |
| Daily Baseload Therms | 51,357 | 52,365 | 53,350 | 54,550 | 55,726 | 56,653 |
| Peak Day Therms | 798,312 | 818,608 | 839,011 | 859,606 | 880,313 | 901,246 |
| Therms Per Residential Customer | 704 | 702 | 700 | 701 | 701 | 698 |
| Therms Per Commercial Customer | 3,089 | 3,068 | 3,044 | 3,031 | 3,022 | 2,997 |
| Therms Per Industrial Customer | 26,284 | 26,284 | 26,284 | 26,284 | 26,284 | 26,284 |
| Residential Customers | 47,783 | 49,021 | 50,267 | 51,526 | 52,793 | 54,075 |
| Commercial Customers | 5,619 | 5,740 | 5,860 | 5,980 | 6,099 | 6,218 |
| Industrial Customers | 38 | 38 | 38 | 38 | 38 | 38 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 53,444 | 54,803 | 56,169 | 57,548 | 58,934 | 60,335 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bremerton | | | | | | |
| Total Therms Pct. Growth | 2.78% | 2.60% | 2.68% | 2.64% | 2.70% | 2.55% |
| Residential Therms | 22,829,000 | 23,304,365 | 23,816,492 | 24,337,487 | 24,899,520 | 25,403,864 |
| Commercial Therms | 12,465,324 | 12,917,162 | 13,385,732 | 13,857,460 | 14,338,056 | 14,843,476 |
| Industrial Therms | 170,775 | 174,803 | 178,873 | 183,003 | 187,183 | 191,426 |
| Ind., Inst., & Cmcl. Interrup. Therms | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 |
| Total Core Therms | 35,822,724 | 36,753,954 | 37,738,722 | 38,735,574 | 39,782,383 | 40,796,391 |
| Daily Baseload Therms | 40,373 | 41,422 | 42,532 | 43,656 | 44,836 | 45,978 |
| Peak Day Therms | 384,679 | 393,572 | 402,564 | 411,710 | 420,984 | 430,424 |
| Therms Per Residential Customer | 740 | 739 | 739 | 739 | 740 | 739 |
| Therms Per Commercial Customer | 3,963 | 3,979 | 3,998 | 4,015 | 4,032 | 4,053 |
| Therms Per Industrial Customer | 144,856 | 144,856 | 144,856 | 144,856 | 144,856 | 144,856 |
| Residential Customers | 30,850 | 31,535 | 32,228 | 32,933 | 33,648 | 34,376 |
| Commercial Customers | 3,145 | 3,246 | 3,348 | 3,451 | 3,556 | 3,662 |
| Industrial Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 34,000 | 34,786 | 35,580 | 36,389 | 37,208 | 38,043 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Kennewick | | | | | | |
| Total Therms Pct. Growth | 3.41% | 3.14% | 2.92% | 2.75% | 2.83% | 2.74% |
| Residential Therms | 14,418,192 | 15,008,310 | 15,583,540 | 16,114,248 | 16,715,226 | 17,362,800 |
| Commercial Therms | 16,351,396 | 16,745,964 | 17,112,518 | 17,493,810 | 17,856,973 | 18,171,178 |
| Industrial Therms | 534,130 | 539,902 | 546,031 | 552,485 | 559,291 | 566,377 |
| Ind., Inst., & Cmcl. Interrup. Therms | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 |
| Total Core Therms | 31,505,103 | 32,495,561 | 33,443,473 | 34,361,928 | 35,332,875 | 36,301,740 |
| Daily Baseload Therms | 25,368 | 26,166 | 26,929 | 27,669 | 28,450 | 29,230 |
| Peak Day Therms | 474,908 | 495,160 | 515,909 | 537,263 | 559,221 | 581,820 |
| Therms Per Residential Customer | 556 | 555 | 553 | 549 | 547 | 546 |
| Therms Per Commercial Customer | 3,951 | 3,884 | 3,813 | 3,747 | 3,679 | 3,603 |
| Therms Per Industrial Customer | 31,551 | 31,551 | 31,551 | 31,551 | 31,551 | 31,551 |
| Residential Customers | 25,932 | 27,042 | 28,180 | 29,352 | 30,558 | 31,800 |
| Commercial Customers | 4,139 | 4,312 | 4,488 | 4,669 | 4,854 | 5,043 |
| Industrial Customers | 17 | 17 | 17 | 18 | 18 | 18 |

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 30,089 | 31,373 | 32,687 | 34,040 | 35,431 | 36,863 |

Longview

| | 1.15% | 1.32% | 1.28% | 1.23% | 1.25% | 1.31% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 1,597,416 | 1,614,231 | 1,628,082 | 1,642,200 | 1,659,376 | 1,674,036 |
| Commercial Therms | 5,266,101 | 5,346,560 | 5,428,257 | 5,506,538 | 5,584,516 | 5,671,484 |
| Industrial Therms | 770,513 | 775,251 | 780,133 | 785,282 | 790,593 | 796,047 |
| Ind., Inst., & Cmcl. Interrup. Therms | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 |
| Total Core Therms | 7,751,576 | 7,853,587 | 7,954,016 | 8,051,565 | 8,152,030 | 8,259,112 |
| Daily Baseload Therms | 8,929 | 9,047 | 9,162 | 9,275 | 9,391 | 9,514 |
| Peak Day Therms | 82,625 | 83,799 | 84,971 | 86,170 | 87,393 | 88,636 |
| Therms Per Residential Customer | 606 | 603 | 599 | 595 | 592 | 588 |
| Therms Per Commercial Customer | 4,313 | 4,329 | 4,346 | 4,359 | 4,371 | 4,390 |
| Therms Per Industrial Customer | 25,252 | 25,252 | 25,252 | 25,252 | 25,252 | 25,252 |
| Residential Customers | 2,636 | 2,677 | 2,718 | 2,760 | 2,803 | 2,847 |
| Commercial Customers | 1,221 | 1,235 | 1,249 | 1,263 | 1,278 | 1,292 |
| Industrial Customers | 31 | 31 | 31 | 31 | 31 | 32 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 3,889 | 3,945 | 4,000 | 4,056 | 4,114 | 4,172 |

Moses Lake

| | 1.67% | 1.42% | 1.27% | 1.47% | 1.53% | 1.39% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 1,002,528 | 1,001,926 | 996,124 | 991,640 | 987,108 | 984,447 |
| Commercial Therms | 2,554,322 | 2,578,794 | 2,601,440 | 2,631,081 | 2,662,788 | 2,685,754 |
| Industrial Therms | 767,175 | 804,699 | 843,569 | 883,850 | 925,665 | 969,019 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 4,324,027 | 4,385,420 | 4,441,134 | 4,506,572 | 4,575,562 | 4,639,222 |
| Daily Baseload Therms | 3,787 | 3,841 | 3,889 | 3,947 | 4,007 | 4,063 |
| Peak Day Therms | 80,398 | 80,830 | 81,290 | 81,721 | 82,151 | 82,581 |
| Therms Per Residential Customer | 531 | 529 | 524 | 520 | 516 | 513 |
| Therms Per Commercial Customer | 3,700 | 3,699 | 3,696 | 3,703 | 3,713 | 3,711 |
| Therms Per Industrial Customer | 31,941 | 31,941 | 31,941 | 31,941 | 31,941 | 31,941 |
| Residential Customers | 1,888 | 1,894 | 1,901 | 1,907 | 1,913 | 1,919 |
| Commercial Customers | 690 | 697 | 704 | 711 | 717 | 724 |
| Industrial Customers | 24 | 25 | 26 | 28 | 29 | 30 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 2,603 | 2,617 | 2,632 | 2,646 | 2,660 | 2,674 |

Mount Vernon

| | 2.15% | 2.02% | 1.99% | 1.96% | 1.97% | 1.96% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 28,489,842 | 29,103,240 | 29,723,463 | 30,305,665 | 30,891,445 | 31,527,496 |
| Commercial Therms | 16,911,173 | 17,296,343 | 17,675,326 | 18,093,116 | 18,528,019 | 18,921,858 |
| Industrial Therms | 1,036,861 | 978,359 | 924,498 | 874,713 | 828,571 | 785,702 |
| Ind., Inst., & Cmcl. Interrup. Therms | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 |
| Total Core Therms | 46,562,857 | 47,502,923 | 48,448,268 | 49,398,475 | 50,373,016 | 51,360,037 |
| Daily Baseload Therms | 45,615 | 46,536 | 47,462 | 48,393 | 49,347 | 50,314 |
| Peak Day Therms | 559,016 | 573,418 | 588,081 | 602,992 | 618,148 | 633,566 |
| Therms Per Residential Customer | 699 | 696 | 693 | 689 | 685 | 682 |
| Therms Per Commercial Customer | 3,168 | 3,160 | 3,150 | 3,146 | 3,144 | 3,134 |
| Therms Per Industrial Customer | 17,850 | 17,850 | 17,850 | 17,850 | 17,850 | 17,850 |
| Residential Customers | 40,758 | 41,815 | 42,891 | 43,985 | 45,097 | 46,228 |
| Commercial Customers | 5,338 | 5,474 | 5,611 | 5,751 | 5,893 | 6,038 |
| Industrial Customers | 58 | 55 | 52 | 49 | 46 | 44 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 46,156 | 47,345 | 48,556 | 49,787 | 51,039 | 52,312 |

Sunnyside

| | 0.23% | 0.29% | 0.11% | 0.02% | 0.18% | 0.26% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 3,213,054 | 3,244,198 | 3,259,830 | 3,268,860 | 3,289,384 | 3,320,288 |
| Commercial Therms | 4,525,796 | 4,532,016 | 4,537,461 | 4,541,037 | 4,546,941 | 4,549,652 |
| Industrial Therms | 1,139,158 | 1,127,339 | 1,116,203 | 1,105,564 | 1,095,391 | 1,085,634 |
| Ind., Inst., & Cmcl. Interrup. Therms | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 |
| Total Core Therms | 8,955,368 | 8,980,913 | 8,990,854 | 8,992,821 | 9,009,076 | 9,032,934 |
| Daily Baseload Therms | 6,274 | 6,292 | 6,299 | 6,301 | 6,312 | 6,329 |
| Peak Day Therms | 100,099 | 100,393 | 100,698 | 100,973 | 101,260 | 101,532 |
| Therms Per Residential Customer | 597 | 601 | 602 | 602 | 604 | 608 |
| Therms Per Commercial Customer | 3,277 | 3,271 | 3,265 | 3,258 | 3,253 | 3,246 |

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Therms Per Industrial Customer | 25,724 | 25,724 | 25,724 | 25,724 | 25,724 | 25,724 |
| Residential Customers | 5,382 | 5,398 | 5,415 | 5,430 | 5,446 | 5,461 |
| Commercial Customers | 1,381 | 1,386 | 1,390 | 1,394 | 1,398 | 1,402 |
| Industrial Customers | 44 | 44 | 43 | 43 | 43 | 42 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 6,809 | 6,829 | 6,850 | 6,869 | 6,888 | 6,907 |

Walla Walla

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.78% | 0.75% | 0.81% | 0.72% | 0.69% | 0.64% |
| Residential Therms | 6,844,864 | 6,913,730 | 6,990,819 | 7,066,694 | 7,142,569 | 7,204,128 |
| Commercial Therms | 4,137,544 | 4,154,565 | 4,170,782 | 4,178,942 | 4,183,973 | 4,197,980 |
| Industrial Therms | 95,037 | 92,050 | 89,221 | 86,458 | 83,850 | 81,306 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 11,077,445 | 11,160,347 | 11,250,822 | 11,332,095 | 11,410,393 | 11,483,415 |
| Daily Baseload Therms | 7,623 | 7,680 | 7,742 | 7,798 | 7,852 | 7,902 |
| Peak Day Therms | 170,199 | 172,087 | 173,904 | 175,694 | 177,482 | 179,215 |
| Therms Per Residential Customer | 608 | 607 | 607 | 607 | 607 | 606 |
| Therms Per Commercial Customer | 3,186 | 3,181 | 3,176 | 3,165 | 3,152 | 3,146 |
| Therms Per Industrial Customer | 40,337 | 40,337 | 40,337 | 40,337 | 40,337 | 40,337 |
| Residential Customers | 11,258 | 11,390 | 11,517 | 11,642 | 11,767 | 11,888 |
| Commercial Customers | 1,299 | 1,306 | 1,313 | 1,320 | 1,327 | 1,334 |
| Industrial Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 12,560 | 12,699 | 12,833 | 12,966 | 13,097 | 13,225 |

Wenatchee

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | -2.29% | -2.24% | -2.41% | -2.52% | -2.51% | -2.43% |
| Residential Therms | 774,996 | 777,954 | 774,087 | 770,180 | 769,419 | 769,754 |
| Commercial Therms | 3,290,988 | 3,183,969 | 3,078,151 | 2,969,704 | 2,861,627 | 2,759,224 |
| Industrial Therms | 863,080 | 854,742 | 846,282 | 837,787 | 829,130 | 820,439 |
| Ind., Inst., & Cmcl. Interrup. Therms | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 |
| Total Core Therms | 5,024,780 | 4,912,381 | 4,794,236 | 4,673,388 | 4,555,892 | 4,445,134 |
| Daily Baseload Therms | 4,493 | 4,392 | 4,287 | 4,179 | 4,073 | 3,974 |
| Peak Day Therms | 60,485 | 60,631 | 60,754 | 60,880 | 61,008 | 61,113 |
| Therms Per Residential Customer | 493 | 493 | 489 | 485 | 483 | 482 |
| Therms Per Commercial Customer | 4,328 | 4,188 | 4,049 | 3,906 | 3,763 | 3,627 |
| Therms Per Industrial Customer | 45,986 | 45,986 | 45,986 | 45,986 | 45,986 | 45,986 |
| Residential Customers | 1,572 | 1,578 | 1,583 | 1,588 | 1,593 | 1,597 |
| Commercial Customers | 760 | 760 | 760 | 760 | 760 | 761 |
| Industrial Customers | 19 | 19 | 18 | 18 | 18 | 18 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 2,353 | 2,359 | 2,364 | 2,369 | 2,373 | 2,378 |

Yakima

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.81% | 0.36% | 0.27% | 0.59% | 0.67% | 0.19% |
| Residential Therms | 12,494,592 | 12,576,213 | 12,654,450 | 12,751,440 | 12,847,210 | 12,899,328 |
| Commercial Therms | 13,018,578 | 13,067,648 | 13,093,413 | 13,189,790 | 13,311,063 | 13,337,831 |
| Industrial Therms | 2,369,011 | 2,339,768 | 2,311,982 | 2,285,241 | 2,259,457 | 2,234,504 |
| Ind., Inst., & Cmcl. Interrup. Therms | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 |
| Total Core Therms | 28,032,666 | 28,134,114 | 28,210,331 | 28,376,956 | 28,568,215 | 28,622,148 |
| Daily Baseload Therms | 20,241 | 20,314 | 20,369 | 20,489 | 20,628 | 20,666 |
| Peak Day Therms | 321,490 | 323,982 | 326,402 | 328,779 | 331,127 | 333,447 |
| Therms Per Residential Customer | 612 | 611 | 610 | 610 | 610 | 608 |
| Therms Per Commercial Customer | 3,677 | 3,670 | 3,657 | 3,664 | 3,678 | 3,666 |
| Therms Per Industrial Customer | 33,729 | 33,729 | 33,729 | 33,729 | 33,729 | 33,729 |
| Residential Customers | 20,416 | 20,583 | 20,745 | 20,904 | 21,061 | 21,216 |
| Commercial Customers | 3,541 | 3,561 | 3,580 | 3,600 | 3,619 | 3,638 |
| Industrial Customers | 70 | 69 | 69 | 68 | 67 | 66 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 24,031 | 24,217 | 24,398 | 24,576 | 24,751 | 24,925 |

Baker

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | 0.23% | 0.09% | -0.04% | 0.27% | 0.37% | 0.13% |
| Residential Therms | 2,111,130 | 2,117,214 | 2,120,514 | 2,131,173 | 2,144,620 | 2,153,118 |
| Commercial Therms | 1,717,472 | 1,719,711 | 1,718,411 | 1,721,469 | 1,725,132 | 1,723,802 |
| Industrial Therms | 59,613 | 54,628 | 50,937 | 47,578 | 44,807 | 42,681 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 3,888,216 | 3,891,554 | 3,889,863 | 3,900,221 | 3,914,560 | 3,919,601 |

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Daily Baseload Therms | 3,177 | 3,180 | 3,179 | 3,187 | 3,199 | 3,203 |
| Peak Day Therms | 26,414 | 26,541 | 26,672 | 26,812 | 26,944 | 27,097 |
| Therms Per Residential Customer | 630 | 629 | 627 | 627 | 628 | 627 |
| Therms Per Commercial Customer | 3,243 | 3,224 | 3,201 | 3,185 | 3,172 | 3,149 |
| Therms Per Industrial Customer | 35,528 | 35,528 | 35,528 | 35,528 | 35,528 | 35,528 |
| Residential Customers | 3,351 | 3,366 | 3,382 | 3,399 | 3,415 | 3,434 |
| Commercial Customers | 530 | 533 | 537 | 540 | 544 | 547 |
| Industrial Customers | 2 | 2 | 1 | 1 | 1 | 1 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 3,883 | 3,902 | 3,921 | 3,942 | 3,961 | 3,984 |

Bend

| | 3.18% | 2.76% | 2.78% | 3.12% | 3.26% | 2.85% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 3.18% | 2.76% | 2.78% | 3.12% | 3.26% | 2.85% |
| Residential Therms | 32,159,400 | 32,831,532 | 33,559,092 | 34,302,906 | 35,062,974 | 35,789,900 |
| Commercial Therms | 22,182,968 | 23,090,847 | 23,992,393 | 25,120,040 | 26,365,976 | 27,450,407 |
| Industrial Therms | 1,750,611 | 1,720,873 | 1,695,863 | 1,675,030 | 1,658,077 | 1,643,623 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 56,092,980 | 57,643,253 | 59,247,349 | 61,097,976 | 63,087,028 | 64,883,931 |
| Daily Baseload Therms | 47,262 | 48,569 | 49,920 | 51,479 | 53,155 | 54,669 |
| Peak Day Therms | 637,009 | 651,588 | 666,439 | 681,609 | 697,096 | 712,849 |
| Therms Per Residential Customer | 775 | 774 | 774 | 774 | 774 | 773 |
| Therms Per Commercial Customer | 2,992 | 3,033 | 3,070 | 3,132 | 3,204 | 3,252 |
| Therms Per Industrial Customer | 40,338 | 40,338 | 40,338 | 40,338 | 40,338 | 40,338 |
| Residential Customers | 41,496 | 42,418 | 43,358 | 44,319 | 45,301 | 46,300 |
| Commercial Customers | 7,414 | 7,613 | 7,815 | 8,020 | 8,229 | 8,441 |
| Industrial Customers | 43 | 43 | 42 | 42 | 41 | 41 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 48,954 | 50,075 | 51,216 | 52,382 | 53,572 | 54,783 |

Ontario

| | 0.88% | 0.10% | 0.30% | 0.46% | 0.86% | 0.23% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | 0.88% | 0.10% | 0.30% | 0.46% | 0.86% | 0.23% |
| Residential Therms | 2,010,836 | 2,008,588 | 2,009,840 | 2,000,744 | 1,999,376 | 2,000,775 |
| Commercial Therms | 2,687,345 | 2,690,883 | 2,701,081 | 2,730,309 | 2,773,570 | 2,780,768 |
| Industrial Therms | 526,749 | 530,795 | 534,937 | 538,778 | 542,356 | 546,019 |
| Ind., Inst., & Cmcl. Interrup. Therms | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 5,224,930 | 5,230,265 | 5,245,858 | 5,269,831 | 5,315,302 | 5,327,562 |
| Daily Baseload Therms | 3,881 | 3,885 | 3,897 | 3,915 | 3,949 | 3,958 |
| Peak Day Therms | 30,420 | 30,391 | 30,524 | 30,555 | 30,595 | 30,677 |
| Therms Per Residential Customer | 562 | 562 | 560 | 557 | 556 | 555 |
| Therms Per Commercial Customer | 3,041 | 3,046 | 3,042 | 3,070 | 3,112 | 3,110 |
| Therms Per Industrial Customer | 50,452 | 50,452 | 50,452 | 50,452 | 50,452 | 50,452 |
| Residential Customers | 3,578 | 3,574 | 3,589 | 3,592 | 3,596 | 3,605 |
| Commercial Customers | 884 | 883 | 888 | 889 | 891 | 894 |
| Industrial Customers | 10 | 11 | 11 | 11 | 11 | 11 |
| Interruptible Customers | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 4,472 | 4,468 | 4,488 | 4,492 | 4,498 | 4,510 |

Pendleton

| | 1.50% | 1.22% | 1.24% | 1.24% | 1.30% | 1.03% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 1.50% | 1.22% | 1.24% | 1.24% | 1.30% | 1.03% |
| Residential Therms | 7,465,314 | 7,612,110 | 7,768,805 | 7,920,660 | 8,084,646 | 8,219,530 |
| Commercial Therms | 6,283,993 | 6,319,047 | 6,348,417 | 6,384,730 | 6,421,630 | 6,447,235 |
| Industrial Therms | 1,272,594 | 1,274,715 | 1,276,786 | 1,278,801 | 1,280,799 | 1,282,773 |
| Ind., Inst., & Cmcl. Interrup. Therms | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 15,021,901 | 15,205,872 | 15,394,008 | 15,584,191 | 15,787,075 | 15,949,537 |
| Daily Baseload Therms | 15,444 | 15,633 | 15,826 | 16,022 | 16,230 | 16,397 |
| Peak Day Therms | 227,186 | 231,694 | 236,133 | 240,443 | 244,717 | 248,926 |
| Therms Per Residential Customer | 606 | 605 | 605 | 605 | 606 | 605 |
| Therms Per Commercial Customer | 3,183 | 3,167 | 3,149 | 3,135 | 3,122 | 3,104 |
| Therms Per Industrial Customer | 54,495 | 54,495 | 54,495 | 54,495 | 54,495 | 54,495 |
| Residential Customers | 12,319 | 12,582 | 12,841 | 13,092 | 13,341 | 13,586 |
| Commercial Customers | 1,974 | 1,995 | 2,016 | 2,037 | 2,057 | 2,077 |
| Industrial Customers | 23 | 23 | 23 | 23 | 24 | 24 |
| Interruptible Customers | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 14,317 | 14,601 | 14,880 | 15,152 | 15,421 | 15,687 |

Washington

| | 1.98% | 1.75% | 1.70% | 1.78% | 1.81% | 1.62% |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Total Therms Pct. Growth | 1.98% | 1.75% | 1.70% | 1.78% | 1.81% | 1.62% |
| Residential Therms | 129,223,816 | 131,885,013 | 134,542,586 | 137,297,936 | 140,138,836 | 142,819,667 |

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Commercial Therms | 101,159,308 | 102,777,698 | 104,332,690 | 106,063,039 | 107,846,621 | 109,389,080 |
| Industrial Therms | 8,957,534 | 8,899,047 | 8,850,071 | 8,809,347 | 8,776,366 | 8,750,484 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 |
| Total Core Therms | 241,374,481 | 245,595,579 | 249,759,169 | 254,204,143 | 258,795,645 | 262,993,053 |
| Daily Baseload Therms | 222,693 | 226,751 | 230,778 | 235,070 | 239,493 | 243,560 |
| Peak Day Therms | 3,116,827 | 3,187,735 | 3,259,454 | 3,332,285 | 3,406,203 | 3,481,314 |
| Therms Per Residential Customer | 666 | 665 | 663 | 661 | 660 | 658 |
| Therms Per Commercial Customer | 3,570 | 3,553 | 3,534 | 3,521 | 3,509 | 3,489 |
| Therms Per Industrial Customer | 28,073 | 28,173 | 28,267 | 28,355 | 28,437 | 28,515 |
| Residential Customers | 193,950 | 198,450 | 203,002 | 207,625 | 212,317 | 217,085 |
| Commercial Customers | 28,332 | 28,923 | 29,519 | 30,123 | 30,734 | 31,354 |
| Industrial Customers | 319 | 316 | 313 | 311 | 309 | 307 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 222,629 | 227,717 | 232,862 | 238,087 | 243,388 | 248,774 |

Oregon

| | 2.56% | 2.17% | 2.20% | 2.48% | 2.62% | 2.24% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 43,746,680 | 44,569,444 | 45,458,251 | 46,355,483 | 47,291,616 | 48,163,323 |
| Commercial Therms | 32,871,777 | 33,820,488 | 34,760,302 | 35,956,548 | 37,286,308 | 38,402,211 |
| Industrial Therms | 3,609,567 | 3,581,010 | 3,558,523 | 3,540,186 | 3,526,038 | 3,515,096 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Therms | 80,228,027 | 81,970,944 | 83,777,078 | 85,852,219 | 88,103,964 | 90,080,632 |
| Daily Baseload Therms | 69,765 | 71,267 | 72,822 | 74,603 | 76,533 | 78,227 |
| Peak Day Therms | 921,029 | 940,214 | 959,769 | 979,419 | 999,353 | 1,019,549 |
| Therms Per Residential Customer | 720 | 720 | 720 | 720 | 720 | 720 |
| Therms Per Commercial Customer | 3,043 | 3,068 | 3,088 | 3,130 | 3,181 | 3,211 |
| Therms Per Industrial Customer | 45,766 | 45,845 | 45,912 | 45,971 | 46,021 | 46,064 |
| Residential Customers | 60,744 | 61,940 | 63,170 | 64,402 | 65,653 | 66,925 |
| Commercial Customers | 10,802 | 11,025 | 11,256 | 11,487 | 11,721 | 11,960 |
| Industrial Customers | 79 | 78 | 78 | 77 | 77 | 76 |
| Interruptible Customers | | | | | | |
| Total Core Customers | 71,624 | 73,043 | 74,503 | 75,966 | 77,451 | 78,961 |

System

| | 2.13% | 1.85% | 1.82% | 1.95% | 2.01% | 1.78% |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 172,970,496 | 176,454,457 | 180,000,837 | 183,653,419 | 187,430,452 | 190,982,990 |
| Commercial Therms | 134,031,086 | 136,598,185 | 139,092,992 | 142,019,587 | 145,132,929 | 147,791,291 |
| Industrial Therms | 12,567,102 | 12,480,057 | 12,408,595 | 12,349,533 | 12,302,405 | 12,265,580 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 |
| Total Core Therms | 321,602,507 | 327,566,523 | 333,536,247 | 340,056,362 | 346,899,610 | 353,073,685 |
| Daily Baseload Therms | 292,458 | 298,018 | 303,600 | 309,673 | 316,026 | 321,787 |
| Peak Day Therms | 4,037,856 | 4,127,949 | 4,219,222 | 4,311,705 | 4,405,556 | 4,500,863 |
| Therms Per Residential Customer | 679 | 678 | 676 | 675 | 674 | 672 |
| Therms Per Commercial Customer | 3,425 | 3,419 | 3,411 | 3,413 | 3,418 | 3,412 |
| Therms Per Industrial Customer | 31,580 | 31,677 | 31,768 | 31,854 | 31,934 | 32,009 |
| Residential Customers | 254,694 | 260,390 | 266,172 | 272,027 | 277,970 | 284,010 |
| Commercial Customers | 39,134 | 39,949 | 40,775 | 41,610 | 42,455 | 43,314 |
| Industrial Customers | 398 | 394 | 391 | 388 | 385 | 383 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 294,254 | 300,761 | 307,366 | 314,053 | 320,839 | 327,735 |

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Aberdeen | | | | | | |
| Total Therms Pct. Growth | 0.71% | 0.68% | 0.55% | 0.76% | 0.71% | 0.64% |
| Residential Therms | 3,928,266 | 3,925,592 | 3,917,420 | 3,919,776 | 3,915,290 | 3,904,527 |
| Commercial Therms | 5,686,542 | 5,757,619 | 5,820,544 | 5,895,520 | 5,972,106 | 6,047,824 |
| Industrial Therms | 227,312 | 230,978 | 234,691 | 238,989 | 243,342 | 248,009 |
| Ind., Inst., & Cmcl. Interrup. Therms | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 | 739,299 |
| Total Core Therms | 10,581,419 | 10,653,488 | 10,711,953 | 10,793,583 | 10,870,037 | 10,939,658 |
| Daily Baseload Therms | 8,999 | 9,060 | 9,110 | 9,180 | 9,245 | 9,304 |
| Peak Day Therms | 88,352 | 88,945 | 89,553 | 90,149 | 90,731 | 91,314 |
| Therms Per Residential Customer | 687 | 682 | 676 | 672 | 667 | 661 |
| Therms Per Commercial Customer | 4,549 | 4,574 | 4,592 | 4,619 | 4,647 | 4,674 |
| Therms Per Industrial Customer | 14,437 | 14,437 | 14,437 | 14,437 | 14,437 | 14,437 |
| Residential Customers | 5,718 | 5,756 | 5,795 | 5,833 | 5,870 | 5,907 |
| Commercial Customers | 1,250 | 1,259 | 1,268 | 1,276 | 1,285 | 1,294 |
| Industrial Customers | 16 | 16 | 16 | 17 | 17 | 17 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 6,987 | 7,034 | 7,082 | 7,129 | 7,175 | 7,221 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bellingham | | | | | | |
| Total Therms Pct. Growth | 1.66% | 2.25% | 2.55% | 1.62% | 1.77% | 1.86% |
| Residential Therms | 38,534,040 | 39,606,039 | 40,693,536 | 41,496,700 | 42,421,400 | 43,353,100 |
| Commercial Therms | 18,802,040 | 19,047,428 | 19,485,131 | 19,675,540 | 19,851,226 | 20,095,896 |
| Industrial Therms | 996,007 | 996,591 | 997,454 | 998,689 | 1,000,264 | 1,002,096 |
| Ind., Inst., & Cmcl. Interrup. Therms | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 | 169,424 |
| Total Core Therms | 58,501,511 | 59,819,482 | 61,345,546 | 62,340,353 | 63,442,314 | 64,620,516 |
| Daily Baseload Therms | 57,593 | 58,890 | 60,393 | 61,372 | 62,457 | 63,617 |
| Peak Day Therms | 922,286 | 943,401 | 964,674 | 986,022 | 1,007,476 | 1,029,071 |
| Therms Per Residential Customer | 696 | 699 | 702 | 700 | 700 | 700 |
| Therms Per Commercial Customer | 2,967 | 2,951 | 2,965 | 2,942 | 2,918 | 2,905 |
| Therms Per Industrial Customer | 26,284 | 26,284 | 26,284 | 26,284 | 26,284 | 26,284 |
| Residential Customers | 55,365 | 56,661 | 57,968 | 59,281 | 60,602 | 61,933 |
| Commercial Customers | 6,337 | 6,455 | 6,572 | 6,688 | 6,803 | 6,918 |
| Industrial Customers | 38 | 38 | 38 | 38 | 38 | 38 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 61,744 | 63,157 | 64,582 | 66,011 | 67,447 | 68,893 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bremerton | | | | | | |
| Total Therms Pct. Growth | 2.53% | 2.65% | 2.65% | 2.46% | 2.51% | 2.46% |
| Residential Therms | 25,914,132 | 26,502,018 | 27,136,902 | 27,670,080 | 28,248,760 | 28,834,840 |
| Commercial Therms | 15,361,119 | 15,878,196 | 16,377,208 | 16,922,424 | 17,472,076 | 18,022,386 |
| Industrial Therms | 195,722 | 200,074 | 204,488 | 208,963 | 213,495 | 218,086 |
| Ind., Inst., & Cmcl. Interrup. Therms | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 | 357,625 |
| Total Core Therms | 41,828,597 | 42,937,913 | 44,076,222 | 45,159,091 | 46,291,956 | 47,432,936 |
| Daily Baseload Therms | 47,142 | 48,392 | 49,675 | 50,895 | 52,172 | 53,458 |
| Peak Day Therms | 439,987 | 449,671 | 459,506 | 469,460 | 479,560 | 489,785 |
| Therms Per Residential Customer | 738 | 739 | 741 | 740 | 740 | 740 |
| Therms Per Commercial Customer | 4,075 | 4,095 | 4,108 | 4,131 | 4,153 | 4,173 |
| Therms Per Industrial Customer | 144,856 | 144,856 | 144,856 | 144,856 | 144,856 | 144,856 |
| Residential Customers | 35,114 | 35,862 | 36,622 | 37,392 | 38,174 | 38,966 |
| Commercial Customers | 3,770 | 3,877 | 3,987 | 4,096 | 4,207 | 4,319 |
| Industrial Customers | 1 | 1 | 1 | 1 | 1 | 2 |
| Interruptible Customers | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Core Customers | 38,888 | 39,744 | 40,613 | 41,493 | 42,386 | 43,289 |

| | | | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Kennewick | | | | | | |
| Total Therms Pct. Growth | 2.45% | 2.44% | 2.60% | 2.59% | 2.14% | 2.17% |
| Residential Therms | 17,960,268 | 18,566,280 | 19,184,325 | 19,959,262 | 20,601,780 | 21,254,996 |
| Commercial Therms | 18,455,745 | 18,748,532 | 19,112,190 | 19,340,457 | 19,549,136 | 19,774,581 |
| Industrial Therms | 573,808 | 581,612 | 589,724 | 598,231 | 607,056 | 616,278 |
| Ind., Inst., & Cmcl. Interrup. Therms | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 | 201,385 |
| Total Core Therms | 37,191,207 | 38,097,809 | 39,087,625 | 40,099,334 | 40,959,358 | 41,847,240 |
| Daily Baseload Therms | 29,947 | 30,677 | 31,474 | 32,288 | 32,981 | 33,696 |
| Peak Day Therms | 605,022 | 628,751 | 653,137 | 678,065 | 703,610 | 729,787 |
| Therms Per Residential Customer | 543 | 540 | 537 | 538 | 535 | 532 |
| Therms Per Commercial Customer | 3,524 | 3,450 | 3,391 | 3,311 | 3,231 | 3,157 |
| Therms Per Industrial Customer | 31,551 | 31,551 | 31,551 | 31,551 | 31,551 | 31,551 |
| Residential Customers | 33,076 | 34,382 | 35,725 | 37,099 | 38,508 | 39,953 |
| Commercial Customers | 5,237 | 5,434 | 5,636 | 5,841 | 6,050 | 6,264 |
| Industrial Customers | 18 | 18 | 19 | 19 | 19 | 20 |

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 38,333 | 39,837 | 41,382 | 42,961 | 44,580 | 46,238 |

Longview

| | 1.37% | 1.23% | 1.03% | 1.36% | 1.30% | 1.19% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 1,690,096 | 1,704,620 | 1,719,936 | 1,739,055 | 1,754,796 | 1,767,576 |
| Commercial Therms | 5,762,538 | 5,845,553 | 5,912,014 | 6,002,917 | 6,093,444 | 6,178,634 |
| Industrial Therms | 801,783 | 807,566 | 813,492 | 819,707 | 825,992 | 832,376 |
| Ind., Inst., & Cmcl. Interrup. Therms | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 | 117,545 |
| Total Core Therms | 8,371,962 | 8,475,284 | 8,562,987 | 8,679,224 | 8,791,777 | 8,896,132 |
| Daily Baseload Therms | 9,644 | 9,763 | 9,864 | 9,998 | 10,127 | 10,248 |
| Peak Day Therms | 89,953 | 91,219 | 92,528 | 93,887 | 95,242 | 96,617 |
| Therms Per Residential Customer | 584 | 580 | 576 | 573 | 569 | 564 |
| Therms Per Commercial Customer | 4,410 | 4,425 | 4,427 | 4,446 | 4,465 | 4,480 |
| Therms Per Industrial Customer | 25,252 | 25,252 | 25,252 | 25,252 | 25,252 | 25,252 |
| Residential Customers | 2,894 | 2,939 | 2,986 | 3,035 | 3,084 | 3,134 |
| Commercial Customers | 1,307 | 1,321 | 1,335 | 1,350 | 1,365 | 1,379 |
| Industrial Customers | 32 | 32 | 32 | 32 | 33 | 33 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 4,234 | 4,294 | 4,356 | 4,420 | 4,483 | 4,548 |

Moses Lake

| | 1.19% | 1.37% | 1.87% | 1.57% | 1.33% | 1.50% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 975,975 | 965,500 | 958,815 | 961,785 | 952,572 | 943,782 |
| Commercial Therms | 2,704,822 | 2,733,046 | 2,781,084 | 2,804,616 | 2,828,408 | 2,858,932 |
| Industrial Therms | 1,013,745 | 1,060,178 | 1,107,870 | 1,157,685 | 1,208,737 | 1,261,870 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 4,694,544 | 4,758,725 | 4,847,771 | 4,924,087 | 4,989,717 | 5,064,585 |
| Daily Baseload Therms | 4,111 | 4,168 | 4,246 | 4,312 | 4,370 | 4,435 |
| Peak Day Therms | 83,011 | 83,440 | 83,867 | 84,294 | 84,688 | 85,114 |
| Therms Per Residential Customer | 507 | 500 | 495 | 495 | 489 | 483 |
| Therms Per Commercial Customer | 3,704 | 3,710 | 3,743 | 3,743 | 3,744 | 3,754 |
| Therms Per Industrial Customer | 31,941 | 31,941 | 31,941 | 31,941 | 31,941 | 31,941 |
| Residential Customers | 1,925 | 1,931 | 1,937 | 1,943 | 1,948 | 1,954 |
| Commercial Customers | 730 | 737 | 743 | 749 | 755 | 762 |
| Industrial Customers | 32 | 33 | 35 | 36 | 38 | 40 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 2,688 | 2,702 | 2,716 | 2,730 | 2,742 | 2,756 |

Mount Vernon

| | 1.79% | 1.89% | 2.09% | 1.89% | 1.68% | 1.84% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 32,121,606 | 32,718,656 | 33,317,090 | 33,969,643 | 34,519,328 | 35,122,724 |
| Commercial Therms | 19,288,158 | 19,714,082 | 20,260,766 | 20,665,885 | 21,079,034 | 21,537,817 |
| Industrial Therms | 746,035 | 709,353 | 675,219 | 643,668 | 614,279 | 586,905 |
| Ind., Inst., & Cmcl. Interrup. Therms | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 | 124,981 |
| Total Core Therms | 52,280,780 | 53,267,073 | 54,378,056 | 55,404,178 | 56,337,622 | 57,372,427 |
| Daily Baseload Therms | 51,216 | 52,182 | 53,271 | 54,276 | 55,190 | 56,204 |
| Peak Day Therms | 649,229 | 665,140 | 681,269 | 697,658 | 714,225 | 731,050 |
| Therms Per Residential Customer | 678 | 674 | 670 | 667 | 662 | 658 |
| Therms Per Commercial Customer | 3,119 | 3,113 | 3,125 | 3,114 | 3,104 | 3,100 |
| Therms Per Industrial Customer | 17,850 | 17,850 | 17,850 | 17,850 | 17,850 | 17,850 |
| Residential Customers | 47,377 | 48,544 | 49,727 | 50,929 | 52,144 | 53,378 |
| Commercial Customers | 6,184 | 6,333 | 6,483 | 6,636 | 6,791 | 6,948 |
| Industrial Customers | 42 | 40 | 38 | 36 | 34 | 33 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 53,605 | 54,919 | 56,250 | 57,604 | 58,971 | 60,361 |

Sunnyside

| | 0.02% | -0.04% | 0.19% | 0.51% | 0.06% | 0.04% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 3,329,408 | 3,333,037 | 3,358,050 | 3,410,124 | 3,423,689 | 3,437,280 |
| Commercial Therms | 4,551,849 | 4,553,058 | 4,553,923 | 4,555,255 | 4,554,574 | 4,551,959 |
| Industrial Therms | 1,076,327 | 1,067,687 | 1,059,376 | 1,051,677 | 1,044,400 | 1,037,495 |
| Ind., Inst., & Cmcl. Interrup. Therms | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 | 77,360 |
| Total Core Therms | 9,034,944 | 9,031,143 | 9,048,709 | 9,094,416 | 9,100,023 | 9,104,094 |
| Daily Baseload Therms | 6,330 | 6,327 | 6,340 | 6,372 | 6,376 | 6,379 |
| Peak Day Therms | 101,802 | 102,067 | 102,317 | 102,549 | 102,778 | 103,005 |
| Therms Per Residential Customer | 608 | 607 | 610 | 618 | 619 | 620 |
| Therms Per Commercial Customer | 3,239 | 3,232 | 3,225 | 3,219 | 3,212 | 3,204 |

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Therms Per Industrial Customer | 25,724 | 25,724 | 25,724 | 25,724 | 25,724 | 25,724 |
| Residential Customers | 5,476 | 5,491 | 5,505 | 5,518 | 5,531 | 5,544 |
| Commercial Customers | 1,405 | 1,409 | 1,412 | 1,415 | 1,418 | 1,421 |
| Industrial Customers | 42 | 42 | 41 | 41 | 41 | 40 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 6,925 | 6,943 | 6,960 | 6,976 | 6,992 | 7,007 |

Walla Walla

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.63% | 0.82% | 0.51% | 0.60% | 0.55% | 0.47% |
| Residential Therms | 7,262,420 | 7,352,591 | 7,429,152 | 7,491,168 | 7,549,536 | 7,607,296 |
| Commercial Therms | 4,213,962 | 4,221,256 | 4,206,718 | 4,217,129 | 4,225,480 | 4,225,615 |
| Industrial Therms | 78,861 | 76,498 | 74,169 | 71,946 | 69,805 | 67,717 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 11,555,244 | 11,650,346 | 11,710,040 | 11,780,244 | 11,844,822 | 11,900,629 |
| Daily Baseload Therms | 7,952 | 8,017 | 8,058 | 8,107 | 8,151 | 8,190 |
| Peak Day Therms | 180,878 | 182,444 | 183,969 | 185,438 | 186,822 | 188,194 |
| Therms Per Residential Customer | 605 | 607 | 608 | 608 | 608 | 608 |
| Therms Per Commercial Customer | 3,142 | 3,132 | 3,106 | 3,099 | 3,091 | 3,077 |
| Therms Per Industrial Customer | 40,337 | 40,337 | 40,337 | 40,337 | 40,337 | 40,337 |
| Residential Customers | 12,004 | 12,113 | 12,219 | 12,321 | 12,417 | 12,512 |
| Commercial Customers | 1,341 | 1,348 | 1,354 | 1,361 | 1,367 | 1,373 |
| Industrial Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 13,348 | 13,464 | 13,576 | 13,685 | 13,787 | 13,888 |

Wenatchee

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | -2.52% | -2.69% | -2.80% | -2.32% | -2.76% | -2.76% |
| Residential Therms | 765,756 | 759,638 | 757,170 | 767,125 | 760,930 | 756,318 |
| Commercial Therms | 2,660,087 | 2,558,716 | 2,452,137 | 2,356,290 | 2,261,152 | 2,167,587 |
| Industrial Therms | 811,621 | 802,682 | 793,756 | 784,670 | 775,609 | 766,416 |
| Ind., Inst., & Cmcl. Interrup. Therms | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 | 95,716 |
| Total Core Therms | 4,333,181 | 4,216,752 | 4,098,779 | 4,003,801 | 3,893,407 | 3,786,038 |
| Daily Baseload Therms | 3,874 | 3,770 | 3,665 | 3,580 | 3,481 | 3,385 |
| Peak Day Therms | 61,246 | 61,354 | 61,490 | 61,602 | 61,715 | 61,829 |
| Therms Per Residential Customer | 478 | 473 | 470 | 475 | 470 | 466 |
| Therms Per Commercial Customer | 3,495 | 3,360 | 3,218 | 3,090 | 2,963 | 2,838 |
| Therms Per Industrial Customer | 45,986 | 45,986 | 45,986 | 45,986 | 45,986 | 45,986 |
| Residential Customers | 1,602 | 1,606 | 1,611 | 1,615 | 1,619 | 1,623 |
| Commercial Customers | 761 | 762 | 762 | 763 | 763 | 764 |
| Industrial Customers | 18 | 17 | 17 | 17 | 17 | 17 |
| Interruptible Customers | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Customers | 2,383 | 2,387 | 2,392 | 2,397 | 2,401 | 2,405 |

Yakima

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.12% | 0.57% | 1.30% | 0.25% | 0.26% | 0.54% |
| Residential Therms | 12,969,769 | 13,078,688 | 13,186,677 | 13,247,712 | 13,305,440 | 13,382,529 |
| Commercial Therms | 13,326,566 | 13,404,462 | 13,692,218 | 13,724,498 | 13,762,197 | 13,862,708 |
| Industrial Therms | 2,210,528 | 2,188,001 | 2,166,212 | 2,145,694 | 2,126,188 | 2,107,423 |
| Ind., Inst., & Cmcl. Interrup. Therms | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 | 150,485 |
| Total Core Therms | 28,657,348 | 28,821,637 | 29,195,592 | 29,268,389 | 29,344,310 | 29,503,145 |
| Daily Baseload Therms | 20,692 | 20,810 | 21,080 | 21,133 | 21,188 | 21,303 |
| Peak Day Therms | 335,710 | 337,873 | 340,007 | 342,055 | 344,031 | 345,951 |
| Therms Per Residential Customer | 607 | 608 | 609 | 608 | 607 | 607 |
| Therms Per Commercial Customer | 3,644 | 3,647 | 3,707 | 3,698 | 3,691 | 3,701 |
| Therms Per Industrial Customer | 33,729 | 33,729 | 33,729 | 33,729 | 33,729 | 33,729 |
| Residential Customers | 21,367 | 21,511 | 21,653 | 21,789 | 21,920 | 22,047 |
| Commercial Customers | 3,657 | 3,675 | 3,694 | 3,711 | 3,729 | 3,746 |
| Industrial Customers | 66 | 65 | 64 | 64 | 63 | 62 |
| Interruptible Customers | 4 | 4 | 4 | 4 | 4 | 4 |
| Total Core Customers | 25,094 | 25,255 | 25,415 | 25,568 | 25,716 | 25,859 |

Baker

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | 0.15% | 0.16% | 0.74% | 0.21% | 0.26% | 0.40% |
| Residential Therms | 2,165,031 | 2,171,875 | 2,191,000 | 2,202,500 | 2,217,500 | 2,231,424 |
| Commercial Therms | 1,719,421 | 1,719,207 | 1,728,809 | 1,725,444 | 1,720,178 | 1,721,358 |
| Industrial Therms | 41,007 | 40,488 | 40,764 | 41,028 | 41,598 | 42,350 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 3,925,460 | 3,931,572 | 3,960,574 | 3,968,973 | 3,979,278 | 3,995,133 |

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Daily Baseload Therms | 3,208 | 3,213 | 3,236 | 3,243 | 3,252 | 3,265 |
| Peak Day Therms | 27,248 | 27,418 | 27,608 | 27,791 | 27,971 | 28,183 |
| Therms Per Residential Customer | 627 | 625 | 626 | 625 | 625 | 624 |
| Therms Per Commercial Customer | 3,122 | 3,105 | 3,106 | 3,084 | 3,061 | 3,046 |
| Therms Per Industrial Customer | 35,528 | 35,528 | 35,528 | 35,528 | 35,528 | 35,528 |
| Residential Customers | 3,453 | 3,475 | 3,500 | 3,524 | 3,548 | 3,576 |
| Commercial Customers | 551 | 554 | 557 | 559 | 562 | 565 |
| Industrial Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 4,006 | 4,031 | 4,059 | 4,086 | 4,112 | 4,143 |

Bend

| | 2.82% | 3.29% | 4.26% | 3.04% | 3.18% | 3.49% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 2.82% | 3.29% | 4.26% | 3.04% | 3.18% | 3.49% |
| Residential Therms | 36,582,225 | 37,436,058 | 38,360,784 | 39,151,450 | 40,012,475 | 40,890,550 |
| Commercial Therms | 28,498,299 | 29,846,631 | 31,858,488 | 33,250,770 | 34,743,457 | 36,525,853 |
| Industrial Therms | 1,633,394 | 1,626,183 | 1,622,346 | 1,621,400 | 1,623,896 | 1,628,741 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Therms | 66,713,919 | 68,908,873 | 71,841,619 | 74,023,621 | 76,379,829 | 79,045,145 |
| Daily Baseload Therms | 56,211 | 58,061 | 60,532 | 62,370 | 64,355 | 66,601 |
| Peak Day Therms | 728,991 | 745,386 | 762,161 | 779,188 | 796,617 | 814,378 |
| Therms Per Residential Customer | 773 | 774 | 776 | 775 | 775 | 775 |
| Therms Per Commercial Customer | 3,292 | 3,363 | 3,502 | 3,567 | 3,638 | 3,734 |
| Therms Per Industrial Customer | 40,338 | 40,338 | 40,338 | 40,338 | 40,338 | 40,338 |
| Residential Customers | 47,325 | 48,367 | 49,434 | 50,518 | 51,629 | 52,762 |
| Commercial Customers | 8,657 | 8,875 | 9,097 | 9,322 | 9,550 | 9,782 |
| Industrial Customers | 40 | 40 | 40 | 40 | 40 | 40 |
| Interruptible Customers | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Core Customers | 56,023 | 57,283 | 58,572 | 59,881 | 61,220 | 62,585 |

Ontario

| | -0.23% | 0.73% | 2.25% | 0.46% | 0.49% | 1.05% |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | -0.23% | 0.73% | 2.25% | 0.46% | 0.49% | 1.05% |
| Residential Therms | 1,993,272 | 1,991,223 | 1,988,345 | 1,999,458 | 2,000,926 | 2,001,785 |
| Commercial Therms | 2,772,537 | 2,809,864 | 2,929,824 | 2,940,824 | 2,963,139 | 3,017,207 |
| Industrial Therms | 549,276 | 552,765 | 555,976 | 558,977 | 562,072 | 564,978 |
| Ind., Inst., & Cmcl. Interrup. Therms | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 5,315,085 | 5,353,851 | 5,474,145 | 5,499,259 | 5,526,137 | 5,583,970 |
| Daily Baseload Therms | 3,948 | 3,977 | 4,067 | 4,085 | 4,105 | 4,148 |
| Peak Day Therms | 30,735 | 30,877 | 30,951 | 31,016 | 31,159 | 31,294 |
| Therms Per Residential Customer | 552 | 549 | 547 | 549 | 547 | 545 |
| Therms Per Commercial Customer | 3,092 | 3,117 | 3,240 | 3,243 | 3,250 | 3,292 |
| Therms Per Industrial Customer | 50,452 | 50,452 | 50,452 | 50,452 | 50,452 | 50,452 |
| Residential Customers | 3,611 | 3,627 | 3,635 | 3,642 | 3,658 | 3,673 |
| Commercial Customers | 897 | 901 | 904 | 907 | 912 | 917 |
| Industrial Customers | 11 | 11 | 11 | 11 | 11 | 11 |
| Interruptible Customers | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 4,519 | 4,539 | 4,550 | 4,560 | 4,581 | 4,601 |

Pendleton

| | 0.99% | 1.01% | 1.30% | 0.75% | 0.82% | 0.79% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.99% | 1.01% | 1.30% | 0.75% | 0.82% | 0.79% |
| Residential Therms | 8,360,495 | 8,496,015 | 8,655,820 | 8,763,366 | 8,880,930 | 8,992,434 |
| Commercial Therms | 6,462,292 | 6,488,414 | 6,538,729 | 6,552,616 | 6,569,186 | 6,589,139 |
| Industrial Therms | 1,284,585 | 1,286,308 | 1,287,960 | 1,289,400 | 1,290,760 | 1,292,041 |
| Ind., Inst., & Cmcl. Interrup. Therms | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Therms | 16,107,373 | 16,270,736 | 16,482,509 | 16,605,382 | 16,740,876 | 16,873,614 |
| Daily Baseload Therms | 16,560 | 16,728 | 16,945 | 17,072 | 17,211 | 17,348 |
| Peak Day Therms | 252,937 | 256,801 | 260,549 | 264,035 | 267,404 | 270,613 |
| Therms Per Residential Customer | 605 | 605 | 607 | 606 | 606 | 606 |
| Therms Per Commercial Customer | 3,082 | 3,066 | 3,062 | 3,042 | 3,024 | 3,008 |
| Therms Per Industrial Customer | 54,495 | 54,495 | 54,495 | 54,495 | 54,495 | 54,495 |
| Residential Customers | 13,819 | 14,043 | 14,260 | 14,461 | 14,655 | 14,839 |
| Commercial Customers | 2,097 | 2,116 | 2,135 | 2,154 | 2,172 | 2,191 |
| Industrial Customers | 24 | 24 | 24 | 24 | 24 | 24 |
| Interruptible Customers | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Core Customers | 15,939 | 16,183 | 16,419 | 16,639 | 16,851 | 17,053 |

Washington

| | 1.54% | 1.76% | 1.96% | 1.62% | 1.53% | 1.61% |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Total Therms Pct. Growth | 1.54% | 1.76% | 1.96% | 1.62% | 1.53% | 1.61% |
| Residential Therms | 145,451,736 | 148,512,659 | 151,659,073 | 154,632,430 | 157,453,521 | 160,364,968 |

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Commercial Therms | 110,813,430 | 112,461,949 | 114,653,934 | 116,160,532 | 117,648,833 | 119,323,940 |
| Industrial Therms | 8,731,749 | 8,721,221 | 8,716,452 | 8,719,918 | 8,729,169 | 8,744,670 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 |
| Total Core Therms | 267,030,736 | 271,729,650 | 277,063,280 | 281,546,702 | 285,865,344 | 290,467,399 |
| Daily Baseload Therms | 247,500 | 252,058 | 257,175 | 261,513 | 265,738 | 270,218 |
| Peak Day Therms | 3,557,477 | 3,634,306 | 3,712,317 | 3,791,179 | 3,870,878 | 3,951,717 |
| Therms Per Residential Customer | 655 | 655 | 654 | 653 | 651 | 649 |
| Therms Per Commercial Customer | 3,465 | 3,449 | 3,449 | 3,428 | 3,407 | 3,391 |
| Therms Per Industrial Customer | 28,587 | 28,653 | 28,716 | 28,772 | 28,826 | 28,875 |
| Residential Customers | 221,918 | 226,796 | 231,748 | 236,755 | 241,817 | 246,951 |
| Commercial Customers | 31,980 | 32,609 | 33,246 | 33,888 | 34,534 | 35,186 |
| Industrial Customers | 305 | 304 | 304 | 303 | 303 | 303 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 254,231 | 259,738 | 265,326 | 270,974 | 276,681 | 282,468 |

Oregon

| | 2.20% | 2.61% | 3.49% | 2.39% | 2.53% | 2.80% |
|---------------------------------------|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 49,101,023 | 50,095,171 | 51,195,949 | 52,116,774 | 53,111,831 | 54,116,193 |
| Commercial Therms | 39,452,549 | 40,864,116 | 43,055,850 | 44,469,654 | 45,995,960 | 47,853,557 |
| Industrial Therms | 3,508,262 | 3,505,744 | 3,507,046 | 3,510,805 | 3,518,326 | 3,528,109 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2 | 2 | 2 | 2 | 2 | 2 |
| Total Core Therms | 92,061,837 | 94,465,032 | 97,758,847 | 100,097,234 | 102,626,119 | 105,497,862 |
| Daily Baseload Therms | 79,927 | 81,978 | 84,780 | 86,770 | 88,923 | 91,361 |
| Peak Day Therms | 1,039,911 | 1,060,482 | 1,081,269 | 1,102,029 | 1,123,151 | 1,144,468 |
| Therms Per Residential Customer | 720 | 721 | 723 | 722 | 723 | 723 |
| Therms Per Commercial Customer | 3,234 | 3,283 | 3,392 | 3,436 | 3,486 | 3,557 |
| Therms Per Industrial Customer | 46,097 | 46,120 | 46,133 | 46,140 | 46,139 | 46,133 |
| Residential Customers | 68,208 | 69,512 | 70,829 | 72,145 | 73,490 | 74,850 |
| Commercial Customers | 12,201 | 12,446 | 12,694 | 12,942 | 13,196 | 13,454 |
| Industrial Customers | 76 | 76 | 76 | 76 | 76 | 76 |
| Interruptible Customers | | | | | | |
| Total Core Customers | 80,485 | 82,034 | 83,599 | 85,163 | 86,762 | 88,381 |

System

| | 1.70% | 1.98% | 2.36% | 1.82% | 1.79% | 1.92% |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | | | | | | |
| Residential Therms | 194,552,759 | 198,607,830 | 202,855,022 | 206,749,204 | 210,565,352 | 214,481,161 |
| Commercial Therms | 150,265,979 | 153,326,065 | 157,709,784 | 160,630,186 | 163,644,793 | 167,177,497 |
| Industrial Therms | 12,240,011 | 12,226,964 | 12,223,498 | 12,230,722 | 12,247,495 | 12,272,779 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 |
| Total Core Therms | 359,092,573 | 366,194,683 | 374,822,128 | 381,643,936 | 388,491,463 | 395,965,261 |
| Daily Baseload Therms | 327,427 | 334,036 | 341,955 | 348,283 | 354,661 | 361,579 |
| Peak Day Therms | 4,597,388 | 4,694,787 | 4,793,586 | 4,893,208 | 4,994,029 | 5,096,184 |
| Therms Per Residential Customer | 671 | 670 | 670 | 669 | 668 | 667 |
| Therms Per Commercial Customer | 3,401 | 3,403 | 3,433 | 3,430 | 3,429 | 3,437 |
| Therms Per Industrial Customer | 32,080 | 32,144 | 32,204 | 32,258 | 32,308 | 32,354 |
| Residential Customers | 290,126 | 296,308 | 302,577 | 308,900 | 315,307 | 321,801 |
| Commercial Customers | 44,181 | 45,056 | 45,940 | 46,830 | 47,730 | 48,640 |
| Industrial Customers | 382 | 380 | 380 | 379 | 379 | 379 |
| Interruptible Customers | 28 | 28 | 28 | 28 | 28 | 28 |
| Total Core Customers | 334,716 | 341,772 | 348,924 | 356,137 | 363,444 | 370,848 |

| | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Aberdeen | | | | |
| Total Therms Pct. Growth | 0.72% | 0.73% | 0.61% | 0.55% |
| Residential Therms | 3,898,608 | 3,892,329 | 3,879,030 | 3,865,311 |
| Commercial Therms | 6,127,124 | 6,208,436 | 6,208,436 | 6,290,945 |
| Industrial Therms | 253,085 | 258,323 | 258,323 | 263,728 |
| Ind., Inst., & Cmcl. Interrup. Therms | 739,299 | 739,299 | 739,299 | 739,299 |
| Total Core Therms | 11,018,116 | 11,098,386 | 11,085,087 | 11,159,282 |
| Daily Baseload Therms | 9,371 | 9,439 | 9,428 | 9,491 |
| Peak Day Therms | 91,886 | 92,459 | 92,902 | 93,460 |
| Therms Per Residential Customer | 656 | 651 | 645 | 639 |
| Therms Per Commercial Customer | 4,703 | 4,733 | 4,733 | 4,764 |
| Therms Per Industrial Customer | 14,437 | 14,437 | 14,437 | 14,437 |
| Residential Customers | 5,943 | 5,979 | 6,014 | 6,049 |
| Commercial Customers | 1,303 | 1,312 | 1,312 | 1,321 |
| Industrial Customers | 18 | 18 | 18 | 18 |
| Interruptible Customers | 3 | 3 | 3 | 3 |
| Total Core Customers | 7,266 | 7,312 | 7,347 | 7,391 |

| | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Bellingham | | | | |
| Total Therms Pct. Growth | 1.62% | 1.47% | 2.70% | 2.66% |
| Residential Therms | 44,225,031 | 45,037,352 | 45,851,235 | 46,679,094 |
| Commercial Therms | 20,271,685 | 20,419,451 | 20,419,451 | 20,545,129 |
| Industrial Therms | 1,004,188 | 1,006,574 | 1,006,574 | 1,009,211 |
| Ind., Inst., & Cmcl. Interrup. Therms | 169,424 | 169,424 | 169,424 | 169,424 |
| Total Core Therms | 65,670,328 | 66,632,802 | 67,446,685 | 68,402,858 |
| Daily Baseload Therms | 64,650 | 65,598 | 66,399 | 67,341 |
| Peak Day Therms | 1,050,728 | 1,072,541 | 1,092,810 | 1,115,181 |
| Therms Per Residential Customer | 699 | 697 | 695 | 693 |
| Therms Per Commercial Customer | 2,883 | 2,858 | 2,858 | 2,831 |
| Therms Per Industrial Customer | 26,284 | 26,284 | 26,284 | 26,284 |
| Residential Customers | 63,269 | 64,616 | 65,973 | 67,358 |
| Commercial Customers | 7,031 | 7,145 | 7,145 | 7,257 |
| Industrial Customers | 38 | 38 | 38 | 38 |
| Interruptible Customers | 4 | 4 | 4 | 4 |
| Total Core Customers | 70,343 | 71,803 | 73,160 | 74,658 |

| | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Bremerton | | | | |
| Total Therms Pct. Growth | 2.48% | 2.38% | 3.64% | 3.62% |
| Residential Therms | 29,429,800 | 29,993,054 | 30,604,207 | 31,185,666 |
| Commercial Therms | 18,597,846 | 19,188,158 | 19,188,158 | 19,792,657 |
| Industrial Therms | 222,742 | 227,463 | 227,463 | 232,244 |
| Ind., Inst., & Cmcl. Interrup. Therms | 357,625 | 357,625 | 357,625 | 357,625 |
| Total Core Therms | 48,608,013 | 49,766,299 | 50,377,452 | 51,568,191 |
| Daily Baseload Therms | 54,782 | 56,088 | 56,776 | 58,118 |
| Peak Day Therms | 500,154 | 510,672 | 520,029 | 530,874 |
| Therms Per Residential Customer | 740 | 739 | 739 | 738 |
| Therms Per Commercial Customer | 4,197 | 4,222 | 4,222 | 4,248 |
| Therms Per Industrial Customer | 144,856 | 144,856 | 144,856 | 144,856 |
| Residential Customers | 39,770 | 40,586 | 41,413 | 42,257 |
| Commercial Customers | 4,431 | 4,545 | 4,545 | 4,659 |
| Industrial Customers | 2 | 2 | 2 | 2 |
| Interruptible Customers | 3 | 3 | 3 | 3 |
| Total Core Customers | 44,206 | 45,135 | 45,962 | 46,921 |

| | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Kennewick | | | | |
| Total Therms Pct. Growth | 2.02% | 1.94% | 3.54% | 3.47% |
| Residential Therms | 21,918,586 | 22,592,226 | 23,275,592 | 23,978,760 |
| Commercial Therms | 19,948,702 | 20,094,061 | 20,094,061 | 20,208,476 |
| Industrial Therms | 625,782 | 635,663 | 635,663 | 645,851 |
| Ind., Inst., & Cmcl. Interrup. Therms | 201,385 | 201,385 | 201,385 | 201,385 |
| Total Core Therms | 42,694,455 | 43,523,334 | 44,206,700 | 45,034,472 |
| Daily Baseload Therms | 34,378 | 35,045 | 35,596 | 36,262 |
| Peak Day Therms | 756,596 | 784,039 | 808,551 | 837,507 |
| Therms Per Residential Customer | 529 | 526 | 523 | 520 |
| Therms Per Commercial Customer | 3,078 | 2,998 | 2,998 | 2,917 |
| Therms Per Industrial Customer | 31,551 | 31,551 | 31,551 | 31,551 |
| Residential Customers | 41,434 | 42,951 | 44,504 | 46,113 |
| Commercial Customers | 6,481 | 6,702 | 6,702 | 6,928 |
| Industrial Customers | 20 | 20 | 20 | 20 |

| | 2029 | 2030 | 2031 | 2032 |
|-----------------------------|---------------|---------------|---------------|---------------|
| Interruptible Customers | 2 | 2 | 2 | 2 |
| Total Core Customers | 47,937 | 49,676 | 51,229 | 53,063 |

Longview

| | 1.32% | 1.28% | 1.45% | 1.46% |
|---------------------------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | |
| Residential Therms | 1,786,785 | 1,799,772 | 1,815,528 | 1,831,416 |
| Commercial Therms | 6,270,634 | 6,366,205 | 6,366,205 | 6,461,006 |
| Industrial Therms | 838,950 | 845,640 | 845,640 | 852,330 |
| Ind., Inst., & Cmcl. Interrup. Therms | 117,545 | 117,545 | 117,545 | 117,545 |
| Total Core Therms | 9,013,914 | 9,129,162 | 9,144,918 | 9,262,297 |
| Daily Baseload Therms | 10,383 | 10,516 | 10,534 | 10,669 |
| Peak Day Therms | 98,016 | 99,438 | 100,543 | 101,979 |
| Therms Per Residential Customer | 561 | 556 | 552 | 548 |
| Therms Per Commercial Customer | 4,499 | 4,520 | 4,520 | 4,541 |
| Therms Per Industrial Customer | 25,252 | 25,252 | 25,252 | 25,252 |
| Residential Customers | 3,185 | 3,237 | 3,289 | 3,342 |
| Commercial Customers | 1,394 | 1,408 | 1,408 | 1,423 |
| Industrial Customers | 33 | 33 | 33 | 34 |
| Interruptible Customers | 2 | 2 | 2 | 2 |
| Total Core Customers | 4,614 | 4,681 | 4,733 | 4,801 |

Moses Lake

| | 1.47% | 1.36% | 1.14% | 1.10% |
|---------------------------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | |
| Residential Therms | 938,361 | 929,445 | 918,020 | 906,525 |
| Commercial Therms | 2,883,888 | 2,905,642 | 2,905,642 | 2,927,066 |
| Industrial Therms | 1,316,989 | 1,373,944 | 1,373,944 | 1,432,668 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 |
| Total Core Therms | 5,139,239 | 5,209,032 | 5,197,607 | 5,266,260 |
| Daily Baseload Therms | 4,501 | 4,562 | 4,552 | 4,612 |
| Peak Day Therms | 85,508 | 85,933 | 86,088 | 86,482 |
| Therms Per Residential Customer | 479 | 473 | 466 | 459 |
| Therms Per Commercial Customer | 3,757 | 3,756 | 3,756 | 3,755 |
| Therms Per Industrial Customer | 31,941 | 31,941 | 31,941 | 31,941 |
| Residential Customers | 1,959 | 1,965 | 1,970 | 1,975 |
| Commercial Customers | 768 | 774 | 774 | 780 |
| Industrial Customers | 41 | 43 | 43 | 45 |
| Interruptible Customers | 1 | 1 | 1 | 1 |
| Total Core Customers | 2,769 | 2,783 | 2,788 | 2,800 |

Mount Vernon

| | 1.65% | 1.60% | 2.54% | 2.51% |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | | | | |
| Residential Therms | 35,674,043 | 36,221,904 | 36,771,884 | 37,328,104 |
| Commercial Therms | 21,959,786 | 22,369,316 | 22,369,316 | 22,775,736 |
| Industrial Therms | 561,373 | 537,524 | 537,524 | 515,118 |
| Ind., Inst., & Cmcl. Interrup. Therms | 124,981 | 124,981 | 124,981 | 124,981 |
| Total Core Therms | 58,320,183 | 59,253,725 | 59,803,705 | 60,743,939 |
| Daily Baseload Therms | 57,133 | 58,047 | 58,586 | 59,507 |
| Peak Day Therms | 748,135 | 765,411 | 781,034 | 798,985 |
| Therms Per Residential Customer | 653 | 648 | 643 | 638 |
| Therms Per Commercial Customer | 3,090 | 3,078 | 3,078 | 3,065 |
| Therms Per Industrial Customer | 17,850 | 17,850 | 17,850 | 17,850 |
| Residential Customers | 54,631 | 55,898 | 57,188 | 58,508 |
| Commercial Customers | 7,107 | 7,267 | 7,267 | 7,431 |
| Industrial Customers | 31 | 30 | 30 | 29 |
| Interruptible Customers | 2 | 2 | 2 | 2 |
| Total Core Customers | 61,771 | 63,198 | 64,488 | 65,970 |

Sunnyside

| | 0.24% | 0.04% | 0.18% | 0.19% |
|---------------------------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | | | | |
| Residential Therms | 3,467,568 | 3,480,625 | 3,493,706 | 3,506,811 |
| Commercial Therms | 4,550,187 | 4,546,544 | 4,546,544 | 4,543,917 |
| Industrial Therms | 1,030,976 | 1,024,773 | 1,024,773 | 1,018,858 |
| Ind., Inst., & Cmcl. Interrup. Therms | 77,360 | 77,360 | 77,360 | 77,360 |
| Total Core Therms | 9,126,091 | 9,129,302 | 9,142,383 | 9,146,947 |
| Daily Baseload Therms | 6,394 | 6,396 | 6,405 | 6,409 |
| Peak Day Therms | 103,230 | 103,439 | 103,615 | 103,822 |
| Therms Per Residential Customer | 624 | 625 | 626 | 627 |
| Therms Per Commercial Customer | 3,197 | 3,189 | 3,189 | 3,182 |

| | 2029 | 2030 | 2031 | 2032 |
|--------------------------------|--------------|--------------|--------------|--------------|
| Therms Per Industrial Customer | 25,724 | 25,724 | 25,724 | 25,724 |
| Residential Customers | 5,557 | 5,569 | 5,581 | 5,593 |
| Commercial Customers | 1,423 | 1,426 | 1,426 | 1,428 |
| Industrial Customers | 40 | 40 | 40 | 40 |
| Interruptible Customers | 2 | 2 | 2 | 2 |
| Total Core Customers | 7,022 | 7,037 | 7,049 | 7,063 |

Walla Walla

| | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.39% | 0.39% | 0.80% | 0.77% |
| Residential Therms | 7,649,414 | 7,688,928 | 7,738,620 | 7,776,065 |
| Commercial Therms | 4,232,011 | 4,240,484 | 4,240,484 | 4,247,391 |
| Industrial Therms | 65,684 | 63,766 | 63,766 | 61,878 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 |
| Total Core Therms | 11,947,111 | 11,993,179 | 12,042,871 | 12,085,336 |
| Daily Baseload Therms | 8,222 | 8,253 | 8,287 | 8,317 |
| Peak Day Therms | 189,496 | 190,740 | 191,852 | 193,056 |
| Therms Per Residential Customer | 607 | 606 | 606 | 605 |
| Therms Per Commercial Customer | 3,068 | 3,061 | 3,061 | 3,053 |
| Therms Per Industrial Customer | 40,337 | 40,337 | 40,337 | 40,337 |
| Residential Customers | 12,602 | 12,688 | 12,770 | 12,853 |
| Commercial Customers | 1,379 | 1,385 | 1,385 | 1,391 |
| Industrial Customers | 2 | 2 | 2 | 2 |
| Interruptible Customers | 1 | 1 | 1 | 1 |
| Total Core Customers | 13,984 | 14,076 | 14,158 | 14,247 |

Wenatchee

| | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | -2.68% | -2.73% | -2.87% | -2.95% |
| Residential Therms | 754,464 | 749,800 | 744,648 | 737,836 |
| Commercial Therms | 2,077,050 | 1,990,234 | 1,990,234 | 1,905,679 |
| Industrial Therms | 757,170 | 748,126 | 748,126 | 738,912 |
| Ind., Inst., & Cmcl. Interrup. Therms | 95,716 | 95,716 | 95,716 | 95,716 |
| Total Core Therms | 3,684,400 | 3,583,876 | 3,578,724 | 3,478,143 |
| Daily Baseload Therms | 3,294 | 3,204 | 3,200 | 3,110 |
| Peak Day Therms | 61,919 | 62,035 | 62,112 | 62,204 |
| Therms Per Residential Customer | 464 | 460 | 456 | 451 |
| Therms Per Commercial Customer | 2,717 | 2,601 | 2,601 | 2,488 |
| Therms Per Industrial Customer | 45,986 | 45,986 | 45,986 | 45,986 |
| Residential Customers | 1,626 | 1,630 | 1,633 | 1,636 |
| Commercial Customers | 764 | 765 | 765 | 766 |
| Industrial Customers | 16 | 16 | 16 | 16 |
| Interruptible Customers | 2 | 2 | 2 | 2 |
| Total Core Customers | 2,409 | 2,413 | 2,416 | 2,420 |

Yakima

| | | | | |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.35% | 0.10% | 0.27% | 0.31% |
| Residential Therms | 13,457,190 | 13,485,450 | 13,533,828 | 13,582,575 |
| Commercial Therms | 13,909,329 | 13,928,545 | 13,928,545 | 13,938,865 |
| Industrial Therms | 2,089,569 | 2,072,392 | 2,072,392 | 2,055,867 |
| Ind., Inst., & Cmcl. Interrup. Therms | 150,485 | 150,485 | 150,485 | 150,485 |
| Total Core Therms | 29,606,573 | 29,636,873 | 29,685,251 | 29,727,792 |
| Daily Baseload Therms | 21,377 | 21,399 | 21,434 | 21,465 |
| Peak Day Therms | 347,812 | 349,631 | 351,196 | 352,985 |
| Therms Per Residential Customer | 607 | 605 | 604 | 603 |
| Therms Per Commercial Customer | 3,697 | 3,686 | 3,686 | 3,673 |
| Therms Per Industrial Customer | 33,729 | 33,729 | 33,729 | 33,729 |
| Residential Customers | 22,170 | 22,290 | 22,407 | 22,525 |
| Commercial Customers | 3,762 | 3,779 | 3,779 | 3,795 |
| Industrial Customers | 62 | 61 | 61 | 61 |
| Interruptible Customers | 4 | 4 | 4 | 4 |
| Total Core Customers | 25,998 | 26,134 | 26,251 | 26,385 |

Baker

| | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | 0.37% | 0.28% | 0.70% | 0.71% |
| Residential Therms | 2,250,625 | 2,265,744 | 2,282,592 | 2,299,440 |
| Commercial Therms | 1,715,792 | 1,710,030 | 1,710,030 | 1,702,573 |
| Industrial Therms | 43,662 | 45,635 | 45,635 | 47,940 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 |
| Total Core Therms | 4,010,079 | 4,021,411 | 4,038,259 | 4,049,954 |

| | 2029 | 2030 | 2031 | 2032 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Daily Baseload Therms | 3,277 | 3,286 | 3,300 | 3,309 |
| Peak Day Therms | 28,367 | 28,590 | 28,773 | 28,970 |
| Therms Per Residential Customer | 625 | 624 | 624 | 624 |
| Therms Per Commercial Customer | 3,025 | 3,001 | 3,001 | 2,978 |
| Therms Per Industrial Customer | 35,528 | 35,528 | 35,528 | 35,528 |
| Residential Customers | 3,601 | 3,631 | 3,658 | 3,685 |
| Commercial Customers | 567 | 570 | 570 | 572 |
| Industrial Customers | 1 | 1 | 1 | 1 |
| Interruptible Customers | 1 | 1 | 1 | 1 |
| Total Core Customers | 4,170 | 4,203 | 4,230 | 4,259 |

Bend

| | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 3.29% | 3.14% | 4.21% | 4.20% |
| Residential Therms | 41,785,675 | 42,645,852 | 43,521,446 | 44,414,704 |
| Commercial Therms | 38,225,016 | 39,915,628 | 39,915,628 | 41,667,395 |
| Industrial Therms | 1,636,538 | 1,646,831 | 1,646,831 | 1,659,641 |
| Ind., Inst., & Cmcl. Interrup. Therms | 1 | 1 | 1 | 1 |
| Total Core Therms | 81,647,230 | 84,208,312 | 85,083,906 | 87,741,741 |
| Daily Baseload Therms | 68,794 | 70,952 | 71,689 | 73,929 |
| Peak Day Therms | 832,468 | 850,946 | 866,613 | 885,776 |
| Therms Per Residential Customer | 775 | 774 | 773 | 772 |
| Therms Per Commercial Customer | 3,816 | 3,892 | 3,892 | 3,969 |
| Therms Per Industrial Customer | 40,338 | 40,338 | 40,338 | 40,338 |
| Residential Customers | 53,917 | 55,098 | 56,302 | 57,532 |
| Commercial Customers | 10,017 | 10,256 | 10,256 | 10,498 |
| Industrial Customers | 41 | 41 | 41 | 41 |
| Interruptible Customers | 1 | 1 | 1 | 1 |
| Total Core Customers | 63,976 | 65,396 | 66,600 | 68,072 |

Ontario

| | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|------------------|------------------|------------------|------------------|
| Total Therms Pct. Growth | 0.64% | 0.33% | 0.31% | 0.33% |
| Residential Therms | 2,006,272 | 2,006,484 | 2,005,619 | 2,004,640 |
| Commercial Therms | 3,045,285 | 3,060,815 | 3,060,815 | 3,078,579 |
| Industrial Therms | 567,901 | 570,710 | 570,710 | 573,549 |
| Ind., Inst., & Cmcl. Interrup. Therms | 0 | 0 | 0 | 0 |
| Total Core Therms | 5,619,459 | 5,638,009 | 5,637,144 | 5,656,768 |
| Daily Baseload Therms | 4,174 | 4,188 | 4,188 | 4,202 |
| Peak Day Therms | 31,428 | 31,554 | 31,683 | 31,851 |
| Therms Per Residential Customer | 544 | 542 | 539 | 536 |
| Therms Per Commercial Customer | 3,306 | 3,307 | 3,307 | 3,306 |
| Therms Per Industrial Customer | 50,452 | 50,452 | 50,452 | 50,452 |
| Residential Customers | 3,688 | 3,702 | 3,721 | 3,740 |
| Commercial Customers | 921 | 926 | 926 | 931 |
| Industrial Customers | 11 | 11 | 11 | 11 |
| Interruptible Customers | 0 | 0 | 0 | 0 |
| Total Core Customers | 4,620 | 4,639 | 4,658 | 4,683 |

Pendleton

| | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Total Therms Pct. Growth | 0.78% | 0.57% | 1.20% | 1.20% |
| Residential Therms | 9,111,677 | 9,196,656 | 9,304,096 | 9,397,574 |
| Commercial Therms | 6,600,137 | 6,610,169 | 6,610,169 | 6,613,446 |
| Industrial Therms | 1,293,170 | 1,294,244 | 1,294,244 | 1,295,156 |
| Ind., Inst., & Cmcl. Interrup. Therms | 0 | 0 | 0 | 0 |
| Total Core Therms | 17,004,984 | 17,101,068 | 17,208,508 | 17,306,176 |
| Daily Baseload Therms | 17,483 | 17,581 | 17,692 | 17,792 |
| Peak Day Therms | 273,622 | 276,518 | 278,930 | 281,643 |
| Therms Per Residential Customer | 607 | 606 | 607 | 607 |
| Therms Per Commercial Customer | 2,989 | 2,970 | 2,970 | 2,949 |
| Therms Per Industrial Customer | 54,495 | 54,495 | 54,495 | 54,495 |
| Residential Customers | 15,011 | 15,176 | 15,328 | 15,482 |
| Commercial Customers | 2,208 | 2,226 | 2,226 | 2,243 |
| Industrial Customers | 24 | 24 | 24 | 24 |
| Interruptible Customers | 0 | 0 | 0 | 0 |
| Total Core Customers | 17,243 | 17,425 | 17,577 | 17,748 |

Washington

| | 2029 | 2030 | 2031 | 2032 |
|--------------------------|-------------|-------------|-------------|-------------|
| Total Therms Pct. Growth | 1.50% | 1.40% | 2.33% | 2.31% |
| Residential Therms | 163,199,850 | 165,870,885 | 168,626,298 | 171,378,163 |

| | 2029 | 2030 | 2031 | 2032 |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|
| Commercial Therms | 120,828,243 | 122,257,075 | 122,257,075 | 123,636,867 |
| Industrial Therms | 8,766,507 | 8,794,188 | 8,794,188 | 8,826,665 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,822 | 2,033,822 | 2,033,822 | 2,033,822 |
| Total Core Therms | 294,828,421 | 298,955,969 | 301,711,382 | 305,875,516 |
| Daily Baseload Therms | 274,485 | 278,548 | 281,198 | 285,300 |
| Peak Day Therms | 4,033,480 | 4,116,338 | 4,190,731 | 4,276,535 |
| Therms Per Residential Customer | 647 | 644 | 642 | 639 |
| Therms Per Commercial Customer | 3,371 | 3,349 | 3,349 | 3,326 |
| Therms Per Industrial Customer | 28,919 | 28,961 | 28,961 | 29,000 |
| Residential Customers | 252,146 | 257,409 | 262,742 | 268,209 |
| Commercial Customers | 35,844 | 36,508 | 36,508 | 37,178 |
| Industrial Customers | 303 | 304 | 304 | 304 |
| Interruptible Customers | 28 | 28 | 28 | 28 |
| Total Core Customers | 288,321 | 294,249 | 299,582 | 305,720 |

Oregon

| | 2.64% | 2.48% | 3.40% | 3.41% |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | 2.64% | 2.48% | 3.40% | 3.41% |
| Residential Therms | 55,154,249 | 56,114,736 | 57,113,753 | 58,116,358 |
| Commercial Therms | 49,586,230 | 51,296,642 | 51,296,642 | 53,061,993 |
| Industrial Therms | 3,541,272 | 3,557,419 | 3,557,419 | 3,576,286 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2 | 2 | 2 | 2 |
| Total Core Therms | 108,281,752 | 110,968,799 | 111,967,816 | 114,754,639 |
| Daily Baseload Therms | 93,728 | 96,007 | 96,869 | 99,233 |
| Peak Day Therms | 1,165,885 | 1,187,608 | 1,205,999 | 1,228,241 |
| Therms Per Residential Customer | 724 | 723 | 723 | 722 |
| Therms Per Commercial Customer | 3,616 | 3,670 | 3,670 | 3,725 |
| Therms Per Industrial Customer | 46,119 | 46,097 | 46,097 | 46,070 |
| Residential Customers | 76,217 | 77,607 | 79,009 | 80,439 |
| Commercial Customers | 13,714 | 13,977 | 13,977 | 14,244 |
| Industrial Customers | 77 | 77 | 77 | 78 |
| Interruptible Customers | | | | |
| Total Core Customers | 90,007 | 91,661 | 93,063 | 94,760 |

System

| | 1.80% | 1.69% | 2.62% | 2.61% |
|---------------------------------------|--------------------|--------------------|--------------------|--------------------|
| Total Therms Pct. Growth | 1.80% | 1.69% | 2.62% | 2.61% |
| Residential Therms | 218,354,099 | 221,985,621 | 225,740,051 | 229,494,521 |
| Commercial Therms | 170,414,472 | 173,553,717 | 173,553,717 | 176,698,860 |
| Industrial Therms | 12,307,779 | 12,351,607 | 12,351,607 | 12,402,951 |
| Ind., Inst., & Cmcl. Interrup. Therms | 2,033,824 | 2,033,824 | 2,033,824 | 2,033,824 |
| Total Core Therms | 403,110,174 | 409,924,768 | 413,679,198 | 420,630,155 |
| Daily Baseload Therms | 368,212 | 374,555 | 378,066 | 384,533 |
| Peak Day Therms | 5,199,366 | 5,303,946 | 5,396,731 | 5,504,776 |
| Therms Per Residential Customer | 665 | 663 | 661 | 658 |
| Therms Per Commercial Customer | 3,439 | 3,438 | 3,438 | 3,436 |
| Therms Per Industrial Customer | 32,396 | 32,434 | 32,434 | 32,469 |
| Residential Customers | 328,363 | 335,016 | 341,751 | 348,648 |
| Commercial Customers | 49,558 | 50,485 | 50,485 | 51,422 |
| Industrial Customers | 380 | 381 | 381 | 382 |
| Interruptible Customers | 28 | 28 | 28 | 28 |
| Total Core Customers | 378,329 | 385,910 | 392,645 | 400,480 |

IRP 2012

Appendix B Demand
Residential

1

| State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|-----------|-------|--------------|---------|---------|---------|---------|---------|---------|---------|
| WA | 30-S | ABERDEEN | 5,247 | 5,262 | 5,271 | 5,297 | 5,328 | 5,359 | 5,388 |
| WA | 30-W | BELLINGHAM | 40,531 | 40,922 | 41,650 | 42,600 | 43,621 | 44,643 | 45,666 |
| WA | 30-S | BREMERTON | 28,073 | 27,914 | 28,053 | 28,407 | 28,843 | 29,281 | 29,722 |
| WA | 20 | KENNEWICK | 20,290 | 20,511 | 21,021 | 21,745 | 22,550 | 23,371 | 24,207 |
| WA | 26 | LONGVIEW | 2,571 | 2,522 | 2,479 | 2,470 | 2,474 | 2,479 | 2,485 |
| | | MOSES LAKE | 1,846 | 1,850 | 1,857 | 1,863 | 1,870 | 1,876 | 1,882 |
| WA | 30-W | MOUNT VERNON | 35,623 | 35,627 | 35,935 | 36,553 | 37,277 | 38,006 | 38,740 |
| WA | 10 | SUNNYSIDE | 5,269 | 5,270 | 5,286 | 5,306 | 5,325 | 5,343 | 5,361 |
| WA | ME-WA | WALLA WALLA | 10,406 | 10,394 | 10,506 | 10,646 | 10,786 | 10,925 | 11,061 |
| WA | 11 | WENATCHEE | 1,521 | 1,521 | 1,529 | 1,537 | 1,544 | 1,551 | 1,558 |
| WA | 11 | YAKIMA | 19,163 | 19,193 | 19,340 | 19,531 | 19,719 | 19,903 | 20,083 |
| OR | GTN | BEND | 37,366 | 37,959 | 38,018 | 38,410 | 38,931 | 39,460 | 39,993 |
| OR | 24 | BAKER | 3,354 | 3,358 | 3,351 | 3,342 | 3,338 | 3,336 | 3,334 |
| OR | 24 | ONTARIO | 3,594 | 3,615 | 3,616 | 3,608 | 3,601 | 3,595 | 3,594 |
| OR | ME-OR | PENDLETON | 10,569 | 10,617 | 10,816 | 11,076 | 11,341 | 11,603 | 11,862 |
| | | | 225,423 | 226,535 | 228,728 | 232,391 | 236,548 | 240,731 | 244,936 |
| RESc MID | | | | | | | | | |
| State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| WA | 30-S | ABERDEEN | 5,247 | 5,273 | 5,287 | 5,301 | 5,339 | 5,376 | 5,412 |
| WA | 30-W | BELLINGHAM | 40,531 | 41,411 | 42,195 | 42,975 | 44,089 | 45,208 | 46,333 |
| WA | 30-S | BREMERTON | 28,073 | 28,017 | 28,177 | 28,336 | 28,882 | 29,433 | 29,990 |
| WA | 20 | KENNEWICK | 20,290 | 20,815 | 21,371 | 21,927 | 22,832 | 23,759 | 24,708 |
| WA | 26 | LONGVIEW | 2,571 | 2,532 | 2,491 | 2,454 | 2,474 | 2,496 | 2,518 |
| | | MOSES LAKE | 1,846 | 1,852 | 1,858 | 1,865 | 1,871 | 1,878 | 1,884 |
| WA | 30-W | MOUNT VERNON | 35,623 | 35,938 | 36,298 | 36,661 | 37,527 | 38,403 | 39,290 |
| WA | 10 | SUNNYSIDE | 5,269 | 5,276 | 5,296 | 5,315 | 5,333 | 5,352 | 5,369 |
| WA | ME-WA | WALLA WALLA | 10,406 | 10,443 | 10,581 | 10,717 | 10,858 | 10,997 | 11,134 |
| WA | 11 | WENATCHEE | 1,521 | 1,528 | 1,537 | 1,545 | 1,552 | 1,558 | 1,564 |
| WA | 11 | YAKIMA | 19,163 | 19,287 | 19,479 | 19,669 | 19,854 | 20,035 | 20,212 |
| OR | GTN | BEND | 37,366 | 38,018 | 38,098 | 38,180 | 38,876 | 39,584 | 40,303 |
| OR | 24 | BAKER | 3,354 | 3,359 | 3,340 | 3,321 | 3,324 | 3,329 | 3,333 |
| OR | 24 | ONTARIO | 3,594 | 3,613 | 3,603 | 3,594 | 3,588 | 3,588 | 3,587 |
| OR | ME-OR | PENDLETON | 10,569 | 10,729 | 10,977 | 11,223 | 11,495 | 11,762 | 12,026 |
| | | | 225,423 | 230,492 | 233,434 | 238,044 | 243,522 | 249,075 | 254,694 |
| RESc HIGH | | | | | | | | | |
| State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| WA | 30-S | ABERDEEN | 5,247 | 5,290 | 5,312 | 5,347 | 5,391 | 5,433 | 5,475 |
| WA | 30-W | BELLINGHAM | 40,531 | 42,174 | 43,039 | 44,125 | 45,336 | 46,554 | 47,783 |
| WA | 30-S | BREMERTON | 28,073 | 28,163 | 28,350 | 28,862 | 29,515 | 30,177 | 30,850 |
| WA | 20 | KENNEWICK | 20,290 | 21,288 | 21,911 | 22,787 | 23,806 | 24,853 | 25,932 |
| WA | 26 | LONGVIEW | 2,571 | 2,548 | 2,508 | 2,524 | 2,560 | 2,598 | 2,636 |
| | | MOSES LAKE | 1,846 | 1,854 | 1,861 | 1,868 | 1,874 | 1,881 | 1,888 |
| WA | 30-W | MOUNT VERNON | 35,623 | 36,421 | 36,854 | 37,677 | 38,688 | 39,714 | 40,758 |
| WA | 10 | SUNNYSIDE | 5,269 | 5,286 | 5,310 | 5,329 | 5,347 | 5,365 | 5,382 |
| WA | ME-WA | WALLA WALLA | 10,406 | 10,520 | 10,701 | 10,840 | 10,983 | 11,122 | 11,258 |
| WA | 11 | WENATCHEE | 1,521 | 1,538 | 1,548 | 1,555 | 1,561 | 1,567 | 1,572 |
| WA | 11 | YAKIMA | 19,163 | 19,437 | 19,702 | 19,887 | 20,069 | 20,245 | 20,416 |
| OR | GTN | BEND | 37,366 | 38,098 | 38,199 | 38,842 | 39,708 | 40,593 | 41,496 |
| OR | 24 | BAKER | 3,354 | 3,360 | 3,320 | 3,321 | 3,331 | 3,341 | 3,351 |
| OR | 24 | ONTARIO | 3,594 | 3,609 | 3,583 | 3,578 | 3,571 | 3,581 | 3,578 |
| OR | ME-OR | PENDLETON | 10,569 | 10,906 | 11,236 | 11,502 | 11,782 | 12,051 | 12,319 |
| | | | 225,423 | 230,492 | 233,434 | 238,044 | 243,522 | 249,075 | 254,694 |

IRP 2012

Appendix B Demand
Residential

2

| REStpc LOW | | | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|-------------|-------|--------------|------|------|------|------|------|------|------|
| State | Zone | District | | | | | | | |
| WA | 30-S | ABERDEEN | 674 | 674 | 749 | 747 | 746 | 744 | 744 |
| WA | 30-W | BELLINGHAM | 666 | 715 | 702 | 692 | 688 | 689 | 689 |
| WA | 30-S | BREMERTON | 658 | 707 | 698 | 690 | 687 | 688 | 688 |
| WA | 20 | KENNEWICK | 542 | 542 | 556 | 553 | 550 | 549 | 549 |
| WA | 26 | LONGVIEW | 522 | 522 | 618 | 616 | 615 | 614 | 614 |
| | | MOSES LAKE | 531 | 531 | 569 | 563 | 558 | 555 | 555 |
| WA | 30-W | MOUNT VERNON | 645 | 645 | 735 | 733 | 732 | 731 | 730 |
| WA | 10 | SUNNYSIDE | 531 | 531 | 591 | 585 | 580 | 577 | 579 |
| WA | ME-WA | WALLA WALLA | 581 | 604 | 595 | 589 | 587 | 588 | 588 |
| WA | 11 | WENATCHEE | 439 | 439 | 536 | 528 | 521 | 517 | 518 |
| WA | 11 | YAKIMA | 603 | 578 | 569 | 563 | 561 | 560 | 560 |
| OR | GTN | BEND | 719 | 739 | 739 | 731 | 727 | 728 | 728 |
| OR | 24 | BAKER | 612 | 539 | 533 | 528 | 525 | 524 | 524 |
| OR | 24 | ONTARIO | 527 | 527 | 590 | 586 | 582 | 581 | 581 |
| OR | ME-OR | PENDLETON | 523 | 542 | 534 | 528 | 526 | 526 | 526 |
| REStpc MID | | | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| State | Zone | District | | | | | | | |
| WA | 30-S | ABERDEEN | 661 | 661 | 730 | 727 | 724 | 721 | 719 |
| WA | 30-W | BELLINGHAM | 653 | 710 | 702 | 695 | 689 | 689 | 690 |
| WA | 30-S | BREMERTON | 652 | 716 | 710 | 706 | 700 | 700 | 701 |
| WA | 20 | KENNEWICK | 536 | 536 | 551 | 547 | 544 | 542 | 542 |
| WA | 26 | LONGVIEW | 527 | 527 | 624 | 621 | 619 | 616 | 615 |
| | | MOSES LAKE | 531 | 531 | 568 | 561 | 555 | 551 | 550 |
| WA | 30-W | MOUNT VERNON | 626 | 626 | 710 | 708 | 706 | 704 | 703 |
| WA | 10 | SUNNYSIDE | 541 | 541 | 604 | 598 | 593 | 591 | 593 |
| WA | ME-WA | WALLA WALLA | 581 | 610 | 605 | 601 | 597 | 598 | 598 |
| WA | 11 | WENATCHEE | 435 | 435 | 530 | 521 | 513 | 509 | 509 |
| WA | 11 | YAKIMA | 603 | 594 | 588 | 583 | 581 | 581 | 581 |
| OR | GTN | BEND | 741 | 778 | 780 | 776 | 767 | 768 | 768 |
| OR | 24 | BAKER | 619 | 577 | 576 | 572 | 569 | 568 | 568 |
| OR | 24 | ONTARIO | 527 | 527 | 589 | 585 | 581 | 579 | 578 |
| OR | ME-OR | PENDLETON | 528 | 569 | 564 | 561 | 560 | 560 | 560 |
| REStpc HIGH | | | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| State | Zone | District | | | | | | | |
| WA | 30-S | ABERDEEN | 674 | 674 | 736 | 731 | 726 | 721 | 716 |
| WA | 30-W | BELLINGHAM | 646 | 714 | 713 | 706 | 703 | 703 | 704 |
| WA | 30-S | BREMERTON | 658 | 750 | 747 | 741 | 739 | 739 | 740 |
| WA | 20 | KENNEWICK | 553 | 553 | 567 | 563 | 560 | 557 | 556 |
| WA | 26 | LONGVIEW | 527 | 527 | 622 | 617 | 613 | 609 | 606 |
| | | MOSES LAKE | 520 | 520 | 555 | 547 | 539 | 533 | 531 |
| WA | 30-W | MOUNT VERNON | 632 | 632 | 712 | 709 | 705 | 702 | 699 |
| WA | 10 | SUNNYSIDE | 541 | 541 | 605 | 599 | 595 | 594 | 597 |
| WA | ME-WA | WALLA WALLA | 575 | 614 | 614 | 609 | 608 | 608 | 608 |
| WA | 11 | WENATCHEE | 426 | 426 | 518 | 508 | 499 | 494 | 493 |
| WA | 11 | YAKIMA | 603 | 619 | 616 | 613 | 612 | 612 | 612 |
| OR | GTN | BEND | 719 | 780 | 785 | 777 | 774 | 775 | 775 |
| OR | 24 | BAKER | 619 | 630 | 634 | 631 | 630 | 629 | 630 |
| OR | 24 | ONTARIO | 517 | 517 | 576 | 571 | 566 | 563 | 562 |
| OR | ME-OR | PENDLETON | 528 | 603 | 604 | 605 | 605 | 605 | 606 |

IRP 2012

Appendix B Demand
Residential

3

| State | Zone | District | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|-------|-------|--------------|---------|---------|---------|---------|---------|---------|---------|
| WA | 30-S | ABERDEEN | 5,418 | 5,446 | 5,474 | 5,502 | 5,529 | 5,556 | 5,582 |
| WA | 30-W | BELLINGHAM | 46,690 | 47,716 | 48,741 | 49,768 | 50,798 | 51,830 | 52,862 |
| WA | 30-S | BREMERTON | 30,166 | 30,612 | 31,061 | 31,512 | 31,967 | 32,424 | 32,885 |
| WA | 20 | KENNEWICK | 25,057 | 25,921 | 26,799 | 27,693 | 28,602 | 29,528 | 30,468 |
| WA | 26 | LONGVIEW | 2,493 | 2,500 | 2,510 | 2,520 | 2,530 | 2,542 | 2,553 |
| | | MOSES LAKE | 1,889 | 1,895 | 1,901 | 1,907 | 1,912 | 1,918 | 1,924 |
| WA | 30-W | MOUNT VERNON | 39,476 | 40,218 | 40,963 | 41,712 | 42,467 | 43,227 | 43,993 |
| WA | 10 | SUNNYSIDE | 5,378 | 5,395 | 5,412 | 5,428 | 5,444 | 5,460 | 5,475 |
| WA | ME-WA | WALLA WALLA | 11,194 | 11,324 | 11,450 | 11,574 | 11,695 | 11,813 | 11,927 |
| WA | 11 | WENATCHEE | 1,565 | 1,571 | 1,578 | 1,584 | 1,590 | 1,596 | 1,602 |
| WA | 11 | YAKIMA | 20,259 | 20,430 | 20,597 | 20,760 | 20,920 | 21,078 | 21,231 |
| OR | GTN | BEND | 40,533 | 41,078 | 41,631 | 42,190 | 42,754 | 43,328 | 43,905 |
| OR | 24 | BAKER | 3,334 | 3,336 | 3,341 | 3,345 | 3,351 | 3,358 | 3,366 |
| OR | 24 | ONTARIO | 3,591 | 3,590 | 3,594 | 3,596 | 3,600 | 3,604 | 3,611 |
| OR | ME-OR | PENDLETON | 12,117 | 12,367 | 12,613 | 12,852 | 13,087 | 13,316 | 13,537 |
| | | | 249,160 | 253,399 | 257,665 | 261,943 | 266,246 | 270,578 | 274,921 |

RESc MID

| State | Zone | District | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|-------|-------|--------------|--------|--------|--------|--------|--------|--------|--------|
| WA | 30-S | ABERDEEN | 5,448 | 5,483 | 5,518 | 5,552 | 5,586 | 5,619 | 5,652 |
| WA | 30-W | BELLINGHAM | 47,462 | 48,598 | 49,739 | 50,885 | 52,039 | 53,199 | 54,362 |
| WA | 30-S | BREMERTON | 30,554 | 31,124 | 31,701 | 32,283 | 32,873 | 33,470 | 34,072 |
| WA | 20 | KENNEWICK | 25,680 | 26,673 | 27,689 | 28,729 | 29,795 | 30,885 | 31,998 |
| WA | 26 | LONGVIEW | 2,542 | 2,566 | 2,592 | 2,618 | 2,645 | 2,674 | 2,702 |
| | | MOSES LAKE | 1,891 | 1,897 | 1,903 | 1,909 | 1,915 | 1,921 | 1,927 |
| WA | 30-W | MOUNT VERNON | 40,184 | 41,091 | 42,008 | 42,935 | 43,874 | 44,824 | 45,786 |
| WA | 10 | SUNNYSIDE | 5,386 | 5,403 | 5,419 | 5,435 | 5,451 | 5,466 | 5,481 |
| WA | ME-WA | WALLA WALLA | 11,267 | 11,397 | 11,523 | 11,647 | 11,769 | 11,887 | 11,999 |
| WA | 11 | WENATCHEE | 1,570 | 1,576 | 1,582 | 1,588 | 1,593 | 1,598 | 1,604 |
| WA | 11 | YAKIMA | 20,384 | 20,552 | 20,716 | 20,876 | 21,034 | 21,189 | 21,339 |
| OR | GTN | BEND | 41,035 | 41,778 | 42,534 | 43,303 | 44,082 | 44,879 | 45,684 |
| OR | 24 | BAKER | 3,340 | 3,349 | 3,360 | 3,370 | 3,382 | 3,395 | 3,410 |
| OR | 24 | ONTARIO | 3,584 | 3,589 | 3,593 | 3,596 | 3,602 | 3,607 | 3,617 |
| OR | ME-OR | PENDLETON | 12,286 | 12,541 | 12,791 | 13,036 | 13,277 | 13,510 | 13,734 |

RESc HIGH

| State | Zone | District | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|-------|-------|--------------|---------|---------|---------|---------|---------|---------|---------|
| WA | 30-S | ABERDEEN | 5,517 | 5,557 | 5,598 | 5,638 | 5,678 | 5,718 | 5,756 |
| WA | 30-W | BELLINGHAM | 49,021 | 50,267 | 51,526 | 52,793 | 54,075 | 55,365 | 56,661 |
| WA | 30-S | BREMERTON | 31,535 | 32,228 | 32,933 | 33,648 | 34,376 | 35,114 | 35,862 |
| WA | 20 | KENNEWICK | 27,042 | 28,180 | 29,352 | 30,558 | 31,800 | 33,076 | 34,382 |
| WA | 26 | LONGVIEW | 2,677 | 2,718 | 2,760 | 2,803 | 2,847 | 2,894 | 2,939 |
| | | MOSES LAKE | 1,894 | 1,901 | 1,907 | 1,913 | 1,919 | 1,925 | 1,931 |
| WA | 30-W | MOUNT VERNON | 41,815 | 42,891 | 43,985 | 45,097 | 46,228 | 47,377 | 48,544 |
| WA | 10 | SUNNYSIDE | 5,398 | 5,415 | 5,430 | 5,446 | 5,461 | 5,476 | 5,491 |
| WA | ME-WA | WALLA WALLA | 11,390 | 11,517 | 11,642 | 11,767 | 11,888 | 12,004 | 12,113 |
| WA | 11 | WENATCHEE | 1,578 | 1,583 | 1,588 | 1,593 | 1,597 | 1,602 | 1,606 |
| WA | 11 | YAKIMA | 20,583 | 20,745 | 20,904 | 21,061 | 21,216 | 21,367 | 21,511 |
| OR | GTN | BEND | 42,418 | 43,358 | 44,319 | 45,301 | 46,300 | 47,325 | 48,367 |
| OR | 24 | BAKER | 3,366 | 3,382 | 3,399 | 3,415 | 3,434 | 3,453 | 3,475 |
| OR | 24 | ONTARIO | 3,574 | 3,589 | 3,592 | 3,596 | 3,605 | 3,611 | 3,627 |
| OR | ME-OR | PENDLETON | 12,582 | 12,841 | 13,092 | 13,341 | 13,586 | 13,819 | 14,043 |
| | | | 260,390 | 266,172 | 272,027 | 277,970 | 284,010 | 290,126 | 296,308 |

IRP 2012

Appendix B Demand
Residential

4

REStpc LOW

| State | Zone | District | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|-------|-------|--------------|------|------|------|------|------|------|------|
| WA | 30-S | ABERDEEN | 743 | 742 | 741 | 741 | 740 | 739 | 737 |
| WA | 30-W | BELLINGHAM | 686 | 684 | 684 | 684 | 680 | 677 | 680 |
| WA | 30-S | BREMERTON | 686 | 685 | 685 | 685 | 683 | 681 | 683 |
| WA | 20 | KENNEWICK | 550 | 549 | 548 | 548 | 548 | 547 | 546 |
| WA | 26 | LONGVIEW | 613 | 613 | 612 | 611 | 611 | 610 | 610 |
| | | MOSES LAKE | 557 | 555 | 553 | 553 | 553 | 551 | 548 |
| WA | 30-W | MOUNT VERNON | 730 | 730 | 729 | 728 | 728 | 727 | 726 |
| WA | 10 | SUNNYSIDE | 581 | 581 | 579 | 580 | 582 | 581 | 579 |
| WA | ME-WA | WALLA WALLA | 586 | 585 | 586 | 585 | 583 | 582 | 584 |
| WA | 11 | WENATCHEE | 520 | 519 | 516 | 517 | 518 | 516 | 512 |
| WA | 11 | YAKIMA | 558 | 557 | 556 | 556 | 553 | 551 | 552 |
| OR | GTN | BEND | 726 | 725 | 725 | 725 | 722 | 721 | 723 |
| OR | 24 | BAKER | 521 | 519 | 518 | 518 | 514 | 512 | 513 |
| OR | 24 | ONTARIO | 582 | 581 | 580 | 580 | 581 | 580 | 578 |
| OR | ME-OR | PENDLETON | 524 | 523 | 523 | 523 | 521 | 519 | 521 |

REStpc MID

| State | Zone | District | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|-------|-------|--------------|------|------|------|------|------|------|------|
| WA | 30-S | ABERDEEN | 717 | 715 | 712 | 709 | 707 | 704 | 701 |
| WA | 30-W | BELLINGHAM | 687 | 685 | 686 | 685 | 682 | 679 | 682 |
| WA | 30-S | BREMERTON | 699 | 698 | 699 | 699 | 697 | 695 | 697 |
| WA | 20 | KENNEWICK | 542 | 541 | 539 | 539 | 538 | 536 | 534 |
| WA | 26 | LONGVIEW | 614 | 612 | 610 | 608 | 606 | 604 | 602 |
| | | MOSES LAKE | 550 | 547 | 544 | 542 | 541 | 538 | 533 |
| WA | 30-W | MOUNT VERNON | 702 | 700 | 698 | 696 | 694 | 692 | 690 |
| WA | 10 | SUNNYSIDE | 596 | 596 | 595 | 597 | 599 | 599 | 597 |
| WA | ME-WA | WALLA WALLA | 597 | 596 | 596 | 596 | 594 | 593 | 595 |
| WA | 11 | WENATCHEE | 511 | 508 | 505 | 504 | 505 | 502 | 497 |
| WA | 11 | YAKIMA | 579 | 577 | 577 | 577 | 574 | 572 | 574 |
| OR | GTN | BEND | 767 | 766 | 766 | 766 | 764 | 763 | 765 |
| OR | 24 | BAKER | 566 | 564 | 564 | 564 | 561 | 560 | 560 |
| OR | 24 | ONTARIO | 579 | 578 | 576 | 575 | 575 | 574 | 571 |
| OR | ME-OR | PENDLETON | 559 | 558 | 558 | 559 | 557 | 556 | 557 |

REStpc HIGH

| State | Zone | District | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|-------|-------|--------------|------|------|------|------|------|------|------|
| WA | 30-S | ABERDEEN | 712 | 707 | 702 | 697 | 692 | 687 | 682 |
| WA | 30-W | BELLINGHAM | 702 | 700 | 701 | 701 | 698 | 696 | 699 |
| WA | 30-S | BREMERTON | 739 | 739 | 739 | 740 | 739 | 738 | 739 |
| WA | 20 | KENNEWICK | 555 | 553 | 549 | 547 | 546 | 543 | 540 |
| WA | 26 | LONGVIEW | 603 | 599 | 595 | 592 | 588 | 584 | 580 |
| | | MOSES LAKE | 529 | 524 | 520 | 516 | 513 | 507 | 500 |
| WA | 30-W | MOUNT VERNON | 696 | 693 | 689 | 685 | 682 | 678 | 674 |
| WA | 10 | SUNNYSIDE | 601 | 602 | 602 | 604 | 608 | 608 | 607 |
| WA | ME-WA | WALLA WALLA | 607 | 607 | 607 | 607 | 606 | 605 | 607 |
| WA | 11 | WENATCHEE | 493 | 489 | 485 | 483 | 482 | 478 | 473 |
| WA | 11 | YAKIMA | 611 | 610 | 610 | 610 | 608 | 607 | 608 |
| OR | GTN | BEND | 774 | 774 | 774 | 774 | 773 | 773 | 774 |
| OR | 24 | BAKER | 629 | 627 | 627 | 628 | 627 | 627 | 625 |
| OR | 24 | ONTARIO | 562 | 560 | 557 | 556 | 555 | 552 | 549 |
| OR | ME-OR | PENDLETON | 605 | 605 | 605 | 606 | 605 | 605 | 605 |

Appendix B Demand
Residential

| State | Zone | District | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|-------|-------|--------------|---------|---------|---------|---------|---------|---------|---------|---------|
| WA | 30-S | ABERDEEN | 5,608 | 5,633 | 5,658 | 5,682 | 5,705 | 5,729 | 5,751 | 5,773 |
| WA | 30-W | BELLINGHAM | 53,894 | 54,926 | 55,958 | 56,989 | 58,018 | 59,048 | 60,078 | 61,126 |
| WA | 30-S | BREMERTON | 33,348 | 33,813 | 34,281 | 34,751 | 35,224 | 35,699 | 36,177 | 36,661 |
| WA | 20 | KENNEWICK | 31,423 | 32,393 | 33,377 | 34,374 | 35,385 | 36,411 | 37,450 | 38,519 |
| WA | 26 | LONGVIEW | 2,566 | 2,579 | 2,593 | 2,608 | 2,623 | 2,639 | 2,655 | 2,671 |
| | | MOSES LAKE | 1,929 | 1,935 | 1,940 | 1,945 | 1,951 | 1,956 | 1,961 | 1,966 |
| WA | 30-W | MOUNT VERNON | 44,760 | 45,535 | 46,309 | 47,087 | 47,869 | 48,653 | 49,441 | 50,242 |
| WA | 10 | SUNNYSIDE | 5,490 | 5,504 | 5,518 | 5,531 | 5,545 | 5,558 | 5,570 | 5,582 |
| WA | ME-WA | WALLA WALLA | 12,035 | 12,140 | 12,240 | 12,336 | 12,428 | 12,515 | 12,600 | 12,686 |
| WA | 11 | WENATCHEE | 1,608 | 1,613 | 1,619 | 1,624 | 1,629 | 1,634 | 1,639 | 1,644 |
| WA | 11 | YAKIMA | 21,381 | 21,526 | 21,666 | 21,802 | 21,933 | 22,060 | 22,184 | 22,309 |
| OR | GTN | BEND | 44,492 | 45,083 | 45,682 | 46,288 | 46,901 | 47,521 | 48,149 | 48,785 |
| OR | 24 | BAKER | 3,377 | 3,389 | 3,401 | 3,419 | 3,436 | 3,455 | 3,475 | 3,495 |
| OR | 24 | ONTARIO | 3,619 | 3,627 | 3,636 | 3,654 | 3,663 | 3,678 | 3,701 | 3,724 |
| OR | ME-OR | PENDLETON | 13,749 | 13,952 | 14,143 | 14,325 | 14,497 | 14,658 | 14,809 | 14,962 |
| | | | 279,279 | 283,648 | 288,021 | 292,415 | 296,807 | 301,214 | 305,640 | 310,145 |

RESc MID

| State | Zone | District | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|-------|-------|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| WA | 30-S | ABERDEEN | 5,685 | 5,717 | 5,748 | 5,778 | 5,809 | 5,839 | 5,868 | 5,897 |
| WA | 30-W | BELLINGHAM | 55,530 | 56,702 | 57,878 | 59,057 | 60,239 | 61,426 | 62,618 | 63,832 |
| WA | 30-S | BREMERTON | 34,681 | 35,297 | 35,919 | 36,547 | 37,181 | 37,823 | 38,470 | 39,129 |
| WA | 20 | KENNEWICK | 33,135 | 34,296 | 35,479 | 36,687 | 37,919 | 39,176 | 40,456 | 41,778 |
| WA | 26 | LONGVIEW | 2,731 | 2,761 | 2,792 | 2,823 | 2,855 | 2,888 | 2,920 | 2,953 |
| | | MOSES LAKE | 1,932 | 1,938 | 1,943 | 1,949 | 1,954 | 1,960 | 1,965 | 1,970 |
| WA | 30-W | MOUNT VERNON | 46,756 | 47,739 | 48,728 | 49,727 | 50,738 | 51,755 | 52,786 | 53,837 |
| WA | 10 | SUNNYSIDE | 5,495 | 5,509 | 5,523 | 5,536 | 5,549 | 5,562 | 5,574 | 5,586 |
| WA | ME-WA | WALLA WALLA | 12,108 | 12,212 | 12,311 | 12,407 | 12,499 | 12,586 | 12,670 | 12,755 |
| WA | 11 | WENATCHEE | 1,609 | 1,613 | 1,618 | 1,623 | 1,627 | 1,631 | 1,635 | 1,639 |
| WA | 11 | YAKIMA | 21,485 | 21,627 | 21,763 | 21,896 | 22,024 | 22,148 | 22,269 | 22,390 |
| OR | GTN | BEND | 46,506 | 47,338 | 48,187 | 49,049 | 49,925 | 50,816 | 51,721 | 52,643 |
| OR | 24 | BAKER | 3,427 | 3,446 | 3,464 | 3,487 | 3,508 | 3,533 | 3,557 | 3,581 |
| OR | 24 | ONTARIO | 3,626 | 3,634 | 3,646 | 3,663 | 3,674 | 3,690 | 3,711 | 3,732 |
| OR | ME-OR | PENDLETON | 13,951 | 14,156 | 14,350 | 14,535 | 14,710 | 14,875 | 15,029 | 15,185 |

RESc HIGH

| State | Zone | District | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|-------|-------|--------------|---------|---------|---------|---------|---------|---------|---------|---------|
| WA | 30-S | ABERDEEN | 5,795 | 5,833 | 5,870 | 5,907 | 5,943 | 5,979 | 6,014 | 6,049 |
| WA | 30-W | BELLINGHAM | 57,968 | 59,281 | 60,602 | 61,933 | 63,269 | 64,616 | 65,973 | 67,358 |
| WA | 30-S | BREMERTON | 36,622 | 37,392 | 38,174 | 38,966 | 39,770 | 40,586 | 41,413 | 42,257 |
| WA | 20 | KENNEWICK | 35,725 | 37,099 | 38,508 | 39,953 | 41,434 | 42,951 | 44,504 | 46,113 |
| WA | 26 | LONGVIEW | 2,986 | 3,035 | 3,084 | 3,134 | 3,185 | 3,237 | 3,289 | 3,342 |
| | | MOSES LAKE | 1,937 | 1,943 | 1,948 | 1,954 | 1,959 | 1,965 | 1,970 | 1,975 |
| WA | 30-W | MOUNT VERNON | 49,727 | 50,929 | 52,144 | 53,378 | 54,631 | 55,898 | 57,188 | 58,508 |
| WA | 10 | SUNNYSIDE | 5,505 | 5,518 | 5,531 | 5,544 | 5,557 | 5,569 | 5,581 | 5,593 |
| WA | ME-WA | WALLA WALLA | 12,219 | 12,321 | 12,417 | 12,512 | 12,602 | 12,688 | 12,770 | 12,853 |
| WA | 11 | WENATCHEE | 1,611 | 1,615 | 1,619 | 1,623 | 1,626 | 1,630 | 1,633 | 1,636 |
| WA | 11 | YAKIMA | 21,653 | 21,789 | 21,920 | 22,047 | 22,170 | 22,290 | 22,407 | 22,525 |
| OR | GTN | BEND | 49,434 | 50,518 | 51,629 | 52,762 | 53,917 | 55,098 | 56,302 | 57,532 |
| OR | 24 | BAKER | 3,500 | 3,524 | 3,548 | 3,576 | 3,601 | 3,631 | 3,658 | 3,685 |
| OR | 24 | ONTARIO | 3,635 | 3,642 | 3,658 | 3,673 | 3,688 | 3,702 | 3,721 | 3,740 |
| OR | ME-OR | PENDLETON | 14,260 | 14,461 | 14,655 | 14,839 | 15,011 | 15,176 | 15,328 | 15,482 |
| | | | 302,577 | 308,900 | 315,307 | 321,801 | 328,363 | 335,016 | 341,751 | 348,648 |

Appendix B Demand
Residential

REStpc LOW

| State | Zone | District | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|-------|-------|--------------|------|------|------|------|------|------|------|------|
| WA | 30-S | ABERDEEN | 737 | 737 | 736 | 734 | 734 | 733 | 731 | 730 |
| WA | 30-W | BELLINGHAM | 684 | 682 | 681 | 681 | 679 | 676 | 673 | 670 |
| WA | 30-S | BREMERTON | 686 | 685 | 684 | 684 | 683 | 681 | 679 | 677 |
| WA | 20 | KENNEWICK | 546 | 548 | 547 | 546 | 546 | 546 | 546 | 544 |
| WA | 26 | LONGVIEW | 609 | 610 | 609 | 608 | 607 | 606 | 605 | 604 |
| | | MOSES LAKE | 548 | 552 | 551 | 549 | 549 | 547 | 545 | 542 |
| WA | 30-W | MOUNT VERNON | 725 | 726 | 725 | 724 | 723 | 722 | 721 | 720 |
| WA | 10 | SUNNYSIDE | 579 | 586 | 586 | 585 | 587 | 586 | 585 | 584 |
| WA | ME-WA | WALLA WALLA | 586 | 585 | 585 | 585 | 584 | 582 | 581 | 579 |
| WA | 11 | WENATCHEE | 512 | 520 | 518 | 516 | 517 | 516 | 513 | 511 |
| WA | 11 | YAKIMA | 555 | 553 | 552 | 552 | 550 | 548 | 546 | 543 |
| OR | GTN | BEND | 726 | 724 | 724 | 724 | 722 | 720 | 718 | 716 |
| OR | 24 | BAKER | 515 | 513 | 512 | 511 | 510 | 507 | 505 | 503 |
| OR | 24 | ONTARIO | 578 | 581 | 580 | 579 | 580 | 579 | 578 | 577 |
| OR | ME-OR | PENDLETON | 523 | 522 | 521 | 521 | 521 | 519 | 517 | 516 |

REStpc MID

| State | Zone | District | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|-------|-------|--------------|------|------|------|------|------|------|------|------|
| WA | 30-S | ABERDEEN | 699 | 697 | 694 | 691 | 689 | 686 | 682 | 679 |
| WA | 30-W | BELLINGHAM | 686 | 684 | 683 | 683 | 682 | 679 | 677 | 674 |
| WA | 30-S | BREMERTON | 700 | 699 | 698 | 699 | 698 | 696 | 695 | 693 |
| WA | 20 | KENNEWICK | 533 | 535 | 533 | 531 | 530 | 529 | 527 | 525 |
| WA | 26 | LONGVIEW | 600 | 599 | 596 | 594 | 592 | 590 | 588 | 585 |
| | | MOSES LAKE | 531 | 534 | 530 | 526 | 524 | 521 | 517 | 512 |
| WA | 30-W | MOUNT VERNON | 688 | 687 | 684 | 682 | 679 | 677 | 675 | 672 |
| WA | 10 | SUNNYSIDE | 598 | 606 | 606 | 606 | 608 | 609 | 608 | 608 |
| WA | ME-WA | WALLA WALLA | 597 | 596 | 596 | 596 | 595 | 594 | 593 | 591 |
| WA | 11 | WENATCHEE | 496 | 503 | 500 | 497 | 497 | 494 | 491 | 488 |
| WA | 11 | YAKIMA | 576 | 574 | 573 | 573 | 572 | 570 | 568 | 567 |
| OR | GTN | BEND | 767 | 766 | 765 | 765 | 765 | 763 | 762 | 760 |
| OR | 24 | BAKER | 562 | 560 | 559 | 559 | 558 | 556 | 555 | 554 |
| OR | 24 | ONTARIO | 571 | 573 | 572 | 570 | 570 | 569 | 567 | 565 |
| OR | ME-OR | PENDLETON | 559 | 558 | 558 | 558 | 558 | 556 | 556 | 555 |

REStpc HIGH

| State | Zone | District | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|-------|-------|--------------|------|------|------|------|------|------|------|------|
| WA | 30-S | ABERDEEN | 676 | 672 | 667 | 661 | 656 | 651 | 645 | 639 |
| WA | 30-W | BELLINGHAM | 702 | 700 | 700 | 700 | 699 | 697 | 695 | 693 |
| WA | 30-S | BREMERTON | 741 | 740 | 740 | 740 | 740 | 739 | 739 | 738 |
| WA | 20 | KENNEWICK | 537 | 538 | 535 | 532 | 529 | 526 | 523 | 520 |
| WA | 26 | LONGVIEW | 576 | 573 | 569 | 564 | 561 | 556 | 552 | 548 |
| | | MOSES LAKE | 495 | 495 | 489 | 483 | 479 | 473 | 466 | 459 |
| WA | 30-W | MOUNT VERNON | 670 | 667 | 662 | 658 | 653 | 648 | 643 | 638 |
| WA | 10 | SUNNYSIDE | 610 | 618 | 619 | 620 | 624 | 625 | 626 | 627 |
| WA | ME-WA | WALLA WALLA | 608 | 608 | 608 | 608 | 607 | 606 | 606 | 605 |
| WA | 11 | WENATCHEE | 470 | 475 | 470 | 466 | 464 | 460 | 456 | 451 |
| WA | 11 | YAKIMA | 609 | 608 | 607 | 607 | 607 | 605 | 604 | 603 |
| OR | GTN | BEND | 776 | 775 | 775 | 775 | 775 | 774 | 773 | 772 |
| OR | 24 | BAKER | 626 | 625 | 625 | 624 | 625 | 624 | 624 | 624 |
| OR | 24 | ONTARIO | 547 | 549 | 547 | 545 | 544 | 542 | 539 | 536 |
| OR | ME-OR | PENDLETON | 607 | 606 | 606 | 606 | 607 | 606 | 607 | 607 |

| CNGC COM | State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|----------|-------|--------------|--------------|----------|-------|-------|-------|-------|-------|-------|
| | WA | 30-S | ABERDEEN | 1,137 | 1,145 | 1,148 | 1,152 | 1,155 | 1,159 | 1,163 |
| | WA | 30-W | BELLINGHAM | 4,803 | 4,814 | 4,927 | 5,047 | 5,167 | 5,287 | 5,406 |
| | WA | 30-S | BREMERTON | 2,525 | 2,528 | 2,605 | 2,690 | 2,775 | 2,861 | 2,948 |
| | WA | 20 | KENNEWICK | 3,063 | 3,148 | 3,271 | 3,403 | 3,538 | 3,675 | 3,814 |
| | WA | | 26 | LONGVIEW | 1,143 | 1,146 | 1,149 | 1,153 | 1,157 | 1,161 |
| | WA | 30-W | MOSES LAKE | 641 | 644 | 650 | 657 | 664 | 670 | 676 |
| | WA | | MOUNT VERNON | 4,581 | 4,567 | 4,656 | 4,750 | 4,845 | 4,941 | 5,038 |
| | WA | 10 | SUNNYSIDE | 1,349 | 1,346 | 1,351 | 1,358 | 1,365 | 1,371 | 1,377 |
| | WA | ME-WA | WALLA WALLA | 1,253 | 1,250 | 1,256 | 1,262 | 1,268 | 1,274 | 1,279 |
| WA | 11 | WENATCHEE | 760 | 758 | 755 | 754 | 752 | 751 | 750 | |
| WA | 11 | YAKIMA | 3,387 | 3,402 | 3,418 | 3,436 | 3,455 | 3,473 | 3,490 | |
| OR | GTN | BEND | 6,226 | 6,277 | 6,414 | 6,558 | 6,703 | 6,849 | 6,995 | |
| OR | 24 | BAKER | 495 | 501 | 502 | 505 | 507 | 509 | 511 | |
| OR | 24 | ONTARIO | 870 | 883 | 884 | 882 | 880 | 878 | 878 | |
| OR | ME-OR | PENDLETON | 1,820 | 1,841 | 1,856 | 1,873 | 1,889 | 1,906 | 1,922 | |
| MID | | | | | | | | | | |
| State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | |
| WA | 30-S | ABERDEEN | 1,137 | 1,152 | 1,158 | 1,163 | 1,170 | 1,176 | 1,182 | |
| WA | 30-W | BELLINGHAM | 4,803 | 4,885 | 5,007 | 5,129 | 5,250 | 5,371 | 5,491 | |
| WA | 30-S | BREMERTON | 2,525 | 2,578 | 2,666 | 2,756 | 2,848 | 2,940 | 3,034 | |
| WA | 20 | KENNEWICK | 3,063 | 3,219 | 3,361 | 3,506 | 3,654 | 3,805 | 3,959 | |
| WA | | 26 | LONGVIEW | 1,143 | 1,151 | 1,159 | 1,168 | 1,177 | 1,186 | 1,195 |
| WA | 30-W | MOSES LAKE | 641 | 648 | 655 | 662 | 669 | 676 | 682 | |
| WA | | MOUNT VERNON | 4,581 | 4,617 | 4,727 | 4,838 | 4,951 | 5,066 | 5,182 | |
| WA | 10 | SUNNYSIDE | 1,349 | 1,348 | 1,354 | 1,360 | 1,366 | 1,372 | 1,377 | |
| WA | ME-WA | WALLA WALLA | 1,253 | 1,254 | 1,261 | 1,269 | 1,275 | 1,282 | 1,289 | |
| WA | 11 | WENATCHEE | 760 | 760 | 759 | 757 | 756 | 756 | 755 | |
| WA | 11 | YAKIMA | 3,387 | 3,414 | 3,434 | 3,455 | 3,475 | 3,494 | 3,514 | |
| OR | GTN | BEND | 6,226 | 6,351 | 6,516 | 6,683 | 6,851 | 7,022 | 7,194 | |
| OR | 24 | BAKER | 495 | 504 | 508 | 511 | 514 | 518 | 521 | |
| OR | 24 | ONTARIO | 870 | 885 | 884 | 883 | 881 | 882 | 882 | |
| OR | ME-OR | PENDLETON | 1,820 | 1,851 | 1,871 | 1,890 | 1,910 | 1,929 | 1,948 | |
| HIGH | | | | | | | | | | |
| State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | |
| WA | 30-S | ABERDEEN | 1,137 | 1,158 | 1,166 | 1,174 | 1,182 | 1,190 | 1,199 | |
| WA | 30-W | BELLINGHAM | 4,803 | 4,996 | 5,131 | 5,254 | 5,376 | 5,498 | 5,619 | |
| WA | 30-S | BREMERTON | 2,525 | 2,651 | 2,755 | 2,850 | 2,948 | 3,046 | 3,145 | |
| WA | 20 | KENNEWICK | 3,063 | 3,321 | 3,485 | 3,643 | 3,804 | 3,969 | 4,139 | |
| WA | | 26 | LONGVIEW | 1,143 | 1,154 | 1,167 | 1,180 | 1,194 | 1,207 | 1,221 |
| WA | 30-W | MOSES LAKE | 641 | 654 | 662 | 670 | 677 | 683 | 690 | |
| WA | | MOUNT VERNON | 4,581 | 4,684 | 4,816 | 4,943 | 5,073 | 5,204 | 5,338 | |
| WA | 10 | SUNNYSIDE | 1,349 | 1,353 | 1,361 | 1,366 | 1,372 | 1,376 | 1,381 | |
| WA | ME-WA | WALLA WALLA | 1,253 | 1,259 | 1,268 | 1,276 | 1,283 | 1,291 | 1,299 | |
| WA | 11 | WENATCHEE | 760 | 763 | 762 | 762 | 761 | 761 | 760 | |
| WA | 11 | YAKIMA | 3,387 | 3,429 | 3,457 | 3,478 | 3,499 | 3,520 | 3,541 | |
| OR | GTN | BEND | 6,226 | 6,455 | 6,647 | 6,835 | 7,025 | 7,218 | 7,414 | |
| OR | 24 | BAKER | 495 | 507 | 514 | 518 | 522 | 526 | 530 | |
| OR | 24 | ONTARIO | 870 | 887 | 882 | 881 | 880 | 884 | 884 | |
| OR | ME-OR | PENDLETON | 1,820 | 1,863 | 1,888 | 1,910 | 1,932 | 1,953 | 1,974 | |

| COMtpc LOW | | | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|-------------|-------|--------------|-------|-------|-------|-------|-------|-------|-------|
| State | Zone | District | | | | | | | |
| WA | 30-S | ABERDEEN | 4,297 | 4,241 | 4,252 | 4,260 | 4,267 | 4,269 | 4,269 |
| WA | 30-W | BELLINGHAM | 2,773 | 3,338 | 3,299 | 3,269 | 3,252 | 3,254 | 3,265 |
| WA | 30-S | BREMERTON | 3,585 | 3,900 | 3,909 | 3,917 | 3,922 | 3,924 | 3,924 |
| WA | 20 | KENNEWICK | 4,110 | 4,314 | 4,284 | 4,260 | 4,242 | 4,236 | 4,233 |
| WA | 26 | LONGVIEW | 3,968 | 4,257 | 4,273 | 4,287 | 4,295 | 4,295 | 4,292 |
| | | MOSES LAKE | 3,749 | 3,733 | 3,704 | 3,682 | 3,671 | 3,675 | 3,686 |
| WA | 30-W | MOUNT VERNON | 3,007 | 3,271 | 3,250 | 3,234 | 3,225 | 3,227 | 3,234 |
| WA | 10 | SUNNYSIDE | 3,226 | 3,308 | 3,308 | 3,307 | 3,306 | 3,305 | 3,304 |
| WA | ME-WA | WALLA WALLA | 3,108 | 3,285 | 3,300 | 3,311 | 3,317 | 3,313 | 3,306 |
| WA | 11 | WENATCHEE | 4,687 | 5,110 | 5,103 | 5,092 | 5,075 | 5,047 | 5,015 |
| WA | 11 | YAKIMA | 3,429 | 3,735 | 3,677 | 3,630 | 3,606 | 3,615 | 3,637 |
| OR | GTN | BEND | 2,736 | 2,914 | 2,862 | 2,824 | 2,808 | 2,823 | 2,850 |
| OR | 24 | BAKER | 3,113 | 3,435 | 3,411 | 3,391 | 3,380 | 3,380 | 3,385 |
| OR | 24 | ONTARIO | 2,672 | 3,106 | 3,011 | 2,939 | 2,903 | 2,920 | 2,957 |
| OR | ME-OR | PENDLETON | 3,236 | 3,308 | 3,294 | 3,282 | 3,274 | 3,274 | 3,276 |
| COMtpc MID | | | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| State | Zone | District | | | | | | | |
| WA | 30-S | ABERDEEN | 4,340 | 4,305 | 4,322 | 4,337 | 4,350 | 4,358 | 4,366 |
| WA | 30-W | BELLINGHAM | 2,773 | 3,331 | 3,288 | 3,253 | 3,231 | 3,228 | 3,233 |
| WA | 30-S | BREMERTON | 3,585 | 3,906 | 3,920 | 3,932 | 3,942 | 3,949 | 3,954 |
| WA | 20 | KENNEWICK | 3,988 | 4,178 | 4,136 | 4,096 | 4,062 | 4,037 | 4,014 |
| WA | 26 | LONGVIEW | 3,889 | 4,177 | 4,196 | 4,213 | 4,224 | 4,228 | 4,230 |
| | | MOSES LAKE | 3,675 | 3,660 | 3,632 | 3,611 | 3,601 | 3,606 | 3,618 |
| WA | 30-W | MOUNT VERNON | 2,977 | 3,232 | 3,211 | 3,193 | 3,183 | 3,183 | 3,188 |
| WA | 10 | SUNNYSIDE | 3,325 | 3,408 | 3,405 | 3,403 | 3,400 | 3,397 | 3,394 |
| WA | ME-WA | WALLA WALLA | 3,046 | 3,212 | 3,223 | 3,232 | 3,235 | 3,229 | 3,219 |
| WA | 11 | WENATCHEE | 4,640 | 4,988 | 4,941 | 4,887 | 4,824 | 4,750 | 4,671 |
| WA | 11 | YAKIMA | 3,499 | 3,812 | 3,752 | 3,705 | 3,681 | 3,690 | 3,712 |
| OR | GTN | BEND | 2,709 | 2,888 | 2,847 | 2,821 | 2,816 | 2,844 | 2,886 |
| OR | 24 | BAKER | 3,082 | 3,385 | 3,357 | 3,332 | 3,314 | 3,309 | 3,308 |
| OR | 24 | ONTARIO | 2,645 | 3,081 | 2,991 | 2,925 | 2,895 | 2,916 | 2,958 |
| OR | ME-OR | PENDLETON | 3,236 | 3,307 | 3,289 | 3,272 | 3,260 | 3,255 | 3,252 |
| COMtpc HIGH | | | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| State | Zone | District | | | | | | | |
| WA | 30-S | ABERDEEN | 4,297 | 4,294 | 4,320 | 4,345 | 4,368 | 4,387 | 4,405 |
| WA | 30-W | BELLINGHAM | 2,690 | 3,221 | 3,173 | 3,131 | 3,103 | 3,092 | 3,089 |
| WA | 30-S | BREMERTON | 3,550 | 3,878 | 3,898 | 3,918 | 3,935 | 3,949 | 3,963 |
| WA | 20 | KENNEWICK | 4,069 | 4,250 | 4,184 | 4,120 | 4,058 | 4,004 | 3,951 |
| WA | 26 | LONGVIEW | 3,929 | 4,227 | 4,253 | 4,275 | 4,294 | 4,305 | 4,313 |
| | | MOSES LAKE | 3,749 | 3,735 | 3,709 | 3,688 | 3,679 | 3,686 | 3,700 |
| WA | 30-W | MOUNT VERNON | 2,977 | 3,223 | 3,200 | 3,181 | 3,168 | 3,166 | 3,168 |
| WA | 10 | SUNNYSIDE | 3,226 | 3,304 | 3,299 | 3,295 | 3,289 | 3,283 | 3,277 |
| WA | ME-WA | WALLA WALLA | 3,046 | 3,198 | 3,207 | 3,212 | 3,211 | 3,200 | 3,186 |
| WA | 11 | WENATCHEE | 4,733 | 4,977 | 4,865 | 4,745 | 4,614 | 4,472 | 4,328 |
| WA | 11 | YAKIMA | 3,464 | 3,774 | 3,715 | 3,669 | 3,645 | 3,655 | 3,677 |
| OR | GTN | BEND | 2,709 | 2,893 | 2,870 | 2,861 | 2,876 | 2,926 | 2,992 |
| OR | 24 | BAKER | 3,082 | 3,363 | 3,325 | 3,293 | 3,267 | 3,253 | 3,243 |
| OR | 24 | ONTARIO | 2,672 | 3,123 | 3,041 | 2,981 | 2,958 | 2,988 | 3,041 |
| OR | ME-OR | PENDLETON | 3,203 | 3,274 | 3,249 | 3,225 | 3,207 | 3,194 | 3,183 |

| CNGC COM | State | Zone | District | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|----------|-------|--------------|--------------|----------|-------|-------|-------|-------|-------|-------|
| | WA | 30-S | ABERDEEN | 1,167 | 1,171 | 1,175 | 1,179 | 1,183 | 1,187 | 1,191 |
| | WA | 30-W | BELLINGHAM | 5,524 | 5,642 | 5,759 | 5,875 | 5,991 | 6,106 | 6,221 |
| | WA | 30-S | BREMERTON | 3,036 | 3,124 | 3,213 | 3,302 | 3,393 | 3,484 | 3,575 |
| | WA | 20 | KENNEWICK | 3,955 | 4,098 | 4,243 | 4,390 | 4,539 | 4,691 | 4,845 |
| | WA | | 26 | LONGVIEW | 1,169 | 1,174 | 1,178 | 1,183 | 1,187 | 1,192 |
| | | | MOSES LAKE | 683 | 689 | 695 | 701 | 707 | 713 | 719 |
| | WA | 30-W | MOUNT VERNON | 5,135 | 5,232 | 5,331 | 5,429 | 5,529 | 5,629 | 5,730 |
| | WA | 10 | SUNNYSIDE | 1,383 | 1,389 | 1,394 | 1,400 | 1,405 | 1,410 | 1,415 |
| | WA | ME-WA | WALLA WALLA | 1,285 | 1,291 | 1,296 | 1,301 | 1,307 | 1,312 | 1,317 |
| WA | 11 | WENATCHEE | 749 | 748 | 747 | 746 | 745 | 745 | 744 | |
| WA | 11 | YAKIMA | 3,508 | 3,525 | 3,542 | 3,558 | 3,574 | 3,590 | 3,606 | |
| OR | GTN | BEND | 7,143 | 7,291 | 7,440 | 7,590 | 7,741 | 7,893 | 8,046 | |
| OR | 24 | BAKER | 514 | 515 | 517 | 519 | 521 | 522 | 524 | |
| OR | 24 | ONTARIO | 877 | 877 | 878 | 878 | 879 | 880 | 882 | |
| OR | ME-OR | PENDLETON | 1,938 | 1,953 | 1,969 | 1,984 | 1,998 | 2,013 | 2,027 | |
| MID | | | | | | | | | | |
| State | Zone | District | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | |
| WA | 30-S | ABERDEEN | 1,188 | 1,194 | 1,201 | 1,207 | 1,214 | 1,220 | 1,227 | |
| WA | 30-W | BELLINGHAM | 5,611 | 5,730 | 5,848 | 5,967 | 6,084 | 6,202 | 6,318 | |
| WA | 30-S | BREMERTON | 3,128 | 3,223 | 3,320 | 3,417 | 3,515 | 3,615 | 3,715 | |
| WA | 20 | KENNEWICK | 4,117 | 4,277 | 4,440 | 4,606 | 4,776 | 4,949 | 5,125 | |
| WA | | 26 | LONGVIEW | 1,204 | 1,213 | 1,223 | 1,233 | 1,242 | 1,252 | 1,262 |
| | | MOSES LAKE | 689 | 696 | 702 | 708 | 715 | 721 | 727 | |
| WA | 30-W | MOUNT VERNON | 5,299 | 5,417 | 5,537 | 5,658 | 5,781 | 5,905 | 6,031 | |
| WA | 10 | SUNNYSIDE | 1,383 | 1,388 | 1,392 | 1,397 | 1,402 | 1,406 | 1,410 | |
| WA | ME-WA | WALLA WALLA | 1,296 | 1,302 | 1,308 | 1,315 | 1,321 | 1,327 | 1,333 | |
| WA | 11 | WENATCHEE | 754 | 754 | 753 | 753 | 753 | 753 | 753 | |
| WA | 11 | YAKIMA | 3,532 | 3,551 | 3,569 | 3,587 | 3,605 | 3,623 | 3,640 | |
| OR | GTN | BEND | 7,369 | 7,545 | 7,723 | 7,904 | 8,086 | 8,271 | 8,458 | |
| OR | 24 | BAKER | 524 | 527 | 529 | 532 | 535 | 537 | 539 | |
| OR | 24 | ONTARIO | 882 | 883 | 884 | 886 | 888 | 889 | 892 | |
| OR | ME-OR | PENDLETON | 1,966 | 1,985 | 2,003 | 2,021 | 2,038 | 2,056 | 2,073 | |
| HIGH | | | | | | | | | | |
| State | Zone | District | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | |
| WA | 30-S | ABERDEEN | 1,207 | 1,216 | 1,224 | 1,233 | 1,241 | 1,250 | 1,259 | |
| WA | 30-W | BELLINGHAM | 5,740 | 5,860 | 5,980 | 6,099 | 6,218 | 6,337 | 6,455 | |
| WA | 30-S | BREMERTON | 3,246 | 3,348 | 3,451 | 3,556 | 3,662 | 3,770 | 3,877 | |
| WA | 20 | KENNEWICK | 4,312 | 4,488 | 4,669 | 4,854 | 5,043 | 5,237 | 5,434 | |
| WA | | 26 | LONGVIEW | 1,235 | 1,249 | 1,263 | 1,278 | 1,292 | 1,307 | 1,321 |
| | | MOSES LAKE | 697 | 704 | 711 | 717 | 724 | 730 | 737 | |
| WA | 30-W | MOUNT VERNON | 5,474 | 5,611 | 5,751 | 5,893 | 6,038 | 6,184 | 6,333 | |
| WA | 10 | SUNNYSIDE | 1,386 | 1,390 | 1,394 | 1,398 | 1,402 | 1,405 | 1,409 | |
| WA | ME-WA | WALLA WALLA | 1,306 | 1,313 | 1,320 | 1,327 | 1,334 | 1,341 | 1,348 | |
| WA | 11 | WENATCHEE | 760 | 760 | 760 | 760 | 761 | 761 | 762 | |
| WA | 11 | YAKIMA | 3,561 | 3,580 | 3,600 | 3,619 | 3,638 | 3,657 | 3,675 | |
| OR | GTN | BEND | 7,613 | 7,815 | 8,020 | 8,229 | 8,441 | 8,657 | 8,875 | |
| OR | 24 | BAKER | 533 | 537 | 540 | 544 | 547 | 551 | 554 | |
| OR | 24 | ONTARIO | 883 | 888 | 889 | 891 | 894 | 897 | 901 | |
| OR | ME-OR | PENDLETON | 1,995 | 2,016 | 2,037 | 2,057 | 2,077 | 2,097 | 2,116 | |

| COMtpc LOW | | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | |
|---|------------|--------------|--------------|-------|-------|-------|-------|-------|-------|-------|
| COMtpc (Commercial Therms per Customer) | State | Zone | District | | | | | | | |
| | WA | 30-S | ABERDEEN | 4,274 | 4,279 | 4,282 | 4,284 | 4,290 | 4,297 | |
| | WA | 30-W | BELLINGHAM | 3,257 | 3,246 | 3,247 | 3,252 | 3,241 | 3,224 | |
| | WA | 30-S | BREMERTON | 3,927 | 3,932 | 3,934 | 3,935 | 3,940 | 3,946 | |
| | WA | | 20 KENNEWICK | 4,219 | 4,202 | 4,192 | 4,183 | 4,165 | 4,143 | |
| | WA | | 26 LONGVIEW | 4,296 | 4,301 | 4,302 | 4,302 | 4,307 | 4,315 | |
| | | | MOSES LAKE | 3,683 | 3,677 | 3,680 | 3,687 | 3,682 | 3,671 | |
| | WA | 30-W | MOUNT VERNON | 3,230 | 3,224 | 3,226 | 3,229 | 3,223 | 3,215 | |
| | WA | | 10 SUNNYSIDE | 3,303 | 3,302 | 3,301 | 3,300 | 3,299 | 3,297 | |
| | WA | ME-WA | WALLA WALLA | 3,306 | 3,309 | 3,306 | 3,300 | 3,302 | 3,307 | |
| | WA | | 11 WENATCHEE | 4,990 | 4,965 | 4,934 | 4,901 | 4,875 | 4,850 | |
| | WA | | 11 YAKIMA | 3,629 | 3,615 | 3,622 | 3,635 | 3,622 | 3,600 | |
| | OR | GTN | BEND | 2,851 | 2,845 | 2,859 | 2,880 | 2,877 | 2,864 | |
| | OR | | 24 BAKER | 3,379 | 3,371 | 3,370 | 3,372 | 3,364 | 3,352 | |
| | OR | | 24 ONTARIO | 2,947 | 2,927 | 2,941 | 2,965 | 2,947 | 2,915 | |
| | OR | ME-OR | PENDLETON | 3,271 | 3,266 | 3,264 | 3,264 | 3,259 | 3,251 | |
| | COMtpc MID | | | | | | | | | |
| | State | Zone | District | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
| | WA | 30-S | ABERDEEN | 4,377 | 4,390 | 4,400 | 4,409 | 4,423 | 4,438 | 4,450 |
| | WA | 30-W | BELLINGHAM | 3,221 | 3,204 | 3,199 | 3,198 | 3,181 | 3,158 | 3,151 |
| WA | 30-S | BREMERTON | 3,963 | 3,973 | 3,980 | 3,988 | 3,998 | 4,010 | 4,020 | |
| WA | | 20 KENNEWICK | 3,980 | 3,942 | 3,910 | 3,877 | 3,836 | 3,791 | 3,752 | |
| WA | | 26 LONGVIEW | 4,238 | 4,249 | 4,254 | 4,258 | 4,268 | 4,281 | 4,288 | |
| | | MOSES LAKE | 3,616 | 3,611 | 3,616 | 3,624 | 3,620 | 3,611 | 3,615 | |
| WA | 30-W | MOUNT VERNON | 3,182 | 3,176 | 3,175 | 3,176 | 3,169 | 3,158 | 3,155 | |
| WA | | 10 SUNNYSIDE | 3,391 | 3,388 | 3,385 | 3,382 | 3,378 | 3,375 | 3,372 | |
| WA | ME-WA | WALLA WALLA | 3,217 | 3,217 | 3,211 | 3,202 | 3,201 | 3,202 | 3,196 | |
| WA | | 11 WENATCHEE | 4,598 | 4,526 | 4,446 | 4,364 | 4,288 | 4,213 | 4,133 | |
| WA | | 11 YAKIMA | 3,705 | 3,691 | 3,698 | 3,711 | 3,699 | 3,676 | 3,680 | |
| OR | GTN | BEND | 2,902 | 2,911 | 2,944 | 2,983 | 2,998 | 3,004 | 3,037 | |
| OR | | 24 BAKER | 3,298 | 3,283 | 3,277 | 3,272 | 3,258 | 3,242 | 3,233 | |
| OR | | 24 ONTARIO | 2,955 | 2,941 | 2,960 | 2,990 | 2,979 | 2,951 | 2,966 | |
| OR | ME-OR | PENDLETON | 3,243 | 3,233 | 3,227 | 3,221 | 3,210 | 3,197 | 3,190 | |
| COMtpc HIGH | | | | | | | | | | |
| State | Zone | District | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | |
| WA | 30-S | ABERDEEN | 4,427 | 4,452 | 4,474 | 4,495 | 4,522 | 4,549 | 4,574 | |
| WA | 30-W | BELLINGHAM | 3,068 | 3,044 | 3,031 | 3,022 | 2,997 | 2,967 | 2,951 | |
| WA | 30-S | BREMERTON | 3,979 | 3,998 | 4,015 | 4,032 | 4,053 | 4,075 | 4,095 | |
| WA | | 20 KENNEWICK | 3,884 | 3,813 | 3,747 | 3,679 | 3,603 | 3,524 | 3,450 | |
| WA | | 26 LONGVIEW | 4,329 | 4,346 | 4,359 | 4,371 | 4,390 | 4,410 | 4,425 | |
| | | MOSES LAKE | 3,699 | 3,696 | 3,703 | 3,713 | 3,711 | 3,704 | 3,710 | |
| WA | 30-W | MOUNT VERNON | 3,160 | 3,150 | 3,146 | 3,144 | 3,134 | 3,119 | 3,113 | |
| WA | | 10 SUNNYSIDE | 3,271 | 3,265 | 3,258 | 3,253 | 3,246 | 3,239 | 3,232 | |
| WA | ME-WA | WALLA WALLA | 3,181 | 3,176 | 3,165 | 3,152 | 3,146 | 3,142 | 3,132 | |
| WA | | 11 WENATCHEE | 4,188 | 4,049 | 3,906 | 3,763 | 3,627 | 3,495 | 3,360 | |
| WA | | 11 YAKIMA | 3,670 | 3,657 | 3,664 | 3,678 | 3,666 | 3,644 | 3,647 | |
| OR | GTN | BEND | 3,033 | 3,070 | 3,132 | 3,204 | 3,252 | 3,292 | 3,363 | |
| OR | | 24 BAKER | 3,224 | 3,201 | 3,185 | 3,172 | 3,149 | 3,122 | 3,105 | |
| OR | | 24 ONTARIO | 3,046 | 3,042 | 3,070 | 3,112 | 3,110 | 3,092 | 3,117 | |
| OR | ME-OR | PENDLETON | 3,167 | 3,149 | 3,135 | 3,122 | 3,104 | 3,082 | 3,066 | |

| | | | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | |
|-----------------|------------|------------|--------------|----------|-------|-------|-------|--------|--------|--------|--------|
| CNGC COM | State | Zone | District | | | | | | | | |
| | WA | 30-S | ABERDEEN | 1,195 | 1,199 | 1,203 | 1,207 | 1,212 | 1,216 | 1,220 | |
| | WA | 30-W | BELLINGHAM | 6,335 | 6,449 | 6,561 | 6,672 | 6,783 | 6,893 | 7,002 | |
| | WA | 30-S | BREMERTON | 3,667 | 3,759 | 3,852 | 3,945 | 4,038 | 4,131 | 4,224 | |
| | WA | 20 | KENNEWICK | 5,001 | 5,159 | 5,318 | 5,480 | 5,643 | 5,808 | 5,808 | 5,974 |
| | WA | | 26 | LONGVIEW | 1,201 | 1,206 | 1,211 | 1,216 | 1,220 | 1,225 | 1,230 |
| | | | MOSES LAKE | 725 | 731 | 737 | 742 | 748 | 753 | 753 | 759 |
| | WA | 30-W | MOUNT VERNON | 5,832 | 5,934 | 6,036 | 6,139 | 6,242 | 6,346 | 6,346 | 6,450 |
| | WA | 10 | SUNNYSIDE | 1,420 | 1,424 | 1,429 | 1,433 | 1,437 | 1,441 | 1,441 | 1,444 |
| | WA | ME-WA | WALLA WALLA | 1,322 | 1,327 | 1,331 | 1,336 | 1,340 | 1,344 | 1,344 | 1,349 |
| | WA | 11 | WENATCHEE | 744 | 743 | 743 | 743 | 743 | 742 | 742 | 742 |
| | WA | 11 | YAKIMA | 3,621 | 3,636 | 3,651 | 3,665 | 3,679 | 3,693 | 3,693 | 3,706 |
| | OR | GTN | BEND | 8,200 | 8,355 | 8,511 | 8,667 | 8,825 | 8,983 | 8,983 | 9,142 |
| | OR | 24 | BAKER | 525 | 526 | 527 | 528 | 528 | 529 | 529 | 529 |
| | OR | 24 | ONTARIO | 884 | 886 | 888 | 893 | 895 | 899 | 899 | 905 |
| | OR | ME-OR | PENDLETON | 2,041 | 2,054 | 2,067 | 2,080 | 2,092 | 2,104 | 2,104 | 2,116 |
| | MID | | | | | | | | | | |
| | | State | Zone | District | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
| | WA | 30-S | ABERDEEN | 1,233 | 1,240 | 1,246 | 1,253 | 1,259 | 1,266 | 1,266 | 1,273 |
| | WA | 30-W | BELLINGHAM | 6,434 | 6,549 | 6,663 | 6,776 | 6,889 | 7,001 | 7,001 | 7,112 |
| | WA | 30-S | BREMERTON | 3,815 | 3,917 | 4,019 | 4,121 | 4,224 | 4,328 | 4,328 | 4,432 |
| | WA | 20 | KENNEWICK | 5,304 | 5,485 | 5,670 | 5,858 | 6,048 | 6,241 | 6,241 | 6,438 |
| | WA | | 26 | LONGVIEW | 1,271 | 1,281 | 1,291 | 1,301 | 1,310 | 1,320 | 1,320 |
| | | MOSES LAKE | 733 | 739 | 745 | 751 | 757 | 763 | 763 | 769 | |
| | WA | 30-W | MOUNT VERNON | 6,157 | 6,286 | 6,414 | 6,545 | 6,676 | 6,809 | 6,809 | 6,943 |
| | WA | 10 | SUNNYSIDE | 1,414 | 1,418 | 1,422 | 1,425 | 1,428 | 1,431 | 1,431 | 1,434 |
| | WA | ME-WA | WALLA WALLA | 1,339 | 1,344 | 1,350 | 1,355 | 1,361 | 1,366 | 1,366 | 1,371 |
| | WA | 11 | WENATCHEE | 753 | 753 | 753 | 754 | 754 | 754 | 754 | 754 |
| | WA | 11 | YAKIMA | 3,657 | 3,673 | 3,689 | 3,705 | 3,721 | 3,736 | 3,736 | 3,751 |
| | OR | GTN | BEND | 8,647 | 8,837 | 9,030 | 9,225 | 9,422 | 9,621 | 9,621 | 9,822 |
| | OR | 24 | BAKER | 542 | 544 | 546 | 548 | 549 | 550 | 550 | 551 |
| | OR | 24 | ONTARIO | 895 | 897 | 901 | 906 | 909 | 913 | 913 | 919 |
| | OR | ME-OR | PENDLETON | 2,089 | 2,106 | 2,122 | 2,137 | 2,152 | 2,167 | 2,167 | 2,182 |
| HIGH | | | | | | | | | | | |
| | State | Zone | District | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
| | WA | 30-S | ABERDEEN | 1,268 | 1,276 | 1,285 | 1,294 | 1,303 | 1,312 | 1,312 | 1,321 |
| | WA | 30-W | BELLINGHAM | 6,572 | 6,688 | 6,803 | 6,918 | 7,031 | 7,145 | 7,145 | 7,257 |
| | WA | 30-S | BREMERTON | 3,987 | 4,096 | 4,207 | 4,319 | 4,431 | 4,545 | 4,545 | 4,659 |
| | WA | 20 | KENNEWICK | 5,636 | 5,841 | 6,050 | 6,264 | 6,481 | 6,702 | 6,702 | 6,928 |
| | WA | | 26 | LONGVIEW | 1,335 | 1,350 | 1,365 | 1,379 | 1,394 | 1,408 | 1,408 |
| | | MOSES LAKE | 743 | 749 | 755 | 762 | 768 | 774 | 774 | 780 | |
| | WA | 30-W | MOUNT VERNON | 6,483 | 6,636 | 6,791 | 6,948 | 7,107 | 7,267 | 7,267 | 7,431 |
| | WA | 10 | SUNNYSIDE | 1,412 | 1,415 | 1,418 | 1,421 | 1,423 | 1,426 | 1,426 | 1,428 |
| | WA | ME-WA | WALLA WALLA | 1,354 | 1,361 | 1,367 | 1,373 | 1,379 | 1,385 | 1,385 | 1,391 |
| | WA | 11 | WENATCHEE | 762 | 763 | 763 | 764 | 764 | 765 | 765 | 766 |
| | WA | 11 | YAKIMA | 3,694 | 3,711 | 3,729 | 3,746 | 3,762 | 3,779 | 3,779 | 3,795 |
| | OR | GTN | BEND | 9,097 | 9,322 | 9,550 | 9,782 | 10,017 | 10,256 | 10,256 | 10,498 |
| | OR | 24 | BAKER | 557 | 559 | 562 | 565 | 567 | 570 | 570 | 572 |
| | OR | 24 | ONTARIO | 904 | 907 | 912 | 917 | 921 | 926 | 926 | 931 |
| | OR | ME-OR | PENDLETON | 2,135 | 2,154 | 2,172 | 2,191 | 2,208 | 2,226 | 2,226 | 2,243 |

| COMtpc LOW | | | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|-------------|-------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| State | Zone | District | | | | | | | | |
| WA | 30-S | ABERDEEN | 4,297 | 4,301 | 4,307 | 4,309 | 4,315 | 4,321 | 4,321 | 4,327 |
| WA | 30-W | BELLINGHAM | 3,255 | 3,245 | 3,237 | 3,240 | 3,233 | 3,222 | 3,222 | 3,210 |
| WA | 30-S | BREMERTON | 3,945 | 3,949 | 3,954 | 3,956 | 3,960 | 3,965 | 3,965 | 3,970 |
| WA | 20 | KENNEWICK | 4,135 | 4,116 | 4,097 | 4,084 | 4,065 | 4,044 | 4,044 | 4,022 |
| WA | 26 | LONGVIEW | 4,305 | 4,310 | 4,315 | 4,315 | 4,320 | 4,325 | 4,325 | 4,332 |
| | | MOSES LAKE | 3,703 | 3,699 | 3,696 | 3,702 | 3,700 | 3,695 | 3,695 | 3,689 |
| WA | 30-W | MOUNT VERNON | 3,233 | 3,228 | 3,224 | 3,226 | 3,223 | 3,218 | 3,218 | 3,211 |
| WA | 10 | SUNNYSIDE | 3,296 | 3,295 | 3,294 | 3,292 | 3,291 | 3,290 | 3,290 | 3,288 |
| WA | ME-WA | WALLA WALLA | 3,287 | 3,287 | 3,288 | 3,283 | 3,283 | 3,284 | 3,284 | 3,286 |
| WA | 11 | WENATCHEE | 4,772 | 4,742 | 4,711 | 4,676 | 4,643 | 4,612 | 4,612 | 4,581 |
| WA | 11 | YAKIMA | 3,661 | 3,651 | 3,643 | 3,653 | 3,648 | 3,637 | 3,637 | 3,623 |
| OR | GTN | BEND | 2,944 | 2,945 | 2,948 | 2,969 | 2,976 | 2,975 | 2,975 | 2,973 |
| OR | 24 | BAKER | 3,368 | 3,361 | 3,354 | 3,354 | 3,349 | 3,341 | 3,341 | 3,332 |
| OR | 24 | ONTARIO | 3,020 | 3,007 | 2,996 | 3,017 | 3,012 | 2,995 | 2,995 | 2,976 |
| OR | ME-OR | PENDLETON | 3,258 | 3,253 | 3,248 | 3,247 | 3,243 | 3,238 | 3,238 | 3,232 |
| COMtpc MID | | | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
| State | Zone | District | | | | | | | | |
| WA | 30-S | ABERDEEN | 4,454 | 4,467 | 4,481 | 4,493 | 4,507 | 4,522 | 4,522 | 4,537 |
| WA | 30-W | BELLINGHAM | 3,176 | 3,160 | 3,146 | 3,142 | 3,129 | 3,112 | 3,112 | 3,093 |
| WA | 30-S | BREMERTON | 4,022 | 4,033 | 4,045 | 4,054 | 4,065 | 4,079 | 4,079 | 4,092 |
| WA | 20 | KENNEWICK | 3,730 | 3,685 | 3,641 | 3,601 | 3,556 | 3,508 | 3,508 | 3,460 |
| WA | 26 | LONGVIEW | 4,281 | 4,292 | 4,301 | 4,307 | 4,317 | 4,328 | 4,328 | 4,340 |
| | | MOSES LAKE | 3,645 | 3,642 | 3,640 | 3,648 | 3,648 | 3,644 | 3,644 | 3,640 |
| WA | 30-W | MOUNT VERNON | 3,171 | 3,164 | 3,157 | 3,157 | 3,151 | 3,143 | 3,143 | 3,135 |
| WA | 10 | SUNNYSIDE | 3,368 | 3,365 | 3,361 | 3,357 | 3,354 | 3,350 | 3,350 | 3,346 |
| WA | ME-WA | WALLA WALLA | 3,177 | 3,174 | 3,171 | 3,163 | 3,159 | 3,156 | 3,156 | 3,154 |
| WA | 11 | WENATCHEE | 4,041 | 3,962 | 3,884 | 3,801 | 3,722 | 3,644 | 3,644 | 3,567 |
| WA | 11 | YAKIMA | 3,740 | 3,730 | 3,722 | 3,732 | 3,728 | 3,716 | 3,716 | 3,702 |
| OR | GTN | BEND | 3,130 | 3,152 | 3,178 | 3,224 | 3,256 | 3,281 | 3,281 | 3,304 |
| OR | 24 | BAKER | 3,243 | 3,231 | 3,218 | 3,211 | 3,199 | 3,185 | 3,185 | 3,171 |
| OR | 24 | ONTARIO | 3,071 | 3,065 | 3,062 | 3,089 | 3,091 | 3,081 | 3,081 | 3,068 |
| OR | ME-OR | PENDLETON | 3,193 | 3,182 | 3,173 | 3,166 | 3,155 | 3,144 | 3,144 | 3,131 |
| COMtpc HIGH | | | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
| State | Zone | District | | | | | | | | |
| WA | 30-S | ABERDEEN | 4,592 | 4,619 | 4,647 | 4,674 | 4,703 | 4,733 | 4,733 | 4,764 |
| WA | 30-W | BELLINGHAM | 2,965 | 2,942 | 2,918 | 2,905 | 2,883 | 2,858 | 2,858 | 2,831 |
| WA | 30-S | BREMERTON | 4,108 | 4,131 | 4,153 | 4,173 | 4,197 | 4,222 | 4,222 | 4,248 |
| WA | 20 | KENNEWICK | 3,391 | 3,311 | 3,231 | 3,157 | 3,078 | 2,998 | 2,998 | 2,917 |
| WA | 26 | LONGVIEW | 4,427 | 4,446 | 4,465 | 4,480 | 4,499 | 4,520 | 4,520 | 4,541 |
| | | MOSES LAKE | 3,743 | 3,743 | 3,744 | 3,754 | 3,757 | 3,756 | 3,756 | 3,755 |
| WA | 30-W | MOUNT VERNON | 3,125 | 3,114 | 3,104 | 3,100 | 3,090 | 3,078 | 3,078 | 3,065 |
| WA | 10 | SUNNYSIDE | 3,225 | 3,219 | 3,212 | 3,204 | 3,197 | 3,189 | 3,189 | 3,182 |
| WA | ME-WA | WALLA WALLA | 3,106 | 3,099 | 3,091 | 3,077 | 3,068 | 3,061 | 3,061 | 3,053 |
| WA | 11 | WENATCHEE | 3,218 | 3,090 | 2,963 | 2,838 | 2,717 | 2,601 | 2,601 | 2,488 |
| WA | 11 | YAKIMA | 3,707 | 3,698 | 3,691 | 3,701 | 3,697 | 3,686 | 3,686 | 3,673 |
| OR | GTN | BEND | 3,502 | 3,567 | 3,638 | 3,734 | 3,816 | 3,892 | 3,892 | 3,969 |
| OR | 24 | BAKER | 3,106 | 3,084 | 3,061 | 3,046 | 3,025 | 3,001 | 3,001 | 2,978 |
| OR | 24 | ONTARIO | 3,240 | 3,243 | 3,250 | 3,292 | 3,306 | 3,307 | 3,307 | 3,306 |
| OR | ME-OR | PENDLETON | 3,062 | 3,042 | 3,024 | 3,008 | 2,989 | 2,970 | 2,970 | 2,949 |

| CNGC IND | State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-----------|-------|---------------|---------------|------|------|------|------|------|------|
| | WA | 30-S | ABERDEEN | 13 | 14 | 14 | 14 | 14 | 13 |
| | WA | 30-W | BELLINGHAM | 39 | 39 | 39 | 38 | 38 | 38 |
| | WA | 30-S | BREMERTON | 1 | 1 | 1 | 1 | 1 | 1 |
| | WA | | 20 KENNEWICK | 16 | 16 | 16 | 16 | 16 | 16 |
| | WA | | 26 LONGVIEW | 29 | 29 | 29 | 29 | 29 | 29 |
| | | | 20 MOSES LAKE | 17 | 18 | 19 | 19 | 20 | 21 |
| | WA | 30-W | MOUNT VERNON | 91 | 89 | 84 | 78 | 73 | 69 |
| | WA | 10 | SUNNYSIDE | 48 | 48 | 47 | 46 | 46 | 45 |
| | WA | ME-WA | WALLA WALLA | 3 | 3 | 3 | 3 | 3 | 3 |
| WA | | 11 WENATCHEE | 20 | 20 | 20 | 20 | 20 | 20 | |
| WA | | 11 YAKIMA | 77 | 77 | 76 | 75 | 74 | 73 | |
| OR | GTN | BEND | 55 | 55 | 52 | 48 | 45 | 43 | |
| OR | | 24 BAKER | 4 | 4 | 4 | 3 | 3 | 2 | |
| OR | | 24 ONTARIO | 10 | 10 | 10 | 10 | 10 | 11 | |
| OR | ME-OR | PENDLETON | 23 | 23 | 23 | 23 | 23 | 23 | |
| RESc MID | | | | | | | | | |
| State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | |
| WA | 30-S | ABERDEEN | 13 | 14 | 14 | 14 | 14 | 14 | |
| WA | 30-W | BELLINGHAM | 39 | 39 | 39 | 39 | 38 | 38 | |
| WA | 30-S | BREMERTON | 1 | 1 | 1 | 1 | 1 | 1 | |
| WA | | 20 KENNEWICK | 16 | 16 | 16 | 16 | 16 | 16 | |
| WA | | 26 LONGVIEW | 29 | 29 | 30 | 30 | 30 | 30 | |
| | | 20 MOSES LAKE | 17 | 18 | 19 | 20 | 21 | 22 | |
| WA | 30-W | MOUNT VERNON | 91 | 86 | 80 | 75 | 70 | 66 | |
| WA | 10 | SUNNYSIDE | 48 | 48 | 47 | 46 | 46 | 45 | |
| WA | ME-WA | WALLA WALLA | 3 | 3 | 3 | 3 | 3 | 3 | |
| WA | | 11 WENATCHEE | 20 | 20 | 19 | 19 | 19 | 19 | |
| WA | | 11 YAKIMA | 77 | 76 | 75 | 74 | 73 | 72 | |
| OR | GTN | BEND | 55 | 53 | 51 | 48 | 46 | 45 | |
| OR | | 24 BAKER | 4 | 4 | 3 | 3 | 2 | 2 | |
| OR | | 24 ONTARIO | 10 | 10 | 10 | 10 | 10 | 10 | |
| OR | ME-OR | PENDLETON | 23 | 23 | 23 | 23 | 23 | 23 | |
| RESc HIGH | | | | | | | | | |
| State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | |
| WA | 30-S | ABERDEEN | 13 | 14 | 14 | 14 | 14 | 15 | |
| WA | 30-W | BELLINGHAM | 39 | 39 | 39 | 38 | 38 | 38 | |
| WA | 30-S | BREMERTON | 1 | 1 | 1 | 1 | 1 | 1 | |
| WA | | 20 KENNEWICK | 16 | 16 | 16 | 16 | 17 | 17 | |
| WA | | 26 LONGVIEW | 29 | 30 | 30 | 30 | 30 | 30 | |
| | | 20 MOSES LAKE | 17 | 19 | 20 | 21 | 22 | 23 | |
| WA | 30-W | MOUNT VERNON | 91 | 80 | 74 | 70 | 66 | 62 | |
| WA | 10 | SUNNYSIDE | 48 | 47 | 46 | 46 | 45 | 45 | |
| WA | ME-WA | WALLA WALLA | 3 | 3 | 3 | 3 | 3 | 2 | |
| WA | | 11 WENATCHEE | 20 | 20 | 19 | 19 | 19 | 19 | |
| WA | | 11 YAKIMA | 77 | 76 | 74 | 73 | 72 | 71 | |
| OR | GTN | BEND | 55 | 50 | 48 | 46 | 45 | 44 | |
| OR | | 24 BAKER | 4 | 4 | 3 | 2 | 2 | 2 | |
| OR | | 24 ONTARIO | 10 | 10 | 10 | 10 | 10 | 10 | |
| OR | ME-OR | PENDLETON | 23 | 23 | 23 | 23 | 23 | 23 | |

| INDc Low | | | | | | | | |
|-----------|-------|--------------|---------|---------|---------|---------|---------|---------|
| State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| WA | 30-S | ABERDEEN | 9,018 | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 |
| WA | 30-W | BELLINGHAM | 22,033 | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 |
| WA | 30-S | BREMERTON | 108,059 | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 |
| WA | 20 | KENNEWICK | 14,927 | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 |
| WA | 26 | LONGVIEW | 18,075 | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 |
| WA | 20 | MOSES LAKE | 32,966 | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 |
| WA | 30-W | MOUNT VERNON | 13,849 | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 |
| WA | 10 | SUNNYSIDE | 27,569 | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 |
| WA | ME-WA | WALLA WALLA | 23,127 | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 |
| WA | 11 | WENATCHEE | 63,622 | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 |
| WA | 11 | YAKIMA | 38,039 | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 |
| OR | GTN | BEND | 32,231 | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 |
| OR | 24 | BAKER | 18,805 | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 |
| OR | 24 | ONTARIO | 28,948 | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 |
| OR | ME-OR | PENDLETON | 29,323 | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 |
| INDc Mid | | | | | | | | |
| State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| WA | 30-S | ABERDEEN | 8,926 | 16,753 | 14,189 | 12,328 | 11,215 | 10,933 |
| WA | 30-W | BELLINGHAM | 22,482 | 26,510 | 24,096 | 22,358 | 21,505 | 21,837 |
| WA | 30-S | BREMERTON | 105,919 | 150,107 | 151,274 | 151,573 | 150,430 | 147,225 |
| WA | 20 | KENNEWICK | 14,631 | 31,780 | 28,272 | 25,829 | 24,712 | 25,335 |
| WA | 26 | LONGVIEW | 17,892 | 25,553 | 22,330 | 20,037 | 18,842 | 19,009 |
| WA | 20 | MOSES LAKE | 33,975 | 32,685 | 32,604 | 32,516 | 32,423 | 32,330 |
| WA | 30-W | MOUNT VERNON | 13,987 | 18,032 | 17,882 | 17,765 | 17,703 | 17,724 |
| WA | 10 | SUNNYSIDE | 28,413 | 26,419 | 25,798 | 25,279 | 24,924 | 24,807 |
| WA | ME-WA | WALLA WALLA | 23,358 | 41,069 | 43,141 | 44,819 | 45,677 | 45,231 |
| WA | 11 | WENATCHEE | 63,622 | 46,313 | 47,501 | 48,557 | 49,328 | 49,631 |
| WA | 11 | YAKIMA | 36,909 | 33,254 | 32,513 | 31,893 | 31,474 | 31,344 |
| OR | GTN | BEND | 31,912 | 41,172 | 39,769 | 38,688 | 38,114 | 38,267 |
| OR | 24 | BAKER | 18,805 | 37,532 | 34,993 | 33,029 | 31,844 | 31,716 |
| OR | 24 | ONTARIO | 28,662 | 53,069 | 50,602 | 48,271 | 46,209 | 44,378 |
| OR | ME-OR | PENDLETON | 29,027 | 54,086 | 53,071 | 51,903 | 50,522 | 48,825 |
| INDc High | | | | | | | | |
| State | Zone | District | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| WA | 30-S | ABERDEEN | 8,926 | 14,437 | 14,437 | 14,437 | 14,437 | 14,437 |
| WA | 30-W | BELLINGHAM | 22,257 | 26,284 | 26,284 | 26,284 | 26,284 | 26,284 |
| WA | 30-S | BREMERTON | 104,850 | 144,856 | 144,856 | 144,856 | 144,856 | 144,856 |
| WA | 20 | KENNEWICK | 14,483 | 31,551 | 31,551 | 31,551 | 31,551 | 31,551 |
| WA | 26 | LONGVIEW | 17,892 | 25,252 | 25,252 | 25,252 | 25,252 | 25,252 |
| WA | 20 | MOSES LAKE | 33,302 | 31,941 | 31,941 | 31,941 | 31,941 | 31,941 |
| WA | 30-W | MOUNT VERNON | 13,849 | 17,850 | 17,850 | 17,850 | 17,850 | 17,850 |
| WA | 10 | SUNNYSIDE | 27,850 | 25,724 | 25,724 | 25,724 | 25,724 | 25,724 |
| WA | ME-WA | WALLA WALLA | 23,127 | 40,337 | 40,337 | 40,337 | 40,337 | 40,337 |
| WA | 11 | WENATCHEE | 62,350 | 45,986 | 45,986 | 45,986 | 45,986 | 45,986 |
| WA | 11 | YAKIMA | 37,662 | 33,729 | 33,729 | 33,729 | 33,729 | 33,729 |
| OR | GTN | BEND | 31,274 | 40,338 | 40,338 | 40,338 | 40,338 | 40,338 |
| OR | 24 | BAKER | 18,429 | 35,528 | 35,528 | 35,528 | 35,528 | 35,528 |
| OR | 24 | ONTARIO | 28,662 | 50,452 | 50,452 | 50,452 | 50,452 | 50,452 |
| OR | ME-OR | PENDLETON | 29,323 | 54,495 | 54,495 | 54,495 | 54,495 | 54,495 |

| CNGC IND | State | Zone | District | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|-----------|-------|---------------|---------------|------|------|------|------|------|------|
| | WA | 30-S | ABERDEEN | 13 | 13 | 13 | 13 | 12 | 12 |
| | WA | 30-W | BELLINGHAM | 37 | 37 | 37 | 36 | 36 | 36 |
| | WA | 30-S | BREMERTON | 1 | 1 | 1 | 1 | 1 | 1 |
| | WA | | 20 KENNEWICK | 16 | 16 | 16 | 16 | 16 | 16 |
| | WA | | 26 LONGVIEW | 29 | 29 | 29 | 30 | 30 | 30 |
| | | | 20 MOSES LAKE | 22 | 22 | 23 | 24 | 25 | 25 |
| | WA | 30-W | MOUNT VERNON | 64 | 61 | 57 | 54 | 51 | 48 |
| | WA | 10 | SUNNYSIDE | 44 | 44 | 43 | 43 | 42 | 42 |
| | WA | ME-WA | WALLA WALLA | 3 | 3 | 3 | 2 | 2 | 2 |
| WA | 11 | WENATCHEE | 20 | 20 | 20 | 20 | 20 | 20 | |
| WA | 11 | YAKIMA | 72 | 71 | 70 | 69 | 68 | 67 | |
| OR | GTN | BEND | 41 | 39 | 37 | 35 | 33 | 32 | |
| OR | | 24 BAKER | 2 | 2 | 1 | 1 | 1 | 1 | |
| OR | | 24 ONTARIO | 11 | 11 | 11 | 11 | 11 | 11 | |
| OR | ME-OR | PENDLETON | 23 | 23 | 23 | 23 | 23 | 23 | |
| RESc MID | | | | | | | | | |
| State | Zone | District | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | |
| WA | 30-S | ABERDEEN | 14 | 14 | 14 | 14 | 14 | 14 | |
| WA | 30-W | BELLINGHAM | 38 | 38 | 37 | 37 | 37 | 37 | |
| WA | 30-S | BREMERTON | 1 | 1 | 1 | 1 | 1 | 1 | |
| WA | | 20 KENNEWICK | 17 | 17 | 17 | 17 | 17 | 17 | |
| WA | | 26 LONGVIEW | 30 | 30 | 30 | 30 | 30 | 31 | |
| | | 20 MOSES LAKE | 23 | 24 | 25 | 26 | 27 | 28 | |
| WA | 30-W | MOUNT VERNON | 62 | 58 | 55 | 52 | 49 | 47 | |
| WA | 10 | SUNNYSIDE | 45 | 44 | 43 | 43 | 43 | 42 | |
| WA | ME-WA | WALLA WALLA | 2 | 2 | 2 | 2 | 2 | 2 | |
| WA | 11 | WENATCHEE | 19 | 19 | 19 | 19 | 19 | 19 | |
| WA | 11 | YAKIMA | 71 | 70 | 69 | 68 | 68 | 67 | |
| OR | GTN | BEND | 43 | 42 | 40 | 39 | 38 | 37 | |
| OR | | 24 BAKER | 2 | 2 | 1 | 1 | 1 | 1 | |
| OR | | 24 ONTARIO | 11 | 11 | 11 | 11 | 11 | 11 | |
| OR | ME-OR | PENDLETON | 23 | 23 | 23 | 23 | 23 | 23 | |
| RESc HIGH | | | | | | | | | |
| State | Zone | District | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | |
| WA | 30-S | ABERDEEN | 15 | 15 | 15 | 15 | 15 | 16 | |
| WA | 30-W | BELLINGHAM | 38 | 38 | 38 | 38 | 38 | 38 | |
| WA | 30-S | BREMERTON | 1 | 1 | 1 | 1 | 1 | 1 | |
| WA | | 20 KENNEWICK | 17 | 17 | 17 | 18 | 18 | 18 | |
| WA | | 26 LONGVIEW | 31 | 31 | 31 | 31 | 31 | 32 | |
| | | 20 MOSES LAKE | 24 | 25 | 26 | 28 | 29 | 30 | |
| WA | 30-W | MOUNT VERNON | 58 | 55 | 52 | 49 | 46 | 44 | |
| WA | 10 | SUNNYSIDE | 44 | 44 | 43 | 43 | 43 | 42 | |
| WA | ME-WA | WALLA WALLA | 2 | 2 | 2 | 2 | 2 | 2 | |
| WA | 11 | WENATCHEE | 19 | 19 | 18 | 18 | 18 | 18 | |
| WA | 11 | YAKIMA | 70 | 69 | 69 | 68 | 67 | 66 | |
| OR | GTN | BEND | 43 | 43 | 42 | 42 | 41 | 41 | |
| OR | | 24 BAKER | 2 | 2 | 1 | 1 | 1 | 1 | |
| OR | | 24 ONTARIO | 10 | 11 | 11 | 11 | 11 | 11 | |
| OR | ME-OR | PENDLETON | 23 | 23 | 23 | 23 | 24 | 24 | |

| INDc Low | | | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|-----------|-------|--------------|---------|---------|---------|---------|---------|---------|
| State | Zone | District | | | | | | |
| WA | 30-S | ABERDEEN | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 |
| WA | 30-W | BELLINGHAM | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 |
| WA | 30-S | BREMERTON | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 |
| WA | 20 | KENNEWICK | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 |
| WA | 26 | LONGVIEW | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 |
| WA | 20 | MOSES LAKE | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 |
| WA | 30-W | MOUNT VERNON | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 |
| WA | 10 | SUNNYSIDE | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 |
| WA | ME-WA | WALLA WALLA | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 |
| WA | 11 | WENATCHEE | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 |
| WA | 11 | YAKIMA | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 |
| OR | GTN | BEND | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 |
| OR | 24 | BAKER | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 |
| OR | 24 | ONTARIO | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 |
| OR | ME-OR | PENDLETON | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 |
| INDc Mid | | | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| State | Zone | District | | | | | | |
| WA | 30-S | ABERDEEN | 10,942 | 10,277 | 9,501 | 9,171 | 8,970 | 8,292 |
| WA | 30-W | BELLINGHAM | 22,644 | 22,394 | 21,901 | 22,160 | 22,666 | 22,220 |
| WA | 30-S | BREMERTON | 143,243 | 140,899 | 138,875 | 135,666 | 132,103 | 129,915 |
| WA | 20 | KENNEWICK | 26,689 | 26,487 | 25,933 | 26,516 | 27,500 | 27,034 |
| WA | 26 | LONGVIEW | 19,706 | 19,194 | 18,420 | 18,474 | 18,788 | 18,071 |
| WA | 20 | MOSES LAKE | 32,232 | 32,122 | 32,003 | 31,884 | 31,759 | 31,625 |
| WA | 30-W | MOUNT VERNON | 17,778 | 17,759 | 17,721 | 17,737 | 17,769 | 17,735 |
| WA | 10 | SUNNYSIDE | 24,777 | 24,533 | 24,237 | 24,086 | 23,978 | 23,685 |
| WA | ME-WA | WALLA WALLA | 44,288 | 44,466 | 44,905 | 44,536 | 43,914 | 44,285 |
| WA | 11 | WENATCHEE | 49,761 | 50,351 | 51,073 | 51,496 | 51,833 | 52,599 |
| WA | 11 | YAKIMA | 31,322 | 31,037 | 30,690 | 30,518 | 30,401 | 30,057 |
| OR | GTN | BEND | 38,702 | 38,492 | 38,131 | 38,226 | 38,465 | 38,128 |
| OR | 24 | BAKER | 31,985 | 31,332 | 30,477 | 30,253 | 30,220 | 29,419 |
| OR | 24 | ONTARIO | 42,725 | 40,895 | 38,997 | 37,321 | 35,746 | 34,038 |
| OR | ME-OR | PENDLETON | 47,032 | 45,502 | 44,040 | 42,423 | 40,788 | 39,372 |
| INDc High | | | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| State | Zone | District | | | | | | |
| WA | 30-S | ABERDEEN | 14,437 | 14,437 | 14,437 | 14,437 | 14,437 | 14,437 |
| WA | 30-W | BELLINGHAM | 26,284 | 26,284 | 26,284 | 26,284 | 26,284 | 26,284 |
| WA | 30-S | BREMERTON | 144,856 | 144,856 | 144,856 | 144,856 | 144,856 | 144,856 |
| WA | 20 | KENNEWICK | 31,551 | 31,551 | 31,551 | 31,551 | 31,551 | 31,551 |
| WA | 26 | LONGVIEW | 25,252 | 25,252 | 25,252 | 25,252 | 25,252 | 25,252 |
| WA | 20 | MOSES LAKE | 31,941 | 31,941 | 31,941 | 31,941 | 31,941 | 31,941 |
| WA | 30-W | MOUNT VERNON | 17,850 | 17,850 | 17,850 | 17,850 | 17,850 | 17,850 |
| WA | 10 | SUNNYSIDE | 25,724 | 25,724 | 25,724 | 25,724 | 25,724 | 25,724 |
| WA | ME-WA | WALLA WALLA | 40,337 | 40,337 | 40,337 | 40,337 | 40,337 | 40,337 |
| WA | 11 | WENATCHEE | 45,986 | 45,986 | 45,986 | 45,986 | 45,986 | 45,986 |
| WA | 11 | YAKIMA | 33,729 | 33,729 | 33,729 | 33,729 | 33,729 | 33,729 |
| OR | GTN | BEND | 40,338 | 40,338 | 40,338 | 40,338 | 40,338 | 40,338 |
| OR | 24 | BAKER | 35,528 | 35,528 | 35,528 | 35,528 | 35,528 | 35,528 |
| OR | 24 | ONTARIO | 50,452 | 50,452 | 50,452 | 50,452 | 50,452 | 50,452 |
| OR | ME-OR | PENDLETON | 54,495 | 54,495 | 54,495 | 54,495 | 54,495 | 54,495 |

| CNGC IND | State | Zone | District | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|-----------|-------|---------------|---------------|------|------|------|------|------|------|
| | WA | 30-S | ABERDEEN | 12 | 12 | 12 | 12 | 12 | 12 |
| | WA | 30-W | BELLINGHAM | 35 | 35 | 35 | 35 | 35 | 34 |
| | WA | 30-S | BREMERTON | 1 | 1 | 1 | 1 | 1 | 1 |
| | WA | | 20 KENNEWICK | 16 | 16 | 16 | 16 | 16 | 16 |
| | WA | | 26 LONGVIEW | 30 | 30 | 30 | 30 | 30 | 30 |
| | | | 20 MOSES LAKE | 26 | 27 | 28 | 29 | 30 | 30 |
| | WA | 30-W | MOUNT VERNON | 46 | 43 | 41 | 39 | 37 | 35 |
| | WA | 10 | SUNNYSIDE | 41 | 41 | 41 | 40 | 40 | 39 |
| | WA | ME-WA | WALLA WALLA | 2 | 2 | 2 | 2 | 2 | 2 |
| WA | 11 | WENATCHEE | 20 | 20 | 20 | 20 | 20 | 20 | |
| WA | 11 | YAKIMA | 66 | 66 | 65 | 64 | 64 | 63 | |
| OR | GTN | BEND | 31 | 30 | 28 | 27 | 27 | 26 | |
| OR | | 24 BAKER | 1 | 1 | 1 | 1 | 1 | 1 | |
| OR | | 24 ONTARIO | 11 | 11 | 11 | 11 | 11 | 12 | |
| OR | ME-OR | PENDLETON | 23 | 23 | 23 | 23 | 23 | 23 | |
| RESc MID | | | | | | | | | |
| State | Zone | District | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | |
| WA | 30-S | ABERDEEN | 14 | 14 | 14 | 14 | 14 | 15 | |
| WA | 30-W | BELLINGHAM | 37 | 37 | 37 | 37 | 37 | 36 | |
| WA | 30-S | BREMERTON | 1 | 1 | 1 | 1 | 1 | 1 | |
| WA | | 20 KENNEWICK | 17 | 17 | 17 | 17 | 18 | 18 | |
| WA | | 26 LONGVIEW | 31 | 31 | 31 | 31 | 32 | 32 | |
| | | 20 MOSES LAKE | 29 | 30 | 31 | 33 | 34 | 35 | |
| WA | 30-W | MOUNT VERNON | 44 | 42 | 40 | 38 | 36 | 34 | |
| WA | 10 | SUNNYSIDE | 42 | 41 | 41 | 41 | 40 | 40 | |
| WA | ME-WA | WALLA WALLA | 2 | 2 | 2 | 2 | 2 | 2 | |
| WA | 11 | WENATCHEE | 19 | 18 | 18 | 18 | 18 | 18 | |
| WA | 11 | YAKIMA | 66 | 65 | 65 | 64 | 63 | 63 | |
| OR | GTN | BEND | 36 | 36 | 35 | 34 | 34 | 33 | |
| OR | | 24 BAKER | 1 | 1 | 1 | 1 | 1 | 1 | |
| OR | | 24 ONTARIO | 11 | 11 | 11 | 11 | 11 | 11 | |
| OR | ME-OR | PENDLETON | 23 | 23 | 23 | 23 | 24 | 24 | |
| RESc HIGH | | | | | | | | | |
| State | Zone | District | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | |
| WA | 30-S | ABERDEEN | 16 | 16 | 16 | 17 | 17 | 17 | |
| WA | 30-W | BELLINGHAM | 38 | 38 | 38 | 38 | 38 | 38 | |
| WA | 30-S | BREMERTON | 1 | 1 | 1 | 1 | 1 | 2 | |
| WA | | 20 KENNEWICK | 18 | 18 | 19 | 19 | 19 | 20 | |
| WA | | 26 LONGVIEW | 32 | 32 | 32 | 32 | 33 | 33 | |
| | | 20 MOSES LAKE | 32 | 33 | 35 | 36 | 38 | 40 | |
| WA | 30-W | MOUNT VERNON | 42 | 40 | 38 | 36 | 34 | 33 | |
| WA | 10 | SUNNYSIDE | 42 | 42 | 41 | 41 | 41 | 40 | |
| WA | ME-WA | WALLA WALLA | 2 | 2 | 2 | 2 | 2 | 2 | |
| WA | 11 | WENATCHEE | 18 | 17 | 17 | 17 | 17 | 17 | |
| WA | 11 | YAKIMA | 66 | 65 | 64 | 64 | 63 | 62 | |
| OR | GTN | BEND | 40 | 40 | 40 | 40 | 40 | 40 | |
| OR | | 24 BAKER | 1 | 1 | 1 | 1 | 1 | 1 | |
| OR | | 24 ONTARIO | 11 | 11 | 11 | 11 | 11 | 11 | |
| OR | ME-OR | PENDLETON | 24 | 24 | 24 | 24 | 24 | 24 | |

| INDc Low | | | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|-----------|-------|--------------|---------|---------|---------|---------|---------|---------|
| State | Zone | District | | | | | | |
| WA | 30-S | ABERDEEN | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 | 18,629 |
| WA | 30-W | BELLINGHAM | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 | 25,956 |
| WA | 30-S | BREMERTON | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 | 155,623 |
| WA | 20 | KENNEWICK | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 | 32,360 |
| WA | 26 | LONGVIEW | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 | 26,009 |
| WA | 20 | MOSES LAKE | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 | 31,776 |
| WA | 30-W | MOUNT VERNON | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 | 17,854 |
| WA | 10 | SUNNYSIDE | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 | 25,740 |
| WA | ME-WA | WALLA WALLA | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 | 40,872 |
| WA | 11 | WENATCHEE | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 | 45,930 |
| WA | 11 | YAKIMA | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 | 34,402 |
| OR | GTN | BEND | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 | 41,591 |
| OR | 24 | BAKER | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 | 38,379 |
| OR | 24 | ONTARIO | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 | 55,347 |
| OR | ME-OR | PENDLETON | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 | 54,732 |
| INDc Mid | | | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| State | Zone | District | | | | | | |
| WA | 30-S | ABERDEEN | 7,501 | 7,159 | 7,692 | 7,128 | 6,617 | 6,390 |
| WA | 30-W | BELLINGHAM | 21,439 | 21,572 | 23,782 | 23,434 | 23,134 | 23,558 |
| WA | 30-S | BREMERTON | 128,200 | 125,138 | 119,389 | 117,012 | 114,568 | 111,274 |
| WA | 20 | KENNEWICK | 26,054 | 26,492 | 30,252 | 29,974 | 29,780 | 30,783 |
| WA | 26 | LONGVIEW | 17,022 | 16,931 | 18,973 | 18,354 | 17,794 | 17,962 |
| WA | 20 | MOSES LAKE | 31,486 | 31,345 | 31,211 | 31,059 | 30,902 | 30,745 |
| WA | 30-W | MOUNT VERNON | 17,678 | 17,684 | 17,831 | 17,805 | 17,782 | 17,807 |
| WA | 10 | SUNNYSIDE | 23,326 | 23,141 | 23,331 | 23,051 | 22,777 | 22,629 |
| WA | ME-WA | WALLA WALLA | 45,034 | 44,786 | 42,429 | 42,662 | 42,848 | 42,333 |
| WA | 11 | WENATCHEE | 53,548 | 54,107 | 53,763 | 54,564 | 55,375 | 55,887 |
| WA | 11 | YAKIMA | 29,632 | 29,420 | 29,668 | 29,340 | 29,019 | 28,853 |
| OR | GTN | BEND | 37,583 | 37,594 | 38,831 | 38,553 | 38,300 | 38,465 |
| OR | 24 | BAKER | 28,360 | 28,033 | 29,270 | 28,554 | 27,884 | 27,736 |
| OR | 24 | ONTARIO | 32,337 | 30,821 | 29,681 | 28,215 | 26,788 | 25,486 |
| OR | ME-OR | PENDLETON | 38,047 | 36,567 | 34,767 | 33,436 | 32,128 | 30,744 |
| INDc High | | | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| State | Zone | District | | | | | | |
| WA | 30-S | ABERDEEN | 14,437 | 14,437 | 14,437 | 14,437 | 14,437 | 14,437 |
| WA | 30-W | BELLINGHAM | 26,284 | 26,284 | 26,284 | 26,284 | 26,284 | 26,284 |
| WA | 30-S | BREMERTON | 144,856 | 144,856 | 144,856 | 144,856 | 144,856 | 144,856 |
| WA | 20 | KENNEWICK | 31,551 | 31,551 | 31,551 | 31,551 | 31,551 | 31,551 |
| WA | 26 | LONGVIEW | 25,252 | 25,252 | 25,252 | 25,252 | 25,252 | 25,252 |
| WA | 20 | MOSES LAKE | 31,941 | 31,941 | 31,941 | 31,941 | 31,941 | 31,941 |
| WA | 30-W | MOUNT VERNON | 17,850 | 17,850 | 17,850 | 17,850 | 17,850 | 17,850 |
| WA | 10 | SUNNYSIDE | 25,724 | 25,724 | 25,724 | 25,724 | 25,724 | 25,724 |
| WA | ME-WA | WALLA WALLA | 40,337 | 40,337 | 40,337 | 40,337 | 40,337 | 40,337 |
| WA | 11 | WENATCHEE | 45,986 | 45,986 | 45,986 | 45,986 | 45,986 | 45,986 |
| WA | 11 | YAKIMA | 33,729 | 33,729 | 33,729 | 33,729 | 33,729 | 33,729 |
| OR | GTN | BEND | 40,338 | 40,338 | 40,338 | 40,338 | 40,338 | 40,338 |
| OR | 24 | BAKER | 35,528 | 35,528 | 35,528 | 35,528 | 35,528 | 35,528 |
| OR | 24 | ONTARIO | 50,452 | 50,452 | 50,452 | 50,452 | 50,452 | 50,452 |
| OR | ME-OR | PENDLETON | 54,495 | 54,495 | 54,495 | 54,495 | 54,495 | 54,495 |

| CNGC IND | State | Zone | District | 2029 | 2030 | 2031 | 2032 |
|-----------|-------|---------------|---------------|------|------|------|------|
| | WA | 30-S | ABERDEEN | 12 | 12 | 12 | 12 |
| | WA | 30-W | BELLINGHAM | 34 | 34 | 34 | 34 |
| | WA | 30-S | BREMERTON | 1 | 1 | 1 | 1 |
| | WA | | 20 KENNEWICK | 16 | 16 | 16 | 16 |
| | WA | | 26 LONGVIEW | 31 | 31 | 31 | 31 |
| | | | 20 MOSES LAKE | 31 | 32 | 32 | 33 |
| | WA | 30-W | MOUNT VERNON | 34 | 32 | 32 | 31 |
| | WA | 10 | SUNNYSIDE | 39 | 39 | 39 | 38 |
| | WA | ME-WA | WALLA WALLA | 2 | 2 | 2 | 2 |
| WA | | 11 WENATCHEE | 20 | 20 | 20 | 20 | |
| WA | | 11 YAKIMA | 62 | 62 | 62 | 61 | |
| OR | GTN | BEND | 25 | 24 | 24 | 24 | |
| OR | | 24 BAKER | 1 | 1 | 1 | 1 | |
| OR | | 24 ONTARIO | 12 | 12 | 12 | 12 | |
| OR | ME-OR | PENDLETON | 23 | 23 | 23 | 23 | |
| RESc MID | | | | | | | |
| State | Zone | District | 2029 | 2030 | 2031 | 2032 | |
| WA | 30-S | ABERDEEN | 15 | 15 | 15 | 15 | |
| WA | 30-W | BELLINGHAM | 36 | 36 | 36 | 36 | |
| WA | 30-S | BREMERTON | 1 | 1 | 1 | 1 | |
| WA | | 20 KENNEWICK | 18 | 18 | 18 | 18 | |
| WA | | 26 LONGVIEW | 32 | 32 | 32 | 32 | |
| | | 20 MOSES LAKE | 36 | 38 | 38 | 39 | |
| WA | 30-W | MOUNT VERNON | 33 | 31 | 31 | 30 | |
| WA | 10 | SUNNYSIDE | 40 | 39 | 39 | 39 | |
| WA | ME-WA | WALLA WALLA | 2 | 2 | 2 | 2 | |
| WA | | 11 WENATCHEE | 18 | 18 | 18 | 18 | |
| WA | | 11 YAKIMA | 62 | 62 | 62 | 61 | |
| OR | GTN | BEND | 33 | 33 | 33 | 33 | |
| OR | | 24 BAKER | 1 | 1 | 1 | 1 | |
| OR | | 24 ONTARIO | 11 | 11 | 11 | 12 | |
| OR | ME-OR | PENDLETON | 24 | 24 | 24 | 24 | |
| RESc HIGH | | | | | | | |
| State | Zone | District | 2029 | 2030 | 2031 | 2032 | |
| WA | 30-S | ABERDEEN | 18 | 18 | 18 | 18 | |
| WA | 30-W | BELLINGHAM | 38 | 38 | 38 | 38 | |
| WA | 30-S | BREMERTON | 2 | 2 | 2 | 2 | |
| WA | | 20 KENNEWICK | 20 | 20 | 20 | 20 | |
| WA | | 26 LONGVIEW | 33 | 33 | 33 | 34 | |
| | | 20 MOSES LAKE | 41 | 43 | 43 | 45 | |
| WA | 30-W | MOUNT VERNON | 31 | 30 | 30 | 29 | |
| WA | 10 | SUNNYSIDE | 40 | 40 | 40 | 40 | |
| WA | ME-WA | WALLA WALLA | 2 | 2 | 2 | 2 | |
| WA | | 11 WENATCHEE | 16 | 16 | 16 | 16 | |
| WA | | 11 YAKIMA | 62 | 61 | 61 | 61 | |
| OR | GTN | BEND | 41 | 41 | 41 | 41 | |
| OR | | 24 BAKER | 1 | 1 | 1 | 1 | |
| OR | | 24 ONTARIO | 11 | 11 | 11 | 11 | |
| OR | ME-OR | PENDLETON | 24 | 24 | 24 | 24 | |

| INDc Low | | | 2029 | 2030 | 2031 | 2032 |
|-----------|-------|--------------|---------|---------|---------|---------|
| State | Zone | District | | | | |
| WA | 30-S | ABERDEEN | 18,629 | 18,629 | 18,629 | 18,629 |
| WA | 30-W | BELLINGHAM | 25,956 | 25,956 | 25,956 | 25,956 |
| WA | 30-S | BREMERTON | 155,623 | 155,623 | 155,623 | 155,623 |
| WA | 20 | KENNEWICK | 32,360 | 32,360 | 32,360 | 32,360 |
| WA | 26 | LONGVIEW | 26,009 | 26,009 | 26,009 | 26,009 |
| WA | 20 | MOSES LAKE | 31,776 | 31,776 | 31,776 | 31,776 |
| WA | 30-W | MOUNT VERNON | 17,854 | 17,854 | 17,854 | 17,854 |
| WA | 10 | SUNNYSIDE | 25,740 | 25,740 | 25,740 | 25,740 |
| WA | ME-WA | WALLA WALLA | 40,872 | 40,872 | 40,872 | 40,872 |
| WA | 11 | WENATCHEE | 45,930 | 45,930 | 45,930 | 45,930 |
| WA | 11 | YAKIMA | 34,402 | 34,402 | 34,402 | 34,402 |
| OR | GTN | BEND | 41,591 | 41,591 | 41,591 | 41,591 |
| OR | 24 | BAKER | 38,379 | 38,379 | 38,379 | 38,379 |
| OR | 24 | ONTARIO | 55,347 | 55,347 | 55,347 | 55,347 |
| OR | ME-OR | PENDLETON | 54,732 | 54,732 | 54,732 | 54,732 |
| INDc Mid | | | 2029 | 2030 | 2031 | 2032 |
| State | Zone | District | | | | |
| WA | 30-S | ABERDEEN | 5,967 | 5,484 | 5,484 | 5,019 |
| WA | 30-W | BELLINGHAM | 23,394 | 22,961 | 22,961 | 22,472 |
| WA | 30-S | BREMERTON | 108,688 | 106,428 | 106,428 | 104,246 |
| WA | 20 | KENNEWICK | 30,830 | 30,430 | 30,430 | 29,936 |
| WA | 26 | LONGVIEW | 17,542 | 16,868 | 16,868 | 16,159 |
| WA | 20 | MOSES LAKE | 30,583 | 30,415 | 30,415 | 30,245 |
| WA | 30-W | MOUNT VERNON | 17,793 | 17,761 | 17,761 | 17,724 |
| WA | 10 | SUNNYSIDE | 22,378 | 22,079 | 22,079 | 21,772 |
| WA | ME-WA | WALLA WALLA | 42,382 | 42,695 | 42,695 | 43,072 |
| WA | 11 | WENATCHEE | 56,681 | 57,623 | 57,623 | 58,622 |
| WA | 11 | YAKIMA | 28,558 | 28,207 | 28,207 | 27,844 |
| OR | GTN | BEND | 38,289 | 37,954 | 37,954 | 37,585 |
| OR | 24 | BAKER | 27,166 | 26,420 | 26,420 | 25,646 |
| OR | 24 | ONTARIO | 24,202 | 22,925 | 22,925 | 21,672 |
| OR | ME-OR | PENDLETON | 29,482 | 28,295 | 28,295 | 27,148 |
| INDc High | | | 2029 | 2030 | 2031 | 2032 |
| State | Zone | District | | | | |
| WA | 30-S | ABERDEEN | 14,437 | 14,437 | 14,437 | 14,437 |
| WA | 30-W | BELLINGHAM | 26,284 | 26,284 | 26,284 | 26,284 |
| WA | 30-S | BREMERTON | 144,856 | 144,856 | 144,856 | 144,856 |
| WA | 20 | KENNEWICK | 31,551 | 31,551 | 31,551 | 31,551 |
| WA | 26 | LONGVIEW | 25,252 | 25,252 | 25,252 | 25,252 |
| WA | 20 | MOSES LAKE | 31,941 | 31,941 | 31,941 | 31,941 |
| WA | 30-W | MOUNT VERNON | 17,850 | 17,850 | 17,850 | 17,850 |
| WA | 10 | SUNNYSIDE | 25,724 | 25,724 | 25,724 | 25,724 |
| WA | ME-WA | WALLA WALLA | 40,337 | 40,337 | 40,337 | 40,337 |
| WA | 11 | WENATCHEE | 45,986 | 45,986 | 45,986 | 45,986 |
| WA | 11 | YAKIMA | 33,729 | 33,729 | 33,729 | 33,729 |
| OR | GTN | BEND | 40,338 | 40,338 | 40,338 | 40,338 |
| OR | 24 | BAKER | 35,528 | 35,528 | 35,528 | 35,528 |
| OR | 24 | ONTARIO | 50,452 | 50,452 | 50,452 | 50,452 |
| OR | ME-OR | PENDLETON | 54,495 | 54,495 | 54,495 | 54,495 |

| Town | County | zone | District | Factored Peak D: | Factored Baselo: | Factored Annual |
|------------------|------------------|-------|----------------|------------------|------------------|-----------------|
| Othello | Adams, WA | | 20 Moses Lake | 36,007 | 1,201 | 1,933,529 |
| Baker | Baker, OR | | 24 Baker | 47,492 | 3,127 | 3,789,448 |
| Huntington | Baker, OR | | 24 Baker | 1,428 | 34 | 78,887 |
| Finley | Benton, WA | | 20 Kennewick | 1,267 | 211 | 483,055 |
| Kennewick | Benton, WA | | 20 Kennewick | 161,961 | 11,876 | 13,341,361 |
| Prosser | Benton, WA | | 10 Kennewick | 14,068 | 527 | 716,612 |
| Richland | Benton, WA | | 20 Kennewick | 0 | | 0 |
| Wenatchee | Chelan, WA | | 11 Wenatchee | 58,720 | 4,994 | 5,456,547 |
| Castle Rock | Cowlitz, WA | | 26 Longview | 2,431 | 248 | 189407.4819 |
| Kalama | Cowlitz, WA | | 26 Longview | 3,904 | 617 | 309,690 |
| Kelso | Cowlitz, WA | | 26 Longview | 0 | | 0 |
| Longview | Cowlitz, WA | | 26 Longview | 46360 | 5,351 | 5119490.611 |
| Woodland | Cowlitz, WA | | 26 Longview | 17,090 | 1,246 | 859,276 |
| Prineville | Crook, OR | GTN | Bend | 40,646 | 2,440 | 3,568,119 |
| Bend | Deschutes, OR | GTN | Bend | 267,993 | 20,737 | 23,458,989 |
| Lapine | Deschutes, OR | GTN | Bend | 0 | 0 | 0 |
| Redmond | Deschutes, OR | GTN | Bend | 61,180 | 3,893 | 5,162,173 |
| Sunriver | Deschutes, OR | GTN | Bend | 37,499 | 3,804 | 4,201,643 |
| East Wenatchee | Douglas, WA | | 11 Wenatchee | | | |
| Pasco | Franklin, WA | | 20 Kennewick | 72,620 | 3,721 | 5,745,653 |
| Moses Lake | Grant, WA | | 20 Moses Lake | 37,910 | 2,515 | 2,309,542 |
| Quincy | Grant, WA | | 11 Wenatchee | 6,723 | 366 | 538,212 |
| Aberdeen | Grays Harbor, WA | 30-S | Aberdeen | 80,278 | 5,375 | 6320051.525 |
| Elma | Grays Harbor, WA | 30-S | Aberdeen | | | |
| Hoquiam | Grays Harbor, WA | 30-S | Aberdeen | | | |
| McCleary | Grays Harbor, WA | 30-S | Aberdeen | | | |
| Montesano | Grays Harbor, WA | 30-S | Aberdeen | | | |
| Camano Island | Island, WA | 30-W | Mount Vernon | 0 | | 0 |
| Oak Harbor | Island, WA | 30-W | Mount Vernon | 81,924 | 7,124 | 7,341,170 |
| Madras | Jefferson, OR | GTN | Bend | 30,088 | 1,793 | 2,282,001 |
| Metolius | Jefferson, OR | GTN | Bend | 0 | | 0 |
| Bremerton | Kitsap, WA | 30-S | Bremerton | 316848 | 33,417 | 29,650,735 |
| Chico | Kitsap, WA | 30-S | Bremerton | | | |
| Gorst | Kitsap, WA | 30-S | Bremerton | | | |
| Keyport | Kitsap, WA | 30-S | Bremerton | | | |
| Manchester | Kitsap, WA | 30-S | Bremerton | | | |
| Port Orchard | Kitsap, WA | 30-S | Bremerton | | | |
| Poulsbo | Kitsap, WA | 30-S | Bremerton | | | |
| Silverdale | Kitsap, WA | 30-S | Bremerton | | | |
| Chemult | Klamath, OR | GTN | Bend | 376 | 78 | 59,442 |
| Crescent | Klamath, OR | GTN | Bend | 2,061 | 200 | 368,169 |
| Gilchrist | Klamath, OR | GTN | Bend | 0 | | 0 |
| Nyssa | Malhuer, OR | | 24 Ontario | 0 | | 0 |
| Ontario | Malhuer, OR | | 24 Ontario | 5,698 | 3,483 | 4,688,641 |
| Vale | Malhuer, OR | | 24 Ontario | 0 | | 0 |
| Belfair | Mason, WA | 30-S | Bremerton | | | |
| Shelton | Mason, WA | 30-S | Aberdeen | 0 | | 0 |
| Boardman | Morrow, OR | ME-OR | Pendleton | 0 | | 0 |
| Irrigon | Morrow, OR | ME-OR | Pendleton | 0 | | 0 |
| Anacortes | Skagit, WA | 30-W | Mount Vernon | 292,617 | 22,077 | 24,666,260 |
| Burlington | Skagit, WA | 30-W | Mount Vernon | 0 | | 0 |
| La Conner | Skagit, WA | 30-W | Mount Vernon | 0 | | 0 |
| Mount Vernon | Skagit, WA | 30-W | Mount Vernon | 0 | | 0 |
| Sedro Woolley | Skagit, WA | 30-W | Mount Vernon | 0 | | 0 |
| Arlington | Snohomish, WA | 30-W | Mount Vernon | 52,324 | 6,164 | 4,092,686 |
| Marysville | Snohomish, WA | 30-W | Mount Vernon | | | |
| Stanwood | Snohomish, WA | 30-W | Mount Vernon | 0 | | 0 |
| Athena | Umatilla, OR | ME-OR | Pendleton | 68,038 | 8,703 | 2,793,423 |
| Hermiston | Umatilla, OR | ME-OR | Pendleton | 91,639 | 3,439 | 5,552,783 |
| Milton-Freewater | Umatilla, OR | ME-OR | Pendleton | 7,116 | 1,221 | 1,876,225 |
| Mission | Umatilla, OR | ME-OR | Pendleton | | | |
| Pendleton | Umatilla, OR | ME-OR | Pendleton | 84,259 | 4,379 | 6,921,079 |
| Pilot Rock | Umatilla, OR | ME-OR | Pendleton | | | |
| Stanfield | Umatilla, OR | ME-OR | Pendleton | 2,583 | 105 | 215,939 |
| Umatilla | Umatilla, OR | ME-OR | Pendleton | 0 | | 0 |
| Weston | Umatilla, OR | ME-OR | Pendleton | | | |
| Burbank | Walla Walla, WA | | 20 Walla Walla | 0 | | 0 |
| College Place | Walla Walla, WA | ME-WA | Walla Walla | 0 | | 0 |
| Walla Walla | Walla Walla, WA | ME-WA | Walla Walla | 151,424 | 7,559 | 10,984,384 |
| Acme | Whatcom, WA | 30-W | Bellingham | 1,188 | 54 | 82075.27653 |
| Bellingham | Whatcom, WA | 30-W | Bellingham | #REF! | 39,290 | 39921924.62 |
| Blaine | Whatcom, WA | 30-W | Bellingham | | | |
| Deming | Whatcom, WA | 30-W | Bellingham | 2,018 | 182 | 149,006 |
| Everson | Whatcom, WA | 30-W | Bellingham | 0 | | |
| Ferndale | Whatcom, WA | 30-W | Bellingham | 0 | | |

APPENDIX B
PEAK BASELOAD FACTORS

| Town | County | zone | District | Factored Peak D: | Factored Baselo: | Factored Annual |
|-----------|-------------|------|------------|------------------|------------------|-----------------|
| Lawrence | Whatcom, WA | 30-W | Bellingham | 0 | | |
| Lynden | Whatcom, WA | 30-W | Bellingham | 0 | | |
| Nooksack | Whatcom, WA | 30-W | Bellingham | 0 | | |
| Sumas | Whatcom, WA | 30-W | Bellingham | 7,971 | 444 | 447544.3295 |
| Grandview | Yakima, WA | 10 | Sunnyside | 16,887 | 520 | 1,221,179 |
| Granger | Yakima, WA | 10 | Sunnyside | 0 | | 0 |
| Moxee | Yakima, WA | 11 | Yakima | | | |
| Selah | Yakima, WA | 11 | Yakima | | | |
| Sunnyside | Yakima, WA | 10 | Sunnyside | 30,668 | 2,402 | 3,082,786 |
| Toppenish | Yakima, WA | 10 | Sunnyside | 41,819 | 2,735 | 3,770,187 |
| Union Gap | Yakima, WA | 11 | Yakima | | | |
| Wapato | Yakima, WA | 10 | Sunnyside | 0 | | 0 |
| Yakima | Yakima, WA | 11 | Yakima | 285,849 | 19,125 | 26,487,315 |
| Zillah | Yakima, WA | 10 | Sunnyside | 0 | | 0 |

Peak and Baseload as calculated in Daily Forecasting

| PEAK | | |
|------------------------------------|-------------|---------|
| Based on a prediction for 1/4/2010 | | |
| Weather zone | DDs | |
| Bellingham | 50 | |
| Aberdeen | 46 | |
| Walla Walla | 71 | |
| Yakima | 65 | |
| Redmond | 75 | |
| System: | 2,385,231 | |
| City | Zone | Flow |
| Bellingham | Bellingham | 214,984 |
| Oak Harbor | Bellingham | 69,596 |
| Anacortes | Bellingham | 146,660 |
| Lyden | Bellingham | 21,936 |
| Mount Vernon | Bellingham | 77,099 |
| Aberdeen | Aberdeen | 63,039 |
| Shelton | Aberdeen | 306,735 |
| Longview | Aberdeen | 59,115 |
| Walla Walla | Walla Walla | 149,664 |
| BurbankPasco | Walla Walla | 125,712 |
| Kennewick | Walla Walla | 188,436 |
| Wenatchee | Walla Walla | 51,011 |
| Pendleton | Walla Walla | 73,937 |
| Moses Lake | Walla Walla | 32,306 |
| Othello | Walla Walla | 17,870 |
| Quincy | Walla Walla | 3,917 |
| Umatilla | Walla Walla | 12,656 |
| Yakima | Yakima | 278,376 |
| Toppenish | Yakima | 38,585 |
| Prosser | Yakima | 8,583 |
| Bend | Redmond | 362,465 |
| Baker | Redmond | 35,956 |
| NyssaOntario | Redmond | 46,595 |

| Baseload | | |
|------------------------------------|-------------|--------|
| Based on a prediction for 8/1/2010 | | |
| Weather zone | DDs | |
| Bellingham | 0 | |
| Aberdeen | 0 | |
| Walla Walla | 0 | |
| Yakima | 0 | |
| Redmond | 0 | |
| System: | 173,408 | |
| City | Zone | Flow |
| Bellingham | Bellingham | 16,932 |
| Oak Harbor | Bellingham | 8,271 |
| Anacortes | Bellingham | 8,675 |
| Lyden | Bellingham | 1,461 |
| Mount Vernon | Bellingham | 5,328 |
| Aberdeen | Aberdeen | 4,887 |
| Shelton | Aberdeen | 24,493 |
| Longview | Aberdeen | 4,128 |
| Walla Walla | Walla Walla | 8,136 |
| BurbankPasco | Walla Walla | 15,057 |
| Kennewick | Walla Walla | 13,390 |
| Wenatchee | Walla Walla | 4,804 |
| Pendleton | Walla Walla | 3,398 |
| Moses Lake | Walla Walla | 1,884 |
| Othello | Walla Walla | 1,607 |
| Quincy | Walla Walla | 457 |
| Umatilla | Walla Walla | 1,442 |
| Yakima | Yakima | 18,224 |
| Toppenish | Yakima | 2,402 |
| Prosser | Yakima | 284 |
| Bend | Redmond | 22,829 |
| Baker | Redmond | 1,782 |
| NyssaOntario | Redmond | 3,538 |

| Row Labels | Values | | |
|--------------------|------------------|---------------|--------------------|
| | Peak | Base | Annual |
| Aberdeen | 80278 | 5375 | 6320051.525 |
| Baker | 48920 | 3161 | 3868335.197 |
| Bellingham | 616436 | 39970 | 40600550.25 |
| Bend | 439843 | 32945 | 39100535.68 |
| Bremerton | 316848 | 33417 | 29650735.22 |
| Kennewick | 249916 | 16335 | 20286681.72 |
| Longview | 69785 | 7462 | 6477863.314 |
| Mount Vernon | 426865 | 35365 | 36100116.1 |
| Ontario | 5698 | 3483 | 4688641.295 |
| Pendleton | 253635 | 17847 | 17359448.16 |
| Walla Walla | 151424 | 7559 | 10984384.24 |
| Wenatchee | 65443 | 5360 | 5994758.824 |
| Yakima | 285849 | 19125 | 26487314.9 |
| (blank) | | | |
| Sunnyside | 89374 | 5657 | 8074152.291 |
| Moses Lake | 73917 | 3716 | 4243070.942 |
| Grand Total | 3,174,231 | 236777 | 260236639.7 |

| Row Labels | Peak | Base | Customers | PEAK | BASE |
|--------------|-------------|-------|-----------|---------|----------|
| Aberdeen | 79046.94366 | 5375 | 6,251 | 12.6455 | 0.00085 |
| Baker | 49142.94353 | 3161 | 3,596 | 6.8020 | 0.000817 |
| Bellingham | 600851.8646 | 39970 | 40,225 | 14.9373 | 0.000984 |
| Bend | 437472.7725 | 32945 | 33,620 | 13.0123 | 0.000843 |
| Bremerton | 318291.9741 | 33417 | 28132 | 11.3142 | 0.001127 |
| Kennewick | 248569.2518 | 16335 | 15,749 | 15.7832 | 0.000805 |
| Longview | 68020.7635 | 7462 | 3,202 | 21.2432 | 0.001152 |
| Mount Vernon | 424564.7084 | 35365 | 35,055 | 12.1114 | 0.00098 |
| Ontario | 5610.621652 | 3483 | 4,374 | 6.8020 | 0.000743 |
| Pendleton | 254790.8929 | 17847 | 11,711 | 15.8687 | 0.001028 |
| Walla Walla | 147595.8457 | 7559 | 10,892 | 13.5508 | 0.000688 |
| Wenatchee | 64439.43713 | 5360 | 2,507 | 25.7038 | 0.000894 |
| Yakima | 281465.5298 | 19125 | 21,039 | 13.3783 | 0.000722 |
| Sunnyside | 88892.38108 | 5657 | 6,047 | 14.7002 | 0.000701 |
| Moses Lake | 72048.3023 | 3716 | 2,333 | 30.8823 | 0.000876 |
| | 3140804.233 | | 224,733 | | |

Appendix C

Distribution System Planning

| 2012 Cascade Natural Gas IRP Forecast | | | | | | | |
|--|---------------|-----------------------|---------------------------|---------------|-----------|-----------------------|---------------|
| Estimated Reinforcement Projects | | | | | | | |
| Gate Station | Town | Reinforcement Needed? | Pipe Reinforcement Needed | | | | |
| | | | Length (feet) | Size (inches) | Pipe Type | Additional Facilities | Year Required |
| Acme | ACME | no | | | | | |
| Arlington | ARLINGTON | yes | 100 | 2 | PE | | 2015 |
| | | | 720 | 4 | PE | | 2018 |
| | | | 2070 | 6 | PE | | 2022 |
| Bellingham 1 | BELLINGHAM | yes | | | | reg | 2012 |
| | | | 6230 | 6 | PE | | 2016 |
| | | | 1600 | 4 | PE | | 2023 |
| | | | 2600 | 4 | HP | reg | 2027 |
| Burbank Heights | BURBANK | no | | | | | |
| Castle Rock | CASTLE ROCK | no | | | | | |
| Deming | DEMING | no | | | | | |
| Finley | FINLEY | no | | | | | |
| Grandview | GRANDVIEW | no | | | | | |
| Kalama | KALAMA | no | | | | | |
| Kelso / South Longview | KELSO | no | | | | | |
| | LONGVIEW | no | | | | | |
| Kennewick | KENNEWICK | yes | 4000 | 4 | PE | | 2010 |
| | | | 8400 | 6 | HP | reg | 2014 |
| | | | 2700 | 6 | PE | | 2026 |
| | RICHLAND | yes | 5910 | 12 | HP | | 2010 |
| | | | 5900 | 4 | PE | | 2012 |
| | | | 1850 | 4 | PE | | 2013 |
| | | | 1780 | 4 | PE | | 2017 |
| | | | 800 | 4 | PE | | 2017 |
| | | | 3730 | 4 | PE | | 2018 |
| | | | 10400 | 12 | HP | | 2023 |
| | | | 2400 | 4 | PE | | 2026 |
| | 1980 | 4 | PE | | 2029 | | |
| | WEST RICHLAND | no | | | | | |
| Lawrence | LAWRENCE | no | | | | | |
| Lynden | EVERSON | no | | | | | |
| | NOOKSACK | no | | | | | |

| 2012 Cascade Natural Gas IRP Forecast | | | | | | |
|--|------------------|-----------------------|---------------------------|---------------|-----------|-----------------------|
| Estimated Reinforcement Projects | | | | | | |
| Gate Station | Town | Reinforcement Needed? | Pipe Reinforcement Needed | | | |
| | | | Length (feet) | Size (inches) | Pipe Type | Additional Facilities |
| McCleary | ABERDEEN | no | | | | |
| | ELMA | no | | | | |
| | HOQUIAM | no | | | | |
| | MCCLEARY | no | | | | |
| | MONTESANO | no | | | | |
| Moses Lake | MOSES LAKE | no | | | | |
| | WHEELER | no | | | | |
| Mount Vernon | MOUNT VERNON | yes | 960 | 4 | PE | 2023 |
| | | | 2590 | 4 | PE | 2028 |
| Moxee | MOXEE CITY | no | | | | |
| Othello | OTHELLO | no | | | | |
| Pasco / North Pasco / Burbank Heights | PASCO | yes | 2600 | 6 | PE | 2010 |
| | | | 6660 | 6 | PE | 2011 |
| | | | 1120 | 6 | PE | 2015 |
| | | | 2030 | 6 | PE | 2017 |
| Patterson / Plymouth | PATTERSON - PLYM | NA | | | | |
| Prosser | PROSSER | no | | | | |
| Quincy | QUINCY | no | | | | |
| Sedro-Woolley | ANACORTES HP | no | | | | |
| | BURLINGTON | yes | 3900 | 6 | PE | 2013 |
| | | | 1650 | 4 | PE | 2017 |
| | | | 3730 | 6 | PE | 2018 |
| | | | 2510 | 6 | PE | 2022 |
| | | | 520 | 6 | PE | 2025 |
| | | | 560 | 4 | PE | 2028 |
| | | | 2100 | 4 | PE | 2029 |
| | ANACORTES | yes | 100 | 2 | PE | 2015 |
| | | | 720 | 4 | PE | 2018 |
| | | | 2070 | 6 | PE | 2022 |
| | LA CONNER | no | | | | |
| | SEDRO-WOOLLEY | yes | 3740 | 4 | PE | 2010 |
| 600 | | | 2 | PE | 2029 | |
| Selah | SELAH | no | | | | |

| 2012 Cascade Natural Gas IRP Forecast | | | | | | | |
|--|---------------|-----------------------|---------------------------|---------------|--------------|-----------------------|---------------|
| Estimated Reinforcement Projects | | | | | | | |
| Gate Station | Town | Reinforcement Needed? | Pipe Reinforcement Needed | | | | |
| | | | Length (feet) | Size (inches) | Pipe Type | Additional Facilities | Year Required |
| Shelton | BELFAIR | no | | | | | |
| | BREMERTON | yes | 10200 | 6 | HP | reg | 2019 |
| | | | 1100 | 4 | PE | | 2023 |
| | CHICO | no | | | | | |
| | GORST | no | | | | | |
| | KEYPORT | no | | | | | |
| | KITSAP HP | yes | 16900 | 12 | HP | | 2011 |
| | | | 6200 | 12 | HP | | 2015 |
| | | | 22300 | 12 | HP | | 2024 |
| | MANCHESTER | see Port Orchard | | | | | |
| | PORT ORCHARD | yes | 890 | 2 | PE | | 2010 |
| | | | 1150 | 4 | PE | | 2012 |
| | | | 5960 | 6 | HP | reg / uprate | 2012 |
| reg | | | | | | 2015 | |
| 3660 | | | 6 | PE | reg / uprate | 2019 | |
| 2023 | | | | | | | |
| POULSBO | yes | 2330 | 6 | PE | | 2013 | |
| | | 2800 | 4 | PE | | 2013 | |
| SHELTON | no | | | | | | |
| SILVERDALE | yes | 2750 | 4 | PE | | 2013 | |
| SUNNYSLOPE | no | | | | | | |
| Stanwood | CAMANO ISLAND | no | | | | | |
| | OAK HARBOR | yes | 1610 | 4 | PE | | 2013 |
| | | | 2390 | 4 | PE | | 2015 |
| | | | 3070 | 4 | PE | reg | 2017 |
| | | | 3120 | 6 | PE | | 2021 |
| | | | reg | 2023 | | | |
| STANWOOD | yes | 1480 | 6 | PE | | 2013 | |
| Sumas | LYNDEN | yes | 1030 | 4 | PE | | 2012 |
| | | | 3890 | 4 | HP | | 2015 |
| | | | 3650 | 4 | PE | | 2017 |
| | | | 540 | 8 | Steel | | 2026 |
| | | | 1930 | 4 | PE | | 2029 |
| | | | 2780 | 4 | PE | | 2030 |

| 2012 Cascade Natural Gas IRP Forecast | | | | | | | |
|--|----------------|-----------------------|---------------------------|---------------|-----------|-----------------------|---------------|
| Estimated Reinforcement Projects | | | | | | | |
| Gate Station | Town | Reinforcement Needed? | Pipe Reinforcement Needed | | | | |
| | | | Length (feet) | Size (inches) | Pipe Type | Additional Facilities | Year Required |
| Sumas | BLAINE | yes | 4480 | 4 | PE | | 2013 |
| | | | 8500 | | | 5 regs / upra | 2030 |
| | FERNDALE | yes | 7080 | 4 | S | | 2010 |
| | | | 5280 | 4 | PE | | 2016 |
| | | | 1600 | 4 | PE | | 2016 |
| | | | 1840 | 4 | S | | 2019 |
| | | | | | | 3 regs / upra | 2022 |
| | | | 5280 | 6 | PE | | 2024 |
| | | | 15840 | 4 | HP | new reg | 2027 |
| | | | 6500 | 6 | PE | | 2027 |
| 5500 | 4 | PE | | 2029 | | | |
| SUMAS | no | | | | | | |
| WHATCOM HP | no | | | | | | |
| Sunnyside | SUNNYSIDE | no | | | | | |
| Walla Walla | COLLEGE PLACE | no | 1500 | 4 | HP | | 2014 |
| | WALLA WALLA | no | | | | | |
| Wenatchee | EAST WENATCHEE | see Wenatchee | | | | | |
| | WENATCHEE | no | | | | | |
| Woodland | WOODLAND | no | | | | | |
| Yakima | UNION GAP | no | | | | | |
| | YAKIMA | yes | 2000 | 6 | PE | | 2011 |
| | | | 12500 | 8 | HP | reg | 2017 |
| Zillah | GRANGER | no | | | | | |
| | TOPPENISH | no | | | | | |
| | WAPATO | no | | | | | |
| | ZILLAH | no | | | | | |

| 2012 Cascade Natural Gas IRP Forecast | | | | | | | |
|--|------------------|-----------------------|---------------------------|---------------|-----------|-----------------------|---------------|
| Estimated Reinforcement Projects | | | | | | | |
| Gate Station | Town | Reinforcement Needed? | Pipe Reinforcement Needed | | | | |
| | | | Length (feet) | Size (inches) | Pipe Type | Additional Facilities | Year Required |
| Athena | ATHENA | no | | | | | |
| | WESTON | no | | | | | |
| Baker City | BAKER | no | | | | | |
| Bend / South Bend | BEND | yes | 3680 | 8 | S | | 2012 |
| | | | 6500 | 4 | HP | reg / uprate | 2012 |
| | | | 1390 | 6 | S | | 2012 |
| | | | 17540 | 8 | HP | reg | 2014 |
| | | | 6780 | 8 | HP | reg | 2016 |
| | | | 3680 | 8 | HP | reg / uprate | 2016 |
| | | | 6780 | 8 | HP | reg | 2018 |
| | | | 2400 | 4 | PE | | 2019 |
| | | | 4120 | 8 | HP | reg | 2019 |
| | | | 2300 | 6 | PE | | 2022 |
| | | | 1340 | 4 | PE | | 2024 |
| | | | 1200 | 6 | PE | | 2027 |
| 1990 | 4 | PE | | 2029 | | | |
| Chemult | CHEMULT | no | | | | | |
| Gilchrist | CRESCENT | no | | | | | |
| | GILCHRIST | no | | | | | |
| Hermiston | HERMISTON | yes | 4160 | 4 | PE | | 2010 |
| | | | 2830 | 4 | PE | | 2014 |
| | | | 1400 | 4 | PE | | 2015 |
| | | | 620 | 2 | PE | | 2019 |
| Huntington | HUNTINGTON | no | | | | | |
| La Pine | LA PINE | no | | | | | |
| Madras | MADRAS | yes | 12000 | 6 | HP | reg | 2015 |
| | METOLIUS | no | | | | | |
| Milton-Freewater | MILTON-FREEWATER | no | | | | | |
| Mission | MISSION | no | | | | | |
| Ontario | NYSSA | no | | | | | |
| | ONTARIO | no | | | | | |
| | VALE | no | | | | | |
| | ONTARIO HP | no | | | | | |

| 2012 Cascade Natural Gas IRP Forecast | | | | | | | |
|---|------------|-----------------------|---------------------------|---------------|-----------|-----------------------|---------------|
| Estimated Reinforcement Projects | | | | | | | |
| Gate Station | Town | Reinforcement Needed? | Pipe Reinforcement Needed | | | | |
| | | | Length (feet) | Size (inches) | Pipe Type | Additional Facilities | Year Required |
| Pendleton | PENDLETON | no | | | | | |
| | PILOT ROCK | yes | 1310 | 4 | PE | 2010 | |
| Prineville | PRINEVILLE | yes | 2100 | 6 | PE | 2012 | |
| | | | 700 | 6 | PE | 2015 | |
| Redmond | REDMOND | yes | 1350 | 6 | PE | 2011 | |
| | | | 2130 | 4 | PE | 2012 | |
| | | | 2240 | 4 | HP | reg | 2014 |
| | | | 1460 | 6 | PE | | 2018 |
| | | | 2030 | 6 | PE | | 2019 |
| | | | 640 | 6 | PE | | 2028 |
| | | | 4000 | 4 | HP | reg | 2029 |
| Stanfield | STANFIELD | no | | | | | |
| Sunriver | SUNRIVER | yes | 5440 | 6 | PE | 2010 | |
| | | | 130 | 2 | PE | 2010 | |
| | | | 2010 | 4 | PE | 2015 | |
| Umatilla | BOARDMAN | no | | | | | |
| | IRRIGON | no | | | | | |
| | UMATILLA | yes | 5000 | 4 | HP | 2016 | |
| Notes: PE: Polyethylene (plastic) Pipe HP: High Pressure Steel Pipe reg: new pressure control (regulator) station uprate: operating pressure increase | | | | | | | |

Appendix D-1

Oregon Residential Conservation Measures

Detailed Measure Table - OR Residential Sector Technical Potential to 2030

2030 Potential Estimated with 02/26/09 Stellar Study

| Measure Code | Measure Description | Program | Average Lifetime | Gas Savings to 2030 | Level Cost, \$/th |
|--------------|--|-------------|------------------|---------------------|-------------------|
| N-A102 | MEF 2.0 Washer | New | 12 | 5,764 | (\$1.29) |
| N-A105 | Hi-eff Washer | New | 12 | 2,542 | (\$0.82) |
| R-A102 | MEF 2.0 Washer | Replace | 12 | 154,270 | (\$0.09) |
| R-GH115 | AFUE 90 to hydrocoil combo, Z 3 | Retro Gas | 45 | 308,136 | \$0.10 |
| R-GH118 | AFUE 90 to hydrocoil combo, Z 4 | Retro Gas | 45 | 302,706 | \$0.10 |
| N-GH130 | Heating upgrade (AFUE 90) (Z 3) | New Gas | 15 | 247,769 | \$0.17 |
| R-GW128 | Wx insulation (add walls), Z 4 | Retro Gas | 45 | 952,980 | \$0.21 |
| R-GH125 | Duct Sealing and AFUE 90+ , Z 4 | Replace Gas | 20 | 1,728,412 | \$0.21 |
| R-GW123 | Wx insulation (add walls), Z 3 | Retro Gas | 45 | 143,816 | \$0.22 |
| N-GH135 | Heating upgrade (AFUE 90) (Z 4) | New Gas | 15 | 186,780 | \$0.23 |
| N-GH132 | HRV, E* (Gas Z 3) | New Gas | 15 | 2,454,909 | \$0.23 |
| N-GH133 | Ducts Indoor, DHW, Lights (Gas Z 3) | New Gas | 45 | 3,357,567 | \$0.28 |
| R-GW127 | Wx insulation (ceiling, floor), Z 4 | Retro Gas | 45 | 1,028,694 | \$0.28 |
| R-GW122 | Wx insulation (ceiling, floor), Z 3 | Retro Gas | 45 | 156,318 | \$0.28 |
| R-GH114 | Duct Sealing, Z 3 | Retro Gas | 20 | 80,756 | \$0.30 |
| N-GH137 | HRV, E* (Gas Z 4) | New Gas | 15 | 1,850,624 | \$0.31 |
| R-GH117 | Duct Sealing, Z 4 | Retro Gas | 20 | 73,292 | \$0.33 |
| N-GH138 | Ducts Indoor, DHW, Lights (Gas Z 4) | New Gas | 45 | 2,531,089 | \$0.37 |
| N-GH129 | E* Insulation, Ducts, DHW, Lights (Gas Z 3) | New Gas | 45 | 2,663,551 | \$0.47 |
| R-A103 | Estar Dishwasher | Replace | 12 | 65,292 | \$0.49 |
| N-GH131 | Window U=.3 (Gas Z 3) | New Gas | 45 | 400,915 | \$0.55 |
| R-GH116 | Boiler to Polaris Combo radiant, Z 3 | Retro Gas | 45 | 715,671 | \$0.64 |
| N-GH134 | E* Insulation, Ducts, DHW, Lights (Gas Z 4) | New Gas | 45 | 1,903,399 | \$0.66 |
| R-GH119 | Boiler to Polaris Combo radiant, Z 4 | Retro Gas | 45 | 913,018 | \$0.67 |
| N-GH139 | Tank upgrade (50 gal gas) | New Gas | 15 | 651,638 | \$0.69 |
| N-GH136 | Window U=.3 (Gas Z 4) | New Gas | 45 | 402,971 | \$0.72 |
| N-A103 | Estar Dishwasher | New | 12 | 1,477 | \$0.73 |
| R-GW130 | Window replace (U=.35), Z 4 | Replace Gas | 45 | 44,032 | \$0.74 |
| N-GD106 | Tank upgrade (50 gal gas) Hi Eff Alternative | New Gas | 15 | 371,756 | \$0.74 |
| R-GW125 | Window replace (U=.35), Z 3 | Replace Gas | 45 | 6,764 | \$0.77 |
| N-GD109 | Upgrade to Navien Tankless Gas heater | New Gas | 20 | 303,548 | \$0.89 |
| N-GD108 | Tankless Gas heater | New Gas | 20 | 2,097,671 | \$0.91 |
| R-GD113 | Solar hot water heater (50 gal) - With gas backup. | Replace Gas | 20 | 179,409 | \$1.01 |
| R-GW129 | Window, retro (U=.35), Z 4 | Retro Gas | 45 | 965,743 | \$1.19 |
| R-GW124 | Window, retro (U=.35), Z 3 | Retro Gas | 45 | 165,563 | \$1.23 |
| R-GW131 | HRV, Z 4 | Retro Gas | 18 | 277,542 | \$2.52 |
| R-GW126 | HRV, Z 3 | Retro Gas | 18 | 42,401 | \$2.60 |
| N-GD107 | Solar hot water heater (50 gal) - With gas backup. | New Gas | 20 | 1,150,458 | \$4.49 |
| R-GH124 | AFUE 90+ Furnace, Z 4 | Replace Gas | 18 | 115,904 | \$5.01 |
| R-GD111 | Tank upgrade (50 gal gas) Hi Eff Alternative | Replace Gas | 15 | 1,163,065 | \$5.25 |
| R-GH122 | AFUE 90+ Furnace, Z 3 | Replace Gas | 18 | 72,360 | \$8.03 |
| R-GD110 | Tankless Gas heater replace | Replace Gas | 20 | 305,719 | \$8.58 |
| R-GH123 | Duct Sealing and AFUE 90+ , Z 3 | Replace Gas | 20 | 45,431 | \$9.97 |
| R-GD112 | Upgrade to Navien Tankless Gas heater | Replace Gas | 20 | 44,656 | \$10.59 |

Appendix D-2

Oregon Commercial/Industrial Conservation Measures

Detailed Measure Table-Oregon Commercial

| Measure Code | Measure Name | Construction Type | Measure End Use | Average Lifetime | Levelized Cost, \$/th |
|--------------|--|-------------------|-----------------|------------------|-----------------------|
| Co116 | EStar Steam Cooker | New | Cooking | 10 | \$0.04 |
| Co116rep | EStar Steam Cooker | Replace | Cooking | 10 | \$0.04 |
| H105 | HW Boiler Tune | Retrofit | Heating | 5 | \$0.08 |
| Co112 | Infrared Fryer | New | Cooking | 8 | \$0.08 |
| Co107 | Infrared Fryer | Replace | Cooking | 8 | \$0.08 |
| H104 | Hot Water Temperature Reset | Retrofit | Heating | 10 | \$0.10 |
| E111 | Roof Insulation - Attic R0-30 | Retrofit | Heating | 30 | \$0.10 |
| R106 | Heat Reclaim | New | Refrigeration | 18 | \$0.11 |
| R106rep | Heat Reclaim | Replace | Refrigeration | 18 | \$0.11 |
| H102 | DCV | Retrofit | Heating | 15 | \$0.13 |
| H106 | Steam Balance | Retrofit | Heating | 15 | \$0.14 |
| E103 | Roof Insulation - Rigid R0-11 | Replace | Heating | 30 | \$0.15 |
| E101 | Wall Insulation - Blown R11 | Retrofit | Heating | 30 | \$0.17 |
| W101 | DHW Wrap | Retrofit | Water Heat | 7 | \$0.21 |
| W127r | Waste Water Heat Exchanger | Retrofit | Water Heat | 15 | \$0.21 |
| H119 | Hi Eff Unit Heater (new) | New | Heating | 18 | \$0.22 |
| W102 | DHW Shower Heads | Retrofit | Water Heat | 8 | \$0.22 |
| E104 | Roof Insulation - Rigid R0-22 | Replace | Heating | 30 | \$0.23 |
| H114 | Hi Eff Unit Heater (replace) | Replace | Heating | 18 | \$0.24 |
| E102 | Wall Insulation - Spray On for Metal Buildings | Retrofit | Heating | 30 | \$0.24 |
| E107 | Roof Insulation - Blanket R0-19 | Retrofit | Heating | 30 | \$0.29 |
| E108 | Roof Insulation - Blanket R0-30 | Retrofit | Heating | 30 | \$0.31 |
| H107 | Vent Damper | Retrofit | Heating | 12 | \$0.31 |
| E105 | Roof Insulation - Rigid R11-22 | Replace | Heating | 30 | \$0.34 |
| W121 | Combo Hieff Boiler (new) | New | Heating | 20 | \$0.36 |
| W124r | Computerized Water Heater Control | Retrofit | Water Heat | 15 | \$0.37 |
| W119 | Combo Hieff Boiler (repl) | Replace | Heating | 20 | \$0.40 |
| E112 | Roof Insulation - Attic 11-30 | Retrofit | Heating | 30 | \$0.40 |
| W103 | DHW Faucets | Retrofit | Water Heat | 8 | \$0.42 |
| E114 | Windows - Add Low E to Vinyl Tint | Replace | Heating | 20 | \$0.42 |
| E123 | Windows - Add Low E to Vinyl Tint | New | Heating | 20 | \$0.42 |
| H117 | SPC Hieff Boiler (new) | New | Heating | 20 | \$0.45 |
| Co115 | Power Range Burner | New | Cooking | 12 | \$0.46 |
| Co110 | Power Range Burner | Replace | Cooking | 12 | \$0.46 |
| H111 | SPC Hieff Boiler Replace | Replace | Heating | 20 | \$0.49 |
| E115 | Windows - Add Low E and Argon to Vinyl Tint | Replace | Heating | 20 | \$0.57 |
| E124 | Windows - Add Low E and Argon to Vinyl Tint | New | Heating | 20 | \$0.58 |
| W109 | DHW Condensing Tank (new) | New | Water Heat | 15 | \$0.62 |
| W108 | DHW Condensing Tank (repl) | Replace | Water Heat | 15 | \$0.62 |
| Co114 | Infrared Griddle | New | Cooking | 12 | \$0.62 |
| Co109 | Infrared Griddle | Replace | Cooking | 12 | \$0.62 |
| H108 | Power burner | Retrofit | Heating | 12 | \$0.63 |
| H120a | Cond Unit Heater from Nat Draft (new) | New | Heating | 18 | \$0.68 |

Detailed Measure Table-Oregon Commercial

| Measure Code | Measure Name | Construction Type | Measure End Use | Average Lifetime | Levelized Cost, \$/th |
|--------------|---|-------------------|-----------------|------------------|-----------------------|
| W127 | Waste Water Heat Exchanger | New | Water Heat | 15 | \$0.70 |
| W122 | Combo Cond Boiler (new) | New | Heating | 20 | \$0.73 |
| W115 | DHW Hieff Boiler (new) | New | Water Heat | 20 | \$0.74 |
| W113 | DHW Hieff Boiler (repl) | Replace | Water Heat | 20 | \$0.74 |
| H118 | SPC Cond Boiler (new) | New | Heating | 20 | \$0.75 |
| H115a | Cond Unit Heater from Nat draft (replace) | Replace | Heating | 18 | \$0.75 |
| E129 | Windows - Tinted AL Code to Class 45 | New | Heating | 20 | \$0.76 |
| W120 | Combo Cond Boiler (repl) | Replace | Heating | 20 | \$0.80 |
| E121 | Windows - Tinted AL Code to Class 40 | Replace | Heating | 20 | \$0.80 |
| H112 | SPC Cond Boiler Replace | Replace | Heating | 20 | \$0.81 |
| W104 | DHW Pipe Ins | Retrofit | Water Heat | 15 | \$0.84 |
| E130 | Windows - Tinted AL Code to Class 40 | New | Heating | 20 | \$0.87 |
| H123 | HVAC controls | New | Heating | 5 | \$0.90 |
| H103 | Ducts | Retrofit | Heating | 15 | \$0.90 |
| W105 | DHW Recirc Controls | Retrofit | Water Heat | 10 | \$0.95 |
| E113 | Roof Insulation - Roofcut 0-22 | Replace | Heating | 30 | \$0.96 |
| H101 | Warm Up Control | Retrofit | Heating | 10 | \$0.98 |
| W124 | Computerized Water Heater Control | New | Water Heat | 15 | \$1.04 |
| W123 | Hi Eff Clothes Washer | New | Water Heat | 10 | \$1.06 |
| W123r | Hi Eff Clothes Washer | Replace | Water Heat | 10 | \$1.09 |
| E106 | Roof Insulation - Rigid R11-33 | Replace | Heating | 30 | \$1.15 |
| W116 | DHW Cond Boiler (new) | New | Water Heat | 20 | \$1.16 |
| W114 | DHW Cond Boiler (repl) | Replace | Water Heat | 20 | \$1.16 |
| H129 | Steam Trap Maintenance | Retrofit | Heating | 10 | \$1.25 |
| E116 | Windows - Add Argon to Vinyl Lowe | Replace | Heating | 20 | \$1.29 |
| H120b | Cond Unit Heater From Power Draft (new) | New | Heating | 18 | \$1.38 |
| E125 | Windows - Add Argon to Vinyl Lowe Cond Unit Heater from power draft (replace) | New | Heating | 20 | \$1.47 |
| H115b | Cond Furnace (new) | Replace | Heating | 18 | \$1.52 |
| H121 | Windows - Tinted AL Code to Class 36 | New | Heating | 18 | \$1.55 |
| E122 | Solar Hot Water | Replace | Heating | 20 | \$1.66 |
| W125r | Windows - Tinted AL Code to Class 36 | Retrofit | Water Heat | 15 | \$1.68 |
| E131 | Cond Furnace (repl) | New | Heating | 20 | \$1.78 |
| H116 | HVAC System Commissioning | Replace | Heating | 18 | \$1.82 |
| H122 | Roof Insulation - Blanket R11-41 | New | Heating | 15 | \$1.85 |
| E110 | Windows - Non-Tinted AL Code to Class 40 | Retrofit | Heating | 30 | \$1.96 |
| E118 | Windows - Non-Tinted AL Code to Class 40 | Replace | Heating | 20 | \$1.97 |
| E127 | Windows - Non-Tinted AL Code to Class 40 | New | Heating | 20 | \$2.00 |

Detailed Measure Table-Oregon Commercial

| Measure Code | Measure Name | Construction Type | Measure End Use | Average Lifetime | Levelized Cost, \$/th |
|--------------|--|-------------------|-----------------|------------------|-----------------------|
| E109 | Roof Insulation - Blanket R11-30 | Retrofit | Heating | 30 | \$2.08 |
| E119 | Windows - Non-Tinted AL Code to Class 36 | Replace | Heating | 20 | \$3.21 |
| E128 | Windows - Non-Tinted AL Code to Class 36 | New | Heating | 20 | \$3.28 |
| E117 | Windows - Non-Tinted AL Code to Class 45 | Replace | Heating | 20 | \$3.43 |
| E126 | Windows - Non-Tinted AL Code to Class 45 | New | Heating | 20 | \$3.49 |
| H128 | Rooftop Condensing Burner | Retrofit | Heating | 10 | \$3.74 |
| W125 | Solar Hot Water | New | Water Heat | 15 | \$4.96 |

Appendix D-3

Washington Residential Conservation Measures

Detailed Measure Table - WA Residential Sector Technical Potential to 2030

| Measure Code | Measure Description | Program | Average Lifetime | Implied No. of Units | Gas Savings to 2030 | Total Incremental Cost | Total O&M Impact (\$) | Level Cost, \$/th |
|--------------|--|-------------|------------------|----------------------|---------------------|------------------------|-----------------------|-------------------|
| N-A105 | Hi-eff Washer | New | 12 | 762 | 3,048 | 24,350 | (85,118) | (\$2.15) |
| N-A102 | MEF 2.0 Washer | New | 12 | 7,970 | 23,910 | 43,316 | (147,895) | (\$1.63) |
| R-A102 | MEF 2.0 Washer | Replace | 12 | 120873 | 725,238 | 1,763,734 | (2,127,400) | (\$0.19) |
| R-WG106 | Wx insulation 1 added measure Zone 3 | WxExist | 45 | 1,391 | 510,983 | 1,234,140 | 0 | \$0.12 |
| R-WG104 | Wx insulation 1 added measure Zone 1 | WxExist | 45 | 934 | 301,730 | 832,603 | 0 | \$0.14 |
| R-WG105 | Wx insulation 1 added measure Zone 2 | WxExist | 45 | 1,879 | 589,428 | 1,679,135 | 0 | \$0.14 |
| R-GD112 | Upgrade to Navien Tankless Gas heater | Replace Gas | 20 | 11136 | 155,904 | 232,741 | 0 | \$0.39 |
| N-H103 | E* Insulation, Ducts, Zone 3 Window, replacement (U=.35) Zone 3 | NewPkg | 45 | 12,556 | 1,582,087 | 10,192,822 | 0 | \$0.41 |
| R-WG109 | Wx insulation 2 added measure Zone 3 | WxExist | 45 | 2,422 | 1,316,936 | 11,363,551 | 0 | \$0.43 |
| R-H115 | Duct Sealing and AFUE 90+, Zone 3 Window, replacement (U=.35) Zone 1 | HVACExist | 20 | 1,464 | 308,084 | 1,833,962 | 0 | \$0.44 |
| R-WG107 | E* Insulation, Ducts, Zone 2 Window, replacement (U=.35) Zone 2 | WxExist | 45 | 1,630 | 774,175 | 7,663,457 | 0 | \$0.49 |
| N-H102 | E* Insulation, Ducts, Zone 2 Window, replacement (U=.35) Zone 2 | NewPkg | 45 | 17,078 | 1,736,881 | 13,867,698 | 0 | \$0.50 |
| R-WG108 | Wx insulation 2 measures Zone 3 | WxExist | 45 | 3,285 | 1,502,388 | 15,463,828 | 0 | \$0.51 |
| R-WG103 | Wx insulation 2 measures Zone 3 | WxExist | 45 | 3,119 | 805,609 | 8,310,798 | 0 | \$0.51 |
| N-H105 | Heating upgrade (AFUE 90), Zone 2 Duct Sealing, Zone 3 | NewPkg | 18 | 8,948 | 724,759 | 3,704,483 | 0 | \$0.52 |
| R-H103 | Heating upgrade (AFUE 90), Zone 2 Duct Sealing, Zone 3 | HVACExist | 20 | 2,019 | 228,955 | 1,613,145 | 0 | \$0.53 |
| R-H113 | Duct Sealing and AFUE 90+, Zone 1 E* Insulation, Ducts, Zone 1 | HVACExist | 20 | 987 | 170,490 | 1,237,027 | 0 | \$0.54 |
| N-H101 | E* Insulation, Ducts, Zone 1 | NewPkg | 45 | 8,471 | 800,512 | 6,874,610 | 0 | \$0.54 |
| R-GH116 | Boiler to Polaris Combo radiant, Z 3 | Retro Gas | 45 | 8,680 | 3,463,320 | 11,060,754 | 0 | \$0.55 |
| R-GH119 | Boiler to Polaris Combo radiant, Z 4 | Retro Gas | 45 | 8,698 | 3,313,938 | 11,061,382 | 0 | \$0.57 |
| R-WG101 | Wx insulation 2 measures Zone 1 | WxExist | 45 | 1,830 | 417,792 | 4,904,168 | 0 | \$0.58 |
| R-H114 | Duct Sealing and AFUE 90+, Zone 2 Wx insulation 2 measures Zone 2 | HVACExist | 20 | 1,991 | 319,309 | 2,495,913 | 0 | \$0.58 |
| R-WG102 | Wx insulation 2 measures Zone 2 | WxExist | 45 | 4,327 | 959,919 | 11,627,064 | 0 | \$0.60 |
| R-A103 | Estar Dishwasher | Replace | 12 | 154,177 | 308,354 | 707,690 | -178,161 | \$0.63 |
| N-H115 | E* Plus (FTC) Insulation, Zone 3 | NewPkg | 45 | 5,597 | 1,657,242 | 16,749,493 | 0 | \$0.64 |
| N-H106 | Heating upgrade (AFUE 90), Zone 3 AFUE 90+ Furnace, Zone 3 | NewPkg | 18 | 6,661 | 431,603 | 2,722,812 | 0 | \$0.64 |
| R-H106 | AFUE 90+ Furnace, Zone 3 | HVACExist | 18 | 19,042 | 1,877,753 | 15,358,651 | 0 | \$0.66 |
| N-A103 | Estar Dishwasher | New | 12 | 1,531 | 4,593 | 11,152 | -3,183 | \$0.67 |
| R-H101 | Duct Sealing, Zone 1 | HVACExist | 20 | 1,361 | 119,088 | 1,087,999 | 0 | \$0.68 |
| N-H104 | Heating upgrade (AFUE 90), Zone 1 | NewPkg | 18 | 4,453 | 272,494 | 1,836,417 | 0 | \$0.69 |

Detailed Measure Table - WA Residential Sector Technical Potential to 2030

| Measure Code | Measure Description | Program | Average Lifetime | Implied No. of Units | Gas Savings to 2030 | Total Incremental Cost | Total O&M Impact (\$) | Level Cost, \$/th |
|--------------|--|-----------|------------------|----------------------|---------------------|------------------------|-----------------------|-------------------|
| R-H112 | Combo with Hot Water delivery, Zone 3 | HVACexist | 30 | 91 | 29,712 | 364,000 | 0 | \$0.72 |
| R-H102 | Duct Sealing, Zone 2 | HVACexist | 20 | 2,746 | 211,442 | 2,195,448 | 0 | \$0.78 |
| R-H110 | Combo with Hot Water delivery, Zone 1 | HVACexist | 30 | 61 | 18,133 | 244,000 | 0 | \$0.79 |
| R-H104 | AFUE 90+ Furnace, Zone 1 | HVACexist | 18 | 12,831 | 1,041,976 | 10,358,494 | 0 | \$0.80 |
| N-H114 | E* Plus (FTC) Insulation, Zone 2 | NewPkg | 45 | 7,611 | 1,787,826 | 22,788,282 | 0 | \$0.81 |
| N-H112 | HRV, E*, Zone 3 | NewPkg | 45 | 3,801 | 355,811 | 4,537,264 | 0 | \$0.81 |
| N-GD109 | Upgrade to Navien Tankless Gas heater | New Gas | 20 | 67,453 | 944,342 | 2,970,760 | 0 | \$0.81 |
| R-H111 | Combo with Hot Water delivery, Zone 2 | HVACexist | 30 | 124 | 35,691 | 496,000 | 0 | \$0.82 |
| N-H113 | E* Plus (FTC) Insulation, Zone 1 | NewPkg | 45 | 3,773 | 832,004 | 11,296,795 | 0 | \$0.86 |
| R-H105 | AFUE 90+ Furnace, Zone 2 | HVACexist | 18 | 25,874 | 1,944,881 | 20,896,271 | 0 | \$0.86 |
| R-WG112 | Window upgrade (U=.4 to U=.35) Zone 3 | WXexist | 45 | 2,461 | 49,386 | 884,069 | 0 | \$0.89 |
| N-H111 | HRV, E*, Zone 2 | NewPkg | 45 | 5,157 | 417,696 | 6,173,109 | 0 | \$0.93 |
| N-H110 | HRV, E*, Zone 1 | NewPkg | 45 | 2,558 | 195,679 | 3,060,185 | 0 | \$0.99 |
| N-H109 | Window U=.3, Zone 3 | NewPkg | 45 | 7,199 | 259,177 | 4,100,052 | 0 | \$1.00 |
| R-WG110 | Window upgrade (U=.4 to U=.35) Zone 1 | WXexist | 45 | 1,656 | 28,618 | 596,290 | 0 | \$1.03 |
| R-WG111 | Window upgrade (U=.4 to U=.35) Zone 2 | WXexist | 45 | 3,330 | 56,406 | 1,202,679 | 0 | \$1.06 |
| N-H108 | Window U=.3, Zone 2 | NewPkg | 45 | 9,772 | 307,830 | 5,578,267 | 0 | \$1.15 |
| N-H107 | Window U=.3, Zone 1 | NewPkg | 45 | 4,854 | 139,786 | 2,765,305 | 0 | \$1.25 |
| N-DG104 | Tankless Gas heater | NewDHW | 20 | 9,049 | 386,527 | 5,817,746 | 0 | \$1.43 |
| R-DG104 | Tankless Gas heater | DHWexist | 20 | 8,339 | 356,200 | 6,832,212 | 0 | \$1.43 |
| R-H109 | AFUE 85 DHW combo, Zone 3 | HVACexist | 18 | 1,685 | 194,119 | 3,622,750 | 0 | \$1.49 |
| R-H107 | AFUE 85 DHW combo, Zone 1 | HVACexist | 18 | 1,137 | 124,127 | 2,444,550 | 0 | \$1.58 |
| R-H108 | AFUE 85 DHW combo, Zone 2 | HVACexist | 18 | 2,293 | 232,643 | 4,929,950 | 0 | \$1.70 |
| R-WG115 | HRV Zone 3 | WXexist | 18 | 1,468 | 108,423 | 2,840,925 | 0 | \$2.10 |
| R-WG113 | HRV Zone 1 | WXexist | 18 | 978 | 63,748 | 1,915,293 | 0 | \$2.41 |
| N-DG101 | Tank upgrade (50 gal gas) | NewDHW | 15 | 63,684 | 835,897 | 17,490,620 | 0 | \$2.43 |
| R-DG101 | Tank upgrade (50 gal gas) | DHWexist | 15 | 58,690 | 770,347 | 20,541,500 | 0 | \$2.43 |
| R-WG114 | HRV Zone 2 | WXexist | 18 | 1,961 | 123,896 | 3,865,663 | 0 | \$2.50 |
| N-DG103 | Solar hot water heater (50 gal) - Solar Zone 2. With gas backup. | NewDHW | 20 | 8,845 | 996,646 | 27,993,336 | 0 | \$2.67 |
| R-DG103 | Solar hot water heater (50 gal) - Solar Zone 2. With gas backup. | DHWexist | 20 | 8,151 | 918,447 | 32,874,630 | 0 | \$2.67 |
| R-DG102 | Tank upgrade (50 gal gas) condensing | DHWexist | 15 | 12,307 | 815,203 | 30,767,500 | 0 | \$3.44 |
| N-DG102 | Tank upgrade (50 gal gas) condensing | NewDHW | 15 | 13,354 | 884,555 | 26,197,402 | 0 | \$3.44 |

Appendix D-4

Washington Commercial/Industrial Conservation Measures

Detailed Measure Table - WA Commercial Sector Technical Potential to 2030

| Measure Code | Measure Description | Measure Description | Construction Type | Measure End Use | Levelized Cost, \$/th |
|--------------|--|--|-------------------|-----------------|-----------------------|
| C116rep | Estar Steam Cooker | Install Energy Star Steam Cooker | At Replacement | Cooking | \$0.04 |
| C116 | Estar Steam Cooker | Install Energy Star Steam Cooker | New | Cooking | \$0.04 |
| H105 | HW Boiler Tune | Tune up in accordance with Minneapolis Energy Office protocol. Can include derating the burner, adjusting the secondary air, adding flue restrictors, cleaning the fire-side of the heat exchanger, cleaning the water side, or installing turbulators. Other modifications may include uprating the burner to reduce oxygen or derating the burner to reduce stack temperature. Note: In gas systems, excess air and stack temperatures are often within reasonable ranges, so the technical potential for this measure is limited. Combining this measure with the vent damper and power burner measures increases both applicability and cost effectiveness, and was assumed for this analysis. | Retrofit | Heating | \$0.08 |
| C112 | Infrared Fryer | | New | Cooking | \$0.08 |
| C107 | Infrared Fryer | | At Replacement | Cooking | \$0.08 |
| H104 | Hot Water Temperature Reset | Controller automatically resets the delivery temperature in a hot water radiant system based on outside air temperature. The reset reduces the on-time of the heating equipment and the occurrence of simultaneous heating and cooling through instantaneous adjustments. | Retrofit | Heating | \$0.10 |
| E111 | Roof Insulation - Attic R0-30 | Roof Insulation - Attic R0-30. Application: Buildings with uninsulated attics | Retrofit | Heating | \$0.10 |
| H102 | DCV | Applicable to single zone packaged systems with large make-up air fractions either because of intermittent occupancy or because of code requirements. In most cases the outdoor air is reset to 5% or less with CO2 build-up modulating ventilation. | Retrofit | Heating | \$0.13 |
| H106 | Steam Balance | Single-pipe steam systems are notorious for uneven heating, which wastes energy because the thermostat must be set to heat the coldest spaces and overheating other spaces. Steam balances corrects these problems by: 1) Adding air venting on the main line or at the radiators; 2) Adding boiler cycle controls; 3) Adding or subtracting radiators. Energy savings accrue from lowering the overall building temperature. | Retrofit | Heating | \$0.14 |
| E103 | Roof Insulation - Rigid R0-11 | Roof Insulation - Rigid R0-11-not including re-roofing costs but including deck preparation. Application: Old buildings with flat roofs and no attics | At Replacement | Heating | \$0.15 |
| E101 | Wall Insulation - Blown R11 | Wall Insulation - Blown R11. Application: Old buildings | Retrofit | Heating | \$0.17 |
| C111 | Direct Fired Convection Oven | | New | Cooking | \$0.18 |
| C106 | Direct Fired Convection Oven | | At Replacement | Cooking | \$0.18 |
| W101 | DHW Wrap | Insulate the surface of the storage water heater or an unfired storage tank to R-5 to reduce standby losses. | Retrofit | Water Heat | \$0.21 |
| W127r | Waste Water Heat Exchanger | Install HX on waste water | Retrofit | Water Heat | \$0.21 |
| H119 | HiEff Unit Heater (new) | Install power draft units (80% seas. Eff) in place of natural draft (64% seas. Eff) | New | Heating | \$0.22 |
| W102 | DHW Shower Heads | Install low flow shower heads (2.0 gallons per minute) to replace 3.4 GPM shower heads. | Retrofit | Water Heat | \$0.22 |
| E104 | Roof Insulation - Rigid R0-22 | Roof Insulation - Rigid R0-22-- not including re-roofing costs but including deck preparation and ~4" rigid.. Application: Old buildings with flat roofs and no attics | At Replacement | Heating | \$0.23 |
| H114 | Hi Eff Unit Heater (replace) | Install power draft units (80% seas. Eff) in place of natural draft (64% seas. Eff) | At Replacement | Heating | \$0.24 |
| E102 | Wall Insulation - Spray On for Metal Buildings | Wall Insulation - Spray On for Metal Buildings (Cellulose) Unfinished. Application: Old buildings | Retrofit | Heating | \$0.24 |
| E107 | Roof Insulation - Blanket R0-19 | Roof Insulation - Blanket R0-19. Application: Buildings with open truss unfinished interior | Retrofit | Heating | \$0.29 |
| E108 | Roof Insulation - Blanket R0-30 | Roof Insulation - Blanket R0-30. Application: Buildings with open truss unfinished interior | Retrofit | Heating | \$0.31 |
| H107 | Vent Damper | Install vent damper downstream of the draft relief to prevent airflow up the stack, while allowing warm air from the boiler to spill into the conditioned space as heat or into the boiler room to reduce jacket losses. This measure is most cost-effective when combined with the boiler tune up and power burner measures. | Retrofit | Heating | \$0.31 |
| E105 | Roof Insulation - Rigid R11-22 | Roof Insulation - Rigid R11-22 2" rigid added to an existing foam roof insulation at re-roof, includes some surface prep. Application: Old buildings with flat roofs, no attics, and some insulation | At Replacement | Heating | \$0.34 |
| W121 | Combo HiEff Boiler (new) | Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency. | New | Heating | \$0.36 |
| W124r | Computerized Water Heater Control | Install intelligent controls on the hot water circulation loops. | Retrofit | Water Heat | \$0.37 |
| W119 | Combo HiEff Boiler (repl) | Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency. | At Replacement | Heating | \$0.40 |
| E112 | Roof Insulation - Attic 11-30 | Roof Insulation - Attic 11-30. Application: Buildings with partially insulated attics | Retrofit | Heating | \$0.40 |

Detailed Measure Table - WA Commercial Sector Technical Potential to 2030

| Measure Code | Measure Description | Measure Description | Construction Type | Measure End Use | Levelized Cost, \$/th |
|--------------|---|--|-------------------|-----------------|-----------------------|
| W103 | DHW Faucets | Add aerators to existing faucets to reduce flow from 3.4 gallons per minute to 2.0 GPM. | Retrofit | Water Heat | \$0.42 |
| E114 | Windows - Add Low E to Vinyl Tint | Windows - Add Low E to Vinyl Tint. Application: Old buildings | At Replacement | Heating | \$0.42 |
| E123 | Windows - Add Low E to Vinyl Tint | Windows - Add Low E to Vinyl Tint. Application: New Construction | New | Heating | \$0.42 |
| H117 | SPC Hieff Boiler (new) | Install near condensing boiler. Assumed seasonal combustion efficiency of 82% over base of 75% | New | Heating | \$0.45 |
| C115 | Power Range Burner | | New | Cooking | \$0.46 |
| C110 | Power Range Burner | | At Replacement | Cooking | \$0.46 |
| H111 | SPC Hieff Boiler Replace | Install near condensing boiler. Assumed seasonal combustion efficiency of 82% over base of 75% | At Replacement | Heating | \$0.49 |
| E115 | Windows - Add Low E and Argon to Vinyl Tint | Windows - Add Low E and Argon to Vinyl Tint. Application: Old buildings | At Replacement | Heating | \$0.57 |
| E124 | Windows - Add Low E and Argon to Vinyl Tint | Windows - Add Low E and Argon to Vinyl Tint. Application: New Construction | New | Heating | \$0.58 |
| W109 | DHW Condensing Tank (new) | Costs and savings are incremental over a Code-rated tank (combustion efficiency of 80%) for a condensing tank with a minimum combustion efficiency of 94% and an R-16 tank wrap. | New | Water Heat | \$0.62 |
| W108 | DHW Condensing Tank (repl) | Costs and savings are incremental over a Code-rated tank (combustion efficiency of 80%) for a condensing tank with a minimum combustion efficiency of 94% and an R-16 tank wrap. | At Replacement | Water Heat | \$0.62 |
| C114 | Infared Griddle | | New | Cooking | \$0.62 |
| C109 | Infared Griddle | | At Replacement | Cooking | \$0.62 |
| H108 | Power burner | Replace standard burner with a power burner to optimize combustion and reduce standby losses in the stack. Note: Costs and savings assume that this measure will be performed in conjunction with a boiler tune up when appropriate. | Retrofit | Heating | \$0.63 |
| H120a | Cond Unit Heater from Nat Draft(new) | Install condensing power draft units (90% seas. Eff) in place of natural draft (64% seas. Eff) | New | Heating | \$0.68 |
| W127 | Waste Water Heat Exchanger | Install HX on waste water | New | Water Heat | \$0.70 |
| W122 | Combo Cond Boiler (new) | Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations). | New | Heating | \$0.73 |
| W115 | DHW Hieff Boiler (new) | Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency. | New | Water Heat | \$0.74 |
| W113 | DHW Hieff Boiler (repl) | Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency. | At Replacement | Water Heat | \$0.74 |
| H118 | SPC Cond Boiler (new) | Install condensing boiler. Assumed seasonal combustion efficiency of 88% over base of 75% | New | Heating | \$0.75 |
| H115a | Cond Unit Heater from Nat draft(replace) | Install condensing power draft units (90% seas. Eff) in place of natural draft (64% seas. Eff) | At Replacement | Heating | \$0.75 |
| W120 | Combo Cond Boiler (repl) | Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations). | At Replacement | Heating | \$0.80 |
| R101 | Heat Reclaim with Floating Head Control | Large Grocery - Heat recovery to space heating with floating head control | New | Refrigeration | \$0.80 |
| R101rep | Heat Reclaim with Floating Head Control | Large Grocery - Heat recovery to space heating with floating head control | At Replacement | Refrigeration | \$0.80 |
| E121 | Windows - Tinted AL Code to Class 40 | Windows - Tinted AL Code to Class 40. Application: Old buildings | At Replacement | Heating | \$0.80 |
| H112 | SPC Cond Boiler Replace | Install condensing boiler. Assumed seasonal combustion efficiency of 88% over base of 75% | At Replacement | Heating | \$0.81 |
| W104 | DHW Pipe Ins | Add 1" insulation to pipes used for steam or hydronic distribution; particularly effective when pipes run through unheated spaces. | Retrofit | Water Heat | \$0.84 |
| E130 | Windows - Tinted AL Code to Class 40 | Windows - Tinted AL Code to Class 40. Application: New Construction | New | Heating | \$0.87 |
| H123 | HVAC controls | Control set up and algorithm. This assumes the development of an open source control package aimed at describing scheduling and control points throughout the HVAC system, properly training operators so that scheduling can be maintained and adjusted as needed, and providing operator back up so that temperature reset, pressure reset, and minimum damper settings are set at optimum levels for the current occupancy. | New | Heating | \$0.90 |
| H103 | Ducts | Duct retrofit of both insulation and air sealing | Retrofit | Heating | \$0.90 |
| W105 | DHW Recirc Controls | Install electronic controller to hot water boiler system that turns off the boiler and circulation pump when the hot water demand is reduced (usually in residential type occupancies) or can be reset to meet the hot water load. (Steel boilers also require a mixing valve to prevent water temperatures from dropping below required levels). | Retrofit | Water Heat | \$0.95 |
| E113 | Roof Insulation - Roofcut 0-22 | Roof Insulation - Roofcut 0-22. Application: Buildings with uninsulated flat roofs at reroofing time | At Replacement | Heating | \$0.96 |

Detailed Measure Table - WA Commercial Sector Technical Potential to 2030

| Measure Code | Measure Description | Measure Description | Construction Type | Measure End Use | Levelized Cost, \$/th |
|--------------|---|--|-------------------|-----------------|-----------------------|
| H101 | Warm Up Control | This measure is designed to implement a shut down of outside air when the building is coming off night setback. Usually the capability for this is available in a commercial t-stat but either the extra control wire is not attached or the unit itself has not been set up to receive the signal. Cost is based on labor cost to enable this ability in existing controllers | Retrofit | Heating | \$0.98 |
| W124 | Computerized Water Heater Control | Install intelligent controls on the hot water circulation loops. | New | Water Heat | \$1.04 |
| W123 | HiEff Clothes Washer | Install high performance commercial clothes washers - residential sized units | New | Water Heat | \$1.06 |
| W123r | HiEff Clothes Washer | Install high performance commercial clothes washers - residential sized units | At Replacement | Water Heat | \$1.09 |
| E106 | Roof Insulation - Rigid R11-33 | Roof Insulation - Rigid R11-33: add 4' of insulation at reroof. Application: Old buildings with flat roofs, no attics, and some insulation | At Replacement | Heating | \$1.15 |
| W116 | DHW Cond Boiler (new) | Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations). | New | Water Heat | \$1.16 |
| W114 | DHW Cond Boiler (repl) | Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations). | At Replacement | Water Heat | \$1.16 |
| H129 | Steam Trap Maintenance | Set up a in-house steam trap maintenance program with equipment, training, and trap replacement. An alternative procedure is to just pay for an outside contractor to conduct a steam survey. | Retrofit | Heating | \$1.25 |
| E116 | Windows - Add Argon to Vinyl Lowe | Windows - Add Argon to Vinyl Lowe. Application: Old buildings | At Replacement | Heating | \$1.29 |
| H120b | Cond Unit Heater From Power Draft (new) | Install condensing power draft units (90% seas. Eff) in place of power draft (80% seas. Eff) | New | Heating | \$1.38 |
| E125 | Windows - Add Argon to Vinyl Lowe | Windows - Add Argon to Vinyl Lowe. Application: New Construction | New | Heating | \$1.47 |
| H115b | Cond Unit Heater from power draft (replace) | Install condensing power draft units (90% seas. Eff) in place of power draft (80% seas. Eff) | At Replacement | Heating | \$1.52 |
| H121 | Cond Furnace (new) | Condensing / pulse package or residential-type furnace with a minimum AFUE of 92%. | New | Heating | \$1.55 |
| E122 | Windows - Tinted AL Code to Class 36 | Windows - Tinted AL Code to Class 36. Application: Old buildings | At Replacement | Heating | \$1.66 |
| W125r | Solar Hot Water | Install solar water heaters on large use facility such as multifamily or lodging | Retrofit | Water Heat | \$1.68 |
| E131 | Windows - Tinted AL Code to Class 36 | Windows - Tinted AL Code to Class 36. Application: New Construction | New | Heating | \$1.78 |
| H116 | Cond Furnace (repl) | Condensing / pulse package or residential-type furnace with a minimum AFUE of 92%. | At Replacement | Heating | \$1.82 |
| H122 | HVAC System Commissioning | HVAC system commissioning. Includes testing and balancing, damper settings, economizer settings, and proper HVAC heating and compressor control installation. This measure includes the proper set-up of single zone package equipment in simple HVAC systems. The majority of the Commercial area is served by this technology. Work done in Eugene (Davis, et al, 2002) suggests higher savings than the other documented commissioning on more complex systems. | New | Heating | \$1.85 |
| E110 | Roof Insulation - Blanket R11-41 | Roof Insulation - Blanket R11-41. Application: Buildings with open truss unfinished interior | Retrofit | Heating | \$1.96 |
| E118 | Windows - Non-Tinted AL Code to Class 40 | Windows - Non-Tinted AL Code to Class 40. Application: Old buildings | At Replacement | Heating | \$1.97 |
| E127 | Windows - Non-Tinted AL Code to Class 40 | Windows - Non-Tinted AL Code to Class 40. Application: New Construction | New | Heating | \$2.00 |
| E109 | Roof Insulation - Blanket R11-30 | Roof Insulation - Blanket R11-30. Application: Buildings with open truss unfinished interior | Retrofit | Heating | \$2.08 |
| E119 | Windows - Non-Tinted AL Code to Class 36 | Windows - Non-Tinted AL Code to Class 36. Application: Old buildings | At Replacement | Heating | \$3.21 |
| E128 | Windows - Non-Tinted AL Code to Class 36 | Windows - Non-Tinted AL Code to Class 36. Application: New Construction | New | Heating | \$3.28 |
| E117 | Windows - Non-Tinted AL Code to Class 45 | Windows - Non-Tinted AL Code to Class 45. Application: Old buildings | At Replacement | Heating | \$3.43 |
| E126 | Windows - Non-Tinted AL Code to Class 45 | Windows - Non-Tinted AL Code to Class 45. Application: New Construction | New | Heating | \$3.49 |
| W125 | Solar Hot Water | Install solar water heaters on large use facility such as multifamily or lodging | New | Water Heat | \$4.96 |

Appendix D-5

ETO 2011 Stellar Study Update

ENERGY EFFICIENCY AND CONSERVATION MEASURE RESOURCE ASSESSMENT FOR THE YEARS 2010-2030

Prepared for the
Energy Trust of Oregon, Inc.

Draft Report
January 25, 2011
By
Stellar Processes
And
Ecotope

Table of Contents

| | |
|---|----|
| Project Overview | 1 |
| Summary of Results | 2 |
| Significant Efficiency Measures | 5 |
| Utility Sector | 5 |
| Industrial Sector | 5 |
| Commercial Sector | 9 |
| Residential Sector..... | 13 |
| Emerging Technology..... | 16 |
| Resource Assessment Methodology | 18 |
| Data Collection | 19 |
| Selection of Potential Measures | 19 |
| New Measure Development..... | 21 |
| Tool Selection and Use | 24 |
| Tool Limitations..... | 24 |
| Benefit Cost Ratio (BCR)..... | 25 |
| Utility Avoided Cost..... | 25 |
| Supply Curve of Conservation Measures..... | 25 |
| Levelized Cost Calculation | 26 |
| Technical Potential Savings Check..... | 26 |
| Industrial Sector Resource Assessment | 30 |
| Industrial Sector Characterization..... | 30 |
| Cross Cutting Measures | 36 |
| Specific Industrial Segments..... | 39 |
| Industrial Natural Gas Conservation Measures..... | 47 |
| Commercial Sector Resource Assessment | 51 |
| Commercial Sector Characterization..... | 51 |
| Description of Commercial Measures | 51 |
| Lighting Measures | 51 |
| HVAC Measures | 52 |
| Water Heating Measures | 54 |
| Cooking Measures | 56 |
| Shell Measures..... | 56 |
| Window Measures..... | 57 |
| Cooling and HVAC Controls Measures | 58 |
| Refrigeration Measures | 60 |
| Residential Sector Resource Assessment | 61 |
| Sector Characterization | 61 |
| Description of Residential Measures..... | 61 |
| HVAC Measures | 61 |
| Lighting Measures | 63 |
| Domestic Hot Water Measures..... | 63 |
| Appliance Measures..... | 64 |
| Appendix: Detailed Measure Descriptions..... | 65 |

List of Figures

Figure 1: Electricity Supply Curve..... 3
 Figure 2: Electricity Technical Potential..... 3
 Figure 3: Natural Gas Supply Curve 4
 Figure 4: Natural Gas Technical Potential 4
 Figure 5: Major Industrial Measures 6
 Figure 6: Industrial Natural Gas Measures..... 8
 Figure 7: Major Commercial Segment Measures, Electricity 9
 Figure 8: Major Commercial Sector Measures, Gas 11
 Figure 9: Major Residential Segment Measures, Electricity 13
 Figure 10: Major Residential Sector Measures, Gas..... 15
 Figure 11. With Emerging Technology 17
 Figure 12: Savings Percentages for Industrial Segments..... 27
 Figure 13: Residential Savings Percentages by Electricity End Use..... 28
 Figure 14: Residential Savings Percentages by Gas End Use 28
 Figure 15: Commercial Savings Percentages by Electricity End Use 29
 Figure 16: Commercial Savings Percentages by Gas End Use..... 29
 Figure 17: Industrial Electricity Consumption..... 30
 Figure 18: PPL Industrial Growth Forecast..... 31
 Figure 19. PGE Industrial Growth Forecast 31

List of Tables

Table 1: Summary of Technical Potential 1
 Table 2: Industrial Sector Technical Potential Saving in 2030 by Segment..... 6
 Table 3: Industrial Sector Technical Potential Saving in 2030, Screened by BCR 7
 Table 4 Industrial Gas 2030 Technical Potential Savings, Screened by BCR 8
 Table 5: Commercial Sector 2030 Technical Potential Savings, Screened by BCR..... 10
 Table 6: Commercial Sector Gas Technical Potential Savings for 2030,..... 12
 Table 7: Residential Sector Electric Technical Potential Savings for 2030,..... 14
 Table 8: Residential Sector Gas Technical Potential Savings for 2030, 16
 Table 9: Residential Emerging Technology 18
 Table 10. Oregon Residential Tax Credits 24
 Table 11: Industrial Process Share Downs 33
 Table 12: List of Industrial Measures 34
 Table 13: Electronics Segment Process Shares 42
 Table 14: Summary of Measures -- Electronics Segment..... 47
 Table 15: Window Measure Details 57
 Table 16: Detailed Measure Description, Industrial Electricity..... 66
 Table 17: Detailed Measure Description, Industrial Natural Gas 73
 Table 18: Detailed Measure Table, Commercial Sector, Electricity Savings, 2030 Technical Potential 85
 Table 19: Detailed Measure Table, Commercial Sector, Gas Savings, 2030 Technical Potential 102
 Table 20: Detailed Measure Table, Residential Sector, Electricity Savings, 2030 Technical Potential 122
 Table 21: Detailed Measure Table, Residential Sector, Gas Savings, and 2030 Technical Potential 132

Project Overview

The goal of this project was to provide Energy Trust of Oregon, Inc. (Energy Trust) with the amount and cost of potential energy efficiency and renewable energy measures that could provide electricity and natural gas demand-side savings for Oregon consumers by 2030 within the Energy Trust service territory. This resource assessment is designed to inform strategic planning, the project development and selection process, and for use in utility resource planning. By 2030, a technical potential of approximately 766 Average Megawatts (aMW) of electric savings and 108 million annual therms of gas savings were identified in this study¹.

Table 1: Summary of Technical Potential

| Electric Utilities | Both Utilities, aMW |
|---|------------------------------------|
| Residential | 181 |
| Commercial | 358 |
| Industrial | 178 |
| Conservation Voltage Reduction | 49 |
| Total (Including voltage reduction) | 766 |
| Natural Gas Utilities | Both Utilities, Mmtherm |
| Residential | 67 |
| Commercial | 21 |
| Industrial | 20 |
| Total (Including cross-utility impact) | 108 |

Conservation Voltage Reduction is a potential measure applicable by the utility at the substation level. Hence, it is not a measure that would be targeted by the Energy Trust but it is included in order to give a complete picture of the demand side potential. Quantification of Conservation Voltage reduction comes from the work of the Northwest Power and Conservation Council and was not explicitly developed in this project.

Stellar Processes and Ecotope, Inc., reviewed existing demographic and energy efficiency measure data sources to identify and quantify the resource potential. The contractors created updateable planning tools to develop these estimates and for Energy Trust to incorporate in their ongoing planning processes. The tools to evaluate the cost of individual measures and packages

¹ Electric measure savings are quantified in average MW as well as peak MW savings for summer and winter heavy demand periods. Gas savings are quantified in annual therms.

of measures consider the measure life, equipment and installation, annual O&M expenses, and the discount rate employed by the Energy Trust to produce levelized costs and a Benefit Cost Ratio (BCR). Levelized costs are useful to compare program options and conservation strategies that have different measure lives. The BCR provides a comparison to long-term benefits that include the lifetime and load shape value of the savings. In this sense, the BCR is a more thorough comparison and is the index used to screen for cost-effectiveness.

It is important to note that program related costs are not included because Energy Trust staff directed that they are outside the scope of this study. It is equally important to note that the levelized costs shown in this study are the entire societal cost of efficiency measures for situations where existing, working equipment is retrofit, and the incremental cost of efficiency when considering new purchases of efficiency versus standard equipment. The incentive costs to the Energy Trust are often only a portion of these “total measure costs”. This study provides the basic information on the cost of measures, which the Energy Trust will combine with their knowledge of markets and programs and incentives to develop estimates of total program costs to the society and (separately) to the utility system.

While this project was not intended to provide program design, it does identify and quantify estimates of electricity and gas use and measures of activity (such as number and energy use of households or total floor space) in the target markets for the industrial / agriculture, residential, and commercial sectors. Residential savings potential is quantified by housing type for new and existing single family, multifamily, and manufactured homes. Commercial savings are quantified on a square footage basis for typical business type designations such as retail, grocery, and large and small office spaces. The industrial analysis quantifies savings and costs by process type such as wood products, food, and electronics.

Determining the applicability of potential measures to specific segments or subsectors of the commercial and industrial building stock can be difficult. For these segments, many “cross cutting” measures such as lighting improvements for commercial applications or motor efficiency improvements for industrial customers were analyzed. Cross cutting measures can be applicable across a wide variety of circumstances and building types. In the industrial sector, many measures are relevant for specific applications or processes rather than in discrete building types. The industrial technical potential section discusses the assumptions used to determine measure applicability.

Summary of Results

The resource potential can be considered “technical” or “achievable”. The technical potential is an estimate of all energy savings that could be accomplished immediately without the influence of any market barriers such as cost and customer awareness. As such, it provides a snapshot of everything that could be done. Technical potential does not present what can be saved through programs; it would be impossible to get every customer to install every possible measure. Furthermore, some resources may cost more than the Energy Trust or participants wish to pay. The achievable potential represents a more realistic assessment of what could be expected – taking into account the fact that not all consumers can be persuaded to participate and other real world limitations.

The following figures and tables summarize the results of this analysis for 2030. In providing summary statistics for this section, we screened measures to a BCR of 1 or better. This provides a summary of the savings potential that has a reasonable chance of being cost effective when

compared to avoided energy costs. Although the list of cost-effective measures does not include the highest cost measures, the supply curves and detailed tables of measures in the Technical Appendix lists all measures considered in this study. Both supply curves show some additional potential just beyond the current cost-effectiveness screen. Should higher avoided costs occur, there would be more additional measures available for conservation programs.

Figure 1: Electricity Supply Curve

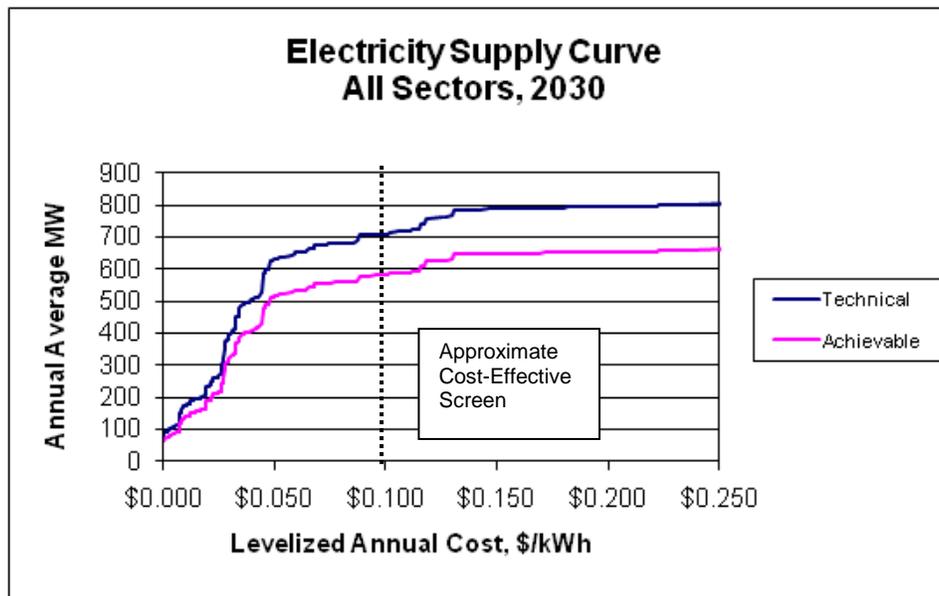


Figure 2: Electricity Technical Potential

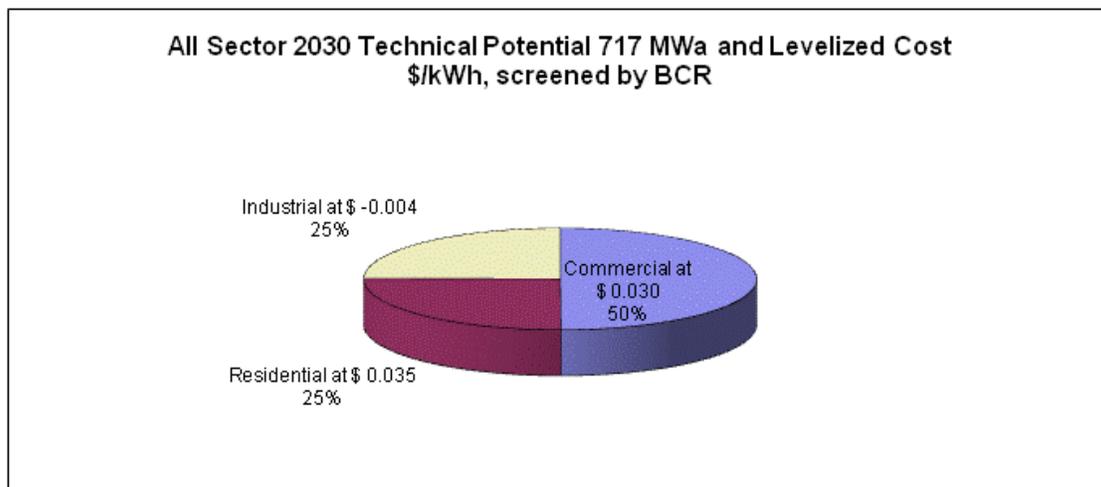


Figure 1 shows that the estimated savings from all electricity measures would reduce electricity use by 717 aMW of technical potential for cost-effective measures. Most of the proposed measures fall within the cost-effectiveness screen. One large exception is solar water heaters, which remain expensive even after tax credits. Energy Trust has found solar water heat to be cost-effective using a more complex cost-effectiveness methodology than the simple first0cut approach employed in this study. Figure 2 shows the distribution of potential electric savings across market segments.

Figure 3 shows that natural gas conservation measures could reduce consumption by an estimated 108 million therms. Figure 4 shows the distribution of potential natural gas savings across market segments.

Figure 3: Natural Gas Supply Curve

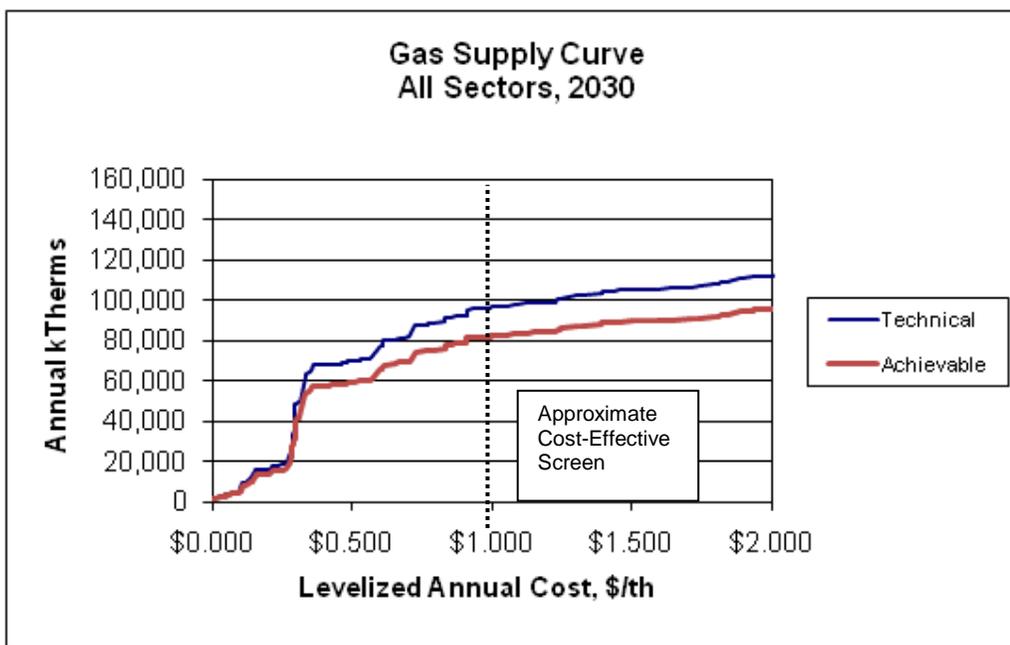
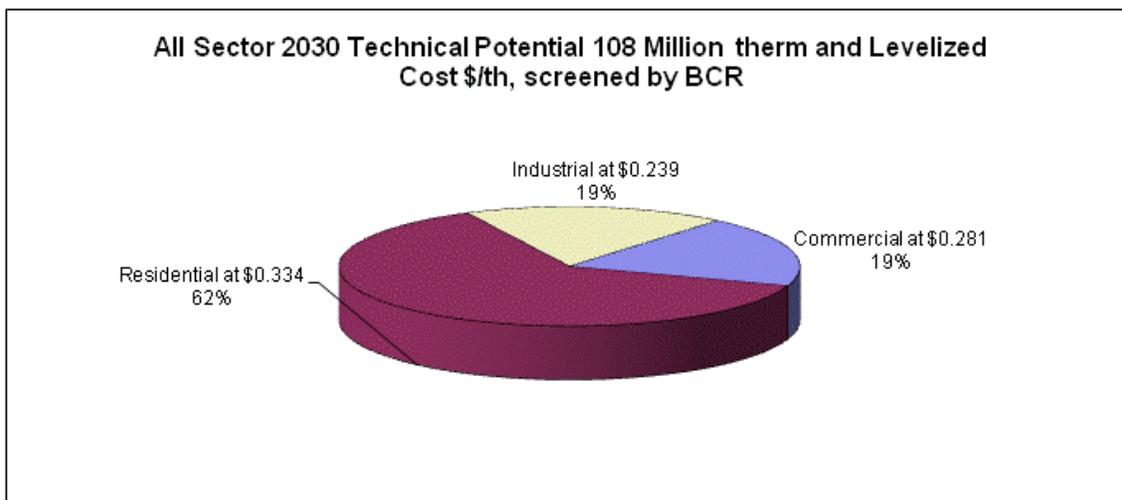


Figure 4: Natural Gas Technical Potential



Significant Efficiency Measures

Utility Sector

As mentioned previously, Conservation Voltage Reduction (CRV) is a set of measures that would be implemented at the utility level. The estimate of conservation potential was developed by the Northwest Power and Conservation Council (NPCC). The savings estimate amounts to saving 1.3% of current utility sales across all customer classes. In general, these measures could be negative in cost after credit for deferred utility investment in capacity expansion. No independent analysis was conducted for that set of measures. For further information, the reader is referred to NPCC.

Industrial Sector

Industrial customers of investor owned utilities in Oregon with over 1 aMW demand have the option of using their payment to the energy efficiency portion of the public purpose charge to self-direct implementation of efficiency projects. Under current policy, these customers are eligible for Energy Trust programs, albeit for additional conservation investments, and at reduced incentives. In addition, some industrial customers are transmission customers only for the utilities, but still pay the public purpose charges that funds the Energy Trust and are eligible for Energy Trust programs. For this study, neither of these types of industrial customers were removed – that is, these results apply to all the industries within Energy Trust territory because they are all eligible for Energy Trust programs,...

For this sector, measures can be thought of either as cutting across industries or process- specific segments. For example, motors and lighting occur in all segments; however, other measures may be specific to paper manufacturing or another process. Due to proprietary concerns, it is difficult to obtain information on specific facilities; the actual amount of process savings is likely to be much larger than estimated here. Management and engineering optimization are difficult to define and quantify but represent the most resource potential. With this sort of study, it is important that national-level process and end use data by industry type be carefully considered and adjusted for relevance to the local industry. Large potential savings are estimated for the electronics sector due to anticipated new growth as reflected in utility load forecasts.

Figure 5: Major Industrial Measures

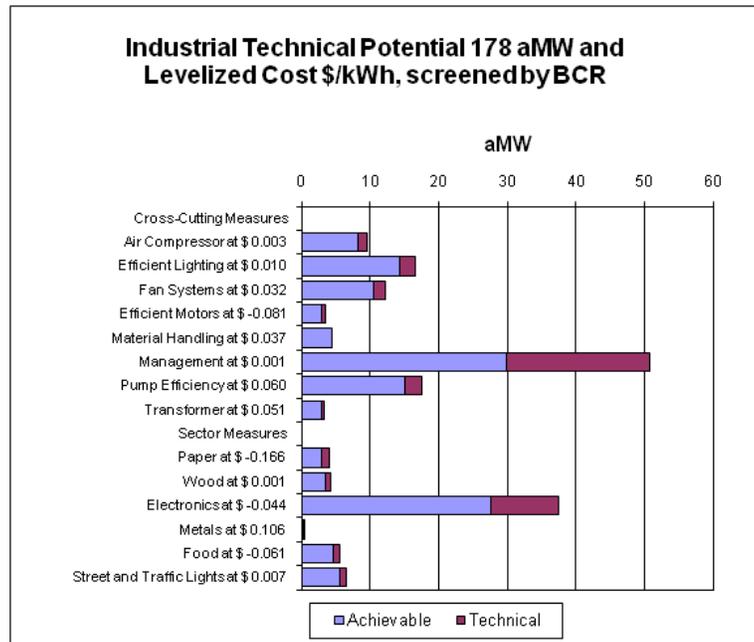


Table 2: Industrial Sector Technical Potential Saving in 2030 by Segment Screened by BCR

| Segment | Consumption, aMW | Potential Savings, aMW | Savings Fraction |
|-----------------------|------------------|------------------------|------------------|
| Hi Tech - Chip Fab | 391 | 35 | 9% |
| Paper | 42 | 9 | 23% |
| Kraft Pulp | 111 | 25 | 22% |
| Foundries | 96 | 3 | 3% |
| Metal Fab | 42 | 2 | 5% |
| Transportation, Equip | 35 | 3 | 8% |
| Other Food | 43 | 9 | 21% |
| Frozen Food | 23 | 6 | 24% |
| Wood - Lumber | 64 | 9 | 14% |
| Wood - Panel | 25 | 4 | 16% |
| Wood - Other | 20 | 3 | 17% |
| Chemical | 14 | 1 | 8% |
| Misc Manf | 176 | 17 | 10% |
| Street Lighting | 107 | 6 | 5% |
| Agriculture | 109 | 0 | 0% |
| Total | 1,299 | 133 | 10% |

As Table 3 shows, industrial sector measures appear low in cost from a societal perspective because there are non-energy benefits in terms of increased production and reduced use of raw materials.

Table 3: Industrial Sector Technical Potential Saving in 2030, Screened by BCR

| Measure Category | aMW Savings | Level Cost, \$/kWh |
|---------------------------|--------------|--------------------|
| Cross-Cutting Measures | | |
| Air Compressor | 9.6 | \$0.014 |
| Efficient Lighting | 16.6 | \$0.009 |
| Fan Systems | 12.2 | \$0.023 |
| Efficient Motors | 3.4 | \$0.014 |
| Material Handling | 5.2 | \$0.036 |
| Management | 50.7 | \$0.036 |
| Pump Efficiency | 17.5 | \$0.017 |
| Transformer | 3.4 | \$0.006 |
| Segment Measures | | |
| Paper | 4.1 | \$0.027 |
| Wood | 4.3 | -\$0.056 |
| Electronics | 37.4 | -\$0.060 |
| Metals | 0.4 | -\$1.991 |
| Food | 5.5 | \$0.027 |
| Street and Traffic Lights | 6.7 | \$0.041 |
| Ag Irrigation | 0.7 | \$0.000 |
| Total | 177.9 | \$0.001 |

In a change from the previous study, both small and large industrial gas customers are included in the current study. Figure 6 and Table 4 show the potential for gas conservation measures. In general, much of the opportunity lies in some form of boiler improvement.

Figure 6: Industrial Natural Gas Measures

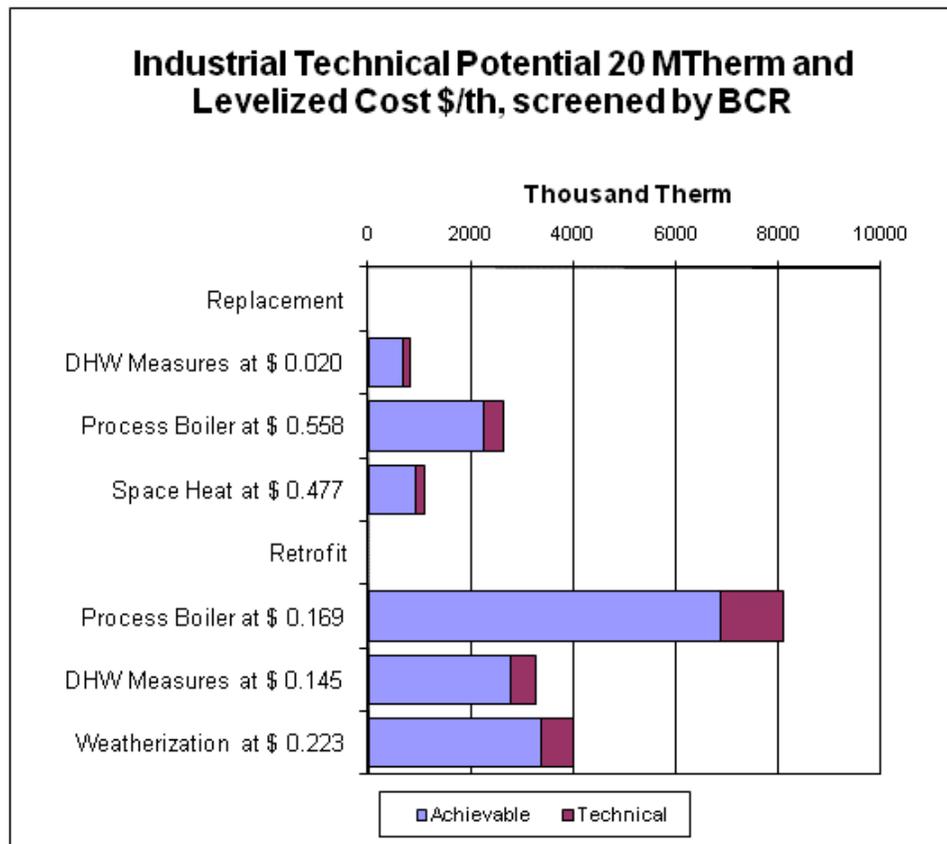


Table 4 Industrial Gas 2030 Technical Potential Savings, Screened by BCR

| Measure Category | Technical Potential, ktherm | Levelized Cost, \$/th |
|--------------------|-----------------------------|-----------------------|
| Replacement | | |
| Process Boiler | 2,653 | \$0.558 |
| DHW Measures | 811 | \$0.020 |
| Space Heat | 1,097 | \$0.477 |
| Retrofit | | |
| Process Boiler | 3,271 | \$0.145 |
| DHW Measures | 8,084 | \$0.169 |
| Weatherization | 3,988 | \$0.223 |
| Total | 19,903 | \$0.239 |

Commercial Sector

Figure 7 and Table 5 show the potential for groups of measures in the commercial sector with most significant savings. These measure groups are broken out according market segments that affect program design. These groups are shown as retrofit, replacement of existing stock and new construction. Clearly, new lighting opportunities dominate, in part due to emerging technology. In most cases, achievable potential is estimated as 85% of technical potential. Details are shown in Table 5. In these tables “equipment” means mechanical equipment not included in the other specified end uses.

Figure 7: Major Commercial Segment Measures, Electricity

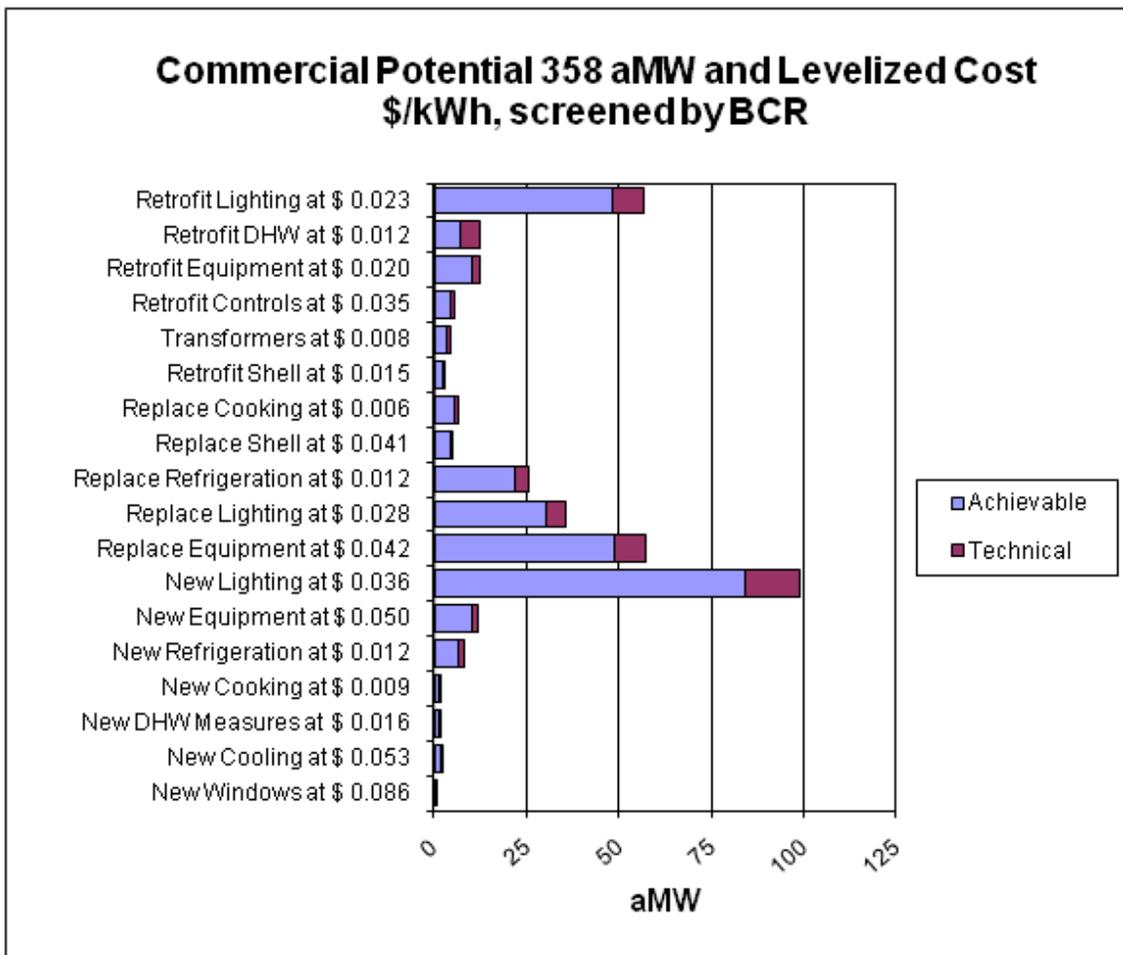


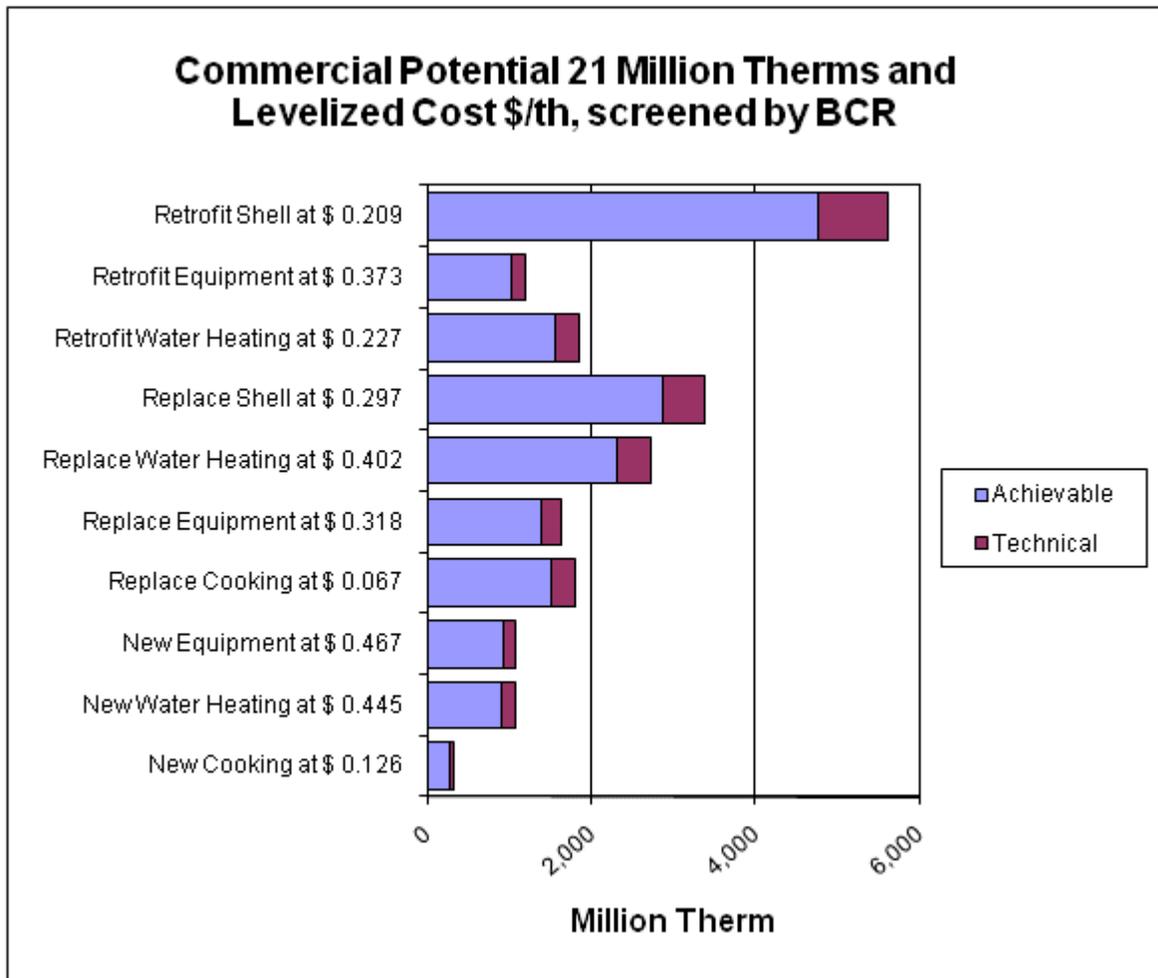
Table 5: Commercial Sector 2030 Technical Potential Savings, Screened by BCR

| Measure Category | aMW Savings | Winter Peak Savings, MW | Summer Peak Savings, MW | Level Cost, \$/kWh |
|-------------------------|--------------------|--------------------------------|--------------------------------|---------------------------|
| New Windows | 0 | 1 | 0 | \$0.086 |
| New Cooling | 2 | 4 | 4 | \$0.053 |
| New Cooking | 2 | 2 | 2 | \$0.053 |
| New Equipment | 12 | 21 | 19 | \$0.050 |
| New Lighting | 99 | 80 | 103 | \$0.036 |
| New Refrigeration | 8 | 10 | 13 | \$0.012 |
| New DHW Measures | 2 | 2 | 2 | \$0.016 |
| Replace Cooling | 9 | 18 | 16 | \$0.034 |
| Replace Cooking | 7 | 7 | 7 | \$0.006 |
| Replace Shell | 5 | 15 | 1 | \$0.041 |
| Replace Lighting | 36 | 43 | 56 | \$0.028 |
| Replace Refrigeration | 26 | 31 | 40 | \$0.012 |
| Replace Equipment | 57 | 59 | 59 | \$0.042 |
| Retrofit Shell | 3 | 8 | 1 | \$0.015 |
| Retrofit Equipment | 12 | 27 | 23 | \$0.020 |
| Retrofit Lighting | 57 | 68 | 88 | \$0.023 |
| Transformers | 4 | 4 | 4 | \$0.008 |
| Retrofit Controls | 5 | 6 | 6 | \$0.035 |
| Retrofit DHW | 12 | 13 | 21 | \$0.012 |
| Total | 358 | 417 | 464 | \$0.030 |

Major opportunities lie in upgrading the building shell and improving heating and cooling equipment. Shell measures include windows and insulation.

Figure 8 and Table 6 show the conservation potential for natural gas in the commercial sector. These measures are also grouped by retrofit, replacement and new construction. Major opportunities lie in upgrading the building shell and improving heating and cooling equipment. Shell measures include windows and insulation.

Figure 8: Major Commercial Sector Measures, Gas



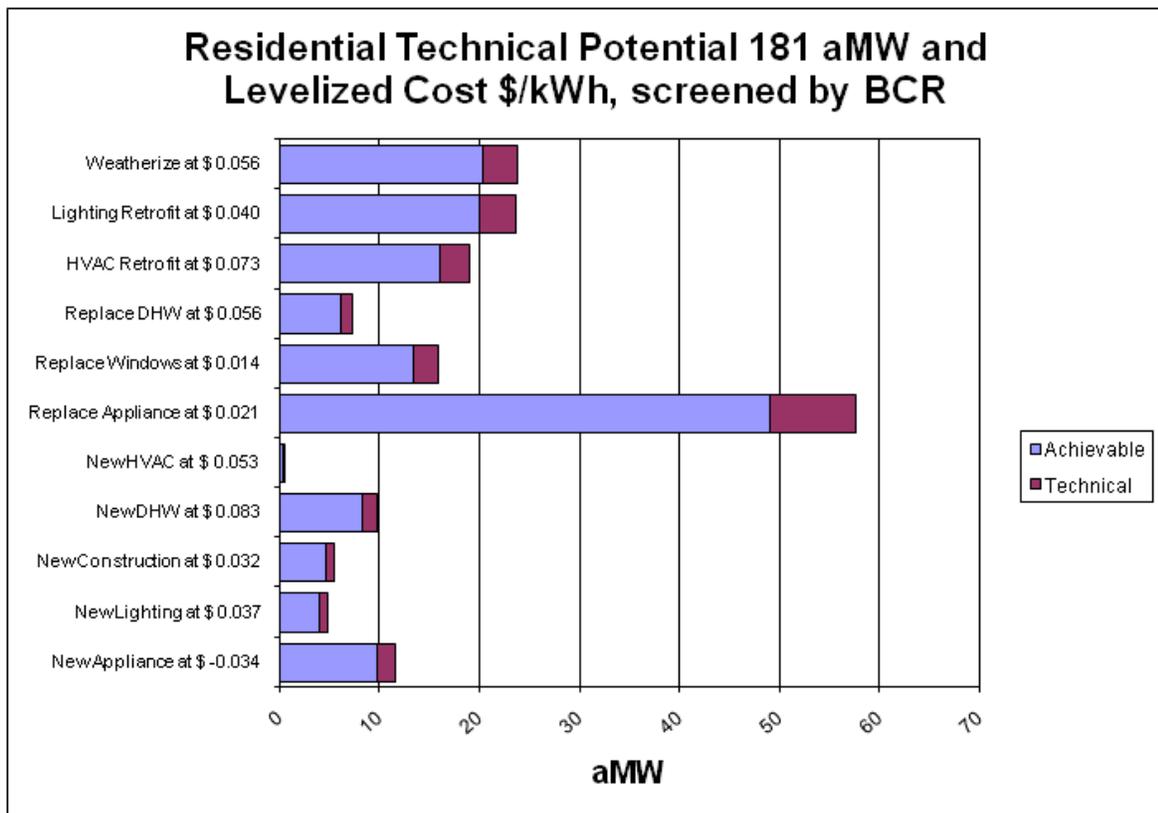
**Table 6: Commercial Sector Gas Technical Potential Savings for 2030,
Screened by BCR**

| Measure Category | Thousand therm | \$/therm |
|-------------------------|-----------------------|-----------------|
| New Cooking | 321 | \$0.126 |
| New Equipment | 1,088 | \$0.467 |
| New Water Heating | 1,069 | \$0.445 |
| Replace Cooking | 1,798 | \$0.067 |
| Replace Shell | 3,389 | \$0.297 |
| Replace Equipment | 1,629 | \$0.318 |
| Replace Water Heating | 2,723 | \$0.402 |
| Retrofit Shell | 5,621 | \$0.209 |
| Retrofit Equipment | 1,206 | \$0.373 |
| Retrofit Water Heating | 1,853 | \$0.227 |
| Total | 20,698 | \$0.281 |

Residential Sector

Figure 9 and Table 7 show residential electricity potential in 2030 grouped by existing and new construction opportunities. The large savings in HVAC Retrofit (compared to past studies) are due to ductless heat pumps. This measure is borderline cost-effective. Lighting savings are largely from specialty CFL bulbs, as conventional CFLs or their equivalent will be required by law soon. The large savings for Appliance Replacement are due to low power consumer electronic appliances that are large in the near-term but will be replaced anyway in the long-term. There is significant potential for replacement of heating systems and appliances. Emerging heat pump water heaters are expected to be a major resource although commercially available models for Oregon’s climate have just arrived and are still being tested for functionality.

Figure 9: Major Residential Segment Measures, Electricity

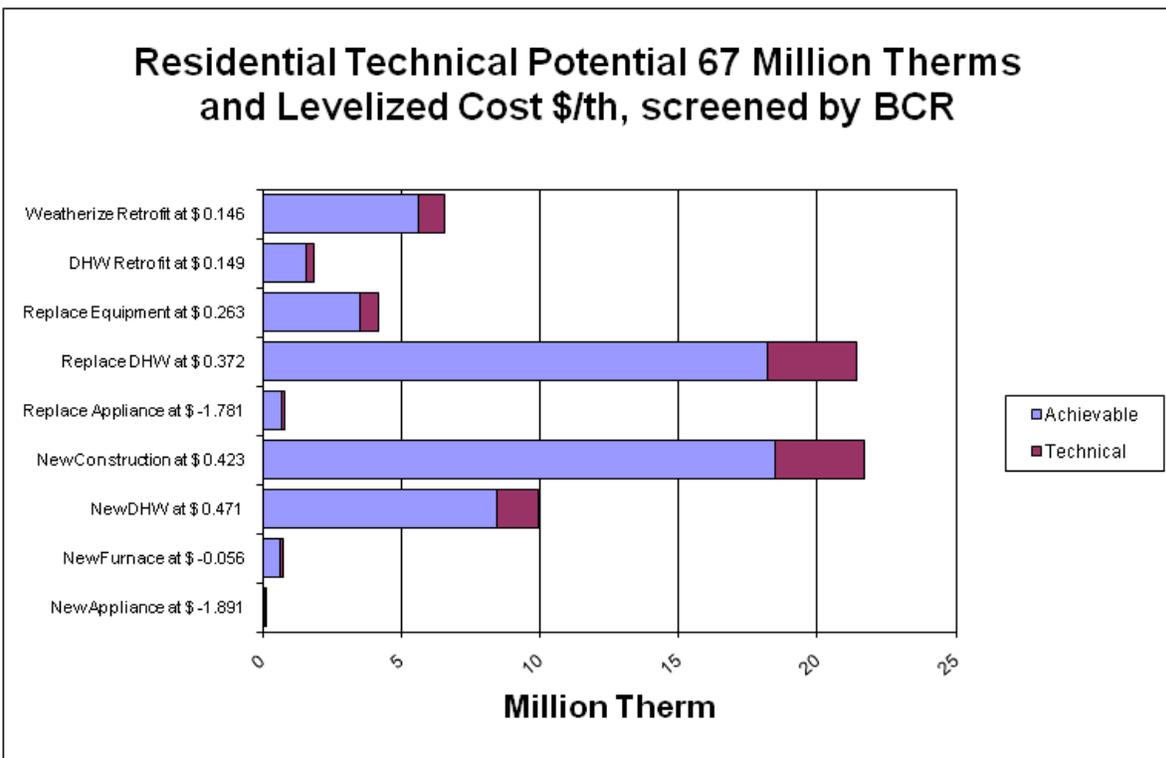


**Table 7: Residential Sector Electric Technical Potential Savings for 2030,
Screened by BCR**

| Measure | aMW Savings | Winter Peak Savings, MW | Summer Peak Savings, MW | Level Cost, \$/kWh |
|-------------------|--------------------|--------------------------------|--------------------------------|---------------------------|
| New Appliance | 12 | 13 | 12 | -\$0.034 |
| New DHW | 10 | 12 | 10 | \$0.083 |
| New Construction | 6 | 11 | 2 | \$0.032 |
| New Lighting | 5 | 5 | 5 | \$0.037 |
| New HVAC | 1 | 1 | 0 | \$0.053 |
| Replace Windows | 16 | 32 | 2 | \$0.014 |
| Replace Appliance | 58 | 62 | 60 | \$0.021 |
| Replace DHW | 7 | 9 | 8 | \$0.056 |
| Replace Equipment | 1 | 2 | 0 | \$0.061 |
| HVAC Retrofit | 19 | 28 | 7 | \$0.073 |
| Lighting Retrofit | 24 | 24 | 24 | \$0.040 |
| Weatherize | 24 | 46 | 5 | \$0.056 |
| Total | 181 | 246 | 136 | \$0.035 |

Figure 10 and Table 8 show residential potential for natural gas savings in 2030 grouped by existing and new construction. For natural gas, the greatest opportunity lies in weatherization of existing homes, retrofit of existing heating equipment, and increased efficiency for new construction. Opportunities during new construction include better insulation and windows, duct sealing, high efficiency furnaces, and heat recovery ventilation. The fact that some appliances are negative in cost reflects the fact that there are non-energy benefits, such as water savings, that offset cost for some appliances.

Figure 10: Major Residential Sector Measures, Gas



**Table 8: Residential Sector Gas Technical Potential Savings for 2030,
Screened by BCR**

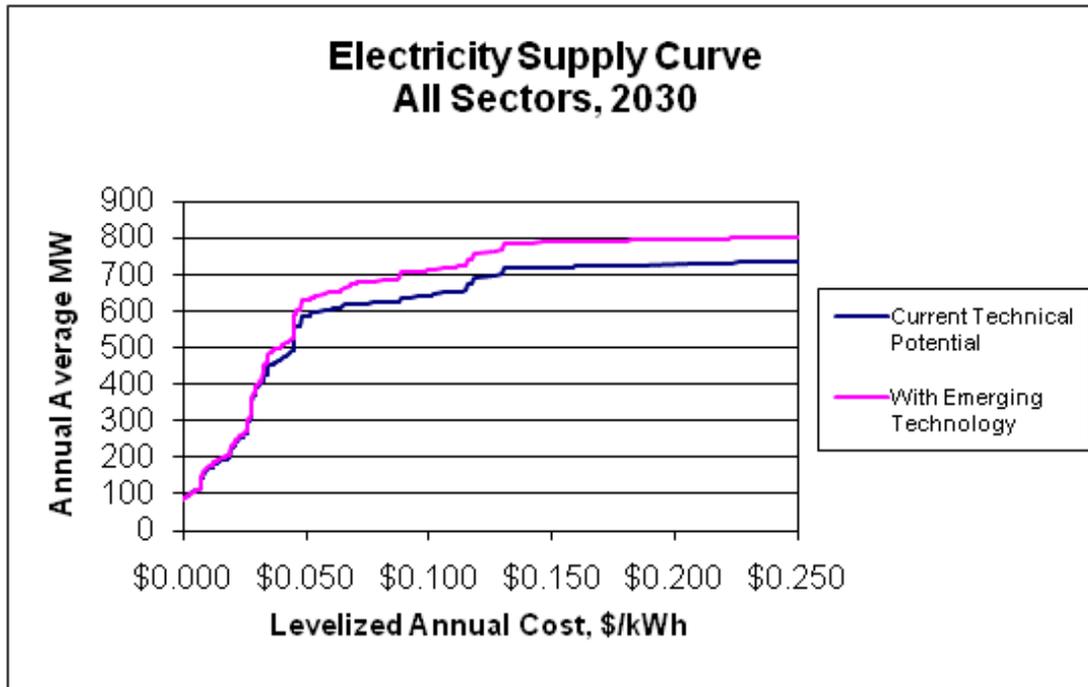
| Measure Category | Thousand Therm | \$/therm |
|---------------------|----------------|----------------|
| New Appliance | 97 | -\$1.891 |
| New Furnace | 737 | -\$0.056 |
| New Construction | 21,728 | \$0.423 |
| New DHW | 9,931 | \$0.471 |
| Replace Equipment | 4,161 | \$0.263 |
| Replace DHW | 21,425 | \$0.372 |
| Replace Appliance | 815 | -\$1.781 |
| Weatherize Retrofit | 6,587 | \$0.146 |
| DHW Retrofit | 1,871 | \$0.149 |
| Total | 67,352 | \$0.334 |

Emerging Technology

Distinction should be noted between those measures that are new -- that is, available but not yet in widespread practice -- and those that are emerging but not yet available in the market. These measures are expected to become widespread in the future even if they are not yet considered mainstream. Measures in this category deserve discussion and possible support for demonstration because they are quite likely to become important opportunities. Unfortunately, the methodology of resource assessment is not well suited to exploring hypothetical new options (see Fred Gordon, et al., "Beyond Supply Curves", ACEEE Conference Proceedings, 2008).

Given that our ability to predict future inventions is limited, one can still develop some sensitivity estimates for products that are known or expected to be almost market ready. Figure 11 shows emerging technology increases the supply curve by almost 20%.

Figure 11. With Emerging Technology



The specific measures treated as emerging are discussed in more detail titled “New Measure Development” on page 21. In general, most of these measures we could identify as “emerging” are in the residential sector.

Residential consumer electronics are a rapidly changing market. One anticipates that many new products will start to use “smart” capabilities including internet controls. If done properly, this could lead to energy savings during “sleep” mode. California has identified large savings opportunities and is pursuing a program for Low Power Mode Appliances. Such savings would occur through new standards to be implemented at the manufacturing level and would not be immediate program opportunities. Within programs, we include emerging opportunities for new lighting products and heat pump water heaters.

The importance of these new technologies is illustrated in Table 9, which shows the amount of included resource potential that is anticipated as “emerging”. Assuming that the new products occur, they would then be responsible for 16% of the new and increased technical potential for the residential sector.

Table 9: Residential Emerging Technology

| Measure | aMW Savings | Emerging Technology as Percent of Total |
|-------------------|-------------|---|
| New HVAC | 0 | 30% |
| New DHW | 1 | 91% |
| New Lighting | 5 | 83% |
| Lighting Retrofit | 7 | 46% |
| Heat Pump HW | 7 | 94% |
| Total | 20 | 16% |

Resource Assessment Methodology

This section describes the methodology used in this report. More detailed description is provided in the detailed appendix and many of the specifics are documented in the calculation spreadsheets.

To summarize the approach, we applied the following steps in this study:

- Establish Energy Consumption Baseline.

We quantified current energy use by segment unit (residential household, commercial square footage, and industrial by typical facility) and customer type within each segment (single family, small office, wood products, etc.). It is important to understand how much energy is currently consumed for specific end uses and market segments in order for the eventual savings estimates to be realistic. We utilized the utility estimates of sales by customer group and market segment and best estimates of Energy Use Index (EUI kWh/sq. ft.) factors to calibrate our estimates to the actual utility sales data.

- Estimate Energy Consumption by End Use for Each Customer Type.

The methods varied by customer group. For the industrial sector, we estimated the “share down” factors, that is, the fraction of consumption for specific process uses. For the commercial sector, the EUI factors provided consumption by end use. For the residential sector, we applied prototype models to estimate major end use consumption, calibrated to actual sector consumption

- Forecast future consumer population.

We applied the utility forecasted growth rate to estimate the customer base available in future years.

- Compile And Screen List Of Measures, Develop Measure Details

We reviewed information on specific measures for applicability to ETO territory customers. This information includes estimates of incremental cost and savings but also assesses the market potential for specific measures. Applicability of some measures depends on the fuel for space heating, for example. Also the amount to which the market is currently saturated affects the amount of remaining potential. We focused on measures with significant savings for a significant portion of the housing, building, or equipment stock in question. The intention was not to represent every possible measure, but represent the available cost and savings by choosing the most significant measures.

- Implement Worksheet Tool To Aggregate And Sum Conservation Potential.

We developed a series of worksheets to compute the savings potential and cost for each measure and customer type, and then results were aggregated for an estimate of the total potential.

Data Collection

To develop the inputs required by the tool, the team utilized a wide variety of resources. A literature review was conducted to collect equipment and O&M costs and energy savings. This review was augmented by internal data developed by the team members for use in prior projects. Where available, the Northwest Power & Conservation Council's (NPCC) Regional Technical Forum (RTF) data was utilized in the residential sector to collect costs and energy benefits. In addition, the NPCC libraries provided cost and benefit data for many of the commercial sector measures. In some cases, technical papers or data provided by manufacturers was used. Energy Trust historical program data and measure screening analysis also provided data input for the study. The data source(s) used for each measure are noted in the Notes and Sources section of each measure workbook.

To determine the applicability of measures to the Energy Trust service territory and to assess market conditions, economic and census data was collected from Economy.com and from the U.S. Census Bureau and the Department of Housing and Urban Development. Population estimates were also collected from the Portland State University Center for Population Studies and from the Manufactured Housing Association.

Where available, public documents prepared by the individual utilities were used to generate electricity and gas end use or device saturation and penetration rates for the Energy Trust service territory. Where not available, these rates were extrapolated from county- or state-level data.

Selection of Potential Measures

In residential sector, we utilized 121 measures. Each measure is developed separately for three building types. In the commercial sector, we utilized 106 measures. Each measure is then developed separately for 12 building types.

The measures identified in the initial list were then analyzed for cost and performance in the Energy Trust service territory. We used a wide variety of resources to develop measure-specific inputs for this study. We conducted a literature review to collect equipment and labor costs and energy benefits. Energy Trust project data and measure cost effectiveness screening models were combined with Northwest Power & Conservation Council's Regional Technical Forum (RTF) data and other regional sources for measure costs, savings, and non energy benefits assumptions. We studied the Oregon market to identify the total market size, infrastructure, climate, energy

use, energy costs, and other variables that impact the usefulness of each of the measures in the particular market served by the Energy Trust.

The study is structured to present efficiency potential by measures directed to “New Construction,” “Retrofit,” or “Replacement.” “Replacement” applies to the annual turnover of equipment in any year. We can also compute this resource as a cumulative total for a future year. Retrofit applies to upgrading existing equipment that has not yet reached its useful life.

For each measure, we attempted to identify and quantify the potential market for which that measure was applicable. While this is relatively straightforward in the residential sector and only slightly problematic in the commercial sector, it is very difficult to provide the same level of detail for a technical potential assessment in the industrial sector. Nevertheless, we have provided an approximate technical potential for each measure that can be used to estimate overall program size and savings potential.

To calculate the cost of each measure, the following assumptions were generally followed. Where appropriate, exceptions have been noted within the measure workbook. Only actual equipment and labor costs were included in the measure cost calculation used in this analysis. In addition, incremental costs (or savings) related to differences in operations and maintenance was considered in the cost analysis. We did not consider program administrative costs, marketing or other overhead expenses.

For each measure, the incremental cost of the equipment examined in the measure over that required by the relevant energy code was used where applicable in new construction, renovation, and replacement markets. The entire cost of substitute equipment was considered in retrofit situations². These measures generally examine one-for-one equipment selections so all other costs, such as maintenance, are assumed to be the same. In cases where additional maintenance costs would be associated with the equipment in the measure, these incremental costs have also been included.

The impact of the measure on O&M expenses was calculated and included in the cost-effectiveness analysis. In some cases, there are negative O&M costs – that is, non-energy benefits – that are included in the analysis. In planning terms, we utilized a cost that represents the full societal cost or total resource cost (TRC). The cost-effectiveness approach employed here is a simplification of the more sophisticated approach used to qualify individual measures at the Energy Trust, intended to get about the right answer in aggregate. Individual measures that pass by this method may not pass Energy Trust’s more detailed screening, and the reverse is also true.

For the technical potential savings analysis, we assumed that the measure would be applied to all applicable situations and where no related measure was applied. For retrofit measures, we assumed that the existing population would be addressed to the extent possible. For replacement measures, we first calculated a replacement rate and then assumed that the measure was applied for the cumulative number of replacements up to the target year. For “new” measures in new construction, we assumed that all of the applicable new construction was treated every year. Growth rates were developed based on utility projections. For replacement and new measures, it

² A retrofit situation is where working equipment might be replaced with more efficient equipment primarily for energy savings purposes.

is important to specify a target year sufficiently into the future that significant new resources will be counted. We utilized the year 2030 as the target year for assessment. Because replacement and new potential occurs as equipment is sold or buildings constructed, it is only available over the course of the period of study; that is, savings cannot be accelerated beyond the rate of sales or construction.

Retrofit and replacement can be in conflict; if one does a retrofit, the efficiency opportunity is no longer available to become a replacement candidate later. At the same time, there are measures that occur only as retrofit or only as replacement options. We worked with the measures in various ways to assure that retrofit and replacement would not be “double-counted.” Often, the retrofit is much more expensive because the replacement is only an incremental cost over replacement with a less efficient but otherwise similar piece of equipment. In cases where retrofit was clearly more expensive than grid power and pipe gas, yet replacement was feasible, we ruled out the retrofit as not feasible. Another option was to compute the cumulative replacements and remove those from eligibility as retrofits. The Resource Assessment spreadsheets allow the analyst to choose an approach.

Another potential conflict can occur when two technologies go after the same energy end use. For example, heat pump water heaters and solar water heaters are competing technologies. In these cases, we divided the market between the two options to avoid double-counting.

Since we are dealing with two fuels, we must be aware of some other factors. In general, we can develop a supply curve for only one fuel at a time. That is, the gas and electricity supply curves are independent. Of course, that does not mean that efficiency opportunities for the two fuels are always independent – many measures save both electricity and gas on the same site (e.g. building energy management system) and many markets can only be effectively approached by a dual fuel program (e.g. new homes.) This merely means that the impacts of investment in one fuel on energy use for the other are not captured in the supply curve graph. These impacts are maintained in the output tables and they do influence the levelized cost.

New Measure Development

In preparing this version of the planning tools, the primary focus was on updating costs and savings for previously developed measures. However, we considered a number of new and revised measures as the request of reviewers.

1. Gas weatherization measures, reviewed for consistency with recent evaluation results
2. Solar water heating, review ETO files for cost and savings information.
3. Cooking measures, matched to EnergyStar appliance calculation worksheets..
4. Gas Furnace. Based on 2009 Market Transformation study, the baseline is now a high-efficiency model.
5. Tankless water heaters, updated cost and savings, based on survey of vendors.
6. Gas Hearths, added efficiency measure.
7. Commercial clothes washer, updated measure based on Northwest Power Planning and Conservation Council.
8. Fleet management of HVAC, added new measure for operation of HVAC units as a group by EMCS system.

9. Corridor ventilation in MF, added new measure for reduction of excess outside air.
10. DHW, updated baseline for new standard in 2015
11. Destratification fan, added new measure in warehouse
12. Boiler measures, updated baseline to the new IECC.
13. Exterior LED, added measure based on Northwest Power Planning and Conservation Council.
14. Streetlights and traffic lights, added measures based on Northwest Power Planning and Conservation Council.
15. Ozone Treated Laundry, added new measure. Ozone treatment allows use of less hot water and chemicals.
16. Heat Recovery chillers, limited application for Hot Water Heat recovery in MF garage.
17. Industrial Electricity, added entire new set of measures based on Northwest Power Planning and Conservation Council. Significant addition is Integrated Energy Management.

Heat pump water heaters are identified as having a large technical potential in both the residential and the commercial sector. Larger products for commercial customers are available. For homes, new products are very recently available, but have not been lab tested for functionality in our climate.. We consider this measure to be an emerging technology.

The Home Energy Monitor connects a digital readout to the customer's utility meter so that the customer has direct feedback to their consumption level. We project this product as currently available but, with respect to predictable savings, as an emerging technology.

Lighting measures are an unusual case. New federal standards will require efficient lighting starting in about 2015. As a result, the lifetime for installing lighting measures in the current stock of buildings has been reduced. We expect that a new generation of LED lighting products will be available by 2015 and even more efficient lighting products will emerge around 2020. This study does not include LED down lights for homes and screw in LEDs for commercial buildings which became commercially available and cost-effective as the study approached completion, and are now included in Energy Trust programs. These would add modestly to the technical potential shown here, because the efficiencies are not yet radically better than those for compact fluorescents. They are suitable to some niches where compact fluorescent bulbs are inappropriate.

Prototype units of condensing natural gas packaged heaters have been demonstrated in Canada. However, the condensing feature of these units was not the primary source of their savings – rather it was the fact that exposed ductwork was better insulated. Furthermore, manufacturers have not indicated willingness to bring these units into production due to the higher cost of the hardware.

One area of interest was the application of residential gas water heating systems for combined space heat and water heat. We considered various combinations of available technology. Although there would be cost savings by eliminating the furnace, the added cost of a hydronic heating system would be comparable to that cost reduction. Furthermore, although a tankless water heater would be higher efficiency for hot water, for space heat it would be competing

against an already-efficient gas furnace for space heating. Only one combination option appears to be currently cost-effective – that would be a combination involving a low-cost hydrocoil applied to an air distribution system. We also include a high efficiency combination system based on the Polaris water heater. However, the base case assumes that a conventional gas boiler and hydronic slab heating system would otherwise be installed, so the efficiency improvement from the combination option is small relative to the incremental cost.

A similar niche on the electricity side would be new ductless heat pump systems. These systems are designed for easier installation that may eliminate some of the installer errors that have plagued large heat pumps. Current models are small in capacity, which limits their retrofit potential. They are suggested for homes with electric baseboard heating – which makes them one of the few retrofit equipment measures possible for older homes with baseboard heating. Energy savings will depend on the extent to which customers operate these units to offset baseboard heat and the addition of summertime cooling might offset winter savings. Recent evaluations indicate that these are cost-effective for single family home applications. In multi-family housing - they would provide the equivalent of an efficient through-the-wall heat pump - These are included as an emerging technology measure. The cost estimate gives credit for the fact that a window air conditioner would otherwise have to be included to provide a similar cooling benefit.

A new set of high efficiency gas water heaters is becoming available. We include a low-cost gas water heater with 0.70 EF rating that will shortly be available as emerging technology. Tankless gas water heaters have an EF rating of 0.85. There is an incremental upgrade possible to another tankless heater at 0.89 EF rating that would be cost effective even for the high cost system.

Waste heat recovery from wastewater has been previously reviewed as a potential measure. It is not well suited for residential applications, as it is a relatively expensive retrofit limited to full basements. As a result, this measure is limited to commercial facilities.

Other commercial measures that were changed include high performance lighting systems. More efficient T8 systems can replace the previous generation of older T8s. T5 systems are somewhat more expensive but can be a worthwhile replacement for metal halide lights. One advantage of the new fluorescent system is that it can be switched off or dimmed, allowing the application of occupancy sensors that were not an option for halide lights.

Tax credits are now recognized as an offset to costs for both demand-side and supply-side measures. While there are currently available Federal tax credits, those are significantly diminished, but do not disappear at the end of 2010. Given the complexity of Federal credits, to keep things simple, we only deducted Oregon tax credits from measure costs. We assumed that all commercial and industrial measures could receive the BETC tax credit, evaluated as reducing initial cost by 31%. Credit was applied for the residential measures shown in Table 10. Note that these Oregon tax credits do not apply to Northwest Natural Gas territory in Washington.

Table 10. Oregon Residential Tax Credits

| | |
|---------------------------|-------|
| MEF 2.0 Washer | \$150 |
| MEF 2.2 Washer | \$180 |
| MEF 8.0 Dishwasher | \$80 |
| Efficient Refrigerator | \$50 |
| Heat Pump Commissioning | \$250 |
| PTCS Ducts (with bonus) | \$400 |
| Hydronic Fan | \$125 |
| Heat Recovery Ventilation | \$220 |
| Water Heat Exchanger | \$100 |

Tool Selection and Use

One of the primary goals of this project was to continue use of, and improve upon the method of analyzing measures across segments and technology types that would provide a means of comparing anticipated costs and benefits associated with a variety of program options.

The Assessment Tool used by the team includes several favorable features:

- Standardized program assumptions. This spreadsheet tool allows the same set of program assumptions for each measure, so that differences in the results of the analysis of any two measures were impacted only by the variables of interest (cost, benefits, and technical potential).
- Updateable. The measure cost and performance, market penetration and other inputs into the tool can be easily changed to analyze a particular measure under a variety of program and cost conditions. For example, Trust personnel can easily modify the cost of the measure or number of program participants and calculate a new levelized cost.
- Consistent analysis approach. Team members individually assessed the measures with expertise in particular areas. The use of this tool ensured that measure assessments performed by different analysts were comparable.
- Record of assumptions, sources, etc. The input requirements of the tool provide a record of the data and processes used by the analysts to develop levelized costs. We believe this will be extremely informative and provide insights to the Trust that will be helpful during program design, particularly in cases where multiple measures are combined into a single conservation package targeted at a particular customer, segment or building type.

Tool Limitations

While the strict data input structure of the Assessment Tool provides a consistent way to compare measures across sectors, it does impose some limitations:

- The total measure costs and benefits calculations are based on an estimate of the number of cases for which the measure is applicable; i.e., the program participation was estimated to be the total technical potential. These figures will need to be adjusted for programs that target only a portion of the identified market.

- The tool does not allow multiple-measure “what if” analysis. While we have assessed a number of combined-measure packages, the costs and benefits must be calculated and combined outside the tool and entered as one set of assumptions.
- The tool provides limited flexibility. The tool did not provide optimum flexibility to analyze measures by segment or across segments without creating multiple worksheets. While this did impose some limits on the analysis methodology, the strict requirements of the tool ensure that comparable computations across all types of measures and sectors are made.

Benefit Cost Ratio (BCR)

In previous studies, we used the levelized cost as a screening criterion to determine cost effectiveness. One problem is that the levelized cost fails to take into account Time-Of-Use (TOU), that fact that savings during a peak period may have higher value and, hence, be more cost-effective. In order to better account for this feature, we computed the total benefit, net present value of lifetime savings and Non Energy Benefits (NEB), evaluated at each measure’s load shape. This lifetime benefit can then be compared to the total resource cost. If the benefits are greater than cost, the benefit-cost ratio is greater than one. This ratio offers a simple comparison.

$$BCR = \frac{\text{Net Present Value of Benefits (including TOU, NEB, hedge and externality value)}}{\text{Total Resource Cost}}$$

In general, screening by BCR rarely results in a different cost-effectiveness determination than that afforded by the levelized cost. The exception occurs with some residential sector end uses that occur during peak periods.

In cases where the total resource cost is actually negative, due to non-energy benefits that offset cost, the calculation for BCR returns a negative value. While this is technically correct, it could be confusing. For this reason, we defined the BCR to be 100 whenever total cost is negative. This facilitates sorting the measures in order of declining BCR.

Utility Avoided Cost

One complication with computing BCR lies in obtaining realistic estimates of the utility system avoided cost at different times of the day. Utilities are in the process of updating their avoided costs estimates. However, the schedule of their Integrated Resource Plans (IRPs) did not coincide with the timing of this report. For this report, we used values previously approved by Oregon Public Utility Commission in 2007. This estimate includes a value for the future cost of CO2 mitigation.

Supply Curve of Conservation Measures

The results of the assessment are provided in the form of separate spreadsheets for the industrial, commercial, and residential sectors (see appendix for the final lists of measures). For each measure or package of measures, we developed cost and savings estimates (including peak load savings), as well as an estimate of overall achievable energy savings over the future study period. To generate both the cost and savings impacts over time, we assumed that the measure was applied to all potential candidates. These calculations could change considerably as specific programs are developed, but provide an overview of the maximum potential available from each measure. As a final step, the list of measures was ranked by overall cost-effectiveness.

Levelized Cost Calculation

To compare and prioritize measures, we calculate the levelized cost for each measure opportunity. The levelized cost calculation starts with the incremental capital cost of a given measure or package of measures as described previously. We add the present value of any net operation and maintenance (O&M) cost. The total cost is amortized over an estimated measure lifetime using a discount rate (in this case a real discount rate of 5.2 percent per year) which is the standard value used by Energy Trust. This annual net measure cost is then divided by the annual net energy savings (in kilowatt-hours or therms) from the measure application (again relative to a standard technology) to produce the levelized cost estimate in dollars per kWh saved, as illustrated in the following formula.

$$\text{Levelized Cost} = \frac{\text{Net Annual Cost (\$)}}{\text{Net Annual Savings}}$$

The levelized cost is a figure that can be compared with the full cost of delivering power from electricity generation options. The levelized cost approach was chosen as the most practical and useful method of comparing measures of various types and applications.

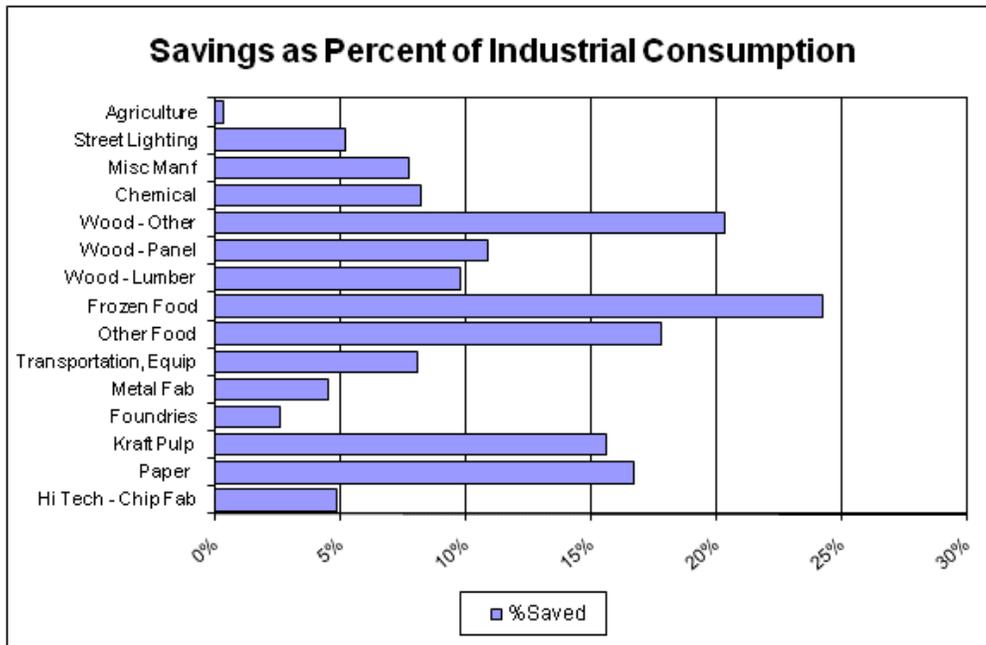
In dealing with two fuels (electricity and natural gas), we must be aware that there are cross-impacts. For example, a lighting program will save electricity but increase consumption of natural gas for space heating. In this case, we compute the Net Present Value (NPV) based on the avoided cost of natural gas and add that value to the O&M component of cost.

A more complicated case occurs when the same measure has positive savings for both fuels. In that case, we compute the NPV of avoided cost for both fuels and use the ratio of the NPVs to apportion the measure cost between the two fuels. Thus, both fuels would see a reduced levelized cost because they are only “charged” for part of the measure cost. The final result of this analysis provides the cumulative amount of potential resource available at a given levelized cost, as shown in the supply curves.

Technical Potential Savings Check

Since the potential savings estimate results in large numbers, it is useful to apply a reality check to verify that the numbers are reasonable. One procedure to check the potential is to compare estimated savings to the amount of estimated consumption. Such a comparison may be presented as the expected percent of end use savings. Note that the amount of consumption for new and existing building stock is quite different due to the inherently different deployment approach to achieve savings.

Figure 12: Savings Percentages for Industrial Segments



For existing stock, generally it is more cost-effective to replace old equipment with more efficient equipment as it wears out. We assumed that replacement of existing stock is limited to the turnover rate of the old equipment. In the case of new construction, it is technically possible to change the choice for all the new equipment at the time it is first installed. Thus, for some appliances, the potential savings percentage is higher for new installations merely because of the deployment limitations. On the other hand, because the older stock is less efficient, for some measures the existing stock offers a higher savings percentage that can be addressed. Figure 12 demonstrates that our analysis focused on the segments that account for the most energy consumption. The technical potential for the industrial sector is high and, in many cases, the cost is offset by non-energy economic benefits.

Figure 13 shows savings percentages for residential electricity consumption.

Figure 14 shows savings percentages for residential gas measures. While heating equipment is difficult to retrofit, there is good potential to replace existing gas water heaters with higher efficiency units.

Figure 13: Residential Savings Percentages by Electricity End Use

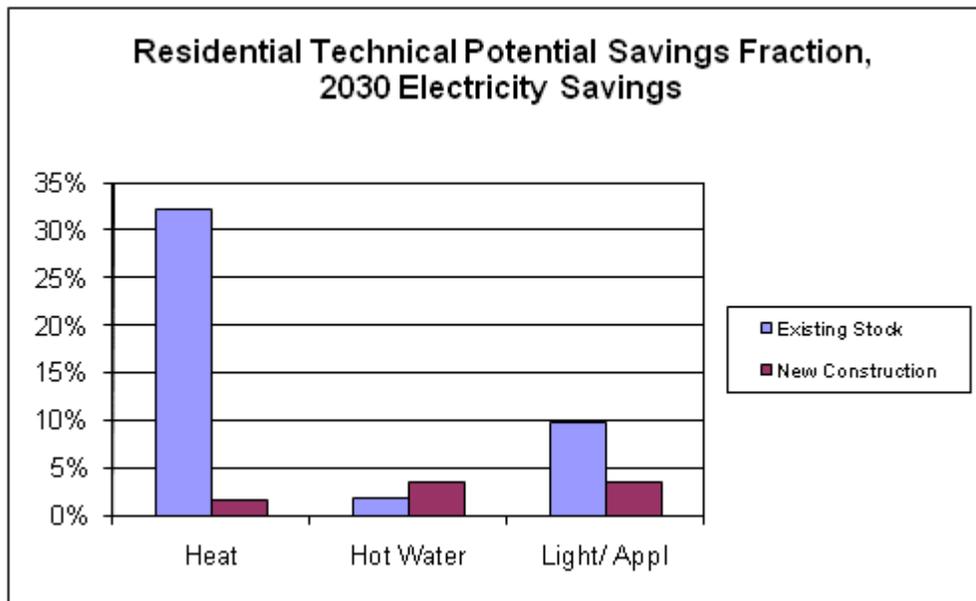


Figure 14: Residential Savings Percentages by Gas End Use

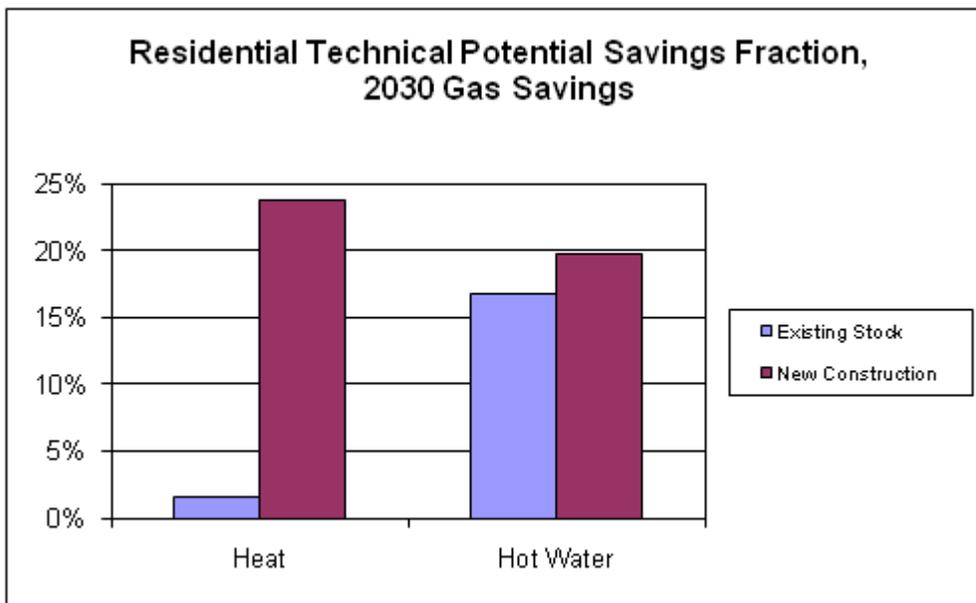


Figure 15 and

Figure 16 show savings percentages for the commercial sector. Refrigeration savings reflect recovered heat in addition to the refrigeration end use. Gas DHW savings are high, based on controls, a number of boiler improvements, and heat recovery for water heating.

Figure 15: Commercial Savings Percentages by Electricity End Use

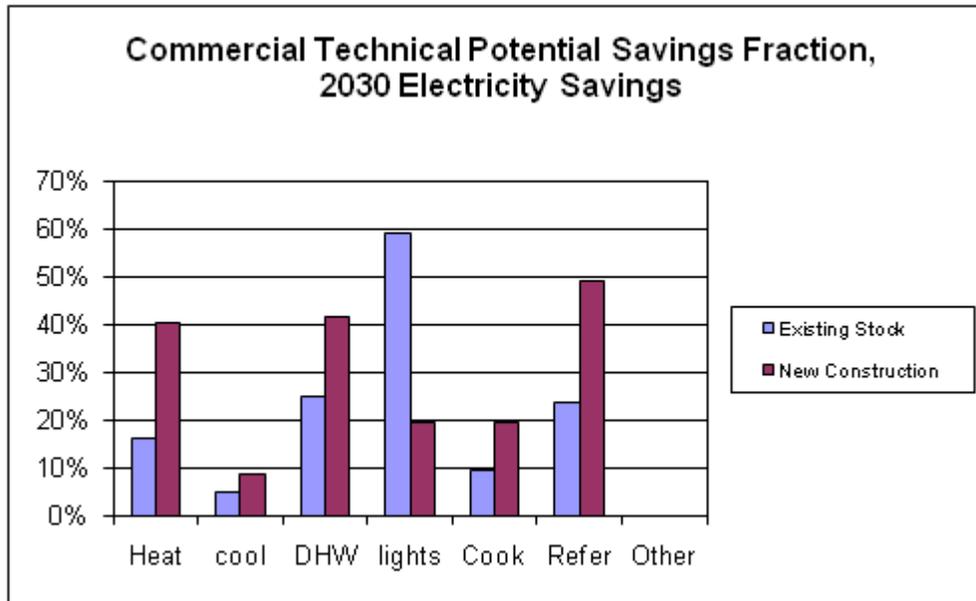
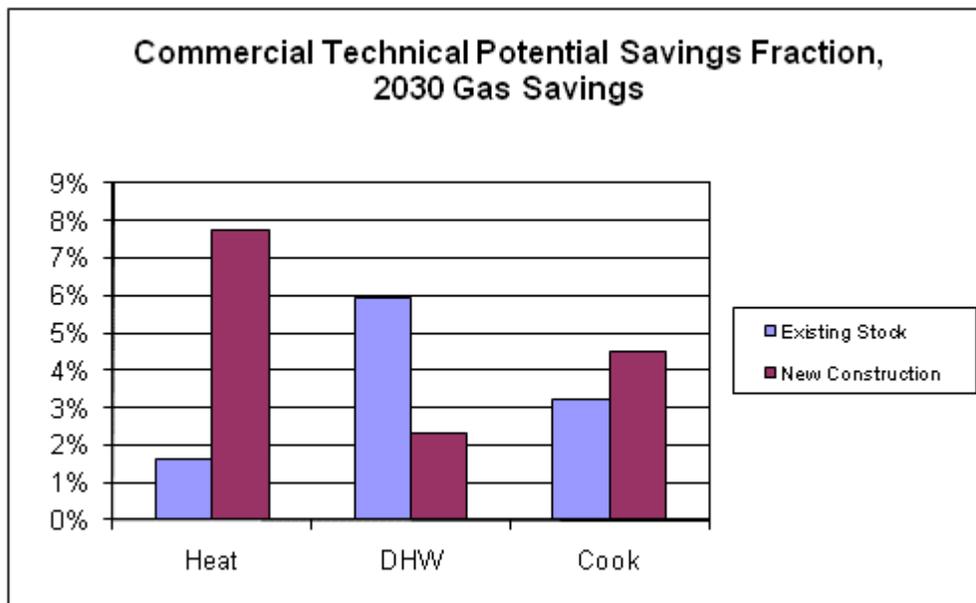


Figure 16: Commercial Savings Percentages by Gas End Use



Industrial Sector Resource Assessment

A list of the recommended industrial measures, ordered by the levelized cost, is provided in Table 12. This list presents individual measures, with incremental capital costs and net operations and maintenance costs (or benefits—shown as negative O&M costs) expressed in units of kWh of annual energy savings by the measure. In the section that follows, we provide a discussion of the potential application of these measures, as well as selected recommendations regarding potential program designs for the industrial sector.

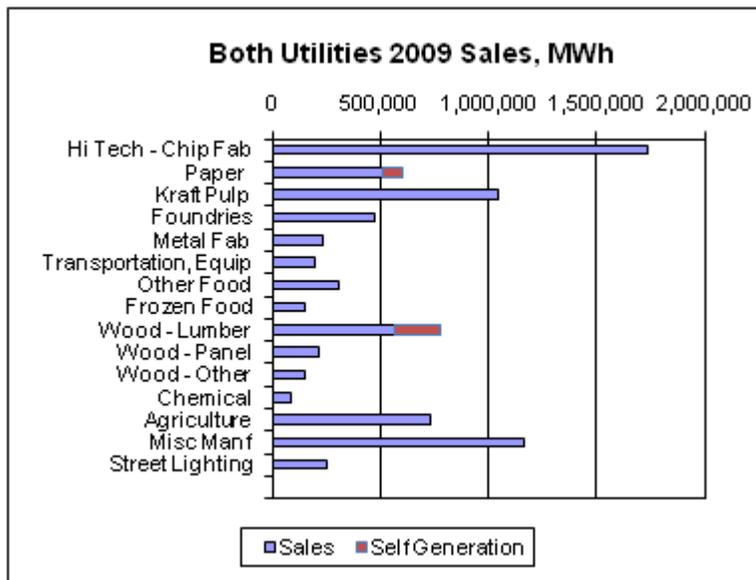
Industrial Sector Characterization

There are several important caveats to understanding the industrial approach. First, it is a top-down assessment. That is, it estimates the potential for conservation starting with MWh sales. (This approach differs from the residential and commercial sectors, which build up from an estimate of the number of customers.) In fact, economic growth has not been robust in recent years—the electronic segment in particular suffered from business reverses. We applied the same forecasted growth rates as used by the utilities in their planning to project future MWh sales.

Energy Trust serves participating industries, yet these industries have the option of self-direction. In fact, some industrial customers are transmission customers only for the utilities. For this study, we did not remove any of these loads – that is, these results apply to all the industries within Energy Trust territory regardless of whether they are currently eligible for Energy Trust programs.

The savings potential is derived from the total electrical consumption of the customer. To the extent that customers produce their own electricity, we need to include that generation as part of overall consumption. Figure 15 shows our estimate of current industrial consumption including self-generation where it is significant.

Figure 17: Industrial Electricity Consumption



We examined the potential for further generation from co-generation or Combined Heat and Power (CHP) but found it too difficult to generalize since it depends on various market factors

that are not technical issues. Accordingly, CHP is an additional opportunity that is not included in this study.

Figure 18: PPL Industrial Growth Forecast

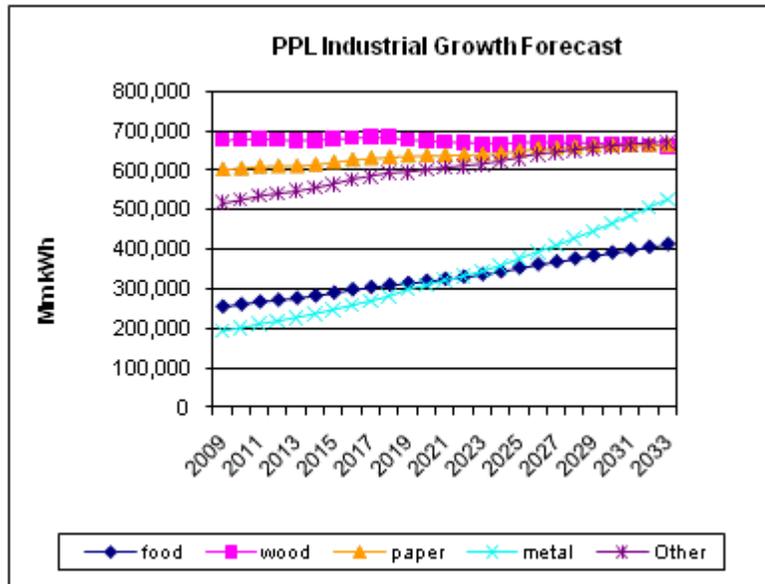
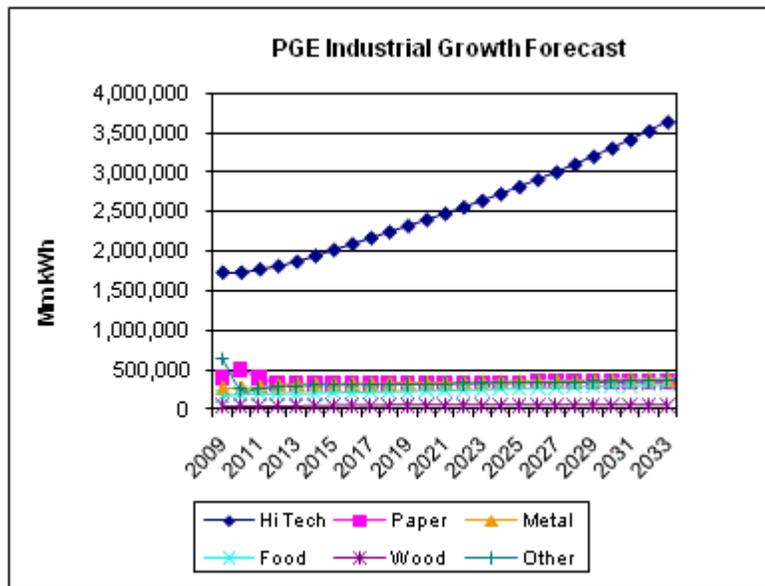


Figure 19: PGE Industrial Growth Forecast



Historically, industry has been based primarily on natural resource extraction and processing (Food and Forest Products). These industries are expected to decline or exhibit low growth rates. One notable exception is the electronics sector – this is the only industry expected to show future growth. However, past events have shown that this sector is dependent on the global business outlook and can be extremely volatile. Growth in solar photovoltaic manufacture has been

proposed as a source for Oregon's future economic development. The forecast above includes solar photovoltaics as part of the electronics sector. Currently only one specific new photovoltaic plant is in operation. Other plants are projected but not yet confirmed at specific sites.

The next step is to estimate how the electricity sales are distributed to various end uses and processes within the facility. Table 11 shows the estimated shares for various processes within each type of facility.

We reviewed the current program list of committed projects in determining the extent to which further measures are applicable. For example, where one paper plant has adopted a new technology under the Trust program – that measure is no longer applicable. In general, the currently committed projects account for savings of a few percent within industrial segments – so there is still plenty of remaining opportunity.

It is difficult to estimate the extent to which technically possible industrial opportunities are achievable in the real world. We rated measures loosely as high (85% achievable), medium (50% achievable), or low (25% achievable) based on judgment.

Table 12 lists the industrial measures by increasing levelized cost. Screening by the BCR ratio is to screening by a levelized cost of about \$0.09 per kWh.

Table 11: Industrial Process Share Downs

| | | Percent Electricity by End Use | | | | | | | | | | | | | | | |
|-----------------------|--|--------------------------------|------------------|----------------|-------------------|---------------------|----------------|----------------|-------------------|--------------|-------------------|---------------|-----------|---------------------|-----------|-----------|------------|
| | | Motors | | | | | | | Process Heating | | | | | | | | |
| | | Pumps | Fans and Blowers | Compressed Air | Material Handling | Material Processing | Low Temp Refer | Med Temp Refer | Pollution Control | Other Motors | Drying and Curing | Heat Treating | Heating | Melting and Casting | HVAC | Lighting | Other |
| Kraft Pulp | | 30% | 10% | 4% | 12% | 27% | | | 1% | 10% | 3% | | | | 0% | 1% | 2% |
| Paper | | 26% | 14% | 7% | 17% | 17% | | | 1% | 10% | 3% | | | | 1% | 2% | 2% |
| Foundries | | 3% | 5% | 5% | 6% | 7% | | | 1% | 6% | 0% | 0% | 19% | 9% | 2% | 3% | 34% |
| Frozen Food | | 8% | 2% | 2% | 6% | 4% | 45% | 18% | | | | | 6% | | 2% | 1% | 7% |
| Other Food | | 10% | 18% | 8% | 4% | 17% | | 26% | | | | | | | 4% | 10% | 2% |
| Wood - Lumber | | | 11% | 13% | 23% | 34% | | | 1% | 4% | 3% | | | | 2% | 6% | 2% |
| Wood - Panel | | 3% | 20% | 8% | 20% | 18% | | 12% | 1% | 4% | 3% | | | | 2% | 5% | 3% |
| Wood - Other | | | 10% | 18% | 29% | 20% | | | 1% | 4% | 3% | | | | 3% | 7% | 6% |
| Hi Tech - Chip Fab | | 10% | 10% | 5% | 3% | 15% | | | 3% | 17% | | | 5% | | 25% | 3% | 4% |
| Metal Fab | | | 6% | 2% | 16% | 25% | | | 1% | 2% | 3% | 6% | 7% | 0% | 9% | 11% | 13% |
| Transportation, Equip | | | 8% | 3% | 13% | 24% | | | 1% | 2% | 1% | 3% | 4% | 1% | 15% | 14% | 9% |
| Agriculture | | | | | | | 95% | | | | | | | | 1% | 2% | 2% |
| Lighting | | | | | | | | 83% | | | | | | | 1% | 2% | 14% |
| Chemical | | 18% | 5% | 20% | 5% | 30% | | | 1% | 2% | | | 3% | | 2% | 10% | 4% |
| Misc Manuf | | 33% | 5% | 9% | 0% | 4% | 0% | 0% | 1% | 0% | 0% | 0% | 2% | 0% | 1% | 10% | 34% |
| Total | | 14% | 8% | 6% | 8% | 15% | 10% | 4% | 1% | 7% | 1% | 0% | 3% | 1% | 7% | 5% | 10% |

Table 12: List of Industrial Measures

| Conservation Measure | Potential Savings (MWh/yr) | Measure Life, yr | Initial Cost (1000\$) | Annual Non-Energy Cost (1000\$) | Levelized Cost (\$/kWh) | Annual Non-Energy Benefit (\$1000) | BCR |
|---------------------------------|-----------------------------------|-------------------------|------------------------------|--|--------------------------------|---|------------|
| Air Compressor Demand Reduction | 31,906 | 10 | \$1,924 | \$866 | \$0.035 | | 2.42 |
| Air Compressor Equipment2 | 13,641 | 10 | \$688 | \$370 | \$0.034 | | 2.53 |
| Air Compressor Optimization | 38,224 | 10 | \$6,401 | \$1,037 | (\$0.010) | \$2,241 | 3.07 |
| HighBay Lighting 1 Shift | 8,494 | 10 | \$1,865 | | \$0.029 | | 3.79 |
| HighBay Lighting 2 Shift | 6,340 | 10 | \$751 | | \$0.015 | | 6.37 |
| HighBay Lighting 3 Shift | 49,757 | 10 | \$3,280 | | \$0.009 | | 10.94 |
| Efficient Lighting 1 Shift | 8,687 | 10 | \$545 | | \$0.008 | | 11.86 |
| Efficient Lighting 2 Shift | 6,209 | 10 | \$220 | | \$0.005 | | 19.94 |
| Efficient Lighting 3 Shift | 50,698 | 10 | \$959 | | \$0.002 | | 34.23 |
| Lighting Controls | 15,518 | 10 | \$3,091 | | \$0.026 | | 4.41 |
| Motors: Rewind 20-50 HP | 3,630 | 10 | \$995 | | \$0.036 | | 2.40 |
| Motors: Rewind 51-100 HP | 1,575 | 10 | \$391 | | \$0.032 | | 2.79 |
| Motors: Rewind 101-200 HP | 3,072 | 10 | \$544 | | \$0.023 | | 3.76 |
| Motors: Rewind 201-500 HP | 1,878 | 10 | \$212 | | \$0.015 | | 5.76 |
| Motors: Rewind 501-5000 HP | 2,316 | 10 | \$191 | | \$0.011 | | 7.86 |
| Efficient Centrifugal Fan | 5,357 | 10 | \$779 | | \$0.019 | | 4.76 |
| Fan Energy Management | 14,084 | 10 | | \$459 | \$0.033 | | 2.63 |
| Fan Equipment Upgrade | 35,787 | 10 | \$2,362 | \$1,165 | \$0.041 | | 2.07 |
| Fan System Optimization | 52,078 | 10 | \$5,041 | \$2,035 | \$0.009 | \$2,205 | 2.51 |
| Pump Energy Management | 23,263 | 10 | | \$758 | \$0.033 | | 2.61 |
| Pump Equipment Upgrade | 64,727 | 10 | \$6,154 | \$2,108 | \$0.045 | | 1.89 |
| Pump System Optimization | 65,638 | 12 | \$13,586 | \$2,993 | (\$0.042) | \$7,268 | 2.96 |
| Transformers-Retrofit | 22,202 | 10 | \$13,664 | | \$0.080 | | 1.23 |
| Transformers-New | 7,242 | 32 | \$4,990 | | \$0.045 | | 2.73 |
| Synchronous Belts | 17,534 | 10 | \$2,861 | | \$0.021 | | 4.04 |

| | | | | | | | |
|---------------------------------------|---------|----|----------|----------|-----------|----------|--------|
| Elec Chip Fab: Eliminate Exhaust | 15,715 | 10 | \$3,447 | | \$0.029 | | 4.63 |
| Elec Chip Fab: Exhaust Injector | 59,864 | 10 | \$20,205 | | (\$0.107) | \$9,034 | 5.34 |
| Elec Chip Fab: Solidstate Chiller | 155,168 | 10 | \$59,141 | | (\$0.088) | \$21,428 | 4.47 |
| Elec Chip Fab: Reduce Gas Pressure | 32,351 | 10 | | | (\$0.016) | \$512 | 100.00 |
| Clean Room: Change Filter Strategy | 24,587 | 1 | \$168 | | \$0.007 | | 16.20 |
| Clean Room: Clean Room HVAC | 15,263 | 20 | \$2,825 | | \$0.015 | | 9.66 |
| Clean Room: Chiller Optimize | 24,791 | 10 | \$2,211 | | \$0.012 | | 10.61 |
| Food: Cooling and Storage | 31,418 | 10 | \$7,591 | | \$0.032 | | 2.91 |
| Food: Refrig Storage Tuneup | 16,892 | 3 | \$886 | | \$0.019 | | 4.39 |
| Metal: New Arc Furnace | 3,499 | 10 | \$246 | | (\$1.991) | \$6,997 | 230.31 |
| Kraft: Effluent Treatment System | 4,170 | 10 | \$232 | | \$0.007 | | 11.65 |
| Kraft: Efficient Agitator | 17,700 | 10 | \$1,178 | | \$0.009 | | 10.32 |
| Paper: Efficient Pulp Screen | 1,327 | 10 | \$180 | | \$0.018 | | 4.78 |
| Paper: Premium Fan | 2,557 | 10 | \$348 | | \$0.018 | | 4.75 |
| Paper: Material Handling | 1,070 | 10 | \$980 | | \$0.120 | | 1.34 |
| Paper: Large Material Handling | 2,254 | 10 | \$2,513 | | \$0.146 | | 1.12 |
| Paper: Premium Control Large Material | 6,970 | 10 | \$2,764 | | \$0.052 | | 1.96 |
| Material Handling2 | 8,929 | 10 | \$3,784 | | \$0.055 | | 1.87 |
| Material Handling VFD2 | 36,821 | 10 | \$9,082 | | \$0.032 | | 2.91 |
| Wood: Replace Pneumatic Conveyor | 35,564 | 10 | \$376 | | (\$0.059) | \$2,139 | 115.51 |
| Panel: Hydraulic Press | 2,266 | 10 | \$314 | | \$0.018 | | 4.72 |
| Plant Energy Management | 160,994 | 10 | \$2,856 | \$5,110 | \$0.034 | | 2.55 |
| Energy Project Management | 122,837 | 11 | \$13,025 | \$3,867 | \$0.044 | | 2.01 |
| Integrated Plant Energy Management | 160,535 | 11 | \$29,306 | \$6,274 | (\$0.020) | \$13,111 | 2.94 |
| Irrigation: Ditch > Pipe | 2,811 | 10 | \$166 | -\$2,840 | (\$0.000) | -\$2,818 | 1.09 |
| Irrigation: Nozzles | 129 | 3 | \$23 | | (\$0.000) | \$8 | 2.34 |
| Irrigation: Pump Systems Repair | 109 | 7 | \$148 | -\$1 | (\$0.000) | \$25 | 1.36 |
| Irrigation: Pump Systems Adjust | 2,405 | 3 | \$414 | -\$114 | | \$38 | 2.38 |

| | | | | | | | |
|--|--------|----|----------|----------|-----------|---------|------|
| Irrigation: Water Management | 1,093 | 5 | \$157 | \$73 | (\$0.000) | \$109 | 1.86 |
| Rural Area Lights | 317 | 23 | \$390 | -\$19 | \$0.032 | | 1.67 |
| Replace Traffic Light: Red Ball 8-inch | 362 | 6 | \$37 | -\$12 | (\$0.013) | | 5.76 |
| Replace Traffic Light: Red Ball 12-inch | 688 | 6 | \$52 | -\$13 | (\$0.003) | | 6.79 |
| Replace Traffic Light: Yellow Ball 8-inch | 517 | 6 | \$2,153 | -\$312 | \$0.222 | | 0.83 |
| Replace Traffic Light: Yellow Ball 12-inch | 529 | 6 | \$1,473 | -\$178 | \$0.216 | | 0.76 |
| Replace Traffic Light: Green Ball 8-inch | 517 | 6 | \$92 | -\$22 | (\$0.008) | | 3.59 |
| Replace Traffic Light: Green Ball 12-inch | 529 | 6 | \$70 | -\$13 | \$0.002 | | 4.10 |
| Replace Traffic Light: Red Arrow | 327 | 6 | \$89 | -\$32 | (\$0.044) | | 3.39 |
| Replace Traffic Light: Green Arrow | 322 | 6 | \$89 | -\$32 | (\$0.045) | | 3.37 |
| Replace Traffic Light: Yellow Bi-Modal Arrow | 102 | 6 | \$50 | -\$10 | (\$0.004) | | 1.90 |
| Replace Traffic Light: Green Bi-Modal Arrow | 105 | 6 | \$36 | -\$10 | (\$0.032) | | 2.69 |
| Replace Traffic Light: White Walking Person | 658 | 6 | \$135 | -\$20 | \$0.011 | | 2.80 |
| Replace Traffic Light: Orange Hand | 653 | 6 | \$135 | -\$20 | \$0.011 | | 2.78 |
| Replace Traffic Light: Orange Countdown | 16 | 6 | \$9 | -\$1 | \$0.029 | | 1.50 |
| Replace Streetlight: 100WHPS>LED78W | 34,318 | 17 | \$39,171 | -\$1,802 | \$0.050 | | 1.35 |
| Replace Streetlight: 100WHPS>LED60W | 4,957 | 23 | \$5,141 | -\$382 | \$0.001 | | 2.19 |
| Replace Streetlight: 150HPS>LED117W | 8,516 | 23 | \$10,487 | -\$523 | \$0.032 | | 1.67 |
| Replace Streetlight: 150HPS>LED111W | 5,169 | 14 | \$5,055 | -\$320 | \$0.038 | | 1.49 |
| Retro Streetlight: 100WHPS>LED78W | 31,906 | 10 | \$1,924 | \$866 | \$0.035 | | 2.42 |
| Retro Streetlight: 150HPS>LED117W | 13,641 | 10 | \$688 | \$370 | \$0.034 | | 2.53 |
| Retro Streetlight: 150HPS>LED111W | 38,224 | 10 | \$6,401 | \$1,037 | (\$0.010) | \$2,241 | 3.07 |

Cross Cutting Measures

Industrial measures were updated based on the latest set of measures from the Northwest Power Planning and Conservation Council. A significant change to the methodology is an inventory accounting to avoid double-counting savings when multiple measures apply to the same enduse. In that event, the more cost-effective measure is assumed to occur first and savings for subsequent measures are derated.

Transformers

All electric power passes through one or more transformers on its way to service equipment, lighting, and other loads. Currently available materials and designs can considerably reduce both load and no-load losses. The new NEMA TP-1 standard is used as the reference definition for energy-efficient products. Tier-1 represents TP-1 dry-type transformers while Tier-2 reflects a switch to liquid immersed TP-1 products. More efficient transformers with attractive payback periods are estimated to save 40 to 50 percent of the energy lost by a "typical" transformer, which translates into a one to three percent reduction in electric bills for commercial and industrial customers. Typical paybacks range from 3 to 5 years (Nadel, et al. 1998). These opportunities are grouped into retrofit and new categories. Retrofit reflects the fact that existing units are being replaced with more efficient ones as a baseline.

Motor Rewinding

This measure has been the mainstay of past industrial programs. However, we recognize limited application since large motors are already rebuilt efficiently. In addition, regional efforts have partially transformed the market.

Industrial Lighting

High-bay lighting, required to provide overall ambient lighting throughout manufacturing and storage spaces, is typically provided by high-intensity discharge (HID) sources, including metal halide, high-pressure sodium and mercury vapor lamps. HID accounts for approximately 60 percent of industrial lighting energy consumption (Johnson 1997). Supplementary lighting is used to provide low-bay and task-specific lighting for inspection, equipment operation, and fine assembly activities. Fluorescent, compact fluorescent and incandescent light sources are commonly used for task lighting needs and together account for approximately 40 percent of industrial lighting energy.

One measure is the replacement of HID lighting with high-intensity fluorescent lighting in high-bay applications. New high-intensity fluorescent lighting systems incorporate high-efficiency twin-tube or linear T5 fluorescent lamps, advanced electronic ballasts, and high-efficacy fixtures that maximize light output to the work plane. Each of the system components confers advantages over traditional HID fixtures. Advantages include: lower energy consumption; lower lumen depreciation over the lifetime of the lamp; better dimming options; faster start-up and re-strike (virtually "instant-on" capability); better color rendition; higher pupil lumens ratings (translating into improved worker productivity and performance); and less glare (given fixture design and the more diffuse nature of the fluorescent light source) (Rogers and Krepchin 2000).

We broke the lighting measure into High Bay and other configurations. The cost and savings for the lighting measures are based on the same measures in commercial buildings. Since High Bay lighting and industrial HVAC are unlikely to disrupt processes, we assume a high achievable potential. However, lighting and HVAC in clean rooms and other critical environments is considered disruptive by the facility staff and we assume a low achievable potential.

Air Compressors

Achieving peak compressed air system performance requires addressing the performance of individual components, analyzing the supply and demand sides of the system, and assessing the interaction between the components and the system. This "systems approach" moves the focus away from components to total system performance. System opportunities have been shown to

be the area of greatest efficiency opportunity. At the system level, savings opportunities can be grouped into three general categories: leaks, inappropriate uses of CA, and system pressure level. The goal of a management plan is to minimize all three.

The best strategy to avoid further problems is to set up a prevention program that monitors the system for new leaks and fixes them as they develop (DOE 1998). Reductions in wasted air due to inadequate maintenance, leaks, and inappropriate uses can save 20-30 percent of CA energy. A system's pressure level should be set at the lowest pressure that meets all requirements of the facility. Lowering the compressed air header pressure by 10 psi reduces the air leak losses by approximately 5 percent and improves centrifugal compressor capacity by 2-5 percent. One element of this may be the application of controls. Reducing system pressure also decreases stress on system components, lessening the likelihood of future leaks (DOE 1998). It is necessary to implement an ongoing maintenance program by plant staff, which requires both awareness and technical training (DOE 1998). Most of the barriers to improved compressors result from the lack of awareness of the opportunity. The staff reductions that have become common in United States industry and a hesitation to pay for outside consultants compound this problem. The Compressed Air Challenge (CAC) has developed a CA management training program that is available for plant staff and the Compressed Air and Gas Institute (CAGI) has developed CA training.

Overall, air compressor measures are grouped in order as follows: demand reduction (fixed leaks, etc.), two levels of equipment replacement, and system optimizing to redesign unnecessary processes.

Duct/Pipe Insulation

ACEEE identified repair and replacement of insulation as a conservation measure. Savings apply to processes that transfer heat or "cool". Because these are relatively easy to implement, we assume they are highly achievable.

Fan and Pump System Improvements

Just as motor systems benefit from optimal design and sizing, so do these systems. Overall, these measures are grouped in order as follows: demand management, equipment replacement, and system optimizing to redesign unnecessary processes.

Synchronous Belts

This is an O&M measure that applies to all motors. The measure is low-cost to implement but is short-lived. Due to ease of implementation, we assume it is highly achievable.

Plant Management

This study adds significant potential for management. The field covers a wide range of actions. For this study, they were grouped as Plant Energy Management, Energy Project Management and Integrated Plant Energy Management. The later includes hiring a dedicated staff person specifically to manage energy issues.

Specific Industrial Segments

Metal Segment

Primary metal production occurs in a few facilities within the Trust territory. There is one steel mill operating on recycled scrap and one exotic metal plant. Without specific audits of these individual facilities, we estimate the potential based on national level assumptions provided by ACEEE. The suggested potential should be considered as likely but not verified.

Metal: New Arc Furnace

While modern EAFs are generally more energy efficient many technologies exist to improve energy efficiency in existing furnaces, such as process control, efficient transformers, oxy-fuel injection, bottom stirring, post-combustion, eccentric bottom-tapping and scrap preheating (Worrell et al. 1999). Several new EAF-designs are under development, which combine energy saving features like increased fuel and oxygen injection with scrap preheating (Greissel 2000, IISI 2000b). The aim is to produce a semi-continuous process with enhanced productivity through reduced resource use (e.g. refractories, electrodes) and reduced tap-to-tap times. At the same time increased product quality also demands increased feedstock flexibility (e.g. scrap, DRI or pig iron). Different developers are involved in new EAF-process design, the most important being the Twin Electrode DC (IHI, Japan), Comelt (Voest Alpine, Austria) and Contiarc and Conarc (SMS Demag, Germany). The production costs are expected to be \$9-13 lower per ton steel produced (Reichelt and Hofman 1996; Mannesmann 1998), or up to a 20 percent reduction. Given the narrow application (only one plant in the territory), we assume a low achievable potential.

Food Segment

Refrigeration in the food segment is a large energy consumer and is mainly used for freezing of vegetables. Many options exist to improve the performance of industrial refrigeration systems. System optimization and control strategies combined show a large potential for energy efficiency improvement of up to 30 percent (Brownell 1998). Opportunities include system design, component design (e.g. adjustable speed drives), as well as improved operation and maintenance practices. We focus on new system designs. Adjustable speed drives and process control systems have been discussed elsewhere. New system designs include the use of adsorption heat pumps,

gas engine driven adsorption cooling, new working fluids (e.g. ammonia, CO₂) and alternative approaches (e.g. thermal storage). Due to the wide variety, we focus on selected technology developments in the areas of gas engines, thermal storage and new working fluids. Because these are new technologies, we assume a low achievable potential.

Food: Refrigerated Storage

Although the processing of frozen food tends to be seasonal, the product is stored throughout the year in refrigerated warehouses. This application is a large consumer of energy within the food segment. Simple O&M practices have been identified as providing savings. Such measures include tune-up and cleaning of compressor systems and control sensors (DEER, 2005). Due to ease of implementation, we assume a high achievable potential.

Agriculture Segment

Agriculture is important to the rural economy but a difficult segment for the utility to serve. That is because these loads tend to be highly seasonal. By far the largest agricultural use is for irrigation pumping. However, the pumping season lasts for only a few months, resulting in poor utilization of the capital investment. Nursery stock has become a major part of the local economy and consumes electricity for cooling. Animal production of poultry and containment livestock is a small segment with year-round requirement for ventilation and lighting.

Irrigation: Ditch to Pipe Conversion

PacifiCorp's IRP previously identified a narrow niche for this measure. A small amount of irrigation involves the pumping of water from unlined ditches. If the ditches are replaced with a piped system, there is sufficient gravity head that pumping is no longer needed. More importantly, the conversion saves water that would otherwise have leaked from the ditch. The saved water is a valuable commodity that can be used by the farmer or resold for wildlife or other users. While the applicability is small, the non-energy benefits can be large. We assume a high achievable where potential exists.

Irrigation: Pump Systems

The industry consists of multiple pump users including both farmers and water suppliers, such as irrigation districts. Irrigation is a difficult industry target for energy efficiency initiatives. However, there is inefficiency due to the fragmented nature. For instance, 80% of pumps in this industry are older than 15 years, resulting in poor efficiency. Pump efficiency tests performed by utilities were discontinued in the early 1990s due to budget constraints. As a result, awareness of energy efficiency and operating cost savings as well as knowledge of new technologies has decreased. Efficiency initiatives could be targeted at creating awareness of such practices as properly sizing pumps and replacing older equipment (NEEA). Pump efficiency testing and impeller improvements have long been part of program in the Northwest. Net savings from pump testing and impeller improvements are unclear, difficult to verify and not long-lived. We considered these savings to be moderately achievable.

Irrigation: Water Management

Scientific scheduling of irrigation utilizes direct measurement of soil moisture combined with local meteorological forecasts of crop transpiration. The result is a way of determining the proper amount of water to apply at just the right time. Net savings are unclear, difficult to verify and not long-lived. We considered them to be moderately achievable.

Paper Segment

Paper manufacture is one of the largest industrial consumers. Trust territory includes only a few firms but they have been actively participating in the efficiency program. For the most part, these firms produce different products and do not compete with each other. That also means that conservation measures appropriate to one plant are probably not transferable to other plants.

There is one exception in two plants that come close to similar operations. Both produce newsprint using primarily recycled paper fiber. However, the first plant produces coated paper such as is used in the advertising supplements. The second produces unfinished newsprint. The first plant has utilized Trust incentives for a major retrofit of their fiber refining process that provided large energy savings. It is possible that a similar retrofit could benefit the second plant.

Measures are broken into segments for kraft and bleached paper products. Prototype measures were applied based on a study by Marbek Associates for the British Columbia paper industry.

Wood Products Segment

Measures were broken into segment that correspond to plywood veneer, dimension lumber and other wood products. Improved material handling, in particular replacing pneumatic transfer, is an important set of measures. Conveyor systems are broadly defined as a piece of equipment moving material from one place to another. There are multiple types including blowers and pumps. Together they account for one of the largest energy uses within these facilities. The industry is fragmented with many smaller vendors. As a result, this is a difficult market to pursue energy efficiency initiatives. However, there are areas of improvement for the use of conveyor systems. These include: regular maintenance of the conveyor, installation of a VSD where loads vary significantly and replacement of inefficient pneumatic conveyors.

The Wood Products segment is large and diverse. It includes facilities that mill and cure lumber or veneer. It also includes facilities that process these products into chipboard, plywood and manufactured lumber. This segment is unique in that current Trust programs have already captured part (3%) of the opportunity for process improvements. We adjusted applicability for this fact.

Street and Traffic Lights

Since these loads are not associated with space heating, they have been included in the industrial sector. Measures are based on the latest set of measures from the Northwest Power Planning and Conservation Council.

Electronics Segment

This segment is one of the largest, accounting for 40% of PGE’s industrial sales. This industry segment is comprised of a small number of companies, whose facilities are known to exhibit a wide variation in energy use, depending on their design, vintage and management philosophy. Most of these firms are self- directors.

There is an understandable reluctance to make changes in their process equipment (also known as “tools”) because the processes are finely tuned to produce specific, repeatable results within extremely tight tolerances, and are sensitive to contamination. These process tool sets are persistent. For example, a manufacturer is still making 386 and 486 computer chips. Although these chips may be 20 years obsolete for desktop computers, they are still in demand for “smart appliances” or other applications. So the original process and facility is still in operation.

There may be an opening to address new measures to both tools and facility loads during the design of new facilities. However, existing facilities may operate for a long time without permitting any major overhaul. Thus, while there is large technical potential, the reluctance to participate is shown by a low achievable potential for these sorts of measures.

Table 13: Electronics Segment Process Shares

| Electricity Process Shares | Total | Facility | Process |
|-----------------------------------|--------------|-----------------|----------------|
| Pumps | 27% | 2% | 25% |
| Fans | 10% | 10% | |
| Air Compressor | 5% | 5% | |
| Material Handling | 3% | 3% | |
| Material Processing | 10% | 5% | 5% |
| Refrigeration | 5% | 5% | |
| Pollution Control | 3% | 3% | |
| Drying | 0% | | |
| Heating | 5% | | 5% |
| HVAC | 25% | 25% | |
| Lighting | 3% | 2% | 1% |
| Other Process | 4% | | 4% |
| All Electric | 100% | 60% | 40% |
| All Motors | 83% | | |

Process Shares

The industry in Oregon differs from national averages. There is no longer any silicon melt operation in Oregon. Instead, the plants focus on wafer and chip production. Opportunities in the new solar cell manufacturing facilities are unknown but are assumed here to be represented by the measures that apply to chip production. While the MWh data include a small amount of instrument assembly and compressed gas production, chip plants dominate and require clean rooms with high HVAC consumption. Solar photovoltaic manufacturer is included with chip plants. Table 13 shows process shares for this segment. Note that the shares are split into those at the process line and those treated as part of the central facility. That is because the process lines may be more difficult for the program to access.

Specific Measures

We applied a higher achievable potential to measures that could be implemented without disruption of the process line. There are two potential openings here. To the extent that central facility operations (e.g. chiller plant) could be changed without disrupting a process line, those operations are moderately achievable. We also identified a few replacement opportunities for smaller equipment that would be achievable without disruption of processes.

Even so, it must be recognized that replacement of some parts of the process support equipment (for example, vacuum pumps) requires “re-qualifying” the process line. That is, it takes staff days to properly tune and calibrate all the mass flow, heating and cooling operations in a process tool – every time something changes they have to go through the calibration again. Of course, the same problem occurs if any equipment breaks or fails so there are continual replacement openings, albeit they cannot be scheduled.

Highly Achievable

We focused on etch tools and wet benches processes that etch and clean the wafers. This equipment runs continuously, with little electric load variation during times it is processing wafers. The equipment is so difficult to properly set up and calibrate that engineers are reluctant to let it go idle. We estimate there are about 5000 of these “benches” in Oregon. Components include 4 kW of vacuum pumps, the treatment equipment and trim chillers. The trim chiller consumes about 4.5 kW of electricity. Its role is to adjust the process cooling water temperature to that required by the process tool. The fabricating process produces dangerously reactive gases that are collected in a powered exhaust system.

Upgrade vacuum pump

The vacuum pumps are rebuilt periodically but slow to be replaced. Current units are 50% more efficient than the old units still in place. Replacement is not welcome since the process line must be “re-qualified” with every change. An efficiency incentive would encourage new replacement rather than re-build of older units. However, given that the units will eventually be replaced anyway, accelerating the upgrade is not cost effective.

Alternative Chiller

The trim chillers are large and inefficient and lack effective feedback controls. They can be replaced by a smaller, thermoelectric system that incorporates more effective feedback, does a better job of controlling temperature and increase throughput. Electricity savings are 90%. The thermoelectric system also saves about \$5000 annually on decreased maintenance. There is another significant benefit in that the smaller unit has a much smaller footprint. We did not attempt to quantify the value of clean room floor space savings but it is considerable. Nor did we quantify the value of increased process throughput. The thermoelectric system permits more usable wafers per batch; better feedback controls decrease the risk of process flaws. Estimates derived from industry data sources.

Alternative Exhaust Injector

Etch tools use a point of use (POU) exhaust system to pre-treat the etch effluent before it enters the house exhaust system. The POU exhaust system consumes process gases and cleaned makeup air. It requires resistance heating and needs periodic maintenance. The alternative system uses a jet of nitrogen gas to flush (or “inject”) the exhaust from the etch tool into the house exhaust header. It saves 100% of the resistance heat as well as about \$6000 annually in process gases. We estimate there about 400 applications in Oregon. Estimates derived from industry data sources.

Reduce Pressure of Process Gases (Dry Air and Nitrogen)

This is a no-cost O&M measure. Sematech survey indicated that most tools could operate at 80 psi or less but that 100 psi is routinely provided. Reducing pressure by 20 psi is estimated to save 10% in compressor energy as well as reduce consumption of process gases.

Moderately Achievable

We consider the next set of measures to be moderately achievable because central facility operations (e.g. chiller plant) could be changed without disrupting a process line. The barriers here are the usual ones of reluctance to invest capital in major changes. In many cases, the cost and savings of the measures came from a Supersymmetry report on a typical facility. Many of these measures are specific opportunities that correct operations and design problems at Supersymmetry’s case example. While Oregon facilities will not be identical, we assume that the measures identified by Supersymmetry are proxies for similar opportunities that exist in Oregon plants.

Electronics: Chiller optimize

Based on audit of a typical plant, Supersymmetry suggested a variety of simple changes to improve the overall system performance. These included elimination of unnecessary chillers, reset of CW temperature, combining pipe runs and controls for parallel operation of multiple chillers.

Electronics: Change filter strategy

New immersing filter technologies (HEPA/ULPA filters) offer the opportunity to significantly reduce filter energy use by reducing filter pressure drops (Tschudi 2000). Supersymmetry noted for their case example that less expensive filters could be used in part of the operations in order to offset the cost of more expensive filters in other operations.

Electronics: Clean Room HVAC

Several HVAC technologies that have emerged recently which when combined, can achieve significant energy savings. Currently a large amount of energy is expended in heating, cooling, and filtering air that is then exhausted. Air re-circulation is another large HVAC energy user. Recirculation air velocity can be turned down (from, say, 90 fpm to 80) without affecting cleanliness levels. Sensors and the use of laser-based particle counters are both technologies that can be applied to more efficiently moderate airflow. Additionally, more efficient airflow equipment that is near commercial (e.g. low face velocity fans, efficient duct systems, more efficient filter units) could be combined to further reduce recirculation fan energy requirements. Existing practices can also be applied in conjunction with these technologies to further enhance energy savings, such as “right-sizing” of exhaust air flow for each specific tool, improved design guidance for ducting and other systems, and limiting the floor area that requires clean air flow to a smaller “micro” environment. This measure has been screened to avoid double counting with other HVAC measures. Combined with the other HVAC measures, clean room technologies have the potential to reduce electricity consumption of the average clean-room facility by 25-30 percent, or an average of 145 kWh/sq. ft. Additionally, they are accompanied by several additional non-energy benefits including improved productivity and a reduction in emissions without sacrificing any product quality.

Electronics: Eliminate exhaust

Minimizing exhaust flow reduces the amount of make up air that needs to be reconditioned. Ultra low fume hoods, a technology developed at Lawrence Berkeley National Laboratory, require 25 percent of normal exhaust flow. This technology is now being piloted in field trials (Tschudi 2000). Supersymmetry’s audit noted that full exhaust is required for only 50% of operating hours. Use of controllers and VSD fans would reduce unneeded exhaust with significant savings on makeup air. Phil Naughton, SEMATECH, noted that various process tools could be reduced by about 30% of the exhaust requirement.

Electronics: Reduce pressure, reset CHW

In their audit, Supersymmetry notes that the existing tower experiences poor flow. The plant staff expected to increase pumping power to compensate. Instead, Supersymmetry suggested a number of ways to remove flow obstructions and lower pumping power. Also, they suggested reset of CW temperature to lower flow rate.

Electronics: VSD Tower Pumps

In their audit, Supersymmetry notes that tower pumps are staged off and on which results in unequal pressure drops to the different pumps. Use of VSD drives would allow for even distribution of flows and saved pump energy.

Electronics: Wastewater Preheat Of OSA

Conditioning of makeup air is a major HVAC energy requirement whether for heating in the winter or cooling in the summer. Supersymmetry noted that preconditioning with the plant wastewater would provide savings in both seasons.

Low Achievable

These measures are considered unlikely to be achievable either because they require a major re-investment in plant capital or a major re-design in handling processes. Facility operators may be reluctant for both reasons.

Electronics: CW to gas plant

In their audit, Supersymmetry noted the opportunity to provide more efficient cooling to the compressors that provide cleaned air and process gases to the process line.

Electronics: Chiller heat recovery

In their audit, Supersymmetry noted opportunities to recover waste heat from the chillers. The waste heat can be used for pre-conditioning makeup air or other low temperature applications. The savings quantified here are primarily due to improving chiller performance by better heat removal.

Electronics: New air compressor

In their audit, Supersymmetry noted that two large air compressors were scheduled for replacement with an existing used compressor. Replacement with new, efficient compressors would provide savings. Cost would be the incremental cost over the planned replacement.

Electronics: New chiller/tower, 2 loops

In their audit, Supersymmetry noted the opportunity to replace the chiller system with a better designed new one. The new system would be designed to maximize free cooling, a VSD chiller and would include splitting the CW system into two pipe loops – one cold and one moderate loop. The overall system performance would be improved by utilizing two loop temperatures. While savings are considerable, this would be a major capital investment.

Table 14: Summary of Measures -- Electronics Segment

| Opportunity | Measure Name | Cost | Savings, kWh | O&M/yr | Life | LC in 2008\$ |
|-------------|---------------------------------------|-----------|--------------|------------|------|--------------|
| Highly | Thermoelectric Chiller | \$20,000 | 40,571 | -\$5000 | 10 | (\$0.071) |
| Achievable | Exhaust Injector | \$20,000 | 45,815 | -\$6170 | 10 | (\$0.073) |
| | Reduce Gas Pressure | \$0 | 3,260 | -\$46 | 10 | (\$0.001) |
| | Vacuum pump, incremental over rebuild | \$51,000 | 63,072 | | 5 | \$0.972 |
| Moderately | Chiller optimize | \$50,000 | 1,736,000 | | 10 | \$0.037 |
| Achievable | Change filter strategy | \$9,200 | 1,463,000 | | 1 | \$0.054 |
| | Clean Room HVAC | \$20/sqft | 144/sqft | | 20 | \$0.011 |
| | Eliminate exhaust | \$80,000 | 442,000 | | 10 | \$0.026 |
| | Reduce pressure, reset CHW | \$40,000 | 81,000 | | 10 | \$0.070 |
| | VSD tower pumps | \$50,000 | 187,000 | | 10 | \$0.028 |
| | Wastewater preheat of OSA | \$325,000 | 776,000 | -\$180,000 | 10 | (\$0.173) |
| Low | CW to gas plant | \$40,000 | 245,000 | | 10 | \$0.023 |
| Achievable | Chiller heat recovery | \$30,000 | 28,000 | | 10 | \$0.152 |
| | New air compressor | \$50,000 | 273,000 | | 10 | \$0.026 |
| | New chiller/tower, 2 loops | \$800,000 | 4,539,000 | | 10 | \$0.025 |

Industrial Natural Gas Conservation Measures

As discussed, the gas customers included in this study are only those in the Industrial Firm tariff, corresponding to perhaps 10% of commercial and industrial customers. Those on the firm rate are generally small facilities or adjunct meters to larger facilities. As such, the end uses are more similar to other small commercial customers than to what would be expected for large industrial facilities. The primary application of gas is for boilers –either for process steam or for space heating. As a result, the opportunity is dominated by various measures to improve boiler efficiency.

The following measures are included:

- Chiller heat recovery (Electronics Segment)
- Utilize heat recovery where option exists
- Combo Cond Boiler (Replace and Retrofit)
- Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations).
- Combo Hieff Boiler (Replace and Retrofit)

- Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency.
- Condensing Furnace (Replace)
- Condensing / pulse package or residential-type furnace with a minimum AFUE of 92%.
- Condensing Unit Heater from Nat draft or power draft (Replace)
- Install condensing power draft units (90% seasonal efficiency) in place of natural draft (64% seasonal efficiency)
- Heat Recovery to HW
- Utilize heat recovery where option exists
- DHW Condensing Boiler (Replace and Retrofit)
- Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations).
- DHW Condensing Tank (Replace and Retrofit)
- Costs and savings are incremental over a Code-rated tank (combustion efficiency of 80%) for a condensing tank with a minimum combustion efficiency of 94% and an R-16 tank wrap.
- DHW Hieff Boiler (Replace and Retrofit)
- Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency.
- DHW Pipe Insulation
- Add 1" insulation to pipes used for steam or hydronic distribution; particularly effective when pipes run through unheated spaces.
- DHW Standard Boiler (Retrofit)
- Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency.
- DHW Wrap
- Insulate the surface of the storage water heater or an unfired storage tank to R-5 to reduce standby losses.
- Ducts
- Duct retrofit of both insulation and air sealing
- Hi Eff Unit Heater (Replace and Retrofit)
- Install power draft units (80% seas. Eff) in place of natural draft (64% seasonal efficiency)
- HiEff Clothes Washer (Replace and Retrofit)

- Install high performance commercial clothes washers - residential sized units
- Hot Water Temperature Reset
- Controller automatically resets the delivery temperature in a hot water radiant system based on outside air temperature. The reset reduces the on-time of the heating equipment and the occurrence of simultaneous heating and cooling through instantaneous adjustments.
- HW Boiler Tune Tune up in accordance with Minneapolis Energy Office protocol.
Can include derating the burner, adjusting the secondary air, adding flue restrictors, cleaning the fire-side of the heat exchanger, cleaning the water side, or installing turbulators. Other modifications may include uprating the burner to reduce oxygen or derating the burner to reduce stack temperature.

Note: In gas systems, excess air and stack temperatures are often within reasonable ranges, so the technical potential for this measure is limited. Combining this measure with the vent damper and power burner measures increases both applicability and cost effectiveness, and was assumed for this analysis.
- Power burner
Replace standard burner with a power burner to optimize combustion and reduce standby losses in the stack.

Note: Costs and savings assume that this measure will be performed in conjunction with a boiler tune up when appropriate.
- Process Boiler Controls
- Process Boiler Insulation
- Process Boiler Load Control
- Process Boiler Maintenance
- Process Boiler Steam Trap Maintenance
- Process Boiler Water Treatment
- Roof Insulation - Blanket R0-19
Application: Buildings with open truss unfinished interior
- Roof Insulation - Blanket R0-30
Application: Buildings with open truss unfinished interior
- Roof Insulation - Blanket R11-30
Application: Buildings with open truss unfinished interior
- Roof Insulation - Blanket R11-41
Application: Buildings with open truss unfinished interior
- Roof Insulation - Rigid R11-22 (Replace)

2" rigid added to an existing foam roof insulation at re-roof, includes some surface prep.
Application: Old buildings with flat roofs, no attics, and some insulation

- Roof Insulation - Rigid R11-33 (Replace)
- Roof Insulation - Rigid R11-33: add 4' of insulation at reroof. Application: Old buildings with flat roofs, no attics, and some insulation
- Solar Hot Water
Install solar water heaters on large use facility such as multifamily or lodging
- SPC Condensing Boiler (Replace)
Install condensing boiler. Assumed seasonal combustion efficiency of 88% over base of 75%
- SPC Condensing Boiler (Retrofit)
Install condensing boiler. Assumed seasonal combustion efficiency of 88% over base of 69.5%
- SPC High Efficiency Boiler (Replace)
Install near condensing boiler. Assumed seasonal combustion efficiency of 82% over base of 75%
- SPC High Efficiency Boiler (Retrofit)
Install near condensing boiler. Assumed seasonal combustion efficiency of 82% over base of 69.5%
- Steam Balance (Wood Prod)
Single-pipe steam systems are notorious for uneven heating, which wastes energy because the thermostat must be set to heat the coldest spaces and overheating other spaces. Steam balances corrects these problems by: 1) Adding air venting on the main line or at the radiators; 2) Adding boiler cycle controls; 3) Adding or subtracting radiators. Energy savings accrue from lowering the overall building temperature.
- Steam Trap Maint (Wood Prod)
Set up a in-house steam trap maintenance program with equipment, training, and trap replacement. An alternative procedure is to just pay for an outside contractor to conduct a steam survey.
- Upgrade Process Heat
Replace furnace, re-heaters
- Vent Damper
Install vent damper downstream of the draft relief to prevent airflow up the stack, while allowing warm air from the boiler to spill into the conditioned space as heat or into the boiler room to reduce jacket losses. This measure is most cost-effective when combined with the boiler tune up and power burner measures.
- Wall Insulation - Blown R11

Application: Old buildings

- Wall Insulation - Spray On for Metal Buildings
- Wall Insulation (Cellulose) unfinished. Application: Old buildings
- Waste Water Heat Exchanger

Install heat exchanger where copious warm water is discarded

Commercial Sector Resource Assessment

A list of the major commercial measures, listed by the levelized cost, is provided in Table 18 and Table 19. These lists present individual measures, with costs and benefits resulting from the applicable population.

Commercial Sector Characterization

Characterizing the commercial segment reveals certain difficulties. For example, industrial customers often have a relatively large percentage of overall floor space devoted to end uses that would typically be thought of as commercial. We included a portion of “industrial” sales as really belonging to commercial uses. New construction square footage estimates were also developed using utility estimates although these appear to assume optimistic growth.

One particular problem lies with the growth of large data server “farms”. Several of these facilities have located in the Northwest and their energy consumption can be prodigious. A variety of conservation measures are available for these facilities. However, quantifying the impact is difficult. Problems occur with:

- Forecasting – specific facilities are not included in the utility forecasts.
- Baseline – computer technology changes rapidly and baseline consumption is not clear
- Current practice – the extent to which HVAC and software management measures are already adopted is not clear.

As a result, although one can anticipate significant opportunities regarding data servers, we have not attempted to quantify them.

Description of Commercial Measures

Measures were previously described in the 2007 report. For this study, the detailed measure descriptions are included in Table 18 and Table 19.

Lighting Measures

The new assessment has made several adjustments to the cost and savings assumptions and the calculation methods used in the lighting assessment.

Lighting equipment cost data were reviewed and adjusted to agree with the latest set of measures from the Northwest Power and Conservation Council.

Overall, high performance T8 technology is highly attractive and should be pursued aggressively. The high/low bay lighting is much less clear. Further evaluation of this niche is warranted. Hours of operation and available control strategies will have a large impact on savings and, as such, solutions most likely need to be evaluated on a case by case basis. Ceramic metal halide remains a highly attractive but expensive option for display light situations. It definitely delivers same to better quality light and less frequent bulb changes and, as such, is an

upgrade in most situations. Even though this fixture is not cost effective in most situations, it should be evaluated on a situation-by-situation basis.

Lighting measures:

- CFL 9W to 39W hardwired
- High Efficacy LED Display
- T8 to HP T8
- T12 to HP T8
- High Bay HID Medium to T8 (Retrofit and New)
- High Bay HID Large to T5 (Retrofit and New)
- Daylight Control (overhead)
- Sweep Control
- Daylight perimeter zone
- Occupancy Sensors
- Exit signs
- Ceramic Metal Halide (Retrofit and New)
- Daylighting Overhead (New)
- Daylight control with skylight

HVAC Measures

Economizer Diagnostic, Damper Repair & Reset

Applicable to single zone packaged systems. The outdoor make-up air damper and control are often set incorrectly or not functioning. Savings derive from reduced cooling due to restored economizer function and reduced heating from reduced minimum outdoor air.

Warm Up Control

This measure is designed to implement a shut down of outside air when the building is coming off night setback. Usually the capability for this is available in a commercial t-stat but either the extra control wire is not attached or the unit itself has not been set up to receive the signal. Cost is based on labor cost to enable this ability in existing controllers.

Rooftop Condensing Burner

Prototype units of condensing natural gas packaged heaters have been demonstrated in Canada. However, the condensing feature of these units was not the primary source of their savings – rather it was the fact that exposed ductwork was better insulated.

Demand Controlled Ventilation (DCV)

Applicable to single zone packaged systems with large make -up air fractions either because of intermittent occupancy or because of code requirements. In most cases the outdoor air is reset to 5% or less with CO2 build-up modulating ventilation.

Ducts

Duct retrofit of both insulation and air sealing

Hot Water Temperature Reset

Controller automatically resets the delivery temperature in a hot water radiant system based on outside air temperature. The reset reduces the on-time of the heating equipment and the occurrence of simultaneous heating and cooling through instantaneous adjustments.

HW Boiler Tune

Tune up in accordance with Minneapolis Energy Office protocol. Can include de-rating the burner, adjusting the secondary air, adding flue restrictors, cleaning the fire-side of the heat exchanger, cleaning the water side, or installing turbulators. Other modifications may include up-rating the burner to reduce oxygen or de-rating the burner to reduce stack temperature. Note: In gas systems, excess air and stack temperatures are often within reasonable ranges, so the technical potential for this measure is limited. Combining this measure with the vent damper and power burner measures increases both applicability and cost effectiveness, and was assumed for this analysis.

Steam Balance

Single-pipe steam systems are notorious for uneven heating, which wastes energy because the thermostat must be set to heat the coldest spaces and overheating other spaces. Steam balances corrects these problems by: 1) Adding air venting on the main line or at the radiators; 2) Adding boiler cycle controls; 3) Adding or subtracting radiators. Energy savings accrue from lowering the overall building temperature.

Steam Trap Maintenance

Set up a in-house steam trap maintenance program with equipment, training, and trap replacement. An alternative procedure is to just pay for an outside contractor to conduct a steam survey.

Vent Damper

Install vent damper downstream of the draft relief to prevent airflow up the stack, while allowing warm air from the boiler to spill into the conditioned space as heat or into the boiler room to reduce jacket losses. This measure is most cost-effective when combined with the boiler tune up and power burner measures.

Power burner

Replace standard burner with a power burner to optimize combustion and reduce standby losses in the stack. Note: Costs and savings assume that this measure will be performed in conjunction with a boiler tune up when appropriate.

Space Conditioning Hieff Boiler (Retro and Replace)

Boiler costs for near condensing boiler. Assumed seasonal combustion efficiency of 82% over base of 69.5%

Space Conditioning Cond Boiler (Retro and Replace)

Boiler costs for condensing boiler. Assumed seasonal combustion efficiency of 88% over base of 69.5%

Hi Eff Unit Heater (New, Retro and Replace)

Base efficiency has gone up. Install power draft units (80% seasonal eff) in place of natural draft (64% seasonal eff)

Cond Unit Heater from Natural draft (New and Replace)

Install condensing power draft units (90% seasonal eff) in place of natural draft (64% seasonal eff)

Cond Unit Heater from Power draft (New and Replace)

Install condensing power draft units (90% seasonal eff) in place of power draft (80% seasonal eff)

Cond Furnace (New and Replace)

Condensing / pulse package or residential-type furnace with a minimum AFUE of 92%.

Space Conditioning Hieff Boiler (New)

Install near condensing boiler. Assumed seasonal combustion efficiency of 82% over base of 75%

Space Conditioning Cond Boiler (New)

Install condensing boiler. Assumed seasonal combustion efficiency of 88% over base of 75%

Water Heating Measures

DHW Wrap

Insulate the surface of the storage water heater or an unfired storage tank to R-5 to reduce standby losses.

DHW Shower Heads

Install low flow shower heads (2.0 gallons per minute) to replace 3.4 GPM shower heads.

DHW Faucets

Add aerators to existing faucets to reduce flow from 3.4 gallons per minute to 2.0 GPM.

DHW Pipe Ins

Add 1" insulation to pipes used for steam or hydronic distribution; particularly effective when pipes run through unheated spaces.

DHW Recirc Controls
Install electronic controller to hot water boiler system that turns off the boiler and circulation pump when the hot water demand is reduced (usually in residential type occupancies) or can be reset to meet the hot water load. (Steel boilers also require a mixing valve to prevent water temperatures from dropping below required levels).

DHW Std. Tank (Retro)

This measure would replace existing DHW tank with equipment meeting current Oregon Energy Code requirements (thermal efficiency of 78% or better).

DHW Condensing Tank (Retro)

Replace older tanks with condensing tanks with combustion efficiency of 94% and tank insulation with an R-value of 16 or greater.

DHW Condensing Tank (Replace)

Costs and savings are incremental over a Code-rated tank (combustion efficiency of 80%) for a condensing tank with a minimum combustion efficiency of 94% and an R-16 tank wrap.

DHW Condensing Tank (New)

Costs and savings are incremental over a Code-rated tank (combustion efficiency of 80%) for a condensing tank with a minimum combustion efficiency of 94% and an R-16 tank wrap.

DHW Std. Boiler (Retro)

Replace existing boiler with unit meeting OR Code requirements of 80% combustion efficiency.

DHW Hieff Boiler (Retro)

Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency.

DHW Cond Boiler (Retro)

Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations).

DHW Hieff Boiler (Replace and New)

Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency.

DHW Cond Boiler (Replace and New)

Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations).

Combo Hieff Boiler (Retro)

Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency.

Combo Cond Boiler (Retro)

Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations).

Combo Hieff Boiler (Replace and New)

Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency.

Combo Cond Boiler (Replace and New)

Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations).

Solar Hot Water (New and Retrofit)

Install solar water heaters on large use facility such as multifamily or lodging New

*Heat Pump Water Heat (New and Retrofit)**Waste Water Heat Exchanger (New and Retrofit)*

Install HX on waste water

Hi Eff Clothes Washer (Replace)

Install high performance commercial clothes washers – for residential units

Computerized Water Heater Control (New and Retrofit)

Install intelligent controls on the hot water circulation loops.

Cooking Measures

Cooking measures with primarily gas savings include Energy Star applications for Convection Oven, Fryer, Griddle, and Hot Food Holding Cabinet. These apply to both electricity and gas appliances.

Shell Measures

Insulation measures:

Wall Insulation - Blown R11

Application: Old buildings

Wall Insulation - Spray On for Metal Buildings

Spray On for Metal Buildings (Cellulose) Unfinished. Application: Old buildings

Roof Insulation - Rigid R0-11

Rigid R0-11-not including re-roofing costs but including deck preparation. Application: Old buildings with flat roofs and no attics

Roof Insulation - Rigid R0-22

Rigid R0-22-- not including re-roofing costs but including deck preparation and ~4" rigid.. Application: Old buildings with flat roofs and no attics

Roof Insulation - Rigid R11-22

Rigid R11-22 2" rigid added to an existing foam roof insulation at re-roof, includes some surface prep. Application: Old buildings with flat roofs, no attics, and some insulation

Roof Insulation - Rigid R11-33

Rigid R11-33: add 4' of insulation at time of reroofing. Application: Old buildings with flat roofs, no attics, and some insulation

Roof Insulation - Blanket R0-19

Blanket R0-19. Application: Buildings with open truss unfinished interior

Roof Insulation - Blanket R0-30

Blanket R0-30. Application: Buildings with open truss unfinished interior

Roof Insulation - Blanket R11-30

Blanket R11-30. Application: Buildings with open truss unfinished interior

Roof Insulation - Blanket R11-41

Blanket R11-41. Application: Buildings with open truss unfinished interior

Roof Insulation - Attic R0-30

Attic R0-30. Application: Buildings with uninsulated attics

Roof Insulation - Attic 11-30

Attic 11-30. Application: Buildings with partially insulated attics

Roof Insulation - Roofcut 0-22

Roofcut 0-22. Application: Buildings with uninsulated flat roofs at reroofing time

Window Measures

Window energy savings were predicted with building energy simulation models for the 2004 ETO evaluation. The window market was divided into vinyl and aluminum frame, and tinted versus non-tinted. The tinted versus un-tinted is significant because without tint windows must include a low emissivity coating to pass the SHGC code requirement. This generally brings the window SHGC and U-value below the code requirements by a significant margin, reducing savings available.

The Oregon code has low and high glazing fraction paths. The high glazing path requires maximum performance windows, which pretty much excludes them from utility programs. Therefore, we limited this evaluation to the lower glazing path and window populations (application factor) were reduced by 40% to remove the high glazing buildings (>30% in zone 1 and >25% in zone 2) from the target population.

For each of these cases, savings were predicted for various measures. For the aluminum frames, several U-value targets were established with the assumption that the target buildings would evenly divide into these groups.

Categories of retrofit windows include: Windows – Single or Double to Class 45, 40, 36 or VEA. Details of window assumptions are listed in Table 15.

Table 15: Window Measure Details

| Window | SHGC | U-Value | Measure Code, At Replacement | Measure Code, New | Measure Name |
|----------------------|------|--------------------|------------------------------|-------------------|--------------------------------------|
| Code Requirement | 0.57 | Z1 0.54 Z2 0.50 | | | |
| Aluminum, tinted | | | | | |
| Model Base | 0.52 | 0.50 | | | |
| Class 45 tint | 0.35 | 0.45 | E120 | E129 | Windows - Tinted AL Code to Class 45 |
| Class 40 tint | 0.35 | 0.40 | E121 | E130 | Windows - Tinted AL Code to Class 40 |
| Class 36 tint | 0.35 | 0.36 | E122 | E131 | Windows - Tinted AL Code to Class 36 |
| Aluminum, not tinted | | | | | |

| Window | SHGC | U-Value | Measure Code, At Replacement | Measure Code, New | Measure Name |
|-------------------|------|---------|------------------------------|-------------------|---|
| Model Base | 0.43 | 0.48 | | | |
| Class 45 | 0.43 | 0.45 | E117 | E126 | Windows - Non-Tinted AL Code to Class 45 |
| Class 40 | 0.43 | 0.40 | E118 | E127 | Windows - Non-Tinted AL Code to Class 40 |
| Class 36 | 0.43 | 0.36 | E119 | E128 | Windows - Non-Tinted AL Code to Class 36 |
| Vinyl, tinted | | | | | |
| Model Base | 0.54 | 0.50 | | | |
| Add Low E | 0.35 | 0.35 | E114 | E123 | Windows - Add Low E to Vinyl Tint |
| Add Low E + Argon | 0.35 | 0.31 | E115 | E125 | Windows - Add Low E and Argon to Vinyl Tint |
| Vinyl, not tinted | | | | | |
| Model Base | 0.43 | 0.35 | | | |
| Add Argon | 0.43 | 0.31 | E116 | E124 | Windows - Add Argon to Vinyl Lowe |

Cooling and HVAC Controls Measures

CEE Tier 2 3 ton (New and Replacement)

Install high efficiency cooling equipment complying with CEE Tier 2.

CEE Tier 2 7.5 ton (New and Replacement)

Install high efficiency cooling equipment complying with CEE Tier 2.

CEE Tier 2 15 ton (New and Replacement)

Install high efficiency cooling equipment complying with CEE Tier 2.

CEE Tier 2 25 ton (New and Replacement)

Install high efficiency cooling equipment complying with CEE Tier 2.

HVAC System Commissioning (New)

Commissioning includes testing and balancing, damper settings, economizer settings, and proper HVAC heating and compressor control installation. This measure includes the proper set-up of single zone package equipment in simple HVAC systems. The majority of the Commercial area is served by this technology. Work done in Eugene (Davis, et al, 2002) suggests higher savings than the other documented commissioning on more complex systems.

HVAC controls (New)

Set up control algorithms. This assumes the development of an open source control package aimed at describing scheduling and control points throughout the HVAC system, properly training operators so that scheduling can be maintained and adjusted as needed, and providing operator back up so that temperature reset, pressure reset, and minimum damper settings are set at optimum levels for the current occupancy.

Lighting Scheduling/Controls (New)

This measure includes the commissioning of any occupancy and sweep controls and the review and proper setting of daylighting controls. Since these are largely a function of schedule settings (except in cases where daylighting controls are integrated into the energy management software), we have included only the impact of properly controlled lighting and occupancy.

PCs and Monitors - Energy Management Software (New and Replacement)

There is a solution to automate the enabling of Power Management in commercial computers and monitor/displays called Surveyor by EZConserve.

LCD Monitors (New and Replacement)

Replace CRT with LCD monitor at replacement time. This measure is zeroed out as being current practice.

High Efficiency Chiller (Replace)

Replace chillers or installing new chillers to purchase units with efficiencies averaging 0.51kW/ton air conditioning (AC), rather than the standard new unit, which has an efficiency of 0.65 kW/ton. In practice, some fraction of chiller replacements may involve the early retirement of units with lower efficiencies (perhaps 0.90 kW/ton), and thus achieve higher savings in the first few years of the measure installation.

Chiller System Optimization (Replace)

Includes improvements in efficiency and reduction in parasitic losses in pumps, fans, and other (non-chiller) electric motor-driven systems associated with chillers.

Chiller Tower 6F approach (Replace)

Install low approach cooling tower

Transformers (Retrofit)

Savings apply at service entry for all electric usage

EMS Retrofit for Restaurants (Retrofit)

Many commercial establishments have no means of operating facility lighting, heating, air conditioning, refrigeration, etc., except to rely upon employees to manually switch equipment on/off before, during and after a typical work day. This is especially true in restaurants. A proper EMS installation in such facilities can reduce existing gas and electric energy usage by about 10% or more.

ECM Fan Powered Boxes(New)

Install ECM motors in VAV fan powered terminals with PSC motors

Indirect/Direct Evaporative Cooling ~20 ton(New and Replacement)

Install indirect/direct evaporative cooling in commercial building HVAC system in 20 to 60 ton range

Indirect/Direct Evaporative Cooling >60 ton (New and Replacement)

Install indirect/direct evaporative cooling in commercial building HVAC system in large systems <60 ton range. Original ETO evaluation evaluated at 20, 150 and 300tons with all being essentially equivalent

Ground Source Heat Pump - Air Source HP Base (Replacement)

Install GSHP in place of air source heat pumps.

Refrigeration Measures

Four energy efficiency measures were developed from Supermarket Energy Efficiency (NEEA, 2005) for large supermarket refrigeration systems.

Floating heat pressure has very large energy savings and a relatively high current saturation. It includes floating head pressure controls with variable set-point control to maintain a 10F delta T to a minimum coil temperature of 70F.

Heat Reclaim has huge savings for the heating fuel but a significant electric interaction penalty with floating head pressure. Currently, heat reclaim is most common in the limited form of heating service hot water with refrigeration superheat. This measure is the use of condenser heat in a heat reclaim coil installed in the space heating system.

This measure assumes that floating head pressure is installed and heat reclaim holdback valves are used to maintain the refrigerant's SCT in the reclaim coil, regardless of the SCT at the condenser, thereby allowing the condenser to "float" with ambient. This greatly reduces the savings from floating head pressure and is accounted for as a negative electric savings for this measure.

Other refrigeration measures:

Refrigeration Case Package

This measure includes efficient evaporator fans, case lighting, and low energy anti-sweat heaters.

Efficient Refrigeration Systems

This measure includes efficient compressor, efficient condenser fans, mechanical sub-cooling, and controls.

Package Refrigeration - Icemakers, Vending machines (New and Replacement)

Install machines with package of measures akin to ADL low cost

Efficient Standalone Refrigeration Cases (New and Replacement)

Install efficient stand-alone cases. This measure is based upon current rebates and SAIC savings numbers

Residential Sector Resource Assessment

Sector Characterization

For this analysis, three residential segments were considered: single family, manufactured homes and multi-family units. We further divided these segments, at the request of the Energy Trust, into low income, medium low income, and all other income levels (see the ResSectorChar.xls spreadsheet). For this analysis, both electricity and fuel savings are considered. In cases where the nature of the measure limits its applicability to a portion of the homes (for example, duct measures exclude homes with basements), adjustments to the technical potential are contained in the workbook for that measure.

Description of Residential Measures

Detailed list of measures included as Table 20 and Table 21. These tables provide results for the measures applied to the appropriate population. A short description of assumptions used to develop these measures follows. Savings estimates for heating consumption are based on simulations by Ecotope's SEEM model, which is specifically designed to include effects of duct distribution losses and other regional measures.

HVAC Measures

1. Duct Sealing (New/Replacement)

Duct sealing in accordance with PTCS standards for new construction. The distribution efficiency associated with the duct sealing measure is .85.

2. Duct Repair (Retrofit)

Duct sealing in accordance with PTCS standards for existing construction, requiring a 50% reduction in leakage, was examined for several heating system types.

3. Heat Pump Upgrade (New/Replacement/Retrofit)

Heat pump upgrade from HSPF 7.7 to 9.5, with PTCS-level commissioning and duct sealing. For the retrofit sector, the efficient heat pump was examined both as a retrofit from an older, working heat pump and from an electric furnace base case.

4. Ground Source Heat Pumps (New)

Install Ground Source heat pump (GSHP) in lieu of standard air source heat pump.

5. High Efficiency AC (New/Replacement)

We examined a measure to upgrade a central forced air AC system to SEER 15 from SEER 13. Some additional savings from proper commissioning are included in the total. We also examined a measure to upgrade a standalone window unit to Energy Star levels (base case EER 9.7 upgraded to 10.7).

6. Diagnostic Heat Pump tune-up (Retrofit)

A program based on field visits that offers minor adjustments to HVAC equipment (adjust charge, clean filters, check settings, install cutout thermostat) to optimize efficiency. The requirements for each system will vary, but cost and savings are based on overall expectations if a large population is treated.

7. Evaporative Cooling (New/Replacement/Retrofit)

Install a direct/indirect evaporative cooler for new and replacement models. Savings for the retrofit sector are from in lieu of a SEER 13 central AC.

8. High Efficiency Gas Furnace (New/Replacement)

This measure describes an upgraded gas furnace from AFUE .8 to .9. A separate measure adds duct leakage improvements of 15%.

9. Ductless Mini-split Heat Pump

Current models are small in capacity, which limits their retrofit potential. They are suggested for homes with electric baseboard heating – which makes them one of the few retrofit equipment measures possible for older homes with baseboard heating. In multi-family housing where they would provide the equivalent of an efficient through-the-wall heat pump. The cost estimate gives credit for the fact that a window air conditioner would otherwise have to be included to provide a similar cooling benefit.

Envelope Measures

1. Energy Star building package (New)

The Energy Star package is continually evolving. As new efficiency levels are implemented in codes and standards, Energy Star must develop new measures that provide a further level of energy savings. It becomes more difficult to find further measures that are cost-effective and provide sufficient savings. The current Energy Star package includes insulation, windows, duct sealing, efficient hot water and lights, as well as high efficiency heating/cooling equipment.

2. Window Upgrades (New/Replacement/Retrofit)

Improvement from $U=.35$ to $U=.30$. This measure is applicable to both electrically heated and gas heated homes.

2. Heat Recovery Ventilation, including infiltration reduction (New)

Addition of heat recovery to ventilation system and whole house sealing. This measure is applicable to both electrically heated and gas heated homes.

3. Standalone shell measures to Energy Star levels (New).

Window and insulation as a stand-alone measures. Basecase was R-21 in the floor and walls, and R-38 insulation in the attic. The Energy Star package requires the same wall and attic insulation performance, but also requires advanced framing for the walls and R-30 insulation in the floor. This measure is applicable to both electrically heated and gas heated homes.

4. Insulation improvements (Retrofit)

For the retrofit segment, the base cases were drawn from the existing building prototypes, weighted by vintage using data from the US Census. For these measures, the candidate home must have no existing wall insulation, ceiling insulation of R-11 or less, and floor insulation of R-19 or less. All measures utilize blown-in or batt insulation to achieve the increased R-value. The measure assumes that the home will be treated with the two most cost-effective measures (floor, wall or attic insulation), based on the specific characteristics of each home. This measure applies to both electrically heated and gas heated homes.

4. Bring Ducts Indoors. (New)

Locating ductwork within the heated space accomplished the benefits of duct sealing at low cost. Thus, it provides an alternative path to achieve similar savings to the Energy Star package. We include an alternative package with Indoor Ducts, DHW and Lights that would be the uncertified equivalent of Energy Star.

5. Weatherization Envelope Sealing (Retrofit)

Blower-door assisted sealing has been a popular measure within the program. It applies to both electric and gas heated homes.

Lighting Measures

1. Efficient fluorescent bulbs and fixtures (New/Replacement/Retrofit)

Lighting measures are difficult to categorize because new Federal standards will occur. We assume that the current Energy Star Lighting measure requires installation of 18 CFL lamps (20% reduction in LPD) or full replacement (30% reduction). However, the opportunity for this measure is short-lived. By 2015, new Federal standards will require that new lighting product meet an equivalent efficiency standard. We propose that a new set of emerging technology lighting products, based on LED lights, will become available starting in 2015 to provide efficiency beyond code minimum requirements. These proposed measures are described as:

- Add 6 LED lamps (using incandescent base) aft 2015 (65% reduction in LPD using both fixtures and lamps)
- Add 6 LED lamps (using CFL base) after 2015
- Add 16 LED lamps (using incandescent base) after 2015
- Add 16 LED lamps (using CFL base) after 2015
- All LED (from 2020 base) after 2020

Similarly for retrofit lighting measures, CFL replacements may occur up until year 2015 but then we anticipate emerging technology be based on high efficiency LED lights. These are proposed as:

- 50% LED after 2020
- 100% LED after 2020

Domestic Hot Water Measures

1. Tank wrap (Retrofit)

This measure assumes an R-6 tank wrap is installed in water heaters older than 5 years, and applies to both gas and electric units.

2. Hot water pipe wrap (Retrofit)

This measure assumes that the hot and cold water pipes are insulated with an R-2 wrap, and applies to both gas and electric water heat.

3. Water Heater Upgrade (New/Replacement)

Two water heater upgrade measures were examined for the new and replacement markets. The primary difference is in the quality of the unit. For electric water heat, the first measure upgrades the water heater from an EF of .90 to .93, with a 20 year warrantee. The second

measure costs less for a unit with a 10 year warrantee. The efficiency improvement for that measure is from an EF of .90 to .94.

For the gas segment, the measures includes a water tank upgrade from EF=.59 to EF=.62. An emerging efficient option is upgrading to EF=.70. Tankless water heaters provide an EF= .85 and an incremental improvement to and efficient model with EF= .89.

4. Heat Pump Water Heater (New/Replacement)

This measure assumes that an electric water heater is replaced with a heat pump water heater (EF from .90 to 2.0).

6. Combined Space and Water Heating

We examined a variety of system that combine gas space and water heating. Although these systems have some appeal in providing radiant slab heating, there is a question about the appropriate baseline. Compared to a hydronic system that would provide similar radiant heating, there is little or no energy saving. One combination option appears to be currently cost-effective – that would be a combination involving a low-cost hydrocoil applied to an air distribution system. We also include a high efficiency combination system based on the Polaris water heater.

7. Solar Water Heater (New/Replacement)

This measure assumes that an electric or gas water heater is replaced with a solar water heater with backup, reducing the water heating load by about 60%. Cost estimates come from the current program.

Appliance Measures

1. Low Power Mode Appliances

These measures were changed to follow the latest set of measures from the Northwest Power Planning and Conservation Council. Specific measures are low-power mode PCs, televisions, monitors and setup boxes. These products have a high turnover rate and are being upgraded continually. Hence, the opportunity for long-term savings is limited.

2. EStar Refrigerator assumes a unit 15% more efficient than Federal standard.

3. Two clothes washers are considered. The MEF 2.0 Washer is only a modest improvement over the minimum standard. The high efficiency washer is MEF 2.2. It should be mentioned that units with even higher MEF ratings occur in the current program.

4. EStar Dishwasher is based on a unit rated at .68 (higher than Energy Star minimum) over a market baseline rated .52 (slightly higher than Federal minimum standard).

5. Home Energy Monitor is a device than offers direct feedback to consumers regarding their energy consumption. With the feedback, customers are expected to better control their energy usage. Estimates are based on the BC Hydro study that estimated a 6.5% reduction in electric load. To be conservative and because we are not in Canada we used 5%.

6. Solar Water Heater (New/Replacement)

This measure assumes that an electric or gas water heater is replaced with a solar water heater with backup, reducing the water heating load by about 60%.

Appendix: Detailed Measure Descriptions

Table 16: Detailed Measure Description, Industrial Electricity

| Conservation Measure | First Cost (\$/kWh) | Deployment | Sector | Enduse App | % Savings | Measure Applicability | Achiev. Potential | Lifetime | Annual Fuel Impact, therm/kWh | Annual O&M Cost | Annual Non-Energy Benefit | Level Cost (\$/kWh) | BCR | Source |
|---------------------------------|---------------------|------------|--|------------|-----------|-----------------------|-------------------|----------|-------------------------------|-----------------|---------------------------|---------------------|-------|----------------------------------|
| Air Compressor Demand Reduction | \$0.060 | Retrofit | All Except Cold Storage | Air Comp | 20% | 26% | 100% | 10 | | \$0.027 | | \$0.039 | 2.42 | SEG, Systems Optimization R4.xls |
| Air Compressor Equipment1 | \$0.124 | Retrofit | Sugar, Wood, Paper, Metal, Equipment, Refinery | Air Comp | 35% | | 100% | 10 | | \$0.027 | | \$0.051 | 1.95 | Ibid. |
| Air Compressor Equipment2 | \$0.048 | Replace | Sugar, Wood, Paper, Metal, Equipment, Refinery | Air Comp | 35% | 17% | 100% | 10 | | \$0.027 | | \$0.036 | 2.53 | Ibid. |
| Air Compressor Optimization | \$0.150 | Retrofit | Sugar, Wood, Paper, Metal, Equipment, Refinery | Air Comp | 50% | 36% | 100% | 10 | | \$0.027 | \$0.059 | (\$0.003) | 3.07 | Ibid. |
| HighBay Lighting 1 Shift | \$0.181 | Replace | Food, Wood, Metal Fab, Other | Lights | 51% | varies by sector | 100% | 10 | | | | \$0.034 | 3.79 | Ecotope RA for ETO |
| HighBay Lighting 2 Shift | \$0.106 | Replace | Food, Wood, Metal Fab, Other | Lights | 51% | | 100% | 10 | | | | \$0.020 | 6.37 | Ibid. |
| HighBay Lighting 3 Shift | \$0.059 | Replace | All | Lights | 51% | | 100% | 10 | | | | \$0.011 | 10.94 | Ibid. |
| Efficient Lighting 1 Shift | \$0.058 | Replace | Food, Wood, Metal Fab, Other | Lights | 70% | varies by sector | 100% | 10 | | | | \$0.011 | 11.86 | Ibid. |
| Efficient Lighting 2 Shift | \$0.034 | Replace | Food, Wood, Metal Fab, Other | Lights | 70% | | 100% | 10 | | | | \$0.006 | 19.94 | Ibid. |
| Efficient Lighting 3 Shift | \$0.019 | Replace | All | Lights | 70% | | 100% | 10 | | | | \$0.004 | 34.23 | Ibid. |

| Conservation Measure | First Cost (\$/kWh) | Deployment | Sector | Enduse App | % Savings | Measure Applicability | Achiev. Potential | Lifetime | Annual Fuel Impact, therm/kWh | Annual O&M Cost | Annual Non-Energy Benefit | Level Cost (\$/kWh) | BCR | Source |
|----------------------------|---------------------|------------|---|-------------------|-----------|-----------------------|-------------------|----------|-------------------------------|-----------------|---------------------------|---------------------|------|--|
| Lighting Controls | \$0.147 | Replace | All | Lights | 28% | 15% | 100% | 10 | | | | \$0.028 | 4.41 | Ibid. |
| Motors: Rewind 20-50 HP | \$0.270 | Replace | Food, Wood, Paper, Metal, Metal Fab, Refinery | All Motors | 0.9% | varies by sector | 100% | 10 | | | | \$0.051 | 2.40 | Dennis Brown, "Quality Motor Rewinding", submittal to RTF, 2008. |
| Motors: Rewind 51-100 HP | \$0.232 | Replace | Food, Wood, Paper, Metal, Metal Fab, Refinery | All Motors | 0.50% | | 100% | 10 | | | | \$0.044 | 2.79 | Ibid. |
| Motors: Rewind 101-200 HP | \$0.172 | Replace | Food, Wood, Paper, Metal, Metal Fab, Refinery | All Motors | 0.50% | | 100% | 10 | | | | \$0.033 | 3.76 | Ibid. |
| Motors: Rewind 201-500 HP | \$0.112 | Replace | Food, Wood, Paper, Metal, Metal Fab, Refinery | All Motors | 0.50% | | 100% | 10 | | | | \$0.021 | 5.76 | Ibid. |
| Motors: Rewind 501-5000 HP | \$0.082 | Replace | Food, Wood, Paper, Metal, Metal Fab, Refinery | All Motors | 0.50% | | 100% | 10 | | | | \$0.016 | 7.86 | Ibid. |
| Efficient Centrifugal Fan | \$0.136 | Retrofit | Pulp, Paper, Wood | Material Handling | 20% | 11% | 100% | 10 | | | | \$0.026 | 4.76 | Marbek Resource Consultants, 2008 |
| Fan Energy Management | | Retrofit | All Except Cold Storage | Fan | 10% | 27% | 100% | 10 | | \$0.033 | | \$0.033 | 2.63 | SEG, Systems Optimization R4.xls |
| Fan Equipment Upgrade | \$0.064 | Retrofit | Paper, Wood | Fan | 35% | 23% | 100% | 10 | | \$0.033 | | \$0.045 | 2.07 | Ibid. |
| Fan System Optimization | \$0.090 | Retrofit | Paper, Wood | Fan | 50% | 30% | 100% | 10 | | \$0.039 | \$0.042 | \$0.014 | 2.51 | Ibid. |
| Pump Energy Management | | Retrofit | All Except Cold Storage | Pump | 8% | 31% | 100% | 10 | | \$0.033 | | \$0.033 | 2.61 | Ibid. |

| Conservation Measure | First Cost (\$/kWh) | Deployment | Sector | Enduse App | % Savings | Measure Applicability | Achiev. Potential | Lifetime | Annual Fuel Impact, therm/kWh | Annual O&M Cost | Annual Non-Energy Benefit | Level Cost (\$/kWh) | BCR | Source |
|------------------------------------|---------------------|------------|--------------------------------------|------------------|-----------|-----------------------|-------------------|----------|-------------------------------|-----------------|---------------------------|---------------------|--------|---|
| Pump Equipment Upgrade | \$0.094 | Retrofit | Paper, Wood | Pump | 20% | 34% | 100% | 10 | | \$0.033 | | \$0.050 | 1.89 | Ibid. |
| Pump System Optimization | \$0.190 | Retrofit | Paper, Wood | Pump | 50% | 15% | 100% | 12 | | \$0.046 | \$0.111 | (\$0.034) | 2.96 | Ibid. |
| Transformers-Retrofit | \$0.524 | Retrofit | All | All Electric | 1.6% | 17% | 100% | 10 | | | | \$0.099 | 1.23 | NWPPC, Transformers)PC-Transformer-Liquid--DI.xls |
| Transformers-New | \$0.569 | Replace | All | All Electric | 0.4% | 37% | 100% | 32 | | | | \$0.053 | 2.73 | Ibid. |
| Synchronous Belts | \$0.160 | Retrofit | All Except Cold Storage, Electronics | All Motors | 2.0% | 21% | 100% | 10 | | | | \$0.030 | 4.04 | Marbek Resource Consultants, 2008 |
| Elec Chip Fab: Eliminate Exhaust | \$0.140 | Retrofit | Chip Fab portion of Electronic Fab | HVAC | 5% | 80% | 100% | 10 | | | | \$0.027 | 4.63 | Phil Naughton, 2005, NEEA Chiller |
| Elec Chip Fab: Exhaust Injector | \$0.338 | Retrofit | Chip Fab portion of Electronic Fab | Heat | 100% | 35% | 100% | 10 | | | \$0.151 | (\$0.087) | 5.34 | Paragon |
| Elec Chip Fab: Solidstate Chiller | \$0.381 | Retrofit | Chip Fab portion of Electronic Fab | HVAC | 90% | 20% | 100% | 10 | | | \$0.138 | (\$0.066) | 4.47 | Solid State |
| Elec Chip Fab: Reduce Gas Pressure | | Retrofit | Chip Fab portion of Electronic Fab | Refrig, Air Comp | 10% | 50% | 100% | 10 | | | \$0.016 | (\$0.016) | 100.00 | Phil Naughton, 2005 |
| Clean Room: Change Filter Strategy | \$0.005 | Retrofit | Electronic Fab, Other Clean Rooms | HVAC | 40% | 10% | 100% | 1 | | | | \$0.007 | 16.20 | ACEEE,2001, NEEA Chiller |
| Clean Room: Clean Room HVAC | \$0.121 | Retrofit | Electronic Fab, Other Clean Rooms | HVAC | 9% | 30% | 100% | 20 | | | | \$0.014 | 9.66 | Ibid. |
| Clean Room: Chiller Optimize | \$0.061 | Retrofit | Electronic Fab, Other Clean Rooms | HVAC | 15% | 28% | 100% | 10 | | | | \$0.012 | 10.61 | Ibid. |
| Food: Cooling and Storage | \$0.225 | Retrofit | Food | Refer | 15% | 100% | 100% | 10 | | | | \$0.043 | 2.91 | Cascade Engineering, NW |

| Conservation Measure | First Cost (\$/kWh) | Deployment | Sector | Enduse App | % Savings | Measure Applicability | Achiev. Potential | Lifetime | Annual Fuel Impact, therm/kWh | Annual O&M Cost | Annual Non-Energy Benefit | Level Cost (\$/kWh) | BCR | Source |
|---------------------------------------|---------------------|------------|-------------------------|-------------------|-----------|-----------------------|-------------------|----------|-------------------------------|-----------------|---------------------------|---------------------|--------|--|
| | | | | | | | | | | | | | | Refrigeration Savings Potential.xls, 2008. |
| Food: Refrig Storage Tuneup | \$0.052 | Retrofit | Food | Refer | 8% | 100% | 100% | 3 | | | | \$0.028 | 4.39 | Ibid. |
| Metal: New Arc Furnace | \$0.069 | Retrofit | Metal | Process Heat | 45% | 10% | 100% | 10 | | | \$2.000 | (\$1.987) | 230.31 | ACEEE, 2004 Resource Assessment for Energy Trust |
| Kraft: Effluent Treatment System | \$0.056 | Retrofit | Kraft Pulp | Pump | 15% | 10% | 100% | 10 | | | | \$0.011 | 11.65 | Marbek Resource Consultants, 2008 |
| Kraft: Efficient Agitator | \$0.063 | Replace | Kraft Pulp | Process | 50% | 14% | 100% | 10 | | | | \$0.012 | 10.32 | Ibid. |
| Paper: Efficient Pulp Screen | \$0.136 | Retrofit | Paper | Process | 15% | 14% | 100% | 10 | | | | \$0.026 | 4.78 | Ibid. |
| Paper: Premium Fan | \$0.136 | Retrofit | Paper | Fan | 20% | 25% | 100% | 10 | | | | \$0.026 | 4.75 | Ibid. |
| Paper: Material Handling | \$0.482 | Replace | Paper | Material Handling | 13% | 25% | 100% | 10 | | | | \$0.091 | 1.34 | Ibid. |
| Paper: Large Material Handling | \$0.576 | Replace | Mech Pulp, Kraft, Paper | Material Handling | 10% | 25% | 100% | 10 | | | | \$0.109 | 1.12 | Ibid. |
| Paper: Premium Control Large Material | \$0.330 | Replace | Mech Pulp, Kraft, Paper | Material Handling | 19% | 25% | 100% | 10 | | | | \$0.062 | 1.96 | Ibid. |
| Material Handling1 | \$0.560 | Retrofit | Other, Wood | Material Handling | 5% | | 100% | 10 | | | | \$0.106 | 1.17 | Ibid. |
| Material Handling2 | \$0.350 | Replace | Other, Wood | Material Handling | 5% | 53% | 100% | 10 | | | | \$0.066 | 1.87 | Ibid. |
| Material Handling VFD1 | \$0.449 | Retrofit | Other, Wood | Material Handling | 19% | | 100% | 10 | | | | \$0.085 | 1.45 | Ibid. |
| Material Handling VFD2 | \$0.225 | Replace | Other, Wood | Material Handling | 19% | 53% | 100% | 10 | | | | \$0.043 | 2.91 | Ibid. |
| Wood: Replace Pneumatic Conveyor | \$0.010 | Replace | Wood | Material Handling | 29% | 50% | 100% | 10 | | | \$0.066 | (\$0.064) | 115.51 | NEEA, Just Enough Air |
| Panel: Hydraulic Press | \$0.138 | Replace | Panel | Process | 28% | 28% | 100% | 10 | | | | \$0.026 | 4.72 | ETO Program Files |
| Plant Energy Management | \$0.016 | Retrofit | All | All Motors | 12% | 27% | 100% | 10 | | \$0.031 | | \$0.033 | 2.55 | SEG, Systems Optimization R4.xls |
| Energy Project Management | \$0.092 | Retrofit | Wood, Paper, Metal | All Motors | 29% | 27% | 100% | 11 | | | | \$0.048 | 2.01 | SEG, Systems Optimization R4.xls |

| Conservation Measure | First Cost (\$/kWh) | Deployment | Sector | Enduse App | % Savings | Measure Applicability | Achiev. Potential | Lifetime | Annual Fuel Impact, therm/kWh | Annual O&M Cost | Annual Non-Energy Benefit | Level Cost (\$/kWh) | BCR | Source |
|--|---------------------|------------|--------------------|------------|-----------|-----------------------|-------------------|----------|-------------------------------|-----------------|---------------------------|---------------------|------|--|
| Integrated Plant Energy Management | \$0.148 | Retrofit | Wood, Paper, Metal | All Motors | 50% | 22% | 100% | 11 | | \$0.039 | \$0.082 | (\$0.017) | 2.94 | SEG, Systems Optimization R4.xls |
| Irrigation: Ditch > Pipe | \$0.059 | Retrofit | Agriculture | Pump | 60% | 1% | 100% | 10 | | (\$1.010) | (\$1.002) | (\$1.002) | 1.09 | ETO Program Files |
| Irrigation: Nozzles | \$0.177 | Retrofit | Agriculture | Pump | 0% | 28% | 100% | 3 | | | \$0.065 | \$0.065 | 2.34 | Ibid. |
| Irrigation: Pump Systems Repair | \$1.354 | Retrofit | Agriculture | Pump | 0% | 28% | 100% | 7 | | (\$0.010) | \$0.226 | \$0.226 | 1.36 | Ibid. |
| Irrigation: Pump Systems Adjust | \$0.172 | Retrofit | Agriculture | Pump | 2% | 28% | 100% | 3 | | (\$0.048) | \$0.016 | \$0.016 | 2.38 | Ibid. |
| Irrigation: Water Management | \$0.144 | Retrofit | Agriculture | Pump | 1% | 28% | 100% | 5 | | \$0.067 | \$0.100 | \$0.100 | 1.86 | Ibid. |
| Rural Area Lights | \$1.231 | Replace | Lighting | Lighting | 55% | 1% | 100% | 23 | | (\$0.061) | | \$0.032 | 1.67 | Ibid. |
| Replace Traffic Light: Red Ball 8-inch | \$0.102 | Replace | Lighting | Lighting | 91% | 0% | 100% | 6 | | (\$0.033) | | (\$0.013) | 5.76 | NWPPC 6th Plan, PC-StreetRoadway-6P-D2.xls |
| Replace Traffic Light: Red Ball 12-inch | \$0.076 | Replace | Lighting | Lighting | 93% | 0% | 100% | 6 | | (\$0.018) | | (\$0.003) | 6.79 | Ibid. |
| Replace Traffic Light: Yellow Ball 8-inch | \$4.164 | Replace | Lighting | Lighting | 91% | 0% | 100% | 6 | | (\$0.604) | | \$0.222 | 0.83 | Ibid. |
| Replace Traffic Light: Yellow Ball 12-inch | \$2.786 | Replace | Lighting | Lighting | 93% | 0% | 100% | 6 | | (\$0.336) | | \$0.216 | 0.76 | Ibid. |
| Replace Traffic Light: Green Ball 8-inch | \$0.179 | Replace | Lighting | Lighting | 91% | 0% | 100% | 6 | | (\$0.043) | | (\$0.008) | 3.59 | Ibid. |
| Replace Traffic Light: Green Ball 12-inch | \$0.133 | Replace | Lighting | Lighting | 93% | 0% | 100% | 6 | | (\$0.024) | | \$0.002 | 4.10 | Ibid. |
| Replace Traffic Light: Red Arrow | \$0.271 | Replace | Lighting | Lighting | 95% | 0% | 100% | 6 | | (\$0.098) | | (\$0.044) | 3.39 | Ibid. |
| Replace Traffic Light: Green Arrow | \$0.275 | Replace | Lighting | Lighting | 93% | 0% | 100% | 6 | | (\$0.100) | | (\$0.045) | 3.37 | Ibid. |
| Replace Traffic Light: Yellow Bi-Modal Arrow | \$0.494 | Replace | Lighting | Lighting | 91% | 0% | 100% | 6 | | (\$0.102) | | (\$0.004) | 1.90 | Ibid. |
| Replace Traffic Light: Green Bi-Modal Arrow | \$0.344 | Replace | Lighting | Lighting | 93% | 0% | 100% | 6 | | (\$0.100) | | (\$0.032) | 2.69 | Ibid. |
| Replace Traffic Light: White Walking Person | \$0.205 | Replace | Lighting | Lighting | 94% | 0% | 100% | 6 | | (\$0.030) | | \$0.011 | 2.80 | Ibid. |
| Replace Traffic Light: Orange Hand | \$0.207 | Replace | Lighting | Lighting | 93% | 0% | 100% | 6 | | (\$0.030) | | \$0.011 | 2.78 | Ibid. |

| Conservation Measure | First Cost (\$/kWh) | Deployment | Sector | Enduse App | % Savings | Measure Applicability | Achiev. Potential | Lifetime | Annual Fuel Impact, therm/kWh | Annual O&M Cost | Annual Non-Energy Benefit | Level Cost (\$/kWh) | BCR | Source |
|---|---------------------|------------|----------|------------|-----------|-----------------------|-------------------|----------|-------------------------------|-----------------|---------------------------|---------------------|------|--------|
| Replace Traffic Light: Orange Countdown | \$0.553 | Replace | Lighting | Lighting | 93% | 0% | 100% | 6 | | (\$0.080) | | \$0.029 | 1.50 | Ibid. |
| Replace Streetlight: 100WHP>LED78W | \$1.141 | Replace | Lighting | Lighting | 50% | 22% | 100% | 17 | | (\$0.052) | | \$0.050 | 1.35 | Ibid. |
| Replace Streetlight: 100WHP>LED60W | \$1.037 | Replace | Lighting | Lighting | 64% | 2% | 100% | 23 | | (\$0.077) | | \$0.001 | 2.19 | Ibid. |
| Replace Streetlight: 150HPS>LED117W | \$1.231 | Replace | Lighting | Lighting | 55% | 5% | 100% | 23 | | (\$0.061) | | \$0.032 | 1.67 | Ibid. |
| Replace Streetlight: 150HPS>LED111W | \$0.978 | Replace | Lighting | Lighting | 50% | 3% | 100% | 14 | | (\$0.062) | | \$0.038 | 1.49 | Ibid. |
| Retro Streetlight: 100WHP>LED78W | \$1.898 | Retrofit | Lighting | Lighting | 50% | | 100% | 17 | | (\$0.052) | | \$0.118 | 0.81 | Ibid. |
| Retro Streetlight: 100WHP>LED60W | \$2.110 | Retrofit | Lighting | Lighting | 64% | | 100% | 23 | | (\$0.077) | | \$0.082 | 1.07 | Ibid. |
| Retro Streetlight: 150HPS>LED117W | \$2.115 | Retrofit | Lighting | Lighting | 55% | | 100% | 23 | | (\$0.061) | | \$0.098 | 0.97 | Ibid. |
| Retro Streetlight: 150HPS>LED111W | \$1.773 | Retrofit | Lighting | Lighting | 50% | | 100% | 14 | | (\$0.062) | | \$0.120 | 0.82 | Ibid. |

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Table 17: Detailed Measure Description, Industrial Natural Gas

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|-------------------------------------|--|--------------|--------------------|--------------------------|-----------|----------------|-------------------|----------|-----------------|------------------------|------|---------------|
| Chiller heat recovery (Electronics) | Utilize heat recovery where option exists | Retrofit | \$12.129 | SHBoiler | 30% | 10% | 25% | 10 | | \$1.581 | 0.69 | Supersymmetry |
| Combo Cond Boiler (repl) | Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations). | Replacement | \$7.525 | SHBoiler, Process Boiler | 16% | 35% | 85% | 20 | | \$0.611 | 1.91 | WNG 1995 |
| Combo Cond Boiler (retro) | Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations). | Retrofit | \$20.234 | SHBoiler, Process Boiler | 22% | 0% | 85% | 20 | | \$1.643 | 0.71 | WNG 1996 |
| Combo Hieff Boiler (repl) | Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency. | Replacement | \$4.091 | SHBoiler, Process Boiler | 8% | 35% | 85% | 20 | | \$0.332 | 3.51 | WNG 1997 |

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|---|--|--------------|--------------------|--------------------------|-----------|----------------|-------------------|----------|-----------------|------------------------|-------|-------------------|
| Combo Hieff Boiler (retro) | Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency. | Retrofit | \$21,299 | SHBoiler, Process Boiler | 15% | 0% | 85% | 20 | | \$1,729 | 0.67 | WNG 1998 |
| Cond Furnace (repl) | Condensing / pulse package or residential-type furnace with a minimum AFUE of 92%. | Replacement | \$27,389 | SHFurn | 13% | 40% | 85% | 15 | | \$2,664 | 0.42 | WNG 1995 |
| Cond Unit Heater from Nat draft (replace) | Install condensing power draft units (90% seas. Eff) in place of natural draft (64% seas. Eff) | Replacement | \$11,820 | SHUnit | | 40% | 85% | 18 | | \$1,022 | 1.13 | WNG 1995 |
| Cond Unit Heater from power draft (replace) | Install condensing power draft units (90% seas. Eff) in place of power draft (80% seas. Eff) | Replacement | \$23,914 | SHUnit | 11% | 40% | 85% | 18 | | \$2,068 | 0.56 | WNG 1995 |
| Heat Recovery to HW | Utilize heat recovery where option exists | Retrofit | \$2,878 | Specialty HW | 64% | 60% | 85% | 15 | (\$0.130) | \$0.150 | 11.28 | Hesse Dairy, 2001 |
| DHW Cond Boiler (repl) | Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% | Replacement | \$1,863 | Process Boiler | 16% | 6% | 85% | 20 | | \$0.151 | 7.70 | WNG 1995 |

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|-----------------------------|---|--------------|--------------------|----------------|-----------|----------------|-------------------|----------|-----------------|------------------------|-------|----------|
| DHW Cond Boiler (retro) | efficiency for savings calculations). Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 90% efficiency for savings calculations). | Retrofit | \$5.841 | Process Boiler | 22% | 0% | 85% | 20 | | \$0.474 | 2.46 | WNG 1995 |
| DHW Condensing Tank (repl) | Costs and savings are incremental over a Code-rated tank (combustion efficiency of 80%) for a condensing tank with a minimum combustion efficiency of 94% and an R-16 tank wrap. | Replacement | \$0.255 | Process Boiler | 13% | 6% | 85% | 15 | | \$0.025 | 45.69 | WNG 1995 |
| DHW Condensing Tank (retro) | Replace older tanks with condensing tanks with combustion efficiency of 94% and tank insulation with an R-value of 16 or greater. | Retrofit | \$1.146 | Process Boiler | 29% | 0% | 85% | 15 | | \$0.111 | 10.15 | WNG 1995 |
| DHW Hieff | Replace existing boiler with unit | Replacement | \$0.583 | Process | 8% | 7% | 85% | 20 | | \$0.047 | 24.60 | WNG 1995 |

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|--------------------------|--|--------------|--------------------|----------------|-----------|----------------|-------------------|----------|-----------------|------------------------|--------|----------|
| Boiler (repl) | meeting OR Code requirements of 85% combustion efficiency. | | | Boiler | | | | | | | | |
| DHW Hieff Boiler (retro) | Replace existing boiler with unit meeting OR Code requirements of 85% combustion efficiency. | Retrofit | \$4,561 | Process Boiler | 15% | 0% | 85% | 20 | | \$0.370 | 3.14 | WNG 1995 |
| DHW Pipe Ins | Add 1" insulation to pipes used for steam or hydronic distribution; particularly effective when pipes run through unheated spaces. | Retrofit | \$0.196 | HW | 2% | 45% | 85% | 15 | | \$0.019 | 59.46 | WNG 1995 |
| DHW Std. Boiler (retro) | Replace existing boiler with unit meeting OR Code requirements of 80% combustion efficiency. | Retrofit | \$2,740 | HW | 7% | 2% | 85% | 20 | | \$0.222 | 5.23 | WNG 1995 |
| DHW Wrap | Insulate the surface of the storage water heater or an unfired storage tank to R-5 to reduce standby losses. | Retrofit | \$0.003 | HW | 2% | 20% | 85% | 7 | | \$0.000 | 100.00 | WNG 1995 |

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|------------------------------|--|--------------|--------------------|--------------|-----------|----------------|-------------------|----------|-----------------|------------------------|------|----------------------------|
| Ducts | Duct retrofit of both insulation and air sealing | Retrofit | \$30,503 | SHFurn | 10% | 80% | 85% | 15 | | \$2,967 | 0.38 | ETO 2003 |
| Hi Eff Unit Heater (replace) | Install power draft units (80% seas. Eff) in place of natural draft (64% seas. Eff) | Replacement | \$3,801 | SHUnit | 20% | 60% | 85% | 18 | | \$0,329 | 3.50 | WNG 1995 |
| Hi Eff Unit Heater (retro) | Install power draft units (80% seas. Eff) in place of natural draft (64% seas. Eff) | Retrofit | \$23,143 | SHUnit | 20% | 0% | 85% | 18 | | \$2,002 | 0.58 | WNG 1995 |
| HiEff Clothes Washer (retro) | Install high performance commercial clothes washers - residential sized units | Retrofit | \$7,572 | Specialty HW | 15% | 8% | 85% | 15 | (\$11,710) | (\$10,974) | 6.29 | ETO2010, DOE Clotheswasher |
| HiEff Clothes Washer (repl) | Install high performance commercial clothes washers - residential sized units | Replacement | \$7,572 | Specialty HW | 15% | 8% | 85% | 15 | (\$11,710) | (\$10,974) | 6.29 | ETO2010, DOE Clotheswasher |
| Hot Water Temperature Reset | Controller automatically resets the delivery temperature in a hot water radiant system based on outside air temperature. The reset reduces the on-time of the heating equipment and the occurrence | Retrofit | \$1,428 | SHBoiler | 9% | 80% | 85% | 10 | | \$0,186 | 5.82 | WNG 1995 |

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|----------------------|--|--------------|--------------------|--------------------------|-----------|----------------|-------------------|----------|-----------------|------------------------|------|----------|
| | of simultaneous heating and cooling through instantaneous adjustments. | | | | | | | | | | | |
| HW Boiler Tune | <p>Tune up in accordance with Minneapolis Energy Office protocol. Can include derating the burner, adjusting the secondary air, adding flue restrictors, cleaning the fire-side of the heat exchanger, cleaning the water side, or installing turbulators.</p> <p>Other modifications may include uprating the burner to reduce oxygen or derating the burner to reduce stack temperature.</p> <p>Note: In gas systems, excess air and stack temperatures are often within reasonable ranges, so the technical potential for this measure is limited.</p> <p>Combining this measure with</p> | Retrofit | \$0.742 | SHBoiler, Process Boiler | 5% | 80% | 85% | 5 | | \$0.172 | 5.90 | WNG 1995 |

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|---------------------------------------|--|--------------|--------------------|--------------------------|----------------|----------------|-------------------|----------|-----------------|------------------------|---------|-------------|
| | the vent damper and power burner measures increases both applicability and cost effectiveness, and was assumed for this analysis. | | | | | | | | | | | |
| Power burner | Replace standard burner with a power burner to optimize combustion and reduce standby losses in the stack. Note: Costs and savings assume that this measure will be performed in conjunction with a boiler tune up when appropriate. | Retrofit | \$9.732 | SHBoiler, Process Boiler | 7% | 80% | 85% | 12 | | \$1.107 | 1.00 | WNG 1995 |
| Process Boiler Controls | | Retrofit | \$0.015 | Process Boiler | 3% | 35% | 85% | 15 | \$0.000 | \$0.001 | 100.00 | CADMAC 2007 |
| Process Boiler Insulation | | Retrofit | \$0.074 | Process Boiler | 8% | 60% | 85% | 15 | \$0.001 | \$0.008 | 0.81 | CADMAC 2007 |
| Process Boiler Load Control | | Retrofit | \$0.017 | Process Boiler | 4% | 60% | 85% | 15 | \$0.000 | \$0.002 | 100.00 | CADMAC 2007 |
| Process Boiler Maintenance | | Retrofit | \$0.000 | Process Boiler | 10% | 12% | 85% | 15 | \$0.001 | \$0.001 | 0.82 | CADMAC 2007 |
| Process Boiler Steam Trap Maintenance | | | Retrofit | \$0.000 | Process Boiler | 13% | 30% | 85% | 15 | \$0.035 | \$0.035 | 0.82 |
| Process Boiler Water Treatment | | Replacement | \$0.008 | Process Boiler | 1% | 60% | 85% | 15 | \$0.000 | \$0.001 | 100.00 | CADMAC 2007 |

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|-------------------------------------|---|--------------|--------------------|------------|-----------|----------------|-------------------|----------|-----------------|------------------------|------|----------|
| Roof Insulation - Blanket R0-19 | Roof Insulation - Blanket R0-19. Application: Buildings with open truss unfinished interior | Retrofit | \$5.067 | SH | 60% | 3% | 85% | 30 | | \$0.335 | 3.58 | ETO 2003 |
| Roof Insulation - Blanket R0-30 | Roof Insulation - Blanket R0-30. Application: Buildings with open truss unfinished interior | Retrofit | \$5.433 | SH | 63% | 3% | 85% | 30 | | \$0.359 | 3.34 | ETO 2003 |
| Roof Insulation - Blanket R11-30 | Roof Insulation - Blanket R11-30. Application: Buildings with open truss unfinished interior | Retrofit | \$37.092 | SH | 8% | 8% | 85% | 30 | | \$2.452 | 0.49 | ETO 2003 |
| Roof Insulation - Blanket R11-41 | Roof Insulation - Blanket R11-41. Application: Buildings with open truss unfinished interior | Retrofit | \$34.774 | SH | 10% | 8% | 85% | 30 | | \$2.298 | 0.52 | ETO 2003 |
| Roof Insulation - Rigid R11-22 repl | Roof Insulation - Rigid R11-22 2" rigid added to an existing foam roof insulation at re-roof, includes some surface prep. Application: Old buildings with flat roofs, | Replacement | \$13.142 | SH | 29% | 6% | 85% | 30 | | \$0.869 | 1.38 | ETO 2003 |

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|-------------------------------------|--|--------------|--------------------|--------------------------|-----------|----------------|-------------------|----------|-----------------|------------------------|------|----------|
| | no attics, and some insulation | | | | | | | | | | | |
| Roof Insulation - Rigid R11-33 repl | Roof Insulation - Rigid R11-33: add 4' of insulation at reroof. Application: Old buildings with flat roofs, no attics, and some insulation | Replacement | \$39,970 | SH | 14% | 6% | 85% | 30 | | \$2,642 | 0.45 | ETO 2003 |
| Solar Hot Water | Install solar water heaters on large use facility such as multi-family or lodging | Retrofit | \$55,447 | Specialty HW | 16% | 7% | 85% | 20 | | \$4,502 | 0.26 | ETO2003 |
| SPC Cond Boiler Replace | Install condensing boiler. Assumed seasonal combustion efficiency of 88% over base of 75% | Replacement | \$13,113 | SHBoiler, Process Boiler | 15% | 6% | 85% | 20 | | \$1,065 | 1.09 | WNG 1995 |
| SPC Cond Boiler Retro | Install condensing boiler. Assumed seasonal combustion efficiency of 88% over base of 69.5% | Retrofit | \$27,825 | SHBoiler, Process Boiler | 21% | 0% | 85% | 20 | | \$2,259 | 0.52 | WNG 1995 |
| SPC Hieff Boiler Replace | Install near condensing boiler. Assumed seasonal combustion efficiency of | Replacement | \$8,405 | SHBoiler, Process Boiler | 9% | 6% | 85% | 20 | | \$0,682 | 1.71 | WNG 1995 |

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|------------------------------|---|--------------|--------------------|--------------------------|-----------|----------------|-------------------|----------|-----------------|------------------------|------|-------------------------|
| | 82% over base of 75% | | | | | | | | | | | |
| SPC Hieff Boiler Retro | Install near condensing boiler. Assumed seasonal combustion efficiency of 82% over base of 69.5% | Retrofit | \$29,399 | SHBoiler, Process Boiler | 15% | 0% | 85% | 20 | | \$2,387 | 0.49 | WNG 1995 |
| Steam Balance (Wood Prod) | Single-pipe steam systems are notorious for uneven heating, which wastes energy because the thermostat must be set to heat the coldest spaces and overheating other spaces. Steam balances corrects these problems by: 1) Adding air venting on the main line or at the radiators; 2) Adding boiler cycle controls; 3) Adding or subtracting radiators. Energy savings accrue from lowering the overall building temperature. | Retrofit | \$3,694 | Process Boiler | 10% | 8% | 85% | 15 | | \$0,359 | 3.15 | WNG 1995 |
| Steam Trap Maint (Wood Prod) | Set up a in-house steam trap | Retrofit | \$4,772 | Process Boiler | 14% | 7% | 85% | 10 | | \$0,622 | 1.74 | FEMP - Steam Trap Alert |

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|-----------------------------|---|--------------|--------------------|--------------------------|-----------|----------------|-------------------|----------|-----------------|------------------------|------|----------|
| | maintenance program with equipment, training, and trap replacement. An alternative procedure is to just pay for an outside contractor to conduct a steam survey. | | | | | | | | | | | |
| Upgrade Process Heat | Replace furnace, reheaters | Retrofit | \$9,934 | Melt, Heat Oven | 17% | 7% | 85% | 15 | | \$0.966 | 1.17 | CADMAC |
| Vent Damper | Install vent damper downstream of the draft relief to prevent airflow up the stack, while allowing warm air from the boiler to spill into the conditioned space as heat or into the boiler room to reduce jacket losses. This measure is most cost-effective when combined with the boiler tune up and power burner measures. | Retrofit | \$4,069 | SHBoiler, Process Boiler | 5% | 80% | 85% | 12 | | \$0.463 | 2.39 | WNG 1995 |
| Wall Insulation - Blown R11 | Wall Insulation - Blown R11. Application: Old buildings | Retrofit | \$3,671 | SH | 64% | 2% | 85% | 30 | | \$0.243 | 4.95 | ETO 2003 |

| Conservation Measure | Description | Construction | First Cost (\$/th) | Enduse App | % Savings | Measure Accept | Achiev. Potential | Lifetime | Annual O&M Cost | Levelized Cost (\$/th) | BCR | Source |
|--|---|--------------|--------------------|-------------------|-----------|----------------|-------------------|----------|-----------------|------------------------|-------|----------|
| Wall Insulation - Spray On for Metal Buildings | Wall Insulation - Spray On for Metal Buildings (Cellulose) Unfinished. Application: Old buildings | Retrofit | \$4.087 | SH | 35% | 4% | 85% | 30 | | \$0.270 | 4.44 | ETO 2003 |
| Waste Water Heat Exchanger | Install heat exchanger where copious warm water is discarded | Retrofit | \$8.268 | HW | 16% | 10% | 85% | 20 | | \$0.671 | 1.73 | ETO2003 |
| Ozone Treated Laundry | Use of O3 allows less hot water | Retrofit | \$2.460 | Laundry HW, dryer | 49% | 11% | 85% | 15 | (\$0.068) | \$0.171 | 13.17 | ETO2010 |

Note: Costs in this table do not include the cost reduction due to the BETC tax credit although those credits are included in the BCR.

Table 18: Detailed Measure Table, Commercial Sector, Electricity Savings, 2030 Technical Potential

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|---------------------------------|--|-------------------|-----------------|------------------|------------------------|-------------|-------------------|-----------|-----------|------------------------|--------|
| Estar Commercial Clothes Washer | Install high performance commercial clothes washers - coin op | New | Water Heat | 10 | 198,575 | -1,848,900 | 870 | 0.10 | 0.10 | -\$0.248 | 11.96 |
| Estar Commercial Clothes Washer | Install high performance commercial clothes washers - coin op | Replace | Water Heat | 10 | 6,356,638 | -59,104,277 | 27,801 | 3.27 | 3.27 | -\$0.248 | 11.94 |
| EStar Fryer | Install EStar in place of conventional | New | Cooking | 8 | 21,621 | 0 | 5,652 | 0.66 | 0.66 | \$0.001 | 126.07 |
| Ozone Laundry Treatment | Ozone treatment allows use of cold water | Retrofit | Water Heat | 10 | 316,941 | -30,138 | 21,294 | 2.51 | 2.51 | \$0.002 | 40.67 |
| EStar Fryer | Replace with EStar in place of conventional | Replace | Cooking | 8 | 411,313 | 0 | 33,365 | 3.93 | 3.93 | \$0.002 | 39.12 |
| Estar Convection Oven | Replace with EStar in place of conventional | Replace | Cooking | 12 | 587,055 | 0 | 17,289 | 2.03 | 2.03 | \$0.004 | 21.31 |
| Waste Water Heat Exchanger | Install HX on waste water | Retrofit | Water Heat | 15 | 90,338 | 0 | 1,995 | 0.23 | 0.23 | \$0.004 | 19.85 |
| Floating Head Control | Large Grocery - Add floating head control. This is considered measure for the independent grocery chains that are less likely to implement this feature. | New | Refrigeration | 18 | 473,891 | 0 | 8,945 | 1.22 | 1.61 | \$0.005 | 20.17 |
| Floating Head Control | Large Grocery - Add floating head control. This is considered measure for the independent grocery chains that are less likely to implement this feature. | Replace | Refrigeration | 18 | 1,490,386 | 0 | 28,131 | 3.85 | 5.05 | \$0.005 | 20.17 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|---------------------------------|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|-----------|-----------|------------------------|-------|
| DHW Shower Heads | Install low flow shower heads (2.0 gallons per minute) to replace 3.4 GPM shower heads. | Retrofit | Water Heat | 8 | 78,408 | 0 | 2,278 | 0.27 | 0.27 | \$0.005 | 14.01 |
| Chiller System Optimization | The "chiller system optimization" measure includes improvements in efficiency and reduction in parasitic losses in pumps, fans, and other (non-chiller) electric motor-driven systems associated with chillers. | Replace | Cooling | 15 | 787,078 | 0 | 14,206 | 3.52 | 3.07 | \$0.005 | 16.39 |
| Roof Insulation - Attic R0-30 | Roof Insulation - Attic R0-30. Application: Buildings with uninsulated attics | Retrofit | Heating | 45 | 190,733 | 0 | 2,032 | 0.70 | 0.06 | \$0.005 | 19.76 |
| Heat Pump Water Heat | 0 | Retrofit | Water Heat | 15 | 3,374,420 | 201,618 | 50,249 | 5.91 | 5.91 | \$0.007 | 12.63 |
| Efficient Refrigeration systems | Large Grocery - Efficient Comp, Sub-cooling, controls | New | Refrigeration | 18 | 4,151,281 | 0 | 48,367 | 6.62 | 8.69 | \$0.007 | 12.45 |
| Efficient Refrigeration systems | Large Grocery - Efficient Comp, Sub-cooling, controls | Replace | Refrigeration | 18 | 13,055,779 | 0 | 152,114 | 20.83 | 27.33 | \$0.007 | 12.45 |
| Transformers | 0 | Retrofit | Total | 20 | 3,782,545 | 0 | 37,475 | 4.41 | 4.41 | \$0.008 | 11.49 |
| Wall Insulation - Blown R11 | Wall Insulation - Blown R11. Application: Old buildings | Retrofit | Heating | 45 | 1,750,492 | 0 | 11,569 | 3.97 | 0.36 | \$0.009 | 12.26 |
| Roof Insulation - Rigid R0-11 | Roof Insulation - Rigid R0-11-not including re-roofing costs but including deck preparation. Application: Old | Replace | Heating | 45 | 779,541 | 0 | 4,816 | 1.65 | 0.15 | \$0.009 | 11.46 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|--|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|-----------|-----------|------------------------|-------|
| | buildings with flat roofs and no attics | | | | | | | | | | |
| DHW Wrap | Insulate the surface of the storage water heater or an unfired storage tank to R-5 to reduce standby losses. | Retrofit | Water Heat | 7 | 36,898 | 0 | 684 | 0.08 | 0.08 | \$0.009 | 7.85 |
| Wall Insulation - Spray On for Metal Buildings | Wall Insulation - Spray On for Metal Buildings (Cellulose) Unfinished. Application: Old buildings | Retrofit | Heating | 45 | 241,833 | 0 | 1,444 | 0.50 | 0.04 | \$0.010 | 11.07 |
| Computerized Water Heater Control | Install intelligent controls on the hot water circulation loops. | Retrofit | Water Heat | 15 | 534,130 | 0 | 5,048 | 0.59 | 0.59 | \$0.010 | 8.50 |
| Estar Convection Oven | Install EStar in place of conventional | New | Cooking | 12 | 616,319 | 0 | 5,918 | 0.70 | 0.70 | \$0.012 | 6.95 |
| Roof Insulation - Blanket R0-19 | Roof Insulation - Blanket R0-19. Application: Buildings with open truss unfinished interior | Retrofit | Heating | 45 | 413,260 | 0 | 2,008 | 0.69 | 0.06 | \$0.012 | 9.01 |
| DCV | Applicable to single zone packaged systems with large make-up air fractions either because of intermittent occupancy or because of code requirements. In most cases the outdoor air is reset to 5% or less with CO2 build-up modulating ventilation. | Retrofit | Heating | 15 | 3,821,646 | 0 | 21,792 | 5.40 | 4.71 | \$0.012 | 5.11 |
| Roof Insulation - Blanket R0-30. | Roof Insulation - Blanket R0-30. | Retrofit | Heating | 45 | 464,918 | 0 | 2,107 | 0.72 | 0.07 | \$0.013 | 8.40 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|-----------------------------------|---|-------------------|-----------------|------------------|------------------------|------------|-------------------|-----------|-----------|------------------------|------|
| Blanket R0-30 | Application: Buildings with open truss unfinished interior | | | | | | | | | | |
| High Bay HID Medium to T8 | 458W> 224W, 1 lamp HID to 6 Lamp HPT8 | New | Lighting | 21 | 29,439 | 1,383,627 | 25,633 | 3.51 | 4.61 | \$0.014 | 7.11 |
| Roof Insulation - Rigid R0-22 | Roof Insulation - Rigid R0-22-- not including re-roofing costs but including deck preparation and ~4" rigid.. Application: Old buildings with flat roofs and no attics | Replace | Heating | 45 | 1,346,480 | 0 | 5,498 | 1.89 | 0.17 | \$0.014 | 7.57 |
| Hot Food Holding Cabinet | Install EStar in place of conventional | New | Cooking | 8 | 41,080 | 0 | 352 | 0.04 | 0.04 | \$0.018 | 4.13 |
| Roof Insulation - Rigid R11-22 | Roof Insulation - Rigid R11-22 2" rigid added to an existing foam roof insulation at re-roof, includes some surface prep. Application: Old buildings with flat roofs, no attics, and some insulation | Replace | Heating | 45 | 2,853,681 | 0 | 8,911 | 3.06 | 0.28 | \$0.019 | 5.79 |
| T12 to HP T8 | 162W> 49W | Retrofit | Lighting | 21 | 22,218,999 | 10,472,042 | 240,700 | 32.96 | 43.25 | \$0.019 | 5.25 |
| Roof Insulation - Attic I1-30 | Roof Insulation - Attic I1-30. Application: Buildings with partially insulated attics | Retrofit | Heating | 45 | 1,190,377 | 0 | 3,457 | 1.19 | 0.11 | \$0.020 | 5.38 |
| Windows - Add Low E to Vinyl Tint | Windows - Add Low E to Vinyl Tint. Application: Old buildings | Replace | Heating | 20 | 1,119,562 | 0 | 4,446 | 1.53 | 0.14 | \$0.021 | 4.76 |
| Hot Food Holding | Install EStar in place | Replace | Cooking | 8 | 269,315 | 0 | 2,043 | 0.24 | 0.24 | \$0.021 | 3.66 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|--|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|-----------|-----------|------------------------|------|
| Cabinet | of conventional | | | | | | | | | | |
| Heat Reclaim | Large Grocery - Heat recovery to space heating. Assumes floating head control exists and must be changed to allow HR. | Replace | Refrigeration | 18 | 4,183,121 | 0 | 10,630 | 1.46 | 1.91 | \$0.021 | 4.51 |
| Economizer Diagnostic, Damper Repair & Reset | Applicable to single zone packaged systems. The outdoor make-up air damper and control are often set incorrectly or not functioning. This measure is the general checking . . . Savings derive from reduced cooling due to restored economizer function and reduced heating from reduced minimum outdoor air. | Retrofit | Cooling | 10 | 18,978,703 | 0 | 82,456 | 20.45 | 17.81 | \$0.021 | 3.74 |
| Waste Water Heat Exchanger | Install HX on waste water | New | Water Heat | 15 | 1,151,237 | 0 | 5,139 | 0.60 | 0.60 | \$0.022 | 4.01 |
| High Bay HID Medium to T8 | 458W > 224W, 1 lamp HID to 6 Lamp HPT8 | Retrofit | Lighting | 21 | 11,381,022 | 3,375,619 | 90,112 | 12.34 | 16.19 | \$0.023 | 4.47 |
| Heat Reclaim | Large Grocery - Heat recovery to space heating. Assumes floating head control exists and must be changed to allow HR. | New | Refrigeration | 18 | 920,622 | 0 | 1,888 | 0.26 | 0.34 | \$0.024 | 3.84 |
| ECM Fan Powered Boxes | Install ECM motors in VAV fan powered terminals with PSC motors | New | Ventilation | 20 | 2,516,868 | 0 | 11,964 | 2.97 | 2.58 | \$0.025 | 3.86 |
| Exit signs | 20W > 1 W, switch to LED sign (not | Retrofit | Lighting | 21 | 4,275,770 | 0 | 21,255 | 2.50 | 2.50 | \$0.025 | 3.85 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|---|--|-------------------|-----------------|------------------|------------------------|------------|-------------------|-----------|-----------|------------------------|------|
| | photoluminescent b/c of cost) | | | | | | | | | | |
| Windows - Add Low E and Argon to Vinyl Tint | Windows - Add Low E and Argon to Vinyl Tint. Application: Old buildings | Replace | Heating | 20 | 1,750,895 | 0 | 5,393 | 1.85 | 0.17 | \$0.026 | 3.70 |
| T8 to HP T8 | 58W> 49W | Retrofit | Lighting | 21 | 22,218,999 | 6,076,153 | 116,922 | 16.01 | 21.01 | \$0.027 | 3.69 |
| T8 to HP T8 | 58W> 49W | Replace | Lighting | 21 | 34,288,604 | 40,902,481 | 311,270 | 42.62 | 55.93 | \$0.028 | 3.65 |
| T8 to HP T8 | 58W> 49W | New | Lighting | 21 | 16,661,466 | 19,652,241 | 145,369 | 19.91 | 26.12 | \$0.028 | 3.58 |
| High Efficiency Chiller | Replace chillers or installing new chillers to purchase units with efficiencies averaging 0.51kW/ton air conditioning (AC), rather than the standard new unit, which has an efficiency of 0.65 kW/ton. In practice, some fraction of chiller replacements may involve the early retirement of units with lower efficiencies (perhaps 0.90 kW/ton), and thus achieve higher savings in the first few years of the measure installation. | Replace | Cooling | 24 | 6,549,282 | 0 | 17,062 | 2.01 | 2.01 | \$0.028 | 3.45 |
| CFL 9W to 39W hardwired | 75W> 18W | New | Lighting | 21 | 967,448 | 35,745,456 | 145,178 | 19.88 | 26.09 | \$0.029 | 3.42 |
| EStar Griddle | Install EStar in place of conventional | New | Cooking | 12 | 341,484 | 0 | 1,312 | 0.15 | 0.15 | \$0.030 | 2.78 |
| Solar Hot Water | Install solar water heaters on large use facility such as multifamily or | Retrofit | Water Heat | 15 | 7,611,379 | 673,810 | 26,777 | 3.62 | 11.38 | \$0.030 | 2.98 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|-----------------------------------|--|-------------------|-----------------|------------------|------------------------|-------------|-------------------|-----------|-----------|------------------------|------|
| | lodging | | | | | | | | | | |
| DHW Faucets | Add aerators to existing faucets to reduce flow from 2.2 gallons per minute to 1.5 GPM. | New | Water Heat | 8 | 42,894 | 0 | 220 | 0.03 | 0.03 | \$0.030 | 2.47 |
| DHW Faucets | Add aerators to existing faucets to reduce flow from 2.2 gallons per minute to 1.5 GPM. | Retrofit | Water Heat | 8 | 30,345 | 0 | 152 | 0.02 | 0.02 | \$0.031 | 2.41 |
| Exterior LED Lighting | 30% savings | New | Lighting | 21 | 154,706,094 | -69,689,634 | 208,621 | - | - | \$0.032 | 1.98 |
| EStar Griddle | Replace with EStar in place of conventional | Replace | Cooking | 12 | 1,384,580 | 0 | 4,870 | 0.57 | 0.57 | \$0.032 | 2.55 |
| Sweep Control | 25% savings | New | Lighting | 21 | 21,446,386 | 0 | 65,315 | - | - | \$0.033 | 2.74 |
| Computerized Water Heater Control | Install intelligent controls on the hot water circulation loops. | New | Water Heat | 15 | 822,397 | 0 | 2,447 | 0.29 | 0.29 | \$0.033 | 2.68 |
| High Bay HID Large to T5 | 1080W > 701W | New | Lighting | 21 | 1,783,455 | 670,583 | 8,384 | 1.15 | 1.51 | \$0.033 | 3.05 |
| Ducts | Duct retrofit of both insulation and air sealing | Retrofit | Heating | 15 | 1,161,607 | 0 | 3,307 | 0.82 | 0.71 | \$0.034 | 2.58 |
| Heat Pump Water Heat | 0 | New | Water Heat | 15 | 2,305,449 | 137,748 | 6,939 | 0.82 | 0.82 | \$0.034 | 2.55 |
| DHW Pipe Ins | Add 1" insulation to pipes used for steam or hydronic distribution; particularly effective when pipes run through unheated spaces. | New | Water Heat | 15 | 497,104 | 0 | 1,411 | 0.17 | 0.17 | \$0.034 | 2.55 |
| EMS Retrofit for Restaurants | Many commercial establishments have no means of operating facility lighting, heating, air | Retrofit | Total | 20 | 20,394,536 | 0 | 47,987 | 5.65 | 5.65 | \$0.035 | 2.73 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|----------------------------------|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|-----------|-----------|------------------------|------|
| | conditioning, refrigeration, etc., except to rely upon employees to manually switch equipment on/off before, during and after a typical work day. This is especially true in restaurants. A proper EMS installation in such facilities can reduce existing gas and electric energy usage by about 10% or more. | | | | | | | | | | |
| Refrigeration Case Package | Efficient Evap Fans, case lighting, low energy anti-sweat heaters | New | Refrigeration | 18 | 4,500,444 | 0 | 10,685 | 1.46 | 1.92 | \$0.037 | 2.54 |
| Refrigeration Case Package | Efficient Evap Fans, case lighting, low energy anti-sweat heaters | Replace | Refrigeration | 18 | 14,153,895 | 0 | 33,603 | 4.60 | 6.04 | \$0.037 | 2.54 |
| 2010 CEE Tier 1 - 3 ton (at rep) | Install high efficiency cooling equipment complying with 2010 CEE Tier 1 rather than 2010 code equipment. Costing in 6th plan showed 2010 Tier 2 equipment was 6 times more expensive and therefor is not included here. Tier 2 costs should be tracked. | Replace | Cooling | 20 | 4,639,303 | 0 | 9,751 | 2.42 | 2.11 | \$0.039 | 2.46 |
| Chiller Tower 6F approach | Install low approach cooling tower | Replace | Cooling | 15 | 4,366,188 | 0 | 10,920 | 2.71 | 2.36 | \$0.039 | 2.27 |
| High Bay HID Large to | 1080W > 701W | Retrofit | Lighting | 21 | 9,647,118 | 1,636,014 | 29,473 | 4.04 | 5.30 | \$0.040 | 2.52 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|---|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|-----------|-----------|------------------------|------|
| T5 | | | | | | | | | | | |
| Roof Insulation - Roofcut 0-22 | Roof Insulation - Roofcut 0-22. Application: Buildings with uninsulated flat roofs at reroofing time | Replace | Heating | 45 | 5,701 | 0 | 8 | 0.00 | 0.00 | \$0.040 | 2.68 |
| 2010 CEE Tier 1 - 25 ton (at rep) | Install high efficiency cooling equipment complying with 2010 CEE Tier 1 rather than 2010 code equipment. Costing in 6th plan showed 2010 Tier 2 equipment was 6 times more expensive and therefor is not included here. Tier 2 costs should be tracked. | Replace | Cooling | 20 | 7,979,145 | 0 | 15,653 | 3.88 | 3.38 | \$0.042 | 2.30 |
| PCs and Monitors - Energy Management Software | There is a solution to automate the enabling of Power Management in commercial computers and monitor/displays called Surveyor by EZConserve. | Replace | Misc. | 4 | 62,526,349 | 0 | 474,473 | 55.82 | 55.82 | \$0.045 | 1.47 |
| 2010 CEE Tier 1 - 3 ton (new) | Install high efficiency cooling equipment complying with 2010 CEE Tier 1 rather than 2010 code equipment. Costing in 6th plan showed 2010 Tier 2 equipment was 6 times more expensive and therefor is not included here. Tier 2 costs should be | New | Cooling | 20 | 2,284,294 | 0 | 4,105 | 1.02 | 0.89 | \$0.045 | 2.10 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|---|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|-----------|-----------|------------------------|------|
| 2010 CEE Tier 1 - 15 ton (at rep) | Install high efficiency cooling equipment complying with 2010 CEE Tier 1 rather than 2010 code equipment. Costing in 6th plan showed 2010 Tier 2 equipment was 6 times more expensive and therefor is not included here. Tier 2 costs should be tracked. | Replace | Cooling | 20 | 4,639,303 | 0 | 8,309 | 2.06 | 1.79 | \$0.046 | 2.10 |
| PCs and Monitors - Energy Management Software | There is a solution to automate the enabling of Power Management in commercial computers and monitor/displays called Surveyor by EZConserve. | New | Misc. | 4 | 5,774,710 | 0 | 43,681 | 5.14 | 5.14 | \$0.046 | 1.45 |
| Windows - Tinted AL Code to Class 40 | Windows - Tinted AL Code to Class 40. Application: Old buildings | Replace | Heating | 20 | 775,534 | 0 | 1,343 | 0.46 | 0.04 | \$0.047 | 2.08 |
| Daylighting Overhead | Daylight control with skylite | New | Lighting | 21 | 84,453,932 | 0 | 217,981 | 29.85 | 39.17 | \$0.048 | 2.10 |
| 2010 CEE Tier 1 - 25 ton (new) | Install high efficiency cooling equipment complying with 2010 CEE Tier 1 rather than 2010 code equipment. Costing in 6th plan showed 2010 Tier 2 equipment was 6 times more expensive and therefor is not included here. Tier 2 | New | Cooling | 20 | 3,928,761 | 0 | 6,589 | 1.63 | 1.42 | \$0.049 | 1.96 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|--------------------------------------|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|-----------|-----------|------------------------|------|
| | costs should be tracked. | | | | | | | | | | |
| Windows - Tinted AL Code to Class 45 | Windows - Tinted AL Code to Class 45. Application: Old buildings | Replace | Heating | 20 | 515,730 | 0 | 813 | 0.28 | 0.03 | \$0.052 | 1.89 |
| Lighting Scheduling/Controls | Lighting scheduling and control. This measure includes the commissioning of any occupancy and sweep controls, and the review and proper setting of daylighting controls. Since these are largely a function of schedule settings (except in cases where daylighting controls are integrated into the energy management software), we have included only the impact of properly controlled lighting and occupancy. | New | lighting | 15 | 26,239,607 | 0 | 49,375 | 5.81 | 5.81 | \$0.052 | 1.69 |
| 2010 CEE Tier 1 - 15 ton (new) | Install high efficiency cooling equipment complying with 2010 CEE Tier 1 rather than 2010 code equipment. Costing in 6th plan showed 2010 Tier 2 equipment was 6 times more expensive and therefore is not included here. Tier 2 costs should be tracked. | New | Cooling | 20 | 2,284,294 | 0 | 3,498 | 0.87 | 0.76 | \$0.053 | 1.79 |
| HVAC controls | Control set up and algorithm. This | New | Heating | 5 | 10,569,782 | 0 | 42,715 | 10.59 | 9.23 | \$0.057 | 1.23 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|--------------------------------------|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|-----------|-----------|------------------------|------|
| | assumes the development of an open source control package aimed at describing scheduling and control points throughout the HVAC system, properly training operators so that scheduling can be maintained and adjusted as needed, and providing operator back up so that temperature reset, pressure reset, and minimum damper settings are set at optimum levels for the current occupancy. | | | | | | | | | | |
| Windows - Add Argon to Vinyl Lowe | Windows - Add Argon to Vinyl Lowe. Application: Old buildings | Replace | Heating | 20 | 3,346,255 | 0 | 4,600 | 1.58 | 0.14 | \$0.059 | 1.65 |
| Windows - Tinted AL Code to Class 40 | Windows - Tinted AL Code to Class 40. Application: New Construction | New | Heating | 20 | 609,289 | 0 | 790 | 0.27 | 0.02 | \$0.063 | 1.56 |
| 2010 CEE Tier 1 - 7.5 ton (at rep) | Install high efficiency cooling equipment complying with 2010 CEE Tier 1 rather than 2010 code equipment. Costing in 6th plan showed 2010 Tier 2 equipment was 6 times more expensive and therefore is not included here. Tier 2 costs should be | Replace | Cooling | 20 | 4,639,303 | 0 | 5,935 | 1.47 | 1.28 | \$0.064 | 1.50 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|--------------------------------------|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|-----------|-----------|------------------------|------|
| | tracked. | | | | | | | | | | |
| Roof Insulation - Rigid R11-33 | Roof Insulation - Rigid R11-33: add 4' of insulation at reroof. Application: Old buildings with flat roofs, no attics, and some insulation | Replace | Heating | 45 | 4,280,521 | 0 | 3,604 | 1.24 | 0.11 | \$0.069 | 1.56 |
| RoofTop Condensing Burner | Install condensing burner | New | Heating | 10 | 3,962,533 | 0 | 7,316 | 1.81 | 1.58 | \$0.071 | 1.06 |
| 2010 CEE Tier 1 - 7.5 ton (new) | Install high efficiency cooling equipment complying with 2010 CEE Tier 1 rather than 2010 code equipment. Costing in 6th plan showed 2010 Tier 2 equipment was 6 times more expensive and therefor is not included here. Tier 2 costs should be tracked. | New | Cooling | 20 | 2,284,294 | 0 | 2,499 | 0.62 | 0.54 | \$0.075 | 1.28 |
| Roof Insulation - Blanket R11-41 | Roof Insulation - Blanket R11-41. Application: Buildings with open truss unfinished interior | Retrofit | Heating | 45 | 1,162,295 | 0 | 824 | 0.28 | 0.03 | \$0.082 | 1.31 |
| Windows - Tinted AL Code to Class 36 | Windows - Tinted AL Code to Class 36. Application: Old buildings | Replace | Heating | 20 | 1,938,835 | 0 | 1,832 | 0.63 | 0.06 | \$0.086 | 1.13 |
| Roof Insulation - Blanket R11-30 | Roof Insulation - Blanket R11-30. Application: Buildings with open truss unfinished interior | Retrofit | Heating | 45 | 1,033,151 | 0 | 687 | 0.24 | 0.02 | \$0.087 | 1.23 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|--|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|-----------|-----------|------------------------|------|
| Windows - Non-Tinted AL Code to Class 40 | Windows - Non-Tinted AL Code to Class 40. Application: Old buildings | Replace | Heating | 20 | 2,541,055 | 0 | 2,258 | 0.78 | 0.07 | \$0.092 | 1.07 |
| Install Economizer | Economizer retrofit on unit with no economizer | Retrofit | Cooling | 15 | 8,912,797 | 0 | 9,140 | 2.27 | 1.97 | \$0.095 | 0.93 |
| Windows - Non-Tinted AL Code to Class 40 | Windows - Non-Tinted AL Code to Class 40. Application: New Construction | New | Heating | 20 | 1,944,529 | 0 | 1,626 | 0.56 | 0.05 | \$0.098 | 1.00 |
| Warm Up Control | This measure is designed to implement a shut down of outside air when the building is coming off night setback. Usually the capability for this is available in a commercial t-stat but either the extra control wire is not attached or the unit itself has not been set up to receive the signal. Cost is based on labor cost to enable this ability in existing controllers | Retrofit | Heating | 10 | 4,141,102 | 0 | 4,876 | - | - | \$0.111 | 0.67 |
| Windows - Tinted AL Code to Class 36 | Windows - Tinted AL Code to Class 36. Application: New Construction | New | Heating | 20 | 1,523,222 | 0 | 1,097 | 0.38 | 0.03 | \$0.113 | 0.86 |
| Daylight Control (overhead) | 5% savings | New | Lighting | 10 | 114,480,637 | 0 | 137,725 | 18.86 | 24.75 | \$0.118 | 0.71 |
| HVAC System Commissioning | HVAC system commissioning. Includes testing and balancing, damper | New | Heating | 15 | 31,407,353 | 0 | 24,408 | 6.05 | 5.27 | \$0.126 | 0.71 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|---|---|-------------------|-----------------|------------------|------------------------|------------|-------------------|-----------|-----------|------------------------|------|
| | settings, economizer HVAC heating and compressor control installation. This measure includes the proper set-up of single zone package equipment in simple HVAC systems. The majority of the Commercial area is served by this technology. Work done in Eugene (Davis, et al. 2002) suggests higher savings than the other documented commissioning on more complex systems. | | | | | | | | | | |
| Ceramic Metal Halide | 100W> 44W | New | Lighting | 21 | 16,184,156 | 21,283,688 | 24,569 | 3.36 | 4.41 | \$0.127 | 0.80 |
| Ceramic Metal Halide | 100W> 44W | Replace | Lighting | 21 | 30,407,448 | 39,309,529 | 44,598 | 6.11 | 8.01 | \$0.130 | 0.77 |
| Indirect/Direct Evaporative Cooling >60 ton | Install indirect/direct evaporative cooling in commercial building HVAC system in large systems <60 ton range. Original ETO evaluation evaluated at 20, 150 and 300tons with all being essentially equivalent | Replace | Cooling | 18 | 52,727,509 | 0 | 31,305 | 7.76 | 6.76 | \$0.146 | 0.61 |
| Windows - Non-Tinted AL Code to Class 36 | Windows - Non-Tinted AL Code to Class 36. Application: Old buildings | Replace | Heating | 20 | 6,352,637 | 0 | 3,442 | 1.18 | 0.11 | \$0.151 | 0.65 |
| Solar Hot Water | Install solar water | New | Water Heat | 15 | 7,061,316 | 625,115 | 4,700 | 0.64 | 2.00 | \$0.160 | 0.56 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|--|---|-------------------|-----------------|------------------|------------------------|------------|-------------------|-----------|-----------|------------------------|------|
| | heaters on large use facility such as multifamily or lodging | | | | | | | | | | |
| Windows - Non-Tinted AL Code to Class 36 | Windows - Non-Tinted AL Code to Class 36. Application: New Construction | New | Heating | 20 | 4,861,323 | 0 | 2,428 | 0.83 | 0.08 | \$0.163 | 0.60 |
| Windows - Non-Tinted AL Code to Class 45 | Windows - Non-Tinted AL Code to Class 45. Application: Old buildings | Replace | Heating | 20 | 1,689,802 | 0 | 803 | 0.28 | 0.02 | \$0.172 | 0.57 |
| Indirect/Direct Evaporative Cooling >60 ton | Install indirect/direct evaporative cooling in commercial building HVAC system in large systems <60 ton range. Original ETO evaluation evaluated at 20, 150 and 300tons with all being essentially equivalent | New | Cooling | 18 | 24,872,202 | 0 | 11,860 | 2.94 | 2.56 | \$0.182 | 0.49 |
| Ground Source Heat Pump - Air Source HP Base | Install GSHP in place of air source heat pumps. | Replace | Heating | 18 | 9,495,024 | -315,150 | 4,333 | 1.07 | 0.94 | \$0.184 | 0.50 |
| Occupancy Sensors | 5% savings | New | Lighting | 15 | 16,043,629 | 0 | 8,044 | - | - | \$0.206 | 0.40 |
| Daylight perimeter zone | 10% savings | New | Lighting | 10 | 27,390,993 | 0 | 16,267 | 2.23 | 2.92 | \$0.231 | 0.36 |
| High Efficacy LED Display | 72W > 39W | New | Lighting | 21 | 99,006 | 49,766,342 | 14,432 | 1.98 | 2.59 | \$0.280 | 0.36 |
| Indirect/Direct Evaporative Cooling ~20 ton | Install indirect/direct evaporative cooling in commercial building HVAC system in 20 to 60 ton range | Replace | Cooling | 18 | 124,286,306 | 0 | 31,305 | 7.76 | 6.76 | \$0.345 | 0.26 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Winter MW | Summer mW | Levelized Cost, \$/kWh | BCR |
|--|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|-----------|-----------|------------------------|------|
| Indirect/Direct Evaporative Cooling ~20 ton | Install indirect/direct evaporative cooling in commercial building HVAC system in 20 to 60 ton range | New | Cooling | 18 | 54,407,943 | 0 | 11,860 | 2.94 | 2.56 | \$0.399 | 0.22 |
| Package Refrigeration - Ice makers, Vending machines | Install machines with package of measures akin to ADL low cost | new | Misc. | 9 | 48,238,499 | 0 | 5,861 | 0.69 | 0.69 | \$1.168 | 0.07 |
| Package Refrigeration - Ice makers, Vending machines | Install machines with package of measures akin to ADL low cost | Replace | Misc. | 9 | 160,201,414 | 0 | 19,443 | 2.29 | 2.29 | \$1.170 | 0.07 |
| Efficient Standalone Refrigeration Cases | Install efficient stand alone cases. This measure is based upon current rebates and SAIC savings numbers | Replace | Misc. | 9 | 3,305,925,711 | 0 | 166,815 | 19.62 | 19.62 | \$2.813 | 0.03 |
| Efficient Standalone Refrigeration Cases | Install efficient stand alone cases. This measure is based upon current rebates and SAIC savings numbers | new | Misc. | 9 | 465,718,200 | 0 | 23,480 | 2.76 | 2.76 | \$2.815 | 0.03 |

Note: Includes emerging technology measures

Table 19: Detailed Measure Table, Commercial Sector, Gas Savings, 2030 Technical Potential

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|---------------------------------|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|-------|
| Estar Commercial Clothes Washer | Install high performance commercial clothes washers - coin op | New | Water Heat | 10 | 1,097 | -10,214 | 1 | 0 | (\$4.4685) | 10.70 |
| Estar Commercial Clothes Washer | Install high performance commercial clothes washers - coin op | Replace | Water Heat | 10 | 186,282 | ##### | 288 | 12 | (\$2.9839) | 7.58 |
| EStar Steam Cooker | Install EStar in place of conventional | New | Cooking | 10 | 24,554 | -66,969 | 0 | 3 | (\$1.6283) | 3.52 |
| EStar Steam Cooker | Replace with EStar in place of conventional | Replace | Cooking | 10 | 132,794 | -361,812 | 0 | 19 | (\$1.6104) | 3.52 |
| EStar Fryer | Install EStar in place of conventional | New | Cooking | 8 | 13,166 | 0 | 0 | 172 | \$0.0120 | 60.56 |
| EStar Fryer | Replace with EStar in place of conventional | Replace | Cooking | 8 | 238,145 | 0 | 0 | 1,140 | \$0.0326 | 22.23 |
| Estar Convection Oven | Replace with EStar in place of conventional | Replace | Cooking | 12 | 247,058 | 0 | 0 | 446 | \$0.0631 | 12.04 |
| Roof Insulation - Attic R0-30 | Roof Insulation - Attic R0-30. Application: Buildings with uninsulated attics | Retrofit | Heating | 45 | 505,401 | 0 | 891 | 227 | \$0.0871 | 10.09 |
| HW Boiler Tune | Tune up in accordance with Minneapolis Energy Office protocol. Can include derating the burner, adjusting the secondary air, | Retrofit | Heating | 5 | 9,255 | 0 | 0 | 23 | \$0.0939 | 7.78 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|------------------|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| DHW Shower Heads | adding flue restrictors, cleaning the fire-side of the heat exchanger, cleaning the water side, or installing turbulators. Other modifications may include uprating the burner to reduce oxygen or derating the burner to reduce stack temperature. Note: In gas systems, excess air and stack temperatures are often within reasonable ranges, so the technical potential for this measure is limited. Combining this measure with the vent damper and power burner measures increases both applicability and cost effectiveness, and was assumed for this analysis. | Retrofit | Water Heat | 8 | 88,072 | 0 | 0 | 116 | \$0.1181 | 6.13 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|-------------------------------|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| Hot Water Temperature Reset | Controller automatically resets the delivery temperature in a hot water radiant system based on outside air temperature. The reset reduces the on-time of the heating equipment and the occurrence of simultaneous heating and cooling through instantaneous adjustments. | Retrofit | Heating | 10 | 747,573 | 0 | 0 | 750 | \$0.1304 | 5.97 |
| Roof Insulation - Rigid R0-11 | Roof Insulation - Rigid R0-11-not including re-roofing costs but including deck preparation. Application: Old buildings with flat roofs and no attics | Replace | Heating | 45 | 2,642,731 | 0 | 3,599 | 627 | \$0.1435 | 6.13 |
| Wall Insulation - Blown R11 | Wall Insulation - Blown R11. Application: Old buildings | Retrofit | Heating | 45 | 6,940,814 | 0 | 3,841 | 2,248 | \$0.1479 | 5.94 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|---------------|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| Heat Reclaim | Large Grocery - Heat recovery to space heating. Assumes floating head control exists and must be changed to allow HR. | Replace | Refrigeration | 18 | 5,031,683 | 0 | 15,292 | 1,054 | \$0.1544 | 5.17 |
| Heat Reclaim | Large Grocery - Heat recovery to space heating. Assumes floating head control exists and must be changed to allow HR. | New | Refrigeration | 18 | 1,672,412 | 0 | 5,056 | 349 | \$0.1551 | 5.15 |
| Steam Balance | Single-pipe steam systems are notorious for uneven heating, which wastes energy because the thermostat must be set to heat the coldest spaces and overheating other spaces. Steam balances corrects these problems by: 1) Adding air venting on the main line or at the radiators; 2) Adding boiler cycle controls; 3) Adding or subtracting radiators. Energy savings accrue from lowering the overall building temperature. | Retrofit | Heating | 15 | 734,199 | 0 | 0 | 391 | \$0.1834 | 4.43 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|--|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| Waste Water Heat Exchanger | Install HX on waste water | Retrofit | Water Heat | 15 | 118,429 | 0 | 0 | 59 | \$0.1961 | 3.97 |
| DHW Wrap | Insulate the surface of the storage water heater or an unfired storage tank to R-5 to reduce standby losses. | Retrofit | Water Heat | 7 | 16,216 | 0 | 0 | 14 | \$0.2043 | 3.48 |
| Wall Insulation - Spray On for Metal Buildings | Wall Insulation - Spray On for Metal Buildings (Cellulose) Unfinished. Application: Old buildings | Retrofit | Heating | 45 | 2,474,296 | 0 | -58 | 702 | \$0.2131 | 4.13 |
| Roof Insulation - Rigid R0-22 | Roof Insulation - Rigid R0-22-- not including re-roofing costs but including deck preparation and ~4" rigid. Application: Old buildings with flat roofs and no attics | Replace | Heating | 45 | 4,564,717 | 0 | 4,100 | 713 | \$0.2177 | 4.04 |
| Estar Convection Oven | Install EStar in place of conventional | New | Cooking | 12 | 211,131 | 0 | 0 | 102 | \$0.2366 | 3.21 |
| Roof Insulation - Blanket R0-19 | Roof Insulation - Blanket R0-19. Application: Buildings with open truss unfinished interior | Retrofit | Heating | 45 | 4,228,239 | 0 | 106 | 967 | \$0.2499 | 3.52 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|---------------------------------|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| Roof Insulation - Blanket R0-30 | Roof Insulation - Blanket R0-30. Application: Buildings with open truss unfinished interior | Retrofit | Heating | 45 | 4,756,769 | 0 | 116 | 1,015 | \$0.2677 | 3.28 |
| DHW Condensing Tank (repl) | Costs and savings are incremental over a Code-rated tank (combustion efficiency of 80%) for a condensing tank with a minimum combustion efficiency of 94% and an R-16 tank wrap. | Replace | Water Heat | 15 | 5,608,629 | 0 | 0 | 1,870 | \$0.2929 | 2.66 |
| DHW Condensing Tank (new) | Costs and savings are incremental over a Code-rated tank (combustion efficiency of 80%) for a condensing tank with a minimum combustion efficiency of 94% and an R-16 tank wrap. | New | Water Heat | 15 | 1,940,952 | 0 | 0 | 638 | \$0.2968 | 2.62 |
| DCV | Applicable to single zone packaged systems with large make-up air fractions either because of intermittent occupancy or because of code requirements. In most cases the | Retrofit | Heating | 15 | 9,018,278 | 0 | 18,262 | 890 | \$0.3056 | 1.82 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|-----------------------------------|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| | outdoor air is reset to 5% or less with CO2 build-up modulating ventilation. | | | | | | | | | |
| Computerized Water Heater Control | Install intelligent controls on the hot water circulation loops. | Retrofit | Water Heat | 15 | 803,151 | 0 | 0 | 252 | \$0.3115 | 2.50 |
| Windows - Add Low E to Vinyl Tint | Windows - Add Low E to Vinyl Tint. Application: Old buildings | Replace | Heating | 20 | 2,601,802 | 0 | 3,844 | 230 | \$0.3122 | 2.68 |
| Roof Insulation - Attic 11-30 | Roof Insulation - Attic 11-30. Application: Buildings with partially insulated attics | Retrofit | Heating | 45 | 3,513,838 | 0 | 1,003 | 462 | \$0.3484 | 2.52 |
| Roof Insulation - Rigid R11-22 | Roof Insulation - Rigid R11-22 2" rigid added to an existing foam roof insulation at re-roof, includes some surface prep. Application: Old buildings with flat roofs, no attics, and some insulation | Replace | Heating | 45 | 12,031,434 | 0 | 4,511 | 1,410 | \$0.3553 | 2.47 |
| Hot Food Holding Cabinet | Install ESiar in place of conventional | New | Cooking | 8 | 25,015 | 0 | 0 | 10 | \$0.4011 | 1.80 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|---|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| Hot Food Holding Cabinet | Install EStar in place of conventional | Replace | Cooking | 8 | 166,263 | 0 | 0 | 65 | \$0.4014 | 1.80 |
| Vent Damper | Install vent damper downstream of the draft relief to prevent airflow up the stack, while allowing warm air from the boiler to spill into the conditioned space as heat or into the boiler room to reduce jacket losses. This measure is most cost-effective when combined with the boiler tune up and power burner measures. | Retrofit | Heating | 12 | 360,127 | 0 | 0 | 99 | \$0.4158 | 1.91 |
| Windows - Add Low E and Argon to Vinyl Tint | Windows - Add Low E and Argon to Vinyl Tint. Application: Old buildings | Replace | Heating | 20 | 4,068,983 | 0 | 3,894 | 323 | \$0.4267 | 1.96 |
| EStar Griddle | Install EStar in place of conventional | New | Cooking | 12 | 140,420 | 0 | 0 | 35 | \$0.4615 | 1.65 |
| EStar Griddle | Replace with EStar in place of conventional | Replace | Cooking | 12 | 519,617 | 0 | 0 | 128 | \$0.4635 | 1.64 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|--------------------------------------|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| Waste Water Heat Exchanger | Install HX on waste water | New | Water Heat | 15 | 404,081 | 0 | 0 | 82 | \$0.4806 | 1.62 |
| SPC Hieff Boiler Replace | Install near condensing boiler. Assumed seasonal combustion efficiency of 85% over base of 80% | Replace | Heating | 20 | 567,786 | 0 | 0 | 92 | \$0.5046 | 1.66 |
| DHW Hieff Boiler (repl) | Replace existing boiler with unit meeting OR Code requirements of 80% combustion efficiency. | Replace | Water Heat | 20 | 1,690,979 | 0 | 0 | 261 | \$0.5280 | 1.59 |
| Combo Hieff Boiler (new) | Replace existing boiler with unit meeting OR Code requirements of 80% combustion efficiency. | New | Heating | 20 | 468,922 | 0 | 0 | 72 | \$0.5284 | 1.52 |
| Windows - Tinted AL Code to Class 45 | Windows - Tinted AL Code to Class 45. Application: Old buildings | Replace | Heating | 20 | 1,330,196 | 0 | 1,631 | 14 | \$0.5297 | 1.58 |
| DHW Hieff Boiler (new) | Replace existing boiler with unit meeting OR Code requirements of 80% combustion efficiency. | New | Water Heat | 20 | 626,309 | 0 | 0 | 96 | \$0.5337 | 1.50 |
| Ducts | Duct retrofit of both insulation and air sealing | Retrofit | Heating | 15 | 3,677,163 | 0 | 2,944 | 317 | \$0.5628 | 1.44 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|--------------------------------------|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| Combo Hieff Boiler (repl) | Replace existing boiler with unit meeting OR Code requirements of 80% combustion efficiency. | Replace | Heating | 20 | 1,497,659 | 0 | 0 | 217 | \$0.5634 | 1.49 |
| Cond Furnace (new) | Condensing / pulse package or residential-type furnace with a minimum AFUE of 92%. Base case: AFUE 80 | New | Heating | 18 | 2,739,672 | 0 | 0 | 417 | \$0.5707 | 1.40 |
| Roof Insulation - Roofcut 0-22 | Roof Insulation - Roofcut 0-22. Application: Buildings with uninsulated flat roofs at reroofing time | Replace | Heating | 45 | 10,067 | 0 | 2 | 1 | \$0.5987 | 1.47 |
| Windows - Tinted AL Code to Class 40 | Windows - Tinted AL Code to Class 40. Application: Old buildings | Replace | Heating | 20 | 2,000,295 | 0 | 1,693 | 71 | \$0.6070 | 1.38 |
| SPC Hieff Boiler (new) | Install near condensing boiler. Assumed seasonal combustion efficiency of 82% over base of 75% | New | Heating | 20 | 988,174 | 0 | 0 | 123 | \$0.6533 | 1.24 |
| DHW Recirc Controls | Install electronic controller to hot water boiler system that turns | Retrofit | Water Heat | 10 | 730,193 | 0 | 0 | 142 | \$0.6711 | 1.11 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|-------------------------|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| | off the boiler and circulation pump when the hot water demand is reduced (usually in residential type occupancies) or can be reset to meet the hot water load. (Steel boilers also require a mixing valve to prevent water temperatures from dropping below required levels). | | | | | | | | | |
| DHW Faucets | Add aerators to existing faucets to reduce flow from 2.2 gallons per minute to 1.5 GPM. | New | Water Heat | 8 | 14,670 | 0 | 0 | 3 | \$0.6842 | 1.06 |
| DHW Faucets | Add aerators to existing faucets to reduce flow from 2.2 gallons per minute to 1.5 GPM. | Retrofit | Water Heat | 8 | 34,128 | 0 | 0 | 8 | \$0.6863 | 1.05 |
| SPC Cond Boiler Replace | Install condensing boiler. Assumed seasonal combustion efficiency of 92% over base of 80% | Replace | Heating | 20 | 2,297,078 | 0 | 0 | 266 | \$0.7041 | 1.19 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|-----------------------------------|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| Hi Eff Unit Heater (new) | Install power draft units (83% seas. Eff) in place of natural draft (80% seas. Eff) per ASHRAE 90.1-2007 | New | Heating | 18 | 1,114,946 | 0 | 0 | 126 | \$0.7678 | 1.04 |
| DHW Cond Boiler (repl) | Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 92% efficiency for savings calculations). | Replace | Water Heat | 20 | 5,473,743 | 0 | 0 | 580 | \$0.7708 | 1.09 |
| Computerized Water Heater Control | Install intelligent controls on the hot water circulation loops. | New | Water Heat | 15 | 292,751 | 0 | 0 | 37 | \$0.7732 | 1.01 |
| DHW Cond Boiler (new) | Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 92% efficiency for savings calculations). | New | Water Heat | 20 | 2,027,806 | 0 | 0 | 212 | \$0.7792 | 1.03 |
| Power burner | Replace standard burner with a power burner to optimize combustion and reduce standby losses in the | Retrofit | Heating | 12 | 7,437,584 | 0 | 0 | 1,020 | \$0.8323 | 0.95 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|---|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| | stack. Note: Costs and savings assume that this measure will be performed in conjunction with a boiler tune up when appropriate. | | | | | | | | | |
| SPC Cond Boiler (new) | Install condensing boiler. Assumed seasonal combustion efficiency of 88% over base of 75% | New | Heating | 20 | 3,084,463 | 0 | 0 | 296 | \$0.8515 | 0.95 |
| Cond Unit Heater From Power Draft (new) | Install condensing power draft units (90% seas. Eff) in place of power draft (80% seas. Eff) | New | Heating | 18 | 3,114,289 | 0 | 0 | 310 | \$0.8720 | 0.92 |
| Windows - Tinted AL Code to Class 40 | Windows - Tinted AL Code to Class 40. Application: New Construction | New | Heating | 20 | 938,064 | 0 | 465 | 29 | \$0.8932 | 0.90 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|-------------------------|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| DHW Pipe Ins | Add 1" insulation to pipes used for steam or hydronic distribution; particularly effective when pipes run through unheated spaces. | New | Water Heat | 15 | 91,936 | 0 | 0 | 10 | \$0.9104 | 0.85 |
| HVAC controls | Control set up and algorithm. This assumes the development of an open source control package aimed at describing scheduling and control points throughout the HVAC system, properly training operators so that scheduling can be maintained and adjusted as needed, and providing operator back up so that temperature reset, pressure reset, and minimum damper settings are set at optimum levels for the current occupancy. | New | Heating | 5 | 21,153,361 | 0 | 24,673 | 2,902 | \$0.9109 | 0.77 |
| Combo Cond Boiler (new) | Replace with boiler using condensing or pulse technology to achieve steady-state | New | Heating | 20 | 1,865,757 | 0 | 0 | 161 | \$0.9482 | 0.85 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|---------------------------------------|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| | combustion efficiencies of 89% to 94% (this analysis used 92% efficiency for savings calculations). | | | | | | | | | |
| Combo Cond Boiler (repl) | Replace with boiler using condensing or pulse technology to achieve steady-state combustion efficiencies of 89% to 94% (this analysis used 92% efficiency for savings calculations). | Replace | Heating | 20 | 5,850,328 | 0 | 0 | 481 | \$0.9925 | 0.84 |
| Rooftop Condensing Burner | Install condensing burner | New | Heating | 10 | 7,635,910 | 0 | 5,906 | 397 | \$0.9963 | 0.75 |
| Roof Insulation - Rigid R11-33 | Roof Insulation - Rigid R11-33; add 4' of insulation at reroof. Application: Old buildings with flat roofs, no attics, and some insulation | Replace | Heating | 45 | 18,047,150 | 0 | 3,456 | 549 | \$1.0765 | 0.82 |
| Cond Unit Heater from Nat Draft (new) | Install condensing power draft units (90% seas. Eff) in place of natural draft (80% seas. Eff) | New | Heating | 18 | 6,009,369 | 0 | 0 | 465 | \$1.1218 | 0.71 |
| Hi Eff Unit Heater (replace) | Install power draft units (83% seas. Eff) in place of natural | Replace | Heating | 18 | 5,606,481 | 0 | 0 | 397 | \$1.2256 | 0.68 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|---|---|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| | draft (80% seas. Eff) | | | | | | | | | |
| Windows - Tinted AL Code to Class 36 | Windows - Tinted AL Code to Class 36. Application: Old buildings | Replace | Heating | 20 | 5,000,737 | 0 | 1,739 | 125 | \$1.2406 | 0.67 |
| Windows - Add Argon to Vinyl Lowe | Windows - Add Argon to Vinyl Lowe. Application: Old buildings | Replace | Heating | 20 | 10,132,890 | 0 | -728 | 723 | \$1.2432 | 0.67 |
| Cond Unit Heater from power draft (replace) | Install condensing power draft units (90% seas. Eff) in place of power draft (80% seas. Eff) | Replace | Heating | 18 | 15,660,136 | 0 | 0 | 976 | \$1.3934 | 0.59 |
| Ozone Laundry Treatment | Ozone treatment allows use of cold water | Retrofit | Water Heat | 10 | 149,203 | -9,844 | 8 | 12 | \$1.4330 | 0.55 |
| Solar Hot Water | Install solar water heaters on large use facility such as multifamily or lodging | Retrofit | Water Heat | 15 | 6,551,842 | 580,013 | 0 | 463 | \$1.5044 | 0.52 |
| Steam Trap Maintenance | Set up a in-house steam trap maintenance program with equipment, training, and trap replacement. An alternative procedure is to just pay for an | Retrofit | Heating | 10 | 1,071,732 | 4,459,777 | 0 | 442 | \$1.6373 | 0.48 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|---|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| | outside contractor to conduct a steam survey. | | | | | | | | | |
| Roof Insulation - Blanket R11-41 | Roof Insulation - Blanket R11-41. Application: Buildings with open truss unfinished interior | Retrofit | Heating | 45 | 11,891,923 | 0 | 53 | 396 | \$1.7097 | 0.51 |
| Cond Unit Heater from Nat draft (replace) | Install condensing power draft units (90% seas. Eff) in place of natural draft (80% seas. Eff) | Replace | Heating | 18 | 30,217,981 | 0 | 0 | 1,466 | \$1.7907 | 0.46 |
| Windows - Tinted AL Code to Class 36 | Windows - Tinted AL Code to Class 36. Application: New Construction | New | Heating | 20 | 2,345,160 | 0 | 475 | 48 | \$1.8073 | 0.45 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|--|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| Roof Insulation - Blanket R11-30 | Roof Insulation - Blanket R11-30. Application: Buildings with open truss unfinished interior | Retrofit | Heating | 45 | 10,570,599 | 0 | 53 | 330 | \$1.8178 | 0.48 |
| Windows - Non-Tinted AL Code to Class 40 | Windows - Non-Tinted AL Code to Class 40. Application: Old buildings | Replace | Heating | 20 | 7,664,277 | 0 | -336 | 358 | \$1.8375 | 0.46 |
| HVAC System Commissioning | HVAC system commissioning. Includes testing and balancing, damper settings, economizer settings, and proper HVAC heating and compressor control installation. This measure includes the proper set-up of single zone package equipment in simple HVAC systems. The majority of the Commercial area is served by this | New | Heating | 15 | 62,855,700 | 0 | 14,099 | 1,658 | \$1.8869 | 0.42 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|--|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| | technology. Work done in Eugene (Davis, et al, 2002) suggests higher savings than the other documented commissioning on more complex systems. | | | | | | | | | |
| Warm Up Control | This measure is designed to implement a shut down of outside air when the building is coming off night setback. Usually the capability for this is available in a commercial t-stat but either the extra control wire is not attached or the unit itself has not been set up to receive the signal. Cost is based on labor cost to enable this ability in existing controllers | Retrofit | Heating | 10 | 9,809,728 | 0 | 0 | 679 | \$1.8882 | 0.41 |
| Windows - Non-Tinted AL Code to Class 40 | Windows - Non-Tinted AL Code to Class 40. Application: New Construction | New | Heating | 20 | 4,087,993 | 0 | -169 | 177 | \$1.9750 | 0.41 |
| Cond Furnace (repl) | Condensing / pulse package or residential-type furnace with a minimum AFUE | Replace | Heating | 18 | 34,609,180 | 0 | 0 | 1,280 | \$2.3500 | 0.35 |

| Measure Name | Measure Description | Construction Type | Measure End Use | Average Lifetime | Total Incremental Cost | Total O&M | Total MWh Savings | Gas Impacts kTherms | Levelized Cost, \$/th | BCR |
|--|--|-------------------|-----------------|------------------|------------------------|-----------|-------------------|---------------------|-----------------------|------|
| | of 92%. | | | | | | | | | |
| Windows - Non-Tinted AL Code to Class 36 | Windows - Non-Tinted AL Code to Class 36. Application: Old buildings | Replace | Heating | 20 | 19,160,692 | 0 | -565 | 545 | \$2.9716 | 0.28 |
| Windows - Non-Tinted AL Code to Class 45 | Windows - Non-Tinted AL Code to Class 45. Application: Old buildings | Replace | Heating | 20 | 5,096,744 | 0 | -164 | 134 | \$3.2280 | 0.26 |
| Windows - Non-Tinted AL Code to Class 36 | Windows - Non-Tinted AL Code to Class 36. Application: New Construction | New | Heating | 20 | 10,219,984 | 0 | -331 | 268 | \$3.2280 | 0.25 |
| Solar Hot Water | Install solar water heaters on large use facility such as multifamily or lodging | New | Water Heat | 15 | 2,210,537 | 195,691 | 0 | 67 | \$3.5084 | 0.22 |

Table 20: Detailed Measure Table, Residential Sector, Electricity Savings, 2030 Technical Potential

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Total kWh Savings | Winter Peak Savings, kW | Summer Peak Savings, kW | Gas Savings Therms | Level Cost, \$/kWh | BCR | No. Units |
|--|-------------|------------------|------------------------|-----------------------|-------------------|-------------------------|-------------------------|--------------------|--------------------|--------|-----------|
| Elec Hi-eff Washer | New Appl | 12 | 9,364,706 | -32,604,571 | 26,558,305 | 3,843 | 3,219 | 199,145 | -\$0.094 | 100.00 | 187,294 |
| Elec MEF 2.0 Washer | New Appl | 12 | 6,180,706 | -21,230,884 | 17,774,211 | 2,572 | 2,154 | 152,975 | -\$0.090 | 100.00 | 187,294 |
| Elec Hi-eff Washer | ReplaceAppl | 12 | 46,013,321 | -73,365,686 | 47,606,493 | 6,889 | 5,770 | 97,928 | -\$0.064 | 100.00 | 298,788 |
| Elec ETO Dishwasher | ReplaceAppl | 12 | 2,074,441 | -3,640,238 | 2,959,959 | 425 | 356 | 13,228 | -\$0.058 | 100.00 | 38,416 |
| Elec ETO Dishwasher | New Appl | 12 | 1,300,356 | -2,281,871 | 3,189,118 | 462 | 387 | -4,549 | -\$0.034 | 3.66 | 24,081 |
| Elec MEF 2.0 Washer | ReplaceAppl | 12 | 33,763,021 | -38,406,198 | 34,911,428 | 5,052 | 4,231 | 82,862 | -\$0.015 | 100.00 | 298,788 |
| Common Area Lighting (MF Only) | Retro | 7 | 0 | 0 | 54,725,937 | 6,438 | 6,438 | 1,095,061 | \$0.000 | 100.00 | 135,953 |
| Heat Pump, (ER Base), Z B | Retro | 18 | 0 | 107,562 | 4,054,956 | 678 | 170 | 0 | \$0.002 | 44.64 | 283 |
| Hot water pipe wrap | Retro | 10 | 215,203 | 0 | 6,756,705 | 795 | 795 | 128,175 | \$0.004 | 22.37 | 9,782 |
| Tank wrap (in accordance with EWEB guidelines or equivalent) | Replace | 10 | 82,168 | 0 | 1,430,785 | 168 | 168 | 27,172 | \$0.006 | 12.41 | 29,346 |
| Window U=.3 (ER, Z B) | New | 45 | 67,766 | 0 | 598,816 | 151 | 4 | 0 | \$0.007 | 17.63 | 479 |
| Window U=.3 (HP, Z B) | New | 45 | 39,975 | 0 | 336,760 | 56 | 14 | 0 | \$0.007 | 17.49 | 226 |
| Window replace (U=.35), ER Z B | Replace | 45 | 5,291,349 | 0 | 42,959,717 | 10,810 | 300 | 0 | \$0.007 | 16.20 | 15,118 |
| Energy Star Television | New | 10 | 1,072,452 | 0 | 18,838,358 | 2,216 | 2,216 | 0 | \$0.007 | 10.61 | 110,201 |
| Window replace | Replace | 45 | 1,637,447 | 0 | 11,559,807 | 1,932 | 484 | 0 | \$0.008 | 14.66 | 4,678 |

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Total KWh Savings | Winter Peak Savings, kW | Summer Peak Savings, kW | Gas Savings Therms | Level Cost, \$/kWh | BCR | No. Units |
|--|-------------|------------------|------------------------|-----------------------|-------------------|-------------------------|-------------------------|--------------------|--------------------|-------|-----------|
| (U=.35), HP Z B | | | | | | | | | | | |
| Ducts Indoor, DHW, Lights (HP, Z2) | New | 45 | 638,257 | 0 | 3,942,925 | 659 | 165 | 0 | \$0.009 | 12.82 | 824 |
| Energy Star Computer Monitor | New | 8 | 259,343 | 0 | 3,334,238 | 392 | 392 | 0 | \$0.012 | 6.20 | 110,614 |
| Window replace (U=.35), ER Z A | Replace | 45 | 12,972,503 | 0 | 61,383,286 | 15,446 | 429 | 0 | \$0.012 | 9.44 | 42,302 |
| Energy Star Set Top Box | New | 5 | 866,077 | 0 | 16,224,462 | 1,909 | 1,909 | 0 | \$0.012 | 5.66 | 119,715 |
| Window U=.3 (ER, Z A) | New | 45 | 228,780 | 0 | 976,822 | 246 | 7 | 0 | \$0.014 | 8.52 | 1,922 |
| Ducts Indoor, DHW, Lights (HP, Z C) | New | 45 | 223,390 | 0 | 943,593 | 158 | 40 | 0 | \$0.014 | 8.77 | 288 |
| Window U=.3 (HP, Z A) | New | 45 | 59,316 | 0 | 202,053 | 34 | 8 | 0 | \$0.017 | 7.07 | 374 |
| Energy Star Computer Monitor | ReplaceAppl | 8 | 2,557,252 | 0 | 43,190,135 | 5,081 | 5,081 | -437,645 | \$0.017 | 7.29 | 888,671 |
| Wx (ceiling,floor) ER, Z B | Retro | 45 | 459,180 | 0 | 1,405,733 | 354 | 10 | 0 | \$0.019 | 6.11 | 242 |
| Duct Sealing, Eject Resis, Z B | Retro | 20 | 1,142,127 | 0 | 4,777,513 | 1,202 | 33 | 0 | \$0.020 | 5.43 | 1,845 |
| Energy Star Insulation, Ducts, DHW, Lights (ER, Z B) | New | 45 | 1,480,425 | 0 | 4,205,462 | 1,058 | 29 | 0 | \$0.020 | 5.67 | 1,306 |
| Energy Star Insulation, Ducts, DHW, Lights (HP, Z B) | New | 45 | 3,363,201 | 0 | 8,764,695 | 1,465 | 367 | 0 | \$0.022 | 5.41 | 2,120 |
| Near Net Zero Zonal (Z B) | New | 45 | 781,791 | 0 | 1,854,238 | 467 | 13 | 0 | \$0.024 | 4.73 | 176 |

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Total kWh Savings | Winter Peak Savings, kW | Summer Peak Savings, kW | Gas Savings Therms | Level Cost, \$/kWh | BCR | No. Units |
|--|-------------|------------------|------------------------|-----------------------|-------------------|-------------------------|-------------------------|--------------------|--------------------|------|-----------|
| Energy Star HP HSPF 7.7>9.5 (Z B) w. cx | New | 15 | 317,609 | 0 | 1,193,582 | 200 | 50 | 0 | \$0.026 | 3.98 | 426 |
| Energy Star Desktop Computer | New | 5 | 1,781,901 | 0 | 15,839,988 | 1,863 | 1,863 | 0 | \$0.026 | 2.69 | 113,414 |
| Energy Star Television | ReplaceAppl | 10 | 12,963,912 | 0 | 145,097,771 | 17,069 | 17,069 | -2,695,422 | \$0.026 | 5.52 | 972,223 |
| Energy Star Set Top Box | ReplaceAppl | 5 | 7,640,791 | 0 | 136,036,684 | 16,003 | 16,003 | -2,321,422 | \$0.026 | 4.36 | 1,056,160 |
| Wx Air Sealing, Z A | Retro | 10 | 1,335,751 | 0 | 6,558,989 | 1,650 | 46 | 0 | \$0.027 | 3.38 | 9,869 |
| Retail Lights (2 lamps) | Retro | 7 | 3,621,803 | 0 | 19,422,331 | 2,285 | 2,285 | 400,401 | \$0.027 | 2.74 | 603,634 |
| Wx (ceiling,floor) HP, Z B | Retro | 45 | 157,083 | 0 | 337,029 | 56 | 14 | 0 | \$0.027 | 4.45 | 75 |
| Wx (ceiling,floor) ER, Z A | Retro | 45 | 13,283,855 | 0 | 27,378,686 | 6,889 | 191 | 0 | \$0.028 | 4.11 | 8,926 |
| Duct Sealing, Heat Pump, Z B | Retro | 20 | 1,164,797 | 0 | 3,356,992 | 561 | 141 | 0 | \$0.028 | 3.90 | 1,939 |
| Ducts Indoor, DHW, Lights (HP, Z A) | New | 15 | 765,067 | 0 | 2,552,436 | 427 | 107 | 0 | \$0.029 | 3.53 | 987 |
| Duct Sealing, Elect Resis, Z A | Retro | 20 | 17,536,821 | 0 | 46,357,344 | 11,665 | 324 | 0 | \$0.031 | 3.43 | 32,334 |
| Energy Star Insulation, Ducts, DHW, Lights (HP, Z C) | New | 45 | 1,224,630 | 0 | 2,292,092 | 383 | 96 | 0 | \$0.031 | 3.89 | 782 |
| Tank upgrade (50 gal)-20 yr warranty | New | 20 | 325,393 | 0 | 753,373 | 109 | 91 | 13,451 | \$0.031 | 3.29 | 3,264 |
| Near Net Zero Zonal (Z C) | New | 45 | 273,627 | 0 | 491,972 | 124 | 3 | 0 | \$0.032 | 3.59 | 62 |

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Total KWh Savings | Winter Peak Savings, kW | Summer Peak Savings, kW | Gas Savings Therms | Level Cost, \$/kWh | BCR | No. Units |
|--|---------|------------------|------------------------|-----------------------|-------------------|-------------------------|-------------------------|--------------------|--------------------|------|-----------|
| Window replace (U=.35), HP Z A | Replace | 45 | 13,115,723 | 0 | 23,151,080 | 3,870 | 970 | 0 | \$0.033 | 3.66 | 37,473 |
| Add 16 LED lamps (using incand base) after 2015 | New | 10 | 3,111,782 | 0 | 20,578,246 | 2,421 | 2,421 | -367,403 | \$0.034 | 3.29 | 24,311 |
| Add 6 LED lamps (using incandescent base) aft 2015 | New | 10 | 2,031,003 | 0 | 12,523,439 | 1,473 | 1,473 | -204,951 | \$0.034 | 3.12 | 42,313 |
| Commissioning (HP), Z B | Retro | 5 | 375,442 | 0 | 2,537,642 | 424 | 106 | 0 | \$0.034 | 2.44 | 1,707 |
| Refrigerator Recycle | Retro | 6 | 3,252,112 | 0 | 18,092,069 | 2,128 | 2,128 | 0 | \$0.036 | 2.03 | 32,521 |
| Heat Pump, (HP Upgrade), Z B | Replace | 18 | 1,881,739 | 0 | 4,498,615 | 752 | 189 | 0 | \$0.036 | 2.83 | 1,077 |
| Energy Star Insulation, Ducts, DHW, Lights (ER, Z C) | New | 45 | 735,959 | 0 | 1,167,319 | 294 | 8 | 0 | \$0.037 | 3.17 | 733 |
| Near Net Zero Zonal (Z A) | New | 45 | 901,835 | 0 | 1,380,234 | 347 | 10 | 0 | \$0.038 | 3.05 | 204 |
| Energy Star Insulation, Ducts, DHW, Lights (HP, Z A) | New | 45 | 4,859,320 | 0 | 7,392,191 | 1,236 | 310 | 0 | \$0.038 | 3.16 | 3,217 |
| Commissioning (HP), Z A | Retro | 5 | 6,448,074 | 0 | 37,519,201 | 6,272 | 1,572 | 0 | \$0.040 | 2.10 | 29,309 |
| Window U=.3 (ER, Z C) | New | 45 | 165,536 | 0 | 223,305 | 56 | 2 | 0 | \$0.043 | 2.69 | 346 |
| Wx (ceiling, floor, wall) HP, Z B | Retro | 45 | 365,735 | 0 | 475,707 | 80 | 20 | 0 | \$0.045 | 2.70 | 108 |
| Energy Star HP HSPF 7.7>9.5 (Z C) w. cx | New | 15 | 116,867 | 0 | 255,718 | 43 | 11 | 0 | \$0.045 | 2.32 | 158 |

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Total kWh Savings | Winter Peak Savings, kW | Summer Peak Savings, kW | Gas Savings Therms | Level Cost, \$/kWh | BCR | No. Units |
|--|-------------|------------------|------------------------|-----------------------|-------------------|-------------------------|-------------------------|--------------------|--------------------|------|-----------|
| Window U=3 (HP, Z C) | New | 45 | 59,230 | 0 | 75,203 | 13 | 3 | 0 | \$0.046 | 2.64 | 92 |
| 50% LED after 2020 | Retro | 10 | 23,707,897 | 0 | 56,529,352 | 6,650 | 6,650 | 1,180,011 | \$0.046 | 1.73 | 98,925 |
| Heat pump water heater (80 gal) | New | 15 | 2,582,703 | 1,085,058 | 7,508,675 | 1,087 | 910 | 0 | \$0.048 | 1.99 | 3,532 |
| Heat pump water heater (80 gal) | ReplaceAppl | 15 | 2,378,154 | 999,122 | 6,913,990 | 1,001 | 838 | 0 | \$0.048 | 1.99 | 3,252 |
| Tank upgrade (50 gal)-10 yr warranty | ReplaceAppl | 10 | 705,502 | 0 | 1,862,339 | 270 | 226 | 0 | \$0.050 | 1.73 | 20,157 |
| Full lighting (all high efficacy) | New | 7 | 2,189,898 | 0 | 9,101,654 | 1,071 | 1,071 | -90,151 | \$0.050 | 1.58 | 19,553 |
| Energy Star Insulation, Ducts, DHW, Lights (ER, Z A) | New | 45 | 10,431,463 | 0 | 11,537,426 | 3,961 | 359 | 0 | \$0.052 | 1.96 | 10,989 |
| ER> Mini-split ductless heat pump Z B | New | 15 | 724,730 | 0 | 1,310,314 | 219 | 55 | 0 | \$0.054 | 1.91 | 259 |
| Heat pump water heater (50 gal) | ReplaceAppl | 15 | 24,213,044 | 8,369,072 | 53,957,456 | 7,809 | 6,540 | 0 | \$0.059 | 1.61 | 27,241 |
| Wx (ceiling, floor) HP, Z A | Retro | 45 | 2,124,396 | 0 | 2,086,601 | 349 | 87 | 0 | \$0.059 | 2.04 | 1,026 |
| Energy Star HP HSPF 7.7>9.5 (Z A) w. ex | New | 15 | 416,187 | 0 | 667,200 | 112 | 28 | 0 | \$0.061 | 1.70 | 569 |
| Duct Sealing, Heat Pump, Z A | Retro | 20 | 19,922,289 | 0 | 26,671,982 | 4,459 | 1,118 | 0 | \$0.061 | 1.81 | 33,306 |
| Tank upgrade (50 gal)-20 yr warranty | ReplaceAppl | 20 | 289,331 | 0 | 371,437 | 54 | 45 | 0 | \$0.064 | 1.61 | 2,903 |

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Total kWh Savings | Winter Peak Savings, kW | Summer Peak Savings, kW | Gas Savings Therms | Level Cost, \$/kWh | BCR | No. Units |
|---|-------------|------------------|------------------------|-----------------------|-------------------|-------------------------|-------------------------|--------------------|--------------------|------|-----------|
| Energy Star Desktop Computer | ReplaceAppl | 5 | 19,294,417 | 0 | 95,770,205 | 11,266 | 11,266 | -2,266,411 | \$0.065 | 1.11 | 1,000,573 |
| ER> Mini-split ductless heat pump Z B-C | Retro | 15 | 6,155,885 | 0 | 8,845,035 | 1,479 | 371 | 0 | \$0.068 | 1.52 | 1,620 |
| 100% LED after 2020 | Retro | 10 | 47,415,794 | 0 | 76,232,855 | 8,968 | 8,968 | 1,576,398 | \$0.068 | 1.16 | 88,261 |
| Home Energy Monitor | New | 3 | 1,045,287 | 0 | 5,532,756 | 651 | 651 | 0 | \$0.070 | 0.84 | 11,364 |
| ER> Mini-split ductless heat pump Z C | New | 15 | 253,656 | 0 | 350,775 | 59 | 15 | 0 | \$0.071 | 1.46 | 91 |
| ER> Mini-split ductless heat pump Z A | New | 15 | 841,929 | 0 | 1,125,042 | 283 | 8 | 0 | \$0.073 | 1.36 | 301 |
| Wx (ceiling, floor, wall) ER, Z B | Retro | 45 | 6,783,291 | 0 | 5,323,015 | 1,339 | 37 | 0 | \$0.074 | 1.57 | 3,145 |
| All LED (from 2020 base) after 2020 | New | 10 | 6,320,807 | 0 | 12,248,956 | 1,441 | 1,441 | -218,692 | \$0.081 | 0.96 | 24,311 |
| Heat Pump, (HP Upgrade), Z A | Replace | 18 | 4,769,293 | 0 | 5,049,640 | 844 | 212 | 0 | \$0.082 | 1.25 | 2,741 |
| Windows U-.30, HP, Z A | Retro | 45 | 482,920 | 0 | 330,701 | 55 | 14 | 0 | \$0.085 | 1.42 | 126 |
| Heat pump water heater (50 gal) | New | 15 | 51,670,935 | 17,579,404 | 77,327,128 | 11,191 | 9,372 | 0 | \$0.087 | 1.09 | 57,220 |
| ER> Mini-split ductless heat pump Z A | Retro | 15 | 102,594,743 | 0 | 113,394,190 | 18,956 | 4,752 | 0 | \$0.088 | 1.17 | 26,999 |
| Common Area Lighting (MF Only) | New | 7 | 1,582,628 | 0 | 2,719,162 | 320 | 320 | 9,298 | \$0.098 | 0.75 | 98,914 |
| Wx (ceiling, | Retro | 45 | 4,457,324 | 0 | 2,631,878 | 440 | 110 | 0 | \$0.098 | 1.23 | 1,332 |

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Total KWh Savings | Winter Peak Savings, kW | Summer Peak Savings, kW | Gas Savings Therms | Level Cost, \$/kWh | BCR | No. Units |
|---|-------------|------------------|------------------------|-----------------------|-------------------|-------------------------|-------------------------|--------------------|--------------------|------|-----------|
| floor, wall) HP, Z A | | | | | | | | | | | |
| Room AC (Z B) | Retro | 18 | 399,552 | 0 | 351,758 | 0 | 160 | 0 | \$0.099 | 0.99 | 10,413 |
| Windows U=.30, ER, Z A | Retro | 45 | 43,573,221 | 0 | 25,498,403 | 6,416 | 178 | 0 | \$0.099 | 1.17 | 16,138 |
| Room AC (Z A) | New | 18 | 126,898 | 0 | 109,230 | 0 | 50 | 0 | \$0.101 | 0.97 | 3,172 |
| HRV ER, Z B | Retro | 18 | 49,462,424 | 0 | 42,301,109 | 10,644 | 296 | 0 | \$0.102 | 0.97 | 25,815 |
| Energy Star lighting (18 lamps) | New | 7 | 3,750,604 | 7,051,407 | 19,366,972 | 2,278 | 2,278 | -220,943 | \$0.106 | 0.67 | 68,193 |
| Tank upgrade (50 gal)-10 yr warranty | New | 10 | 1,850,994 | 0 | 1,939,927 | 281 | 235 | 33,203 | \$0.109 | 0.79 | 52,886 |
| Wx (ceiling, floor, wall) ER, Z A | Retro | 45 | 60,163,084 | 0 | 31,141,246 | 7,836 | 218 | 0 | \$0.112 | 1.03 | 27,398 |
| Estar Refrigerator | ReplaceAppl | 12 | 25,968,609 | 0 | 22,282,698 | 2,621 | 2,621 | 364,509 | \$0.115 | 0.72 | 350,927 |
| Heat Pump, (ER Base), Z A | Retro | 18 | 198,216,860 | 13,125,841 | 158,700,068 | 39,933 | 1,109 | 0 | \$0.116 | 0.85 | 34,560 |
| Solar hot water heater (50 gal) With electric backup. | ReplaceAppl | 20 | 211,408,965 | 0 | 132,113,559 | 17,882 | 56,127 | 0 | \$0.131 | 0.75 | 51,221 |
| HRV, Energy Star (ER Z C) | New | 15 | 180,153 | 0 | 127,242 | 21 | 5 | 0 | \$0.138 | 0.75 | 209 |
| Add 6 LED lamps (using CFL base) after 2015 | New | 10 | 1,166,918 | 0 | 1,224,896 | 144 | 144 | -21,869 | \$0.138 | 0.52 | 24,311 |
| Add 16 LED lamps (using CFL base) after 2015 | New | 10 | 3,111,782 | 0 | 3,184,729 | 375 | 375 | -56,860 | \$0.142 | 0.51 | 24,311 |
| HRV, Energy | New | 15 | 721,500 | 0 | 466,187 | 78 | 20 | 0 | \$0.151 | 0.68 | 343 |

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Total kWh Savings | Winter Peak Savings, kW | Summer Peak Savings, kW | Gas Savings Therms | Level Cost, \$/kWh | BCR | No. Units |
|---|---------|------------------|------------------------|-----------------------|-------------------|-------------------------|-------------------------|--------------------|--------------------|------|-----------|
| Star (ER Z B) | | | | | | | | | | | |
| Room AC (Z A) | Retro | 18 | 1,043,487 | 0 | 571,919 | 0 | 261 | 0 | \$0.159 | 0.62 | 26,087 |
| HRV, Energy Star (HP Z B) | New | 15 | 533,340 | 0 | 309,340 | 52 | 13 | 0 | \$0.168 | 0.61 | 217 |
| HRV HP Z B | Retro | 18 | 41,986,466 | 0 | 20,302,954 | 3,394 | 851 | 0 | \$0.180 | 0.57 | 20,993 |
| Evaporative Cooling (Direct/indirect) (Z A) | New | 18 | 6,568,122 | 0 | 2,709,369 | 0 | 1,236 | 0 | \$0.211 | 0.47 | 8,210 |
| HRV ER, Z A | Retro | 18 | 102,228,241 | 0 | 39,908,681 | 10,042 | 279 | 0 | \$0.223 | 0.44 | 61,754 |
| Evaporative Cooling (Direct/indirect) (Z A) | Retro | 18 | 13,234,158 | 0 | 5,089,175 | 0 | 2,321 | 0 | \$0.226 | 0.43 | 16,543 |
| HRV, Energy Star (HP Z C) | New | 15 | 180,153 | 0 | 74,799 | 13 | 3 | 0 | \$0.235 | 0.44 | 83 |
| Estar Refrigerator | New | 12 | 23,020,024 | 0 | 10,480,014 | 1,233 | 1,233 | -91,078 | \$0.257 | 0.30 | 163,263 |
| AC Tune - up (Z B) | Retro | 18 | 1,773,043 | 0 | 587,360 | 0 | 268 | 0 | \$0.262 | 0.37 | 11,820 |
| Energy Star GSHP HSPF 12 (Z B) | New | 15 | 2,985,394 | 0 | 1,099,714 | 184 | 46 | 0 | \$0.265 | 0.39 | 206 |
| Wx Air Sealing, Z B | Retro | 10 | 176,150 | 0 | 84,850 | 21 | 1 | 0 | \$0.271 | 0.33 | 406 |
| Evaporative Cooling (Direct/indirect) (Z B) | Retro | 18 | 7,991,038 | 7,790,119 | 4,592,401 | 0 | 2,094 | 0 | \$0.299 | 0.33 | 10,413 |
| Solar hot water heater (50 gal) - With electric backup. | New | 20 | 441,532,385 | 0 | 119,775,822 | 16,212 | 50,886 | 0 | \$0.301 | 0.33 | 68,665 |
| ER->Mini-split ductless heat | New | 15 | 7,435,423 | 0 | 2,336,847 | 588 | 16 | 0 | \$0.311 | 0.32 | 4,426 |

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Total KWh Savings | Winter Peak Savings, kW | Summer Peak Savings, kW | Gas Savings Therms | Level Cost, \$/kWh | BCR | No. Units |
|---|---------|------------------|------------------------|-----------------------|-------------------|-------------------------|-------------------------|--------------------|--------------------|------|-----------|
| pump Z B in MF | | | | | | | | | | | |
| HRV HP Z A | Retro | 18 | 17,258,740 | 0 | 4,121,654 | 689 | 173 | 0 | \$0.364 | 0.28 | 8,957 |
| HRV, Energy Star (HP Z A) | New | 15 | 800,932 | 0 | 211,949 | 35 | 9 | 0 | \$0.369 | 0.28 | 367 |
| AC Tune - up (Z A) | Retro | 18 | 5,815,065 | 0 | 1,267,361 | 0 | 578 | 0 | \$0.399 | 0.25 | 38,767 |
| ER> Mini-split ductless heat pump Z A in MF | New | 15 | 4,289,667 | 0 | 1,036,670 | 261 | 7 | 0 | \$0.404 | 0.25 | 2,553 |
| Energy Star GSHP HSPF 12 (Z C) | New | 15 | 1,044,888 | 0 | 238,774 | 40 | 10 | 0 | \$0.427 | 0.24 | 72 |
| HRV, Energy Star (ER Z A) | New | 15 | 1,867,679 | 0 | 405,945 | 102 | 3 | 0 | \$0.449 | 0.22 | 1,084 |
| Energy Star GSHP HSPF 12 (Z A) | New | 15 | 3,469,537 | 0 | 631,158 | 106 | 26 | 0 | \$0.537 | 0.19 | 239 |
| Evaporative Cooling (Direct/indirect) (Z B) | New | 18 | 3,575,289 | 0 | 549,870 | 0 | 251 | 0 | \$0.565 | 0.17 | 4,467 |
| High SEER CAC, (SEER 15) (Z B) | Retro | 18 | 11,613,021 | 0 | 1,664,658 | 0 | 759 | 0 | \$0.606 | 0.16 | 13,298 |
| High SEER CAC, (SEER 15) (Z A) | New | 18 | 69,356,751 | 0 | 9,456,652 | 0 | 4,313 | 0 | \$0.637 | 0.15 | 99,081 |
| Room AC (Z B) | New | 18 | 2,315,593 | 0 | 280,161 | 0 | 128 | 0 | \$0.718 | 0.14 | 57,890 |
| High SEER CAC, (SEER 15) (Z A) | Retro | 18 | 30,452,055 | 0 | 3,555,530 | 0 | 1,612 | 0 | \$0.748 | 0.13 | 33,836 |
| ER> Mini-split ductless heat pump Z C in MF | New | 15 | 4,289,667 | 0 | 554,593 | 140 | 4 | 0 | \$0.755 | 0.13 | 1,532 |
| Home Energy | Replace | 3 | 83,195,412 | 0 | 40,802,080 | 4,800 | 4,800 | -897,046 | \$0.769 | 0.05 | 792,337 |

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Total KWh Savings | Winter Peak Savings, kW | Summer Peak Savings, kW | Gas Savings Therms | Level Cost, \$/kWh | BCR | No. Units |
|--------------------------------|---------|------------------|------------------------|-----------------------|-------------------|-------------------------|-------------------------|--------------------|--------------------|------|-----------|
| Monitor | | | | | | | | | | | |
| High SEER CAC, (SEER 15) (Z B) | New | 18 | 31,389,131 | 0 | 2,112,386 | 0 | 963 | 0 | \$1.291 | 0.08 | 44,842 |

Table 21: Detailed Measure Table, Residential Sector, Gas Savings, and 2030 Technical Potential

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Gas Savings Therms | Level Cost, \$/th | BCR | No. Units |
|--|-------------|------------------|------------------------|-----------------------|--------------------|-------------------|--------|-----------|
| Low Flow Shower | Retro Gas | 10 | 1,222,788 | -3,181,526 | 12,113 | -\$21.145 | 100.00 | 38,069 |
| Gas Hi-eff Washer | New Appl | 12 | -2,496,201 | -4,369,577 | 88,046 | -\$1.911 | 100.00 | 25,101 |
| Gas Hi-eff Washer | ReplaceAppl | 12 | -31,564,550 | -59,619,232 | 661,514 | -\$1.872 | 100.00 | 242,804 |
| Gas MEF 2.0 Washer | New Appl | 12 | -199,642 | -252,916 | 6,622 | -\$1.833 | 100.00 | 2,231 |
| Gas ETO Dishwasher | ReplaceAppl | 12 | -4,298,928 | -16,558,780 | 114,745 | -\$1.436 | 100.00 | 174,745 |
| Gas ETO Dishwasher | New Appl | 12 | -66,547 | -317,136 | 2,829 | -\$1.416 | 100.00 | 3,347 |
| Gas MEF 2.0 Washer | ReplaceAppl | 12 | -2,002,739 | -2,200,275 | 38,831 | -\$1.235 | 100.00 | 17,117 |
| Heating upgrade (AFUE 95) (Z A) | New Gas | 15 | -380,048 | 0 | 45,712 | -\$0.793 | 100.00 | 2,771 |
| Heating upgrade (AFUE 95) (Z C) | New Gas | 15 | -71,202 | 0 | 9,721 | -\$0.715 | 100.00 | 479 |
| Heating upgrade (AFUE 95) (Z B) | New Gas | 15 | -71,202 | 0 | 13,874 | -\$0.501 | 100.00 | 479 |
| MF Corridor Ventilation | New Gas | 15 | 0 | 0 | 483,536 | \$0.000 | 100.00 | 15,350 |
| AFUE 92 to condensing combo hydrocoil, Z C | New Gas | 45 | 17,953 | 0 | 24,026 | \$0.043 | 20.32 | 264 |
| AFUE 92 to condensing combo hydrocoil, Z B | New Gas | 45 | 17,953 | 0 | 21,650 | \$0.048 | 18.31 | 264 |
| Window, retro (U=.35), Z B | Retro Gas | 45 | 599,471 | 0 | 694,784 | \$0.050 | 17.59 | 4,867 |
| AFUE 92 to condensing combo hydrocoil, Z A | New Gas | 45 | 121,107 | 0 | 138,917 | \$0.050 | 17.41 | 1,781 |
| Window, retro (U=.35), Z C | Retro Gas | 45 | 615,179 | 0 | 499,806 | \$0.071 | 12.33 | 4,867 |
| AFUE 95 Furnace, Z B | Replace Gas | 18 | 789,914 | 317,173 | 984,463 | \$0.098 | 8.47 | 7,899 |
| Window, retro (U=.20), Z B | Retro Gas | 45 | 693,318 | 0 | 387,586 | \$0.104 | 8.49 | 1,521 |
| Window, retro (U=.35), Z A | Retro Gas | 45 | 6,224,460 | 0 | 3,281,961 | \$0.110 | 8.00 | 51,346 |
| AFUE 95 Furnace, Z C | Replace Gas | 18 | 776,894 | 317,173 | 704,387 | \$0.135 | 6.13 | 7,899 |
| Window, retro (U=.20), Z C | Retro Gas | 45 | 768,974 | 0 | 233,490 | \$0.191 | 4.61 | 1,521 |
| Duct Sealing, Z B | Retro Gas | 20 | 186,492 | 0 | 57,164 | \$0.266 | 3.14 | 594 |
| E* Insulation, Ducts, DHW, Lights (Gas Z B) | New Gas | 45 | 11,720,299 | 0 | 2,384,201 | \$0.278 | 3.17 | 16,448 |
| Tankless Gas heater replace after 2015 | Replace Gas | 20 | 15,826,148 | 0 | 4,524,336 | \$0.285 | 2.81 | 16,448 |
| Tankless Gas heater after 2015 | New Gas | 20 | 9,832,600 | 0 | 2,807,533 | \$0.286 | 2.80 | 79,131 |
| Solar hot water heater (50 gal) - With gas backup. | New Gas | 20 | 22,401,329 | -19,953,670 | 697,771 | \$0.286 | 1.18 | 49,163 |

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Gas Savings Therms | Level Cost, \$/th | BCR | No. Units |
|--|-------------|------------------|------------------------|-----------------------|--------------------|-------------------|------|-----------|
| Solar hot water heater (50 gal) - With gas backup. | Retro Gas | 20 | 60,015,479 | -53,452,671 | 1,858,558 | \$0.288 | 1.18 | 5,428 |
| E* Insulation, Ducts, DHW, Lights (Gas Z C) | New Gas | 45 | 11,720,299 | 0 | 1,747,428 | \$0.290 | 3.04 | 14,541 |
| E* Insulation, Ducts, DHW, Lights (Gas Z A) | New Gas | 45 | 77,210,291 | 0 | 10,261,732 | \$0.297 | 2.97 | 111,960 |
| Window, retro (U=20), Z A | Retro Gas | 45 | 7,652,950 | 0 | 1,489,220 | \$0.298 | 2.95 | 16,046 |
| Duct Sealing, Z C | Retro Gas | 20 | 193,859 | 0 | 52,961 | \$0.299 | 2.80 | 594 |
| Tankless Gas heater replace | Replace Gas | 20 | 54,891,879 | 0 | 13,413,665 | \$0.334 | 2.40 | 182,973 |
| Tankless Gas heater | New Gas | 20 | 2,674,065 | 0 | 652,585 | \$0.334 | 2.40 | 8,914 |
| AFUE 95 Furnace, Z A | Replace Gas | 18 | 6,907,414 | 2,773,525 | 2,340,995 | \$0.359 | 2.30 | 69,074 |
| Upgrade Gas Hearth | Replace Gas | 10 | 462,196 | 0 | 131,437 | \$0.460 | 1.69 | 28,887 |
| Near Net Zero (Gas Z B) | New Gas | 45 | 11,080,486 | 0 | 1,310,649 | \$0.485 | 1.82 | 2,501 |
| HRV, Z B | Retro Gas | 18 | 934,154 | 267,629 | 196,522 | \$0.531 | 1.56 | 1,868 |
| Solar hot water heater (50 gal) - With gas aft 2015 | New Gas | 20 | 185,945,835 | -148,133,828 | 5,160,721 | \$0.598 | 1.05 | 46,175 |
| Tank upgrade (50 gal gas) | New Gas | 15 | 2,784,067 | 0 | 450,096 | \$0.604 | 1.29 | 27,841 |
| Near Net Zero (Gas Z C) | New Gas | 45 | 3,077,913 | 0 | 281,389 | \$0.610 | 1.45 | 695 |
| Condensing Tankless Gas heater | Replace Gas | 20 | 16,852,696 | 0 | 2,254,012 | \$0.610 | 1.31 | 27,627 |
| Condensing Tankless Gas heater | New Gas | 20 | 1,212,543 | 0 | 161,958 | \$0.611 | 1.31 | 1,988 |
| Solar hot water heater (50 gal) - With gas backup aft 2015 | Replace Gas | 20 | 45,372,149 | -35,266,425 | 1,232,808 | \$0.669 | 1.03 | 10,993 |
| Near Net Zero (Gas Z A) | New Gas | 45 | 71,007,947 | 0 | 5,674,224 | \$0.725 | 1.22 | 16,029 |
| HRV, Z C | Retro Gas | 18 | 680,076 | 194,837 | 99,779 | \$0.762 | 1.09 | 1,360 |
| Window U=2 (Gas Z B) | New Gas | 45 | 923,089 | 0 | 68,085 | \$0.785 | 1.12 | 1,267 |
| Condensing Tankless Gas heater after 2015 | New Gas | 20 | 16,906,917 | 0 | 1,654,263 | \$0.834 | 0.96 | 33,151 |
| HRV, E* (Gas Z B) | New Gas | 15 | 3,518,829 | 0 | 394,464 | \$0.871 | 0.94 | 6,289 |
| MF Corridor Ventilation | Retro Gas | 15 | 2,773,077 | 0 | 291,173 | \$0.930 | 0.87 | 9,244 |
| Window U=2 (Gas Z C) | New Gas | 45 | 922,490 | 0 | 56,676 | \$0.943 | 0.93 | 1,267 |
| Wx insulation (ceiling, floor, walls), Z B | Retro Gas | 45 | 8,188,487 | 0 | 451,759 | \$1.050 | 0.84 | 1,546 |
| Window U=2 (Gas Z A) | New Gas | 45 | 6,026,665 | 0 | 320,825 | \$1.088 | 0.81 | 8,500 |
| HRV, E* (Gas Z C) | New Gas | 15 | 3,501,734 | 0 | 297,421 | \$1.150 | 0.71 | 6,289 |

| Measure Description | Program | Average Lifetime | Total Incremental Cost | Total O&M Impact (\$) | Gas Savings Therms | Level Cost, \$/th | BCR | No. Units |
|--|-------------|------------------|------------------------|-----------------------|--------------------|-------------------|------|-----------|
| Move Ducts Inside, E* lights, Z A | New Gas | 18 | 15,387,727 | 0 | 1,082,428 | \$1,235 | 0.67 | 9,617 |
| HRV, E* (Gas Z A) | New Gas | 15 | 22,440,837 | 0 | 1,683,065 | \$1,302 | 0.63 | 40,073 |
| Move Ducts Inside, E* lights, Z B | New Gas | 20 | 2,401,189 | 0 | 148,137 | \$1,323 | 0.63 | 1,501 |
| HRV, Z A | Retro Gas | 36 | 15,137,430 | 6,078,114 | 943,858 | \$1,393 | 0.63 | 30,275 |
| Wx insulation (ceiling, floor, walls), Z C | Retro Gas | 45 | 5,954,640 | 0 | 237,077 | \$1,455 | 0.60 | 1,124 |
| Tank upgrade (50 gal gas) after 2015 | New Gas | 15 | 3,146,713 | 0 | 193,202 | \$1,590 | 0.49 | 17,879 |
| Upgrade to forced draft tank | New Gas | 20 | 3,595,132 | 0 | 168,464 | \$1,742 | 0.46 | 2,971 |
| Duct Sealing, Z A | Retro Gas | 20 | 896,539 | 0 | 39,971 | \$1,830 | 0.46 | 2,708 |
| Move Ducts Inside, E* lights, Z C | New Gas | 20 | 2,401,189 | 0 | 101,376 | \$1,933 | 0.43 | 1,501 |
| Wx insulation (ceiling, floor), Z B | Retro Gas | 45 | 10,196,220 | 0 | 305,476 | \$1,933 | 0.45 | 3,337 |
| Upgrade to forced draft tank | Replace Gas | 15 | 34,836,660 | 0 | 1,635,294 | \$2,204 | 0.35 | 28,791 |
| Wx insulation (ceiling, floor), Z C | Retro Gas | 45 | 7,593,608 | 0 | 174,141 | \$2,526 | 0.35 | 2,461 |
| Wx Air Sealing, Z B | Retro Gas | 10 | 209,107 | 0 | 9,850 | \$2,776 | 0.28 | 482 |
| Wx Air Sealing, Z C | Retro Gas | 10 | 335,530 | 0 | 15,786 | \$2,779 | 0.28 | 773 |
| Wx insulation (ceiling, floor, walls), Z A | Retro Gas | 45 | 123,705,281 | 0 | 2,572,669 | \$2,785 | 0.32 | 23,359 |
| Upgrade to forced draft tank after 2015 | New Gas | 15 | 65,527,784 | 0 | 2,391,017 | \$2,849 | 0.27 | 59,034 |
| Wx insulation (ceiling, floor), Z A | Retro Gas | 45 | 145,192,683 | 0 | 1,880,950 | \$4,471 | 0.20 | 48,664 |
| Wx Air Sealing, Z A | Retro Gas | 10 | 10,558,357 | 0 | 197,803 | \$6,980 | 0.11 | 24,332 |

Appendix E

Supply Resource Alternatives

2012 CNGC IRP

APPENDIX E
Existing Portfolio

1

| EXISTING SUPPLY PORTFOLIO (AUGUST 2012) | | | | | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 |
|---|-------------|---------------|-------------------------------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| MODEL NAME | TERMINATION | EST AVG PRICE | PRICE FORMULA | POINT | | | | | | | | |
| DESCRIPTION | DATE | PER DAY | | | 30 | 31 | 31 | 28 | 31 | 30 | 31 | 30 |
| 1 002-0009-DJ | 1/31/2013 | \$ 3.0884 | IF S plus \$.12 | SUMAS | | 5000 | 5000 | | | | | |
| 2 002-012-DF | 2/28/2013 | \$ 5.7400 | Fixed | NOVA | 0 | 700 | 1000 | 1000 | 0 | 0 | 0 | 0 |
| 3 005-0001-NMR | 3/31/2014 | \$ 3.5667 | IF SUMAS + \$.0075 | SUMAS | 1250 | 3750 | 3750 | 8750 | 1250 | | | |
| 4 005-0003-DF | 2/28/2013 | \$ 4.5200 | Fixed | NOVA | 0 | 700 | 1000 | 1000 | 0 | 0 | 0 | 0 |
| 5 006-0003-NMR | 3/31/2013 | \$ 3.0459 | IF RM - \$.01 | ROCKIES | 10000 | 10000 | 10000 | 10000 | 10000 | | | |
| 6 006-0005-NMR | 3/31/2013 | \$ 3.0309 | IF RM - \$.025 | ROCKIES | 5000 | 5000 | 5000 | 5000 | 5000 | | | |
| 7 006-0011-ANN | 10/31/2014 | \$ 4.7250 | | SUMAS | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| 8 008-0029-ANN | 10/31/2014 | \$ 2.8936 | CGPR - \$.17 | DET | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 9 015-0028-NMR | 3/31/2014 | \$ 3.0103 | IF SUMAS-\$\$.39 | SUMAS | 2250 | 2250 | 2250 | 2250 | 2250 | | | |
| 10 015-0029-NMR | 3/31/2014 | \$ 2.9903 | IF SUMAS- \$.41 | SUMAS | 8000 | 8000 | 8000 | 8000 | 8000 | | | |
| 11 015-0030-DF | 2/28/2014 | \$ 2.7161 | IF SUMAS -\$.65 | SUMAS | | 2500 | 2500 | 2500 | | | | |
| 12 015-0031-NMR | 3/31/2013 | \$ 2.7881 | IF SUMAS -\$.45 | SUMAS | 7500 | 7500 | 7500 | 7500 | 7500 | | | |
| 13 015-0032-ANN | 10/31/2014 | \$ 4.8851 | <\$6.51>\$7.26 dth/day | ROCKIES | 2500 | 2500 | 2500 | 2500 | 2500 | 1000 | 1000 | 1000 |
| 14 015-0036-ANN | 10/31/2014 | \$ 3.4043 | CGPR Plus \$.01 Plus upstream | KING | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 |
| 15 015-0039-ANN | 10/31/2014 | \$ 4.2900 | IF RM -\$1.0 FLR \$4.29 | ROCKIES | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 16 027-0002-ANN | 10/31/2014 | \$ 4.5925 | | NOVA | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 |
| 17 028-0004-NMR | 3/31/2013 | \$ 4.7500 | Fixed | ROCKIES | 1500 | 5000 | 2500 | 5000 | 1500 | 0 | 0 | 0 |
| 18 041-0013-FEB | 2/28/2013 | \$ 2.8809 | IF RM Plus \$.005 | ROCKIES | | | | 3000 | | | | |
| 19 041-0024-NMY | 5/31/2013 | \$ 3.0180 | IF RM -\$.01 | ROCKIES | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | |
| 20 041-0027-NMR | 10/31/2014 | \$ 4.6850 | | ROCKIES | 3000 | 3000 | 3000 | 3000 | 3000 | | | |
| 21 046-0023-NMR | 3/31/2013 | \$ 2.7959 | IF RM -\$.08 | ROCKIES | 5000 | 5000 | 5000 | 5000 | 5000 | | | |
| 22 046-0024-DJ | 1/31/2014 | \$ 3.1997 | IF RM Less \$.08 | ROCKIES | | | | | | | | |
| 23 046-0025-FMR | 3/31/2014 | \$ 3.2701 | IF RM +\$.01 | ROCKIES | | | | 4000 | 4000 | | | |
| 24 046-0027-NMR | 3/31/2014 | \$ 3.6814 | IF RM +\$.01 | ROCKIES | | | | | | | | |
| 25 046-0028-AO | 10/31/2013 | \$ 3.0345 | IF RM-.02 | ROCKIES | 0 | 0 | 0 | 0 | 0 | 10000 | 5000 | 5000 |
| 26 046-0029-NMR | 3/31/2013 | \$ 2.9359 | IF RM +\$.01 | ROCKIES | 1000 | 5000 | 5000 | 5000 | 1000 | | | |
| 27 056-0037-DF | 2/28/2013 | \$ 4.5500 | Fixed | NOVA | 0 | 700 | 1000 | 1000 | 0 | 0 | 0 | 0 |
| 28 056-0041-NF | 2/28/2013 | \$ 3.0591 | IF SUMAS + \$.0275 | | 2000 | 2000 | 2000 | 2000 | | | | |
| 29 076-0008-NMR | 3/31/2014 | \$ 2.9353 | CGPR + \$.015 | NOVA | 2000 | 2000 | 2000 | 2000 | 2000 | | | |
| 30 076-0009-NMR | 2/28/2014 | \$ 2.8966 | CGPR + \$.015 | NOVA | 1000 | 3000 | 3000 | 3000 | 1000 | | | |
| 31 076-0013-ANN | 10/31/2013 | \$ 5.7660 | Fixed \$5.766 | NOVA | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 32 076-0014-DF | 2/28/2013 | \$ 5.4900 | Fixed | NOVA | 0 | 700 | 1000 | 1000 | 0 | 0 | 0 | 0 |
| 33 076-0017-DF | 2/28/2013 | \$ 5.4960 | Fixed | NOVA | 0 | 700 | 1000 | 1000 | 0 | 0 | 0 | 0 |
| 34 076-0020-DF | 2/28/2013 | \$ 5.4360 | Fixed | NOVA | 0 | 700 | 1000 | 1000 | 0 | 0 | 0 | 0 |
| 35 076-0018-DF | 2/28/2013 | \$ 5.1060 | Fixed | NOVA | 0 | 700 | 1000 | 1000 | 0 | 0 | 0 | 0 |
| 36 076-0019-DF | 2/28/2013 | \$ 5.7460 | Fixed | NOVA | 0 | 700 | 1000 | 1000 | 0 | 0 | 0 | 0 |
| 37 076-0022-ANN | 10/31/2013 | \$ 5.9960 | Fixed \$5.996 | SUMAS | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 38 076-0023-DF | 2/28/2013 | \$ 4.6560 | Fixed | NOVA | 0 | 700 | 1000 | 1000 | 0 | 0 | 0 | 0 |
| 39 076-0024-DF | 2/28/2013 | \$ 4.4560 | Fixed | NOVA | 0 | 700 | 1000 | 1000 | 0 | 0 | 0 | 0 |
| 40 018-0021-OMY | 10/31/2013 | \$ 5.5160 | Fixed \$5.516 | SUMAS | 500 | 500 | 500 | 500 | 500 | 6000 | 3000 | 0 |

2012 CNGC IRP

APPENDIX E
Existing Portfolio

2

| EXISTING SUPPLY PORTFOLIO (AUGUST 2012) | | | | | Jul-13 | Aug-13 | Sep-13 | Oct-13 | Nov-13 | Dec-13 | Jan-14 | Feb-14 |
|---|------------------|-----------------------|---------------|-------------------------------|---------|--------|--------|--------|--------|--------|--------|--------|
| MODEL NAME | TERMINATION DATE | EST AVG PRICE PER DAY | PRICE FORMULA | POINT | | | | | | | | |
| 1 | 002-0009-DJ | 1/31/2013 | \$ 3.0884 | IF S plus \$.12 | SUMAS | | | | | | | |
| 2 | 002-012-DF | 2/28/2013 | \$ 5.7400 | Fixed | NOVA | 0 | 0 | 0 | 0 | | | |
| 3 | 005-0001-NMR | 3/31/2014 | \$ 3.5667 | IF SUMAS + \$.0075 | SUMAS | | | | 750 | 3750 | 3750 | 3750 |
| 4 | 005-0003-DF | 2/28/2013 | \$ 4.5200 | Fixed | NOVA | 0 | 0 | 0 | 0 | | | |
| 5 | 006-0003-NMR | 3/31/2013 | \$ 3.0459 | IF RM - \$.01 | ROCKIES | | | | | | | |
| 6 | 006-0005-NMR | 3/31/2013 | \$ 3.0309 | IF RM - \$.025 | ROCKIES | | | | | | | |
| 7 | 006-0011-ANN | 10/31/2014 | \$ 4.7250 | | SUMAS | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| 8 | 008-0029-ANN | 10/31/2014 | \$ 2.8936 | CGPR - \$.17 | DET | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 9 | 015-0028-NMR | 3/31/2014 | \$ 3.0103 | IF SUMAS-\$\$.39 | SUMAS | | | | 2250 | 2250 | 2250 | 2250 |
| 10 | 015-0029-NMR | 3/31/2014 | \$ 2.9903 | IF SUMAS- \$.41 | SUMAS | | | | 8000 | 8000 | 8000 | 8000 |
| 11 | 015-0030-DF | 2/28/2014 | \$ 2.7161 | IF SUMAS -\$.65 | SUMAS | | | | | 2500 | 2500 | 2500 |
| 12 | 015-0031-NMR | 3/31/2013 | \$ 2.7881 | IF SUMAS -\$.45 | SUMAS | | | | | | | |
| 13 | 015-0032-ANN | 10/31/2014 | \$ 4.8851 | <\$6.51>\$.7.26 dth/day | ROCKIES | 1000 | 1000 | 1000 | 1000 | 2500 | 2500 | 2500 |
| 14 | 015-0036-ANN | 10/31/2014 | \$ 3.4043 | CGPR Plus \$.01 Plus upstream | KING | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 |
| 15 | 015-0039-ANN | 10/31/2014 | \$ 4.2900 | IF RM -\$1.0 FLR \$4.29 | ROCKIES | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 16 | 027-0002-ANN | 10/31/2014 | \$ 4.5925 | | NOVA | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 |
| 17 | 028-0004-NMR | 3/31/2013 | \$ 4.7500 | Fixed | ROCKIES | 0 | 0 | 0 | 0 | | | |
| 18 | 041-0013-FEB | 2/28/2013 | \$ 2.8809 | IF RM Plus \$.005 | ROCKIES | | | | | | | |
| 19 | 041-0024-NMY | 5/31/2013 | \$ 3.0180 | IF RM -\$.01 | ROCKIES | | | | | | | |
| 20 | 041-0027-NMR | 10/31/2014 | \$ 4.6850 | | ROCKIES | | | | 3000 | 3000 | 3000 | 3000 |
| 21 | 046-0023-NMR | 3/31/2013 | \$ 2.7959 | IF RM -\$.08 | ROCKIES | | | | | | | |
| 22 | 046-0024-DJ | 1/31/2014 | \$ 3.1997 | IF RM Less \$.08 | ROCKIES | | | | | 5000 | 5000 | |
| 23 | 046-0025-FMR | 3/31/2014 | \$ 3.2701 | IF RM +\$.01 | ROCKIES | | | | | | | 4000 |
| 24 | 046-0027-NMR | 3/31/2014 | \$ 3.6814 | IF RM +\$.01 | ROCKIES | | | | 4000 | 6000 | 6000 | 6000 |
| 25 | 046-0028-AO | 10/31/2013 | \$ 3.0345 | IF RM-.02 | ROCKIES | 5000 | 5000 | 5000 | 10000 | | | |
| 26 | 046-0029-NMR | 3/31/2013 | \$ 2.9359 | IF RM +\$.01 | ROCKIES | | | | | | | |
| 27 | 056-0037-DF | 2/28/2013 | \$ 4.5500 | Fixed | NOVA | 0 | 0 | 0 | 0 | | | |
| 28 | 056-0041-NF | 2/28/2013 | \$ 3.0591 | IF SUMAS + \$.0275 | | | | | | | | |
| 29 | 076-0008-NMR | 3/31/2014 | \$ 2.9353 | CGPR + \$.015 | NOVA | | | | | 2000 | 2000 | 2000 |
| 30 | 076-0009-NMR | 2/28/2014 | \$ 2.8966 | CGPR + \$.015 | NOVA | | | | | 500 | 500 | 500 |
| 31 | 076-0013-ANN | 10/31/2013 | \$ 5.7660 | Fixed \$5.766 | NOVA | 1000 | 1000 | 1000 | 1000 | | | |
| 32 | 076-0014-DF | 2/28/2013 | \$ 5.4900 | Fixed | NOVA | 0 | 0 | 0 | 0 | | | |
| 33 | 076-0017-DF | 2/28/2013 | \$ 5.4960 | Fixed | NOVA | 0 | 0 | 0 | 0 | | | |
| 34 | 076-0020-DF | 2/28/2013 | \$ 5.4360 | Fixed | NOVA | 0 | 0 | 0 | 0 | | | |
| 35 | 076-0018-DF | 2/28/2013 | \$ 5.1060 | Fixed | NOVA | 0 | 0 | 0 | 0 | | | |
| 36 | 076-0019-DF | 2/28/2013 | \$ 5.7460 | Fixed | NOVA | 0 | 0 | 0 | 0 | | | |
| 37 | 076-0022-ANN | 10/31/2013 | \$ 5.9960 | Fixed \$5.996 | SUMAS | 1000 | 1000 | 1000 | 1000 | | | |
| 38 | 076-0023-DF | 2/28/2013 | \$ 4.6560 | Fixed | NOVA | 0 | 0 | 0 | 0 | | | |
| 39 | 076-0024-DF | 2/28/2013 | \$ 4.4560 | Fixed | NOVA | 0 | 0 | 0 | 0 | | | |
| 40 | 018-0021-OMY | 10/31/2013 | \$ 5.5160 | Fixed \$5.516 | SUMAS | 0 | 0 | 0 | 3000 | | | |

2012 CNGC IRP

APPENDIX E
Existing Portfolio

3

| EXISTING SUPPLY PORTFOLIO (AUGUST 2012) | | | | | | Mar-14 | Apr-14 | May-14 | Jun-14 | Jul-14 | Aug-14 | Sep-14 | Oct-14 |
|---|-------------|---------------|-------------------------------|---------|------|--------|--------|--------|--------|--------|--------|--------|--------|
| MODEL NAME | TERMINATION | EST AVG PRICE | PRICE FORMULA | | | | | | | | | | |
| DESCRIPTION | DATE | PER DAY | | POINT | | | | | | | | | |
| 1 002-0009-DJ | 1/31/2013 | \$ 3.0884 | IF S plus \$.12 | SUMAS | | | | | | | | | |
| 2 002-012-DF | 2/28/2013 | \$ 5.7400 | Fixed | NOVA | | | | | | | | | |
| 3 005-0001-NMR | 3/31/2014 | \$ 3.5667 | IF SUMAS + \$.0075 | SUMAS | 750 | | | | | | | | |
| 4 005-0003-DF | 2/28/2013 | \$ 4.5200 | Fixed | NOVA | | | | | | | | | |
| 5 006-0003-NMR | 3/31/2013 | \$ 3.0459 | IF RM - \$.01 | ROCKIES | | | | | | | | | |
| 6 006-0005-NMR | 3/31/2013 | \$ 3.0309 | IF RM - \$.025 | ROCKIES | | | | | | | | | |
| 7 006-0011-ANN | 10/31/2014 | \$ 4.7250 | | SUMAS | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| 8 008-0029-ANN | 10/31/2014 | \$ 2.8936 | CGPR - \$.17 | DET | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 9 015-0028-NMR | 3/31/2014 | \$ 3.0103 | IF SUMAS-\$\$.39 | SUMAS | 2250 | | | | | | | | |
| 10 015-0029-NMR | 3/31/2014 | \$ 2.9903 | IF SUMAS- \$.41 | SUMAS | 8000 | | | | | | | | |
| 11 015-0030-DF | 2/28/2014 | \$ 2.7161 | IF SUMAS -\$.65 | SUMAS | | | | | | | | | |
| 12 015-0031-NMR | 3/31/2013 | \$ 2.7881 | IF SUMAS -\$.45 | SUMAS | | | | | | | | | |
| 13 015-0032-ANN | 10/31/2014 | \$ 4.8851 | <\$6.51>\$7.26 dth/day | ROCKIES | 2500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 14 015-0036-ANN | 10/31/2014 | \$ 3.4043 | CGPR Plus \$.01 Plus upstream | KING | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 |
| 15 015-0039-ANN | 10/31/2014 | \$ 4.2900 | IF RM -\$1.0 FLR \$4.29 | ROCKIES | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| 16 027-0002-ANN | 10/31/2014 | \$ 4.5925 | | NOVA | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 |
| 17 028-0004-NMR | 3/31/2013 | \$ 4.7500 | Fixed | ROCKIES | | | | | | | | | |
| 18 041-0013-FEB | 2/28/2013 | \$ 2.8809 | IF RM Plus \$.005 | ROCKIES | | | | | | | | | |
| 19 041-0024-NMY | 5/31/2013 | \$ 3.0180 | IF RM -\$.01 | ROCKIES | | | | | | | | | |
| 20 041-0027-NMR | 10/31/2014 | \$ 4.6850 | | ROCKIES | 3000 | | | | | | | | 3000 |
| 21 046-0023-NMR | 3/31/2013 | \$ 2.7959 | IF RM -\$.08 | ROCKIES | | | | | | | | | |
| 22 046-0024-DJ | 1/31/2014 | \$ 3.1997 | IF RM Less \$.08 | ROCKIES | | | | | | | | | |
| 23 046-0025-FMR | 3/31/2014 | \$ 3.2701 | IF RM +\$.01 | ROCKIES | 4000 | | | | | | | | |
| 24 046-0027-NMR | 3/31/2014 | \$ 3.6814 | IF RM +\$.01 | ROCKIES | 4000 | | | | | | | | |
| 25 046-0028-AO | 10/31/2013 | \$ 3.0345 | IF RM-.02 | ROCKIES | | | | | | | | | |
| 26 046-0029-NMR | 3/31/2013 | \$ 2.9359 | IF RM +\$.01 | ROCKIES | | | | | | | | | |
| 27 056-0037-DF | 2/28/2013 | \$ 4.5500 | Fixed | NOVA | | | | | | | | | |
| 28 056-0041-NF | 2/28/2013 | \$ 3.0591 | IF SUMAS + \$.0275 | | | | | | | | | | |
| 29 076-0008-NMR | 3/31/2014 | \$ 2.9353 | CGPR + \$.015 | NOVA | 2000 | | | | | | | | |
| 30 076-0009-NMR | 2/28/2014 | \$ 2.8966 | CGPR + \$.015 | NOVA | | | | | | | | | |
| 31 076-0013-ANN | 10/31/2013 | \$ 5.7660 | Fixed \$5.766 | NOVA | | | | | | | | | |
| 32 076-0014-DF | 2/28/2013 | \$ 5.4900 | Fixed | NOVA | | | | | | | | | |
| 33 076-0017-DF | 2/28/2013 | \$ 5.4960 | Fixed | NOVA | | | | | | | | | |
| 34 076-0020-DF | 2/28/2013 | \$ 5.4360 | Fixed | NOVA | | | | | | | | | |
| 35 076-0018-DF | 2/28/2013 | \$ 5.1060 | Fixed | NOVA | | | | | | | | | |
| 36 076-0019-DF | 2/28/2013 | \$ 5.7460 | Fixed | NOVA | | | | | | | | | |
| 37 076-0022-ANN | 10/31/2013 | \$ 5.9960 | Fixed \$5.996 | SUMAS | | | | | | | | | |
| 38 076-0023-DF | 2/28/2013 | \$ 4.6560 | Fixed | NOVA | | | | | | | | | |
| 39 076-0024-DF | 2/28/2013 | \$ 4.4560 | Fixed | NOVA | | | | | | | | | |
| 40 018-0021-OMY | 10/31/2013 | \$ 5.5160 | Fixed \$5.516 | SUMAS | | | | | | | | | |

APPENDIX E
Alternative Supply Resources

2012 CNGC IRP

| ALTERNATE SUPPLY RESOURCES (AUGUST 2012) | | | | | | | | | | | | |
|--|----------|----------------|---------------|----------------|----------------------|------------------------------|------------|-------------------|-----------------|---------------|-------------|--|
| MODEL NAME | CATEGORY | OTHER CAT INFO | RECEIPT PT(S) | DELIVERY PT(S) | PRICE INDEX | INDEX DIFFERENTIAL/EST PRICE | COMM ADDER | DEMAND CHARGE | DEAL START DATE | DEAL END DATE | MDQ IN DTHS | |
| 1 FIRM IFSUM | ANNUAL | EXISTING | SUMAS | NWP, GTN | IFERC SUMAS | \$ 0.0400 | YES | RMIX for EXISTING | | 3/31/2014 | VARIABLE | |
| 2 FIRM IFRM | ANNUAL | EXISTING | ROCKIES | NWP, GTN | IFERC ROCKIES | \$ 0.0300 | YES | RMIX for 2012 | | 3/31/2014 | VARIABLE | |
| 3 FIRM NYM NIT | ANNUAL | EXISTING | AECO | NWP, GTN | NYMEX HH | \$ 0.0150 | YES | RMIX for 2012 | | 2/28/2014 | VARIABLE | |
| 4 FIRM CGP NIT | ANNUAL | EXISTING | AECO | NWP, GTN | AECO (CGPR) | \$ 0.0100 | YES | RMIX for 2012 | | 3/31/2014 | VARIABLE | |
| 5 FIRM FX NIT1 | SEASONAL | EXISTING | AECO | NWP, GTN | FIXED | \$ 3.6650 | | RMIX for 2012 | | 2/28/2013 | VARIABLE | |
| 6 FIRM CGP ST2 | SEASONAL | EXISTING | STATION 2 | NWP, GTN | AECO (CGPR) | \$ 0.0467 | YES | RMIX for 2012 | | 4/1/2013 | VARIABLE | |
| 7 FIRM FX SUM | SEASONAL | EXISTING | SUMAS | NWP, GTN | FIXED | \$ 4.0800 | | RMIX for 2012 | | 10/31/2013 | VARIABLE | |
| 8 PEAK 1 | PEAKING | EXISTING | CITYGATE | NWP | GD SUMAS | \$ 0.1800 | YES | 0.05 | | 10/31/2014 | 15000 | |
| 9 PEAK 2 | PEAKING | EXISTING | CITYGATE | NWP | GD SUMAS | FLAT | | | | 10/31/2014 | 15000 | |
| 10 PEAK 4 | PEAKING | EXISTING | SUMAS | NWP | GD SUMAS | \$ 0.0300 | YES | 0.03 | | 10/31/2014 | 5000 | |
| 11 FIRM I STAN | SEASONAL | EXISTING | STANIFIELD | NWP, GTN | IFERC SUMAS | \$ (0.4700) | YES | | | 3/31/2014 | VARIABLE | |
| 12 PEAK 5 | PEAKING | EXISTING | AECO | NWP, GTN | AECO (CGPR) | \$ 0.0200 | YES | 0.1 | | 3/1/2013 | 5000 | |
| 13 FIRM FX NIT2 | SEASONAL | EXISTING | AECO | NWP, GTN | FIXED | \$ 3.0600 | | | | 2/29/2012 | VARIABLE | |
| 14 FIRM FX ST2 | SEASONAL | EXISTING | FIXED | NWP, GTN | FIXED | \$ 4.1600 | | | | 12/1/2013 | VARIABLE | |
| 15 FIRM GD ST2 | SEASONAL | EXISTING | STATION 2 | NWP, GTN | GD SUMAS | \$ 0.0500 | YES | | | 4/1/2014 | 10000 | |
| 16 FIRM FX RM2 | SEASONAL | EXISTING | ROCKIES | NWP, GTN | FIXED | \$ 3.6700 | | | | 3/31/2013 | VARIABLE | |
| 17 FIRM STR RM | ANNUAL | EXISTING | ROCKIES | NWP, GTN | FIXED IF IF RM < \$4 | \$ 3.4000 | | | | 11/1/2014 | 1000 - 2500 | |
| 18 FIRM STR SUM | SEASONAL | EXISTING | SUMAS | NWP, GTN | IFSUM -25 W/FLR | | | | | 3/1/2012 | 5000 | |
| 19 FIRM CG NIT | ANNUAL | EXISTING | CITYGATE | GTN | AECO (CGPR) | \$ 0.3000 | YES | | | 10/31/2014 | VARIABLE | |
| 20 FIRM GD SUM | SEASONAL | EXISTING | SUMAS | NWP, GTN | GD SUMAS | \$ 0.0250 | YES | | | 10/31/2012 | VARIABLE | |
| 21 FIRM CG SUM | SEASONAL | EXISTING | CITYGATE | NWP | IFERC SUMAS | \$ 0.4200 | YES | | | 10/31/2014 | VARIABLE | |
| 22 FIRM SPT SUM | SEASONAL | RMIX | SUMAS | NWP, GTN | IFERC SUMAS | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 23 FIRM SPT NIT | SEASONAL | RMIX | AECO | GTN | AECO (CGPR) | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 24 FIRM SPT RM | SEASONAL | RMIX | ROCKIES | NWP, GTN | IFERC ROCKIES | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 25 INCR SUM A | ANNUAL | RMIX | SUMAS | NWP, GTN | IFERC SUMAS | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 26 INCR RM A | ANNUAL | RMIX | ROCKIES | NWP, GTN | IFERC ROCKIES | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 27 INCR NIT A | ANNUAL | RMIX | AECO | GTN | AECO (CGPR) | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 28 INCR SUM S | SEASONAL | RMIX | SUMAS | NWP, GTN | IFERC SUMAS | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 29 INCR RM S | SEASONAL | RMIX | ROCKIES | NWP, GTN | IFERC ROCKIES | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 30 INCR NIT S | SEASONAL | RMIX | AECO | GTN | AECO (CGPR) | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 31 INCR ST2 | SEASONAL | RMIX | STATION 2 | NWP, GTN | GD SUMAS | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 32 INCR STRU SU | ANNUAL | RMIX | SUMAS | NWP, GTN | STRUCTURED | Index Ls \$0.25 ff inde | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 33 INCR STRU RM | ANNUAL | RMIX | ROCKIES | NWP, GTN | STRUCTURED | Index Ls \$0.25 ff inde | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 34 INCR STRU AE | ANNUAL | RMIX | AECO | GTN | STRUCTURED | Index Ls \$0.25 ff inde | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 35 INCR SUM FX | ANNUAL | RMIX | SUMAS | NWP, GTN | FIXED | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 36 INCR RM FX | ANNUAL | RMIX | ROCKIES | NWP, GTN | FIXED | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |
| 37 INCR NIT FX | ANNUAL | RMIX | AECO | GTN | FIXED | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE | |

APPENDIX E
Alternative Supply Resources

2012 CNGC IRP

| ALTERNATE SUPPLY RESOURCES (AUGUST 2012) | | | | | | | | | | | |
|---|----------|----------------|-------------------|--------------------|-------------|------------------------------|------------|---------------|-----------------|---------------|-------------|
| MODEL NAME | CATEGORY | OTHER CAT INFO | RECEIPT PT(S) | DELIVERY PT(S) | PRICE INDEX | INDEX DIFFERENTIAL/EST PRICE | COMM ADDER | DEMAND CHARGE | DEAL START DATE | DEAL END DATE | MDQ IN DTHS |
| 38 INCR MAL | SEASONAL | RMIX | MALIN | BACKHAULS NWP, GTN | MALIN | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE |
| 39 SAT LNG | SEASONAL | RMIX | ZONAL | ZONAL | NYMEX HH | | NO | | 11/1/2012 | INCREMENTAL | VARIABLE |
| 40 IMP LNG NOR | SEASONAL | RMIX | PALOMAR | BACKHAULS NWP, GTN | NYMEX HH | | NO | | 11/1/2015 | INCREMENTAL | VARIABLE |
| 41 IMP LNG SOR | SEASONAL | RMIX | PACIFIC CONNECTOR | BACKHAULS NWP, GTN | NYMEX HH | | NO | | 11/1/2016 | INCREMENTAL | VARIABLE |
| 42 SAT PROP | SEASONAL | RMIX | ZONAL | ZONAL | NYMEX HH | | NO | | 11/1/2016 | INCREMENTAL | VARIABLE |
| 43 INCR CG NWP | SEASONAL | RMIX | CITYGATE | NWP | NYMEX HH | | NO | | 11/1/2016 | INCREMENTAL | VARIABLE |
| 44 INCR CG GTN | SEASONAL | RMIX | CITYGATE | GTN | NYMEX HH | | NO | | 11/1/2016 | INCREMENTAL | VARIABLE |
| SUPPLY MDQS ARE CAPPED AT 20,000 DTHS/DAY | | | | | | | | | | | |

2012 CNGC IRP

APPENDIX E
STORAGE

1

Potential and Existing Storage and Transport
2012 Integrated Resource Plan

EXISTING AND POTENTIAL ADDITIONAL STORAGE RESOURCES

| | Model Name | Type | Location | Pipeline Transport Required | Start | Contract Expiration | Lead Time | PRINCIPLE DEL AREA | Max Cap | WD MDQ | Fuel Inj < 3% | SVDD | D2 RATE > \$0.05 < \$0.15 |
|----|--------------|-------------|-----------------|-----------------------------|--------------------------------|---------------------|-----------|---------------------------|-----------------|--------|---------------|------|---------------------------|
| 1 | JP-1 | Underground | Jackson Prairie | Yes | Existing | 2020 | NA | MOST OR AND WA NWP POINTS | 604,351 | 16,789 | YES | SGS | YES |
| 2 | JP-EXP | Underground | Jackson Prairie | Yes | Full access begins in Nov 2012 | 2060 | NA | ZONE 30-S | 350,000 | 30,000 | YES | SGS | YES |
| 3 | LNG | LNG | Plymouth | Yes | Existing | 2020 | NA | MANY OR AND WA NWP POINTS | 562,200 | 60,000 | YES | SGS | YES |
| 4 | JP-3 | Underground | Jackson Prairie | Yes | Nov-12 | 2021 | | ZONE 30-S, ZONE 30-W | 102,782 | 3,500 | YES | SGS | YES |
| 5 | JP-4 | Underground | Jackson Prairie | Yes | Nov-12 | 2021 | | ZONE 30-S, ZONE 30-W | 178,460 | 6,077 | YES | SGS | YES |
| 6 | RYCKMAN | Underground | Near Opal WY | Yes | 2013 | TBD | | ZONE-GTN, OTHER | 350000 - 500000 | 10,000 | YES | RYCK | NEGOTIATED |
| 8 | MIST STORAGE | Underground | Mist | Yes | 2014 | TBD | | NWP | 300,000 | 10,000 | YES | MIST | YES |
| 10 | JP-OTHER | Underground | Jackson Prairie | Yes | 2017 | TBD | | NWP | 300,000 | 5,000 | YES | SGS | YES |

| TRANSPORT RATES | | | | |
|--|---|-------------|------------------|---------------------|
| Ln # | Pipeline | Rate | | Rate Change |
| Westcoast - T-South Service | | | | |
| 1 | Huntington Delivery Rate (5yr Service term) | \$ 0.50950 | | Every three years |
| 2 | Motor Fuel Tax (Average 2010) | \$ 0.41632 | \$7175 per month | |
| 3 | Carbon Tax (Average 2010) | \$ 0.75935 | \$13087per month | |
| Foothills - BC | | | | |
| FT Firm Service (A/BC to Kingsgate) | | | | |
| 4 | FT Rate | \$ 0.10430 | | Every three years |
| 5 | Fuel | 1.100% | | |
| Nova Gas Transmission | | | | |
| 6 | Firm Transportation Rate | \$ 0.22920 | | Every three years |
| TransCanada GTN | | | | |
| FTS-1 Rate | | | | |
| 7 | Daily Mileage | \$ 0.000498 | (Dth-Mile) | Every five years |
| 8 | Daily Non-Mileage | \$ 0.003922 | (Dth) | \$0.21 for backhaul |
| 9 | Delivery | \$ 0.000016 | (Dth-Mile) | |
| 10 | Fuel % | 0.2500% | (Dth) | |
| Charge to Delivery locations | | | | |
| 11 | Starr Road | 108.29 | \$ 0.053928 | |
| 12 | Stanfield | 277.37 | \$ 0.138130 | |
| 13 | Bend | 454.51 | \$ 0.226346 | |
| 14 | Malin | 612.46 | \$ 0.305005 | |
| TRANSPORT RATES | | | | |
| Ln # | Pipeline | Rate | | Rate Change |
| Northwest Pipeline | | | | |
| TF-1 Rate | | | | |
| 15 | Reservation (System-Wide) | \$ 0.37883 | (\$/Dth) | Every five years |
| 16 | Volumetric (System-Wide) | \$ 0.03000 | (\$/Dth) | |
| 17 | Fuel | 1.85% | | |
| TF-2 Rate (Storage) | | | | |
| 18 | Reservation | \$ 0.37883 | (\$/Dth) | |
| 19 | Volumetric | \$ 0.03000 | (\$/Dth) | |
| SGS-2F | | | | |
| 20 | Capacity Demand Charge (Pre-Exp Shipper) | \$ 0.00056 | (\$/Dth) | |
| 21 | Capacity Demand Charge (Exp Shipper) | \$ 0.00232 | (\$/Dth) | |
| 22 | Demand Charge (Pre-Exp Shipper) | \$ 0.01547 | (\$/Dth) | |
| 23 | Demand Charge (Exp Shipper) | \$ 0.08453 | (\$/Dth) | |
| LS-2F | | | | |
| 24 | Capacity Demand Charge | \$ 0.00390 | (\$/Dth) | |
| 25 | Demand Charge | \$ 0.03054 | (\$/Dth) | |
| 26 | Liquefaction | \$ 0.64110 | (\$/Dth) | |
| 27 | Vaporization | \$ 0.04184 | (\$/Dth) | |
| Ruby | | | | |
| 28 | Reservation Rate (seasonal) | \$ 0.75 | (\$/Dth) | Every five years |
| 30 | Reservation Rate (max rate) | \$ 0.95 | (\$/Dth) | |
| 31 | Commodity Rate | \$ 0.01 | (\$/Dth) | |
| 32 | Fuel | 0.44% | (Dth) | |
| We use standard escalation factor in SENDOUT: 3% first year, 4% each subsequent renewal period | | | | |

2012 CNGC IRP

APPENDIX E
Alternative Transport

1

| POTENTIAL ADDITIONAL PIPELINE TRANSPORT RESOURCES | | | | | | | | | |
|---|------------|----------|-----------|--|--------------------------------------|-------------------|------------------------------|------------------|-----------|
| Model Name | Start Date | End Date | Daily MDQ | Description | Cost Dths | Lead Time | Pipeline | VARIABLE < \$.10 | FUEL < 3% |
| 2 INCR-GTN-BK | 2013 | OPEN | VARIABLE | Malin backhaul to Central OR and Stanfield | GTN Rate (approx \$0.22) | Some level now | GTN | YES | YES |
| 3 INCR-GTN-FW | 2013 | OPEN | VARIABLE | AECO NIT, Foothills to Kingsgate | NOVA, Foothills, GTN (approx \$0.64) | Avail now | NOVA, Foothills, GTN | YES | YES |
| 4 INCR-NWP | 2013 | OPEN | VARIABLE | Sumas to WA and OR citygates | NWP Rate X 3 (min approx \$1.14) | TBD | NWP | YES | YES |
| 5 INCR-RUBY | 2013 | 2021 | VARIABLE | Opal Hub to Mailin | Variable up to \$0.95 | Cap Rel avail now | RUBY | YES | YES |
| 7 N-MAX, WA SO EXPANSION, PALOMAR | TBD | OPEN | VARIABLE | Stanfield, Madras OR to Molalla OR (bi-directional) to I-5 | NWP Rate X 3 (min approx \$1.14) | > 3years | | YES | YES |
| 8 SO-XING | 2016 | 15 YEARS | VARIABLE | Huntingdon/Kingsgate | \$0.45 to 0.47 | > 3 years | SPECTRA, SO-XING, SOXING KNG | YES | YES |

APPENDIX E
Detailed Price Forecast

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------|----------------------------------|-------------------------------|----------------------------------|---------------------------------|------------------------------|---------------------------------|-----------------------------------|
| Jan-12 | 3.084 | 2.906516749 | 3.142180269 | 3.299289282 | 2.850753704 | 3.000793373 | 3.150833041 | 2.886444478 |
| Feb-12 | 2.678 | 2.569279364 | 2.777599313 | 2.916479278 | 2.503803932 | 2.635583087 | 2.767362241 | 2.563893936 |
| Mar-12 | 2.43 | 2.367408402 | 2.559360434 | 2.687328456 | 2.281349945 | 2.401420994 | 2.521492044 | 2.35668016 |
| Apr-12 | 2.335 | 2.292730229 | 2.478627274 | 2.602558638 | 2.194237722 | 2.309723918 | 2.425210113 | 2.276638605 |
| May-12 | 1.981 | 1.894971594 | 2.04861794 | 2.151048837 | 1.677918332 | 1.766229823 | 1.854541314 | 1.865552743 |
| Jun-12 | 2.737 | 2.557358083 | 2.764711441 | 2.902947013 | 2.352106317 | 2.475901386 | 2.599696456 | 2.543055205 |
| Jul-12 | 2.774 | 2.452826854 | 2.651704707 | 2.784289942 | 2.165795612 | 2.279784855 | 2.393774097 | 2.34135289 |
| Aug-12 | 2.737 | 2.433094586 | 2.630372526 | 2.761891152 | 2.244503254 | 2.362635004 | 2.480766755 | 2.319234961 |
| Sep-12 | 2.728 | 2.42763872 | 2.624474292 | 2.755698007 | 2.272353551 | 2.391951106 | 2.511548662 | 2.321503508 |
| Oct-12 | 2.773 | 2.483101399 | 2.684433945 | 2.818655643 | 2.443401557 | 2.572001638 | 2.70060172 | 2.382251964 |
| Nov-12 | 2.961 | 2.58259821 | 2.791998065 | 2.931597968 | 2.907043966 | 3.06004628 | 3.213048594 | 2.488737514 |
| Dec-12 | 3.243 | 2.811630722 | 3.03960078 | 3.191580819 | 3.159073237 | 3.325340249 | 3.491607262 | 2.725669747 |
| Jan-13 | 3.393 | 3.090018036 | 3.340560039 | 3.507588041 | 3.441342662 | 3.62246596 | 3.803589258 | 3.012243272 |
| Feb-13 | 3.426 | 3.08477841 | 3.334895579 | 3.501640358 | 3.432313498 | 3.612961577 | 3.793609655 | 3.062059955 |
| Mar-13 | 3.419 | 3.071509457 | 3.320550765 | 3.486578303 | 3.396365685 | 3.575121774 | 3.753877862 | 3.043265132 |
| Apr-13 | 3.416 | 3.090399496 | 3.340972428 | 3.508021049 | 2.983713611 | 3.14075117 | 3.297788728 | 3.056119793 |
| May-13 | 3.461 | 3.127566897 | 3.381153402 | 3.550211072 | 2.999378135 | 3.157240142 | 3.315102149 | 3.083337143 |
| Jun-13 | 3.505 | 3.166393504 | 3.423128113 | 3.594284518 | 3.017466988 | 3.17628104 | 3.335095092 | 3.112691003 |
| Jul-13 | 3.548 | 3.207832035 | 3.467926525 | 3.641322851 | 3.050424545 | 3.210973206 | 3.371521866 | 3.091597337 |
| Aug-13 | 3.569 | 3.224064452 | 3.485475083 | 3.659748837 | 3.070428705 | 3.232030215 | 3.393631726 | 3.107416924 |
| Sep-13 | 3.571 | 3.224750726 | 3.486217001 | 3.660527851 | 3.089091943 | 3.251675729 | 3.414259516 | 3.125322888 |
| Oct-13 | 3.605 | 3.258953917 | 3.523193424 | 3.699353095 | 3.133045428 | 3.297942556 | 3.462839684 | 3.171301927 |
| Nov-13 | 3.713 | 3.346765781 | 3.618125169 | 3.799031428 | 3.658439123 | 3.850988551 | 4.043537978 | 3.275212496 |
| Dec-13 | 3.918 | 3.494475541 | 3.777811396 | 3.966701966 | 3.854547539 | 4.057418462 | 4.260289385 | 3.429517541 |
| Jan-14 | 4.02 | 3.671672596 | 3.96937578 | 4.167844569 | 4.032425394 | 4.24465831 | 4.456891225 | 3.61082021 |
| Feb-14 | 4.01 | 3.665339085 | 3.962528741 | 4.160655178 | 4.021528284 | 4.233187668 | 4.444847051 | 3.655343862 |
| Mar-14 | 3.957 | 3.568244152 | 3.857561246 | 4.050439308 | 3.871083014 | 4.074824225 | 4.278565436 | 3.539499656 |
| Apr-14 | 3.842 | 3.550868608 | 3.838776874 | 4.030715717 | 3.431394865 | 3.611994595 | 3.792594325 | 3.516285822 |
| May-14 | 3.853 | 3.57246939 | 3.86212907 | 4.055235524 | 3.426501286 | 3.606843458 | 3.787185631 | 3.519994088 |
| Jun-14 | 3.875 | 3.592398003 | 3.883673517 | 4.077857193 | 3.410677088 | 3.590186409 | 3.769695729 | 3.521311586 |
| Jul-14 | 3.914 | 3.622329072 | 3.916031429 | 4.111833 | 3.441336573 | 3.62245955 | 3.803582528 | 3.497035715 |
| Aug-14 | 3.933 | 3.633137675 | 3.927716405 | 4.124102226 | 3.447615688 | 3.629069145 | 3.810522603 | 3.506906675 |
| Sep-14 | 3.936 | 3.626235575 | 3.920254676 | 4.116267409 | 3.465585388 | 3.647984619 | 3.83038385 | 3.535362871 |
| Oct-14 | 3.973 | 3.673047236 | 3.970861877 | 4.16940497 | 3.510957307 | 3.695744534 | 3.880531761 | 3.5904588 |
| Nov-14 | 4.058 | 3.7308408 | 4.033341405 | 4.235008476 | 3.864017778 | 4.067387135 | 4.270756492 | 3.667942827 |
| Dec-14 | 4.243 | 3.841781826 | 4.15327765 | 4.360941532 | 4.055821424 | 4.26928571 | 4.482749995 | 3.792594635 |
| Jan-15 | 4.345 | 4.183848213 | 4.523079149 | 4.749233106 | 4.336306236 | 4.56453288 | 4.792759524 | 4.155150825 |
| Feb-15 | 4.315 | 4.170422365 | 4.508564719 | 4.733992955 | 4.313730597 | 4.540769049 | 4.767807502 | 4.135774111 |
| Mar-15 | 4.235 | 4.088543267 | 4.420046775 | 4.641049114 | 4.109010613 | 4.32527433 | 4.541538046 | 4.014018586 |
| Apr-15 | 4.035 | 4.036094632 | 4.363345548 | 4.581512825 | 3.8087872 | 4.009249684 | 4.209712169 | 3.937729424 |
| May-15 | 4.05 | 4.084347531 | 4.415510845 | 4.636286387 | 3.79143168 | 3.990980716 | 4.190529752 | 3.943880555 |
| Jun-15 | 4.072 | 4.09201717 | 4.423802346 | 4.644992463 | 3.729173628 | 3.925445924 | 4.12171822 | 3.906488955 |
| Jul-15 | 4.109 | 4.112218128 | 4.445641219 | 4.66792328 | 3.734317496 | 3.930860522 | 4.127403549 | 3.909058904 |
| Aug-15 | 4.128 | 4.110570917 | 4.44386045 | 4.666053473 | 3.902547666 | 4.107944912 | 4.313342157 | 3.903989006 |
| Sep-15 | 4.131 | 4.073631581 | 4.403926033 | 4.624122335 | 3.92769752 | 4.134418442 | 4.341139364 | 3.937596373 |
| Oct-15 | 4.167 | 4.133366487 | 4.468504311 | 4.691929526 | 3.998999172 | 4.209472813 | 4.419946453 | 4.022677055 |
| Nov-15 | 4.255 | 4.153232526 | 4.489981109 | 4.714480164 | 4.142052511 | 4.360055274 | 4.578058038 | 4.117284177 |
| Dec-15 | 4.441 | 4.265785288 | 4.611659771 | 4.84224276 | 4.368628552 | 4.59855637 | 4.828484189 | 4.19892872 |
| Jan-16 | 4.541 | 4.293002898 | 4.641084214 | 4.873138424 | 4.241712543 | 4.464960572 | 4.6882086 | 4.190102357 |

APPENDIX E
Detailed Price Forecast

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|---|--------------------------------------|---|--|---------------------------------------|--|
| Jan-12 | 3.038362609 | 3.190280739 | 2.619804183 | 2.757688614 | 2.895573044 | 2.908374518 | 3.061446861 | 3.214519204 |
| Feb-12 | 2.698835722 | 2.833777508 | 2.273319773 | 2.392968182 | 2.512616592 | 2.56139512 | 2.69620539 | 2.831015659 |
| Mar-12 | 2.480715958 | 2.604751756 | 2.072123224 | 2.181182341 | 2.290241458 | 2.354171242 | 2.478074992 | 2.601978741 |
| Apr-12 | 2.396461689 | 2.516284774 | 1.981949904 | 2.086263056 | 2.190576209 | 2.273466819 | 2.393122967 | 2.512779116 |
| May-12 | 1.96373973 | 2.061926716 | 1.534789937 | 1.615568355 | 1.696346773 | 1.821689386 | 1.917567774 | 2.013446163 |
| Jun-12 | 2.676900215 | 2.810745226 | 2.212118879 | 2.328546188 | 2.444973498 | 2.463130759 | 2.59276922 | 2.722407681 |
| Jul-12 | 2.46458199 | 2.587811089 | 1.922129902 | 2.023294633 | 2.124459365 | 2.271141092 | 2.390674833 | 2.510208575 |
| Aug-12 | 2.441299959 | 2.563364957 | 1.998607229 | 2.103797083 | 2.208986937 | 2.354092233 | 2.477991824 | 2.601891416 |
| Sep-12 | 2.443687903 | 2.565872298 | 2.044795205 | 2.152416005 | 2.260036805 | 2.347585919 | 2.471143072 | 2.594700226 |
| Oct-12 | 2.507633647 | 2.633015329 | 2.155020953 | 2.268443108 | 2.381865264 | 2.428102644 | 2.55589752 | 2.683692396 |
| Nov-12 | 2.619723699 | 2.750709884 | 2.336851449 | 2.45984363 | 2.582835812 | 2.648493384 | 2.787887772 | 2.927282161 |
| Dec-12 | 2.86912605 | 3.012582352 | 2.569917068 | 2.705175861 | 2.840434654 | 2.875734068 | 3.027088492 | 3.178442917 |
| Jan-13 | 3.170782392 | 3.329321511 | 2.814178377 | 2.962293029 | 3.11040768 | 3.12145193 | 3.285738874 | 3.450025817 |
| Feb-13 | 3.223221005 | 3.384382055 | 2.794975658 | 2.94207964 | 3.089183622 | 3.118096922 | 3.282207286 | 3.446317651 |
| Mar-13 | 3.203436981 | 3.36360883 | 2.808444941 | 2.956257833 | 3.104070724 | 3.101082901 | 3.264297791 | 3.427512681 |
| Apr-13 | 3.216968203 | 3.377816613 | 2.790732717 | 2.937613387 | 3.084494056 | 3.060199446 | 3.221262575 | 3.382325703 |
| May-13 | 3.245618045 | 3.407898947 | 2.797184844 | 2.944405099 | 3.091625354 | 3.087036187 | 3.249511776 | 3.411987365 |
| Jun-13 | 3.276516845 | 3.440342687 | 2.802329637 | 2.949820671 | 3.097311704 | 3.116862578 | 3.280907977 | 3.444953376 |
| Jul-13 | 3.254312987 | 3.417028636 | 2.827553116 | 2.976371701 | 3.125190286 | 3.153583914 | 3.319562014 | 3.485540115 |
| Aug-13 | 3.270965183 | 3.434513442 | 2.829885578 | 2.978826924 | 3.127768271 | 3.169519136 | 3.336335933 | 3.50315273 |
| Sep-13 | 3.289813567 | 3.454304245 | 2.869894827 | 3.020941923 | 3.171989019 | 3.187003068 | 3.354740072 | 3.522477075 |
| Oct-13 | 3.338212555 | 3.505123183 | 2.929890498 | 3.084095261 | 3.238300024 | 3.233208569 | 3.403377441 | 3.573546313 |
| Nov-13 | 3.447592101 | 3.619971706 | 3.094443657 | 3.257309113 | 3.420174568 | 3.390199704 | 3.568631267 | 3.747062831 |
| Dec-13 | 3.610018465 | 3.790519388 | 3.237225445 | 3.407605731 | 3.577986018 | 3.54372935 | 3.730241422 | 3.916753493 |
| Jan-14 | 3.800863379 | 3.990906548 | 3.396948655 | 3.575735426 | 3.754522198 | 3.724216675 | 3.920228079 | 4.116239483 |
| Feb-14 | 3.847730381 | 4.0401169 | 3.38499493 | 3.563152558 | 3.741310186 | 3.717135583 | 3.912774297 | 4.108413012 |
| Mar-14 | 3.725789111 | 3.912078567 | 3.302503888 | 3.476319882 | 3.650135876 | 3.600040916 | 3.789516754 | 3.978992592 |
| Apr-14 | 3.701353496 | 3.886421171 | 3.292996619 | 3.46631223 | 3.639627842 | 3.605945818 | 3.79573244 | 3.985519062 |
| May-14 | 3.705256934 | 3.890519781 | 3.272305011 | 3.444531591 | 3.61675817 | 3.607583404 | 3.797456215 | 3.987329026 |
| Jun-14 | 3.706643774 | 3.891975963 | 3.254484477 | 3.425773134 | 3.59706179 | 3.608334343 | 3.798246677 | 3.988159011 |
| Jul-14 | 3.681090227 | 3.865144738 | 3.289897162 | 3.463049644 | 3.636202126 | 3.627215943 | 3.818122045 | 4.009028147 |
| Aug-14 | 3.69148071 | 3.876054746 | 3.286797759 | 3.459787114 | 3.63277647 | 3.636419118 | 3.827809597 | 4.019200077 |
| Sep-14 | 3.721434601 | 3.907506331 | 3.329749444 | 3.504999414 | 3.680249385 | 3.663334788 | 3.856141883 | 4.048948977 |
| Oct-14 | 3.779430315 | 3.968401831 | 3.351150861 | 3.527527222 | 3.703903584 | 3.717904389 | 3.913583568 | 4.109262746 |
| Nov-14 | 3.860992449 | 4.054042072 | 3.499365225 | 3.683542342 | 3.867719459 | 3.79632588 | 3.996132505 | 4.19593913 |
| Dec-14 | 3.992204878 | 4.191815122 | 3.600326063 | 3.789816908 | 3.979307754 | 3.919971424 | 4.12628571 | 4.332599995 |
| Jan-15 | 4.373842973 | 4.592535122 | 3.920883939 | 4.127246252 | 4.333608564 | 4.25152256 | 4.475286905 | 4.69905125 |
| Feb-15 | 4.353446433 | 4.571118754 | 3.900284464 | 4.105562594 | 4.310840724 | 4.222674657 | 4.444920691 | 4.667166726 |
| Mar-15 | 4.225282722 | 4.436546858 | 3.850415767 | 4.053069229 | 4.25572269 | 4.10010836 | 4.315903537 | 4.531698714 |
| Apr-15 | 4.144978341 | 4.352227258 | 3.733343714 | 3.929835488 | 4.126327263 | 4.019310083 | 4.230852719 | 4.442395355 |
| May-15 | 4.151453216 | 4.359025877 | 3.709553439 | 3.904793094 | 4.100032749 | 4.022492102 | 4.234202213 | 4.445912323 |
| Jun-15 | 4.112093636 | 4.317698318 | 3.671589285 | 3.864830827 | 4.058072368 | 3.84071827 | 4.042861337 | 4.245004403 |
| Jul-15 | 4.114798846 | 4.320538789 | 3.552238558 | 3.739198482 | 3.926158406 | 3.833565672 | 4.035332286 | 4.2370989 |
| Aug-15 | 4.109462112 | 4.314935218 | 3.529079833 | 3.714820877 | 3.900561921 | 3.829227543 | 4.030765834 | 4.232304126 |
| Sep-15 | 4.144838287 | 4.352080202 | 3.576815597 | 3.76506905 | 3.953322502 | 3.909155418 | 4.11490044 | 4.320645462 |
| Oct-15 | 4.2343969 | 4.446116745 | 3.649689433 | 3.841778351 | 4.033867268 | 4.012651736 | 4.223843933 | 4.43503613 |
| Nov-15 | 4.333983344 | 4.550682512 | 3.835134253 | 4.036983424 | 4.238832596 | 4.163679967 | 4.382821018 | 4.601962068 |
| Dec-15 | 4.419924969 | 4.640921217 | 3.883564728 | 4.087962872 | 4.292361015 | 4.223096031 | 4.445364243 | 4.667632455 |
| Jan-16 | 4.41063406 | 4.631165763 | 3.914077825 | 4.120081921 | 4.326086017 | 4.237710351 | 4.460747738 | 4.683785125 |

Detailed Price Forecast

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------------|---|--|---|--|---------------------------------------|--|--|
| Feb-16 | 4.511 | 4.279920239 | 4.626940799 | 4.858287839 | 4.223565782 | 4.445858718 | 4.668151654 | 4.177083775 |
| Mar-16 | 4.431 | 4.165039626 | 4.502745542 | 4.727882819 | 3.963020221 | 4.171600232 | 4.380180244 | 4.002280439 |
| Apr-16 | 4.221 | 4.147973796 | 4.484295996 | 4.708510795 | 3.92028804 | 4.12661899 | 4.332949939 | 3.988178015 |
| May-16 | 4.236 | 4.193754584 | 4.53378874 | 4.760478177 | 3.914714317 | 4.120751913 | 4.326789508 | 3.939085196 |
| Jun-16 | 4.258 | 4.217376594 | 4.559326047 | 4.78729235 | 3.874482018 | 4.078402124 | 4.28232223 | 3.856231457 |
| Jul-16 | 4.295 | 4.235770212 | 4.57921104 | 4.808171592 | 3.856743742 | 4.059730254 | 4.262716767 | 3.800518404 |
| Aug-16 | 4.314 | 4.213708975 | 4.555361054 | 4.783129107 | 4.00262199 | 4.213286305 | 4.42395062 | 3.77545823 |
| Sep-16 | 4.317 | 4.16908621 | 4.507120227 | 4.732476238 | 4.019786441 | 4.231354148 | 4.442921855 | 3.884500655 |
| Oct-16 | 4.353 | 4.222743568 | 4.565128182 | 4.793384591 | 3.836825209 | 4.038763378 | 4.240701547 | 4.023397213 |
| Nov-16 | 4.444 | 4.277729092 | 4.624571992 | 4.855800591 | 3.979457441 | 4.18890257 | 4.398347698 | 4.178031555 |
| Dec-16 | 4.635 | 4.357140575 | 4.710422243 | 4.945943355 | 4.280617789 | 4.505913462 | 4.731209135 | 4.23859568 |
| Jan-17 | 4.737 | 4.410933645 | 4.768576913 | 5.007005759 | 4.339748254 | 4.568156057 | 4.796563859 | 4.288162055 |
| Feb-17 | 4.707 | 4.403877193 | 4.760948317 | 4.998995733 | 4.287370524 | 4.513021605 | 4.738672685 | 4.226180372 |
| Mar-17 | 4.627 | 4.198408258 | 4.538819739 | 4.765760726 | 3.861986016 | 4.065248438 | 4.26851086 | 3.990885376 |
| Apr-17 | 4.42 | 4.280154097 | 4.627193619 | 4.8585533 | 3.844403212 | 4.046740223 | 4.249077234 | 4.023895352 |
| May-17 | 4.437 | 4.322044633 | 4.672480684 | 4.906104718 | 3.770459547 | 3.968904787 | 4.167350026 | 3.961079064 |
| Jun-17 | 4.461 | 4.3311903 | 4.682367891 | 4.916486286 | 3.684285516 | 3.87819528 | 4.072105044 | 3.903935689 |
| Jul-17 | 4.5 | 4.39010983 | 4.746064681 | 4.983367915 | 3.662094567 | 3.854836386 | 4.047578206 | 3.833922932 |
| Aug-17 | 4.519 | 4.338516925 | 4.690288567 | 4.924802996 | 3.595977191 | 3.785239148 | 3.974501105 | 3.774374894 |
| Sep-17 | 4.523 | 4.255070031 | 4.600075709 | 4.830079494 | 3.702946379 | 3.897838294 | 4.092730208 | 3.919426944 |
| Oct-17 | 4.56 | 4.348551171 | 4.701136401 | 4.936193221 | 3.869434035 | 4.073088458 | 4.276742881 | 4.086620366 |
| Nov-17 | 4.664 | 4.411620504 | 4.769319464 | 5.007785437 | 4.016894536 | 4.228310038 | 4.43972554 | 4.253469973 |
| Dec-17 | 4.871 | 4.49242463 | 4.856675275 | 5.099509039 | 4.337167384 | 4.565439351 | 4.793711319 | 4.307027795 |
| Jan-18 | 4.984 | 4.562382393 | 4.93230529 | 5.178920554 | 4.407428602 | 4.639398529 | 4.871368455 | 4.376726393 |
| Feb-18 | 4.954 | 4.550263237 | 4.919203499 | 5.165163674 | 4.386503188 | 4.617371777 | 4.848240366 | 4.355363838 |
| Mar-18 | 4.876 | 4.331275355 | 4.682459843 | 4.916582835 | 3.951482093 | 4.159454834 | 4.367427576 | 4.145011198 |
| Apr-18 | 4.669 | 4.426356893 | 4.785250695 | 5.02451323 | 3.918445617 | 4.124679597 | 4.330913577 | 4.176983625 |
| May-18 | 4.689 | 4.482922826 | 4.846403055 | 5.088723208 | 3.839195989 | 4.041258936 | 4.243321883 | 4.155304717 |
| Jun-18 | 4.719 | 4.504061916 | 4.869256126 | 5.112718932 | 3.73483573 | 3.931406032 | 4.127976333 | 4.072195373 |
| Jul-18 | 4.764 | 4.530178029 | 4.897489762 | 5.14236425 | 3.724023288 | 3.920024513 | 4.116025739 | 4.023657029 |
| Aug-18 | 4.786 | 4.496724041 | 4.861323288 | 5.104389452 | 3.707808505 | 3.902956321 | 4.098104138 | 3.980039655 |
| Sep-18 | 4.792 | 4.451321071 | 4.812238996 | 5.052850946 | 3.78929166 | 3.988728063 | 4.188164466 | 4.080299465 |
| Oct-18 | 4.832 | 4.480277957 | 4.843543737 | 5.085720924 | 3.921024686 | 4.127394407 | 4.333764127 | 4.242442519 |
| Nov-18 | 4.947 | 4.557191692 | 4.926693721 | 5.173028407 | 4.118215876 | 4.33496408 | 4.551712284 | 4.380290871 |
| Dec-18 | 5.167 | 4.668058666 | 5.046549909 | 5.298877405 | 4.506645143 | 4.743836992 | 4.981028842 | 4.467403972 |
| Jan-19 | 5.286 | 4.736283569 | 5.120306562 | 5.37632189 | 4.558235831 | 4.79814298 | 5.038050129 | 4.520832009 |
| Feb-19 | 5.258 | 4.723642578 | 5.106640624 | 5.361972656 | 4.545233712 | 4.784456539 | 5.023679366 | 4.507213363 |
| Mar-19 | 5.182 | 4.612047334 | 4.985997118 | 5.235296974 | 4.473754781 | 4.709215559 | 4.944676337 | 4.417774075 |
| Apr-19 | 4.982 | 4.611973338 | 4.985917122 | 5.235212978 | 4.364743834 | 4.594467194 | 4.824190553 | 4.322101121 |
| May-19 | 5.004 | 4.65886375 | 5.036609459 | 5.288439932 | 4.311906433 | 4.538848877 | 4.765791321 | 4.25595336 |
| Jun-19 | 5.034 | 4.678714811 | 5.058070066 | 5.310973569 | 4.046572388 | 4.259549882 | 4.472527376 | 4.177759374 |
| Jul-19 | 5.079 | 4.713439444 | 5.095610209 | 5.35039072 | 3.980570242 | 4.190073939 | 4.399577636 | 4.122635457 |
| Aug-19 | 5.101 | 4.672055502 | 5.050870813 | 5.303414353 | 3.921329186 | 4.127714933 | 4.33410068 | 4.069279716 |
| Sep-19 | 5.107 | 4.612263724 | 4.986231053 | 5.235542605 | 4.016051952 | 4.227423108 | 4.438794263 | 4.189107029 |
| Oct-19 | 5.147 | 4.640543786 | 5.016804093 | 5.267644298 | 4.197287631 | 4.418197507 | 4.639107382 | 4.392764163 |
| Nov-19 | 5.262 | 4.742625327 | 5.127162515 | 5.383520641 | 4.592534359 | 4.834246694 | 5.075959029 | 4.562442335 |
| Dec-19 | 5.492 | 4.861207276 | 5.255359218 | 5.518127179 | 4.673612804 | 4.919592425 | 5.165572047 | 4.632956476 |
| Jan-20 | 5.612 | 4.930092167 | 5.32982937 | 5.596320838 | 4.697902968 | 4.945161019 | 5.19241907 | 4.649014357 |
| Feb-20 | 5.587 | 4.877649548 | 5.273134647 | 5.536791379 | 4.685844029 | 4.932467399 | 5.179090769 | 4.619737972 |

APPENDIX E
Detailed Price Forecast

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|---|--------------------------------------|---|--|---------------------------------------|--|
| Feb-16 | 4.396930289 | 4.616776804 | 3.896269723 | 4.101336551 | 4.306403378 | 4.224986669 | 4.447354388 | 4.669722108 |
| Mar-16 | 4.212926778 | 4.423573117 | 3.81255876 | 4.013219747 | 4.213880734 | 4.048209633 | 4.261273298 | 4.474336963 |
| Apr-16 | 4.198082121 | 4.407986227 | 3.743634119 | 3.940667494 | 4.137700868 | 4.026886463 | 4.238827856 | 4.450769249 |
| May-16 | 4.146405469 | 4.353725743 | 3.734478725 | 3.931030237 | 4.127581748 | 3.97257242 | 4.181655179 | 4.390737938 |
| Jun-16 | 4.059191007 | 4.262150557 | 3.712323638 | 3.907709092 | 4.103094547 | 3.924999767 | 4.131578702 | 4.338157637 |
| Jul-16 | 4.000545688 | 4.200572972 | 3.664426113 | 3.857290645 | 4.050155177 | 3.879075942 | 4.083237834 | 4.287399726 |
| Aug-16 | 3.974166558 | 4.172874886 | 3.618052963 | 3.808476803 | 3.998900643 | 3.85619377 | 4.059151337 | 4.262108904 |
| Sep-16 | 4.088948058 | 4.293395461 | 3.658826279 | 3.851396083 | 4.043965887 | 3.944530233 | 4.152137088 | 4.359743942 |
| Oct-16 | 4.235154961 | 4.446912709 | 3.762832685 | 3.960876511 | 4.158920336 | 4.06920908 | 4.283377979 | 4.497546878 |
| Nov-16 | 4.397927953 | 4.61782435 | 3.884186641 | 4.088617516 | 4.293048392 | 4.226152793 | 4.448581887 | 4.671010981 |
| Dec-16 | 4.461679663 | 4.684763646 | 3.905288533 | 4.110830034 | 4.316371536 | 4.287111929 | 4.512749399 | 4.738386869 |
| Jan-17 | 4.513854795 | 4.739547534 | 3.953107252 | 4.161165528 | 4.369223805 | 4.336881699 | 4.565138631 | 4.793395563 |
| Feb-17 | 4.448610918 | 4.671041464 | 3.919603119 | 4.12589802 | 4.332192921 | 4.274748716 | 4.499735491 | 4.724722266 |
| Mar-17 | 4.200931975 | 4.410978573 | 3.80752828 | 4.007924506 | 4.208320731 | 4.035984229 | 4.248404452 | 4.460824674 |
| Apr-17 | 4.235679318 | 4.447463283 | 3.760682161 | 3.958612801 | 4.156543441 | 4.069337575 | 4.283513237 | 4.497688899 |
| May-17 | 4.169556909 | 4.378034755 | 3.739651065 | 3.936474805 | 4.133298546 | 4.058419147 | 4.272020155 | 4.485621162 |
| Jun-17 | 4.109405989 | 4.314876288 | 3.715117464 | 3.910649962 | 4.10618246 | 4.004970855 | 4.215758795 | 4.426546735 |
| Jul-17 | 4.03570835 | 4.237493767 | 3.644062817 | 3.835855597 | 4.027648377 | 3.934926842 | 4.142028254 | 4.349129667 |
| Aug-17 | 3.973026204 | 4.171677514 | 3.572979706 | 3.76103127 | 3.949082833 | 3.879752925 | 4.083950448 | 4.28814797 |
| Sep-17 | 4.125712573 | 4.331998201 | 3.661295907 | 3.853995692 | 4.046695476 | 4.031542375 | 4.243728816 | 4.455915256 |
| Oct-17 | 4.301705649 | 4.516790931 | 3.800992062 | 4.001044276 | 4.20109649 | 4.192700994 | 4.413369467 | 4.634037941 |
| Nov-17 | 4.477336813 | 4.701203654 | 3.909291844 | 4.115044047 | 4.320796249 | 4.300595074 | 4.526942183 | 4.753289292 |
| Dec-17 | 4.533713468 | 4.760399141 | 3.954662682 | 4.162802823 | 4.370942965 | 4.35446365 | 4.583645948 | 4.812828245 |
| Jan-18 | 4.607080413 | 4.837434434 | 4.020999149 | 4.232630683 | 4.444262218 | 4.424440841 | 4.657306148 | 4.890171455 |
| Feb-18 | 4.584593514 | 4.81382319 | 4.003003709 | 4.213688115 | 4.42437252 | 4.403293912 | 4.635046223 | 4.866798534 |
| Mar-18 | 4.363169682 | 4.581328166 | 3.878868758 | 4.083019745 | 4.287170732 | 4.189594089 | 4.410099041 | 4.630603993 |
| Apr-18 | 4.396824868 | 4.616666112 | 3.840506145 | 4.042638047 | 4.24476995 | 4.214117008 | 4.435912641 | 4.657708273 |
| May-18 | 4.374004965 | 4.592705213 | 3.813880075 | 4.014610605 | 4.215341136 | 4.199004267 | 4.420004492 | 4.641004717 |
| Jun-18 | 4.286521445 | 4.500847518 | 3.770924688 | 3.969394408 | 4.167864129 | 4.118807684 | 4.335587035 | 4.552366387 |
| Jul-18 | 4.235428452 | 4.447199874 | 3.711378105 | 3.906713795 | 4.102049485 | 4.074841874 | 4.289307236 | 4.503772598 |
| Aug-18 | 4.189515426 | 4.398991198 | 3.668330146 | 3.861400154 | 4.054470162 | 4.054557382 | 4.267955139 | 4.481352896 |
| Sep-18 | 4.295052068 | 4.509804671 | 3.730245716 | 3.926574437 | 4.122903159 | 4.131690875 | 4.34914829 | 4.566605704 |
| Oct-18 | 4.465728967 | 4.689015416 | 3.857094547 | 4.060099523 | 4.263104499 | 4.282487756 | 4.507881849 | 4.733275941 |
| Nov-18 | 4.610832496 | 4.84137412 | 4.013054376 | 4.224267764 | 4.435481152 | 4.426504092 | 4.659477992 | 4.892451892 |
| Dec-18 | 4.702530496 | 4.937657021 | 4.0741207 | 4.288548105 | 4.50297551 | 4.51408559 | 4.751669042 | 4.989252495 |
| Jan-19 | 4.758770536 | 4.996709062 | 4.135671396 | 4.353338311 | 4.571005227 | 4.567677612 | 4.808081697 | 5.048485781 |
| Feb-19 | 4.744435119 | 4.981656875 | 4.118508515 | 4.335272121 | 4.552035727 | 4.554333028 | 4.794034767 | 5.033736505 |
| Mar-19 | 4.6502885 | 4.882802925 | 4.123074358 | 4.340078272 | 4.557082185 | 4.463763516 | 4.698698438 | 4.93363336 |
| Apr-19 | 4.549580128 | 4.777059134 | 3.972327776 | 4.181397659 | 4.390467542 | 4.363747697 | 4.593418629 | 4.82308956 |
| May-19 | 4.479950905 | 4.70394845 | 3.979013958 | 4.188435745 | 4.397857533 | 4.343583036 | 4.572192669 | 4.800802303 |
| Jun-19 | 4.397641446 | 4.617523518 | 3.923951724 | 4.130475499 | 4.336999274 | 4.269034756 | 4.493720796 | 4.718406835 |
| Jul-19 | 4.339616271 | 4.556597084 | 3.857406437 | 4.060427829 | 4.26344922 | 4.213948891 | 4.435735675 | 4.657522458 |
| Aug-19 | 4.283452333 | 4.49762495 | 3.797798002 | 3.997682107 | 4.197566213 | 4.175461362 | 4.395222486 | 4.61498361 |
| Sep-19 | 4.409586346 | 4.630065663 | 3.877229912 | 4.081294644 | 4.285359376 | 4.289302794 | 4.515055573 | 4.740808352 |
| Oct-19 | 4.623962277 | 4.855160391 | 4.046535053 | 4.259510583 | 4.472486112 | 4.475647354 | 4.711207741 | 4.946768128 |
| Nov-19 | 4.802570879 | 5.042699422 | 4.1980733 | 4.419024526 | 4.639975752 | 4.609855088 | 4.85247904 | 5.095102992 |
| Dec-19 | 4.87679629 | 5.120636105 | 4.236905856 | 4.459900901 | 4.682895946 | 4.680851216 | 4.927211806 | 5.173572397 |
| Jan-20 | 4.893699323 | 5.138384289 | 4.256953719 | 4.481003915 | 4.705054111 | 4.697121099 | 4.944337999 | 5.191554898 |
| Feb-20 | 4.862882075 | 5.106026179 | 4.241246355 | 4.464469848 | 4.68769334 | 4.667975629 | 4.913658557 | 5.159341485 |

APPENDIX E
Detailed Price Forecast

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------|----------------------------------|-------------------------------|----------------------------------|---------------------------------|------------------------------|---------------------------------|-----------------------------------|
| Mar-20 | 5.512 | 4.79516879 | 5.183966259 | 5.443164572 | 4.587657904 | 4.829113583 | 5.070569262 | 4.539563393 |
| Apr-20 | 5.312 | 4.777780196 | 5.165167779 | 5.423426168 | 4.48583531 | 4.721931905 | 4.9580285 | 4.42657537 |
| May-20 | 5.334 | 4.845823834 | 5.238728469 | 5.500664893 | 4.249804079 | 4.473477977 | 4.697151876 | 4.38197497 |
| Jun-20 | 5.364 | 4.855591969 | 5.249288615 | 5.511753045 | 4.143764959 | 4.361857851 | 4.579950744 | 4.290717087 |
| Jul-20 | 5.409 | 4.889317231 | 5.285748358 | 5.550035776 | 4.077886135 | 4.292511721 | 4.507137307 | 4.218603689 |
| Aug-20 | 5.431 | 4.848447971 | 5.241565375 | 5.503643643 | 4.053557827 | 4.266902975 | 4.480248124 | 4.165994431 |
| Sep-20 | 5.437 | 4.782241179 | 5.169990463 | 5.428489986 | 4.180914344 | 4.400962467 | 4.621010591 | 4.302825798 |
| Oct-20 | 5.477 | 4.837884091 | 5.230144964 | 5.491652212 | 4.338740955 | 4.567095743 | 4.79545053 | 4.50663551 |
| Nov-20 | 5.597 | 4.94691827 | 5.348019752 | 5.615420739 | 4.745192958 | 4.994939956 | 5.244686953 | 4.695339013 |
| Dec-20 | 5.832 | 5.05656533 | 5.466557113 | 5.739884969 | 4.768987381 | 5.019986717 | 5.270986052 | 4.721729552 |
| Jan-21 | 5.962 | 5.147156726 | 5.564493757 | 5.842718445 | 4.816481233 | 5.069980246 | 5.323479258 | 4.762301636 |
| Feb-21 | 5.937 | 5.103246028 | 5.517022732 | 5.792873869 | 4.789435169 | 5.041510705 | 5.29358624 | 4.734887287 |
| Mar-21 | 5.862 | 5.032246797 | 5.440266807 | 5.712280148 | 4.77686598 | 5.028279979 | 5.279693978 | 4.68963494 |
| Apr-21 | 5.662 | 4.994022933 | 5.398943711 | 5.668890897 | 4.575838076 | 4.816671659 | 5.057505242 | 4.486745225 |
| May-21 | 5.684 | 5.059865906 | 5.470125304 | 5.743631569 | 4.337636847 | 4.565933524 | 4.7942302 | 4.411022086 |
| Jun-21 | 5.714 | 5.094484064 | 5.507550339 | 5.782927856 | 4.269328503 | 4.494030003 | 4.718731503 | 4.294650487 |
| Jul-21 | 5.759 | 5.096623927 | 5.509863705 | 5.785356891 | 4.18694473 | 4.407310242 | 4.627675754 | 4.209854967 |
| Aug-21 | 5.781 | 5.063404115 | 5.473950395 | 5.747647915 | 4.157830872 | 4.376664075 | 4.595497279 | 4.162476791 |
| Sep-21 | 5.787 | 4.99713063 | 5.402303384 | 5.672418553 | 4.203260378 | 4.424484608 | 4.645708839 | 4.30010126 |
| Oct-21 | 5.827 | 5.031197274 | 5.439132188 | 5.711088797 | 4.403181791 | 4.634928201 | 4.866674611 | 4.536514615 |
| Nov-21 | 5.945 | 5.15650088 | 5.574595546 | 5.853325323 | 4.850446815 | 5.105733489 | 5.361020163 | 4.758833045 |
| Dec-21 | 6.18 | 5.235353792 | 5.659841937 | 5.942834034 | 4.900062321 | 5.157960338 | 5.415858355 | 4.823337601 |
| Jan-22 | 6.307 | 5.375547333 | 5.811402523 | 6.101972649 | 5.031958962 | 5.296798908 | 5.561638853 | 4.939546562 |
| Feb-22 | 6.282 | 5.366307579 | 5.801413599 | 6.091484279 | 5.017935455 | 5.282037321 | 5.546139187 | 4.926897895 |
| Mar-22 | 6.207 | 5.224344794 | 5.647940318 | 5.930337334 | 4.926034578 | 5.185299555 | 5.444564533 | 4.80275689 |
| Apr-22 | 6.002 | 5.354940117 | 5.789124451 | 6.078580674 | 4.838866317 | 5.093543492 | 5.348220666 | 4.728299677 |
| May-22 | 5.997 | 5.438290204 | 5.879232653 | 6.173194286 | 4.627994285 | 4.871572932 | 5.115151579 | 4.710051666 |
| Jun-22 | 6.029 | 5.463723986 | 5.906728633 | 6.202065065 | 4.599075359 | 4.841131957 | 5.083188555 | 4.604077333 |
| Jul-22 | 6.072 | 5.412839475 | 5.851718351 | 6.144304269 | 4.445147138 | 4.679102251 | 4.913057363 | 4.451223617 |
| Aug-22 | 6.114 | 5.346803839 | 5.780328475 | 6.069344899 | 4.381304508 | 4.611899482 | 4.842494456 | 4.368711691 |
| Sep-22 | 6.125 | 5.264552912 | 5.691408554 | 5.975978982 | 4.477313695 | 4.712961784 | 4.948609873 | 4.525211153 |
| Oct-22 | 6.18 | 5.347393613 | 5.780966068 | 6.070014371 | 4.74321438 | 4.992857242 | 5.242500104 | 4.86013292 |
| Nov-22 | 6.3 | 5.478446205 | 5.922644546 | 6.218776774 | 5.193346435 | 5.466680458 | 5.740014481 | 5.056420452 |
| Dec-22 | 6.535 | 5.516581774 | 5.963872188 | 6.262065798 | 5.186125523 | 5.459079498 | 5.732033473 | 5.070728141 |
| Jan-23 | 6.66 | 5.53297712 | 5.981596887 | 6.280676731 | 5.149552217 | 5.420581281 | 5.691610345 | 5.00461773 |
| Feb-23 | 6.635 | 5.492477987 | 5.937814039 | 6.234704741 | 5.144100289 | 5.414842409 | 5.68558453 | 5.00134335 |
| Mar-23 | 6.56 | 5.420947998 | 5.860484323 | 6.153508539 | 5.07180488 | 5.338741979 | 5.605679078 | 4.926914786 |
| Apr-23 | 6.325 | 5.498754378 | 5.944599328 | 6.241829294 | 4.947116089 | 5.20749062 | 5.467865151 | 4.834192968 |
| May-23 | 6.31 | 5.590151478 | 6.043407003 | 6.345577353 | 4.7431994 | 4.992841474 | 5.242483548 | 4.806449322 |
| Jun-23 | 6.35 | 5.602284714 | 6.056524015 | 6.359350216 | 4.734867353 | 4.984070898 | 5.233274443 | 4.709259528 |
| Jul-23 | 6.4 | 5.551290781 | 6.001395439 | 6.301465211 | 4.561385553 | 4.801458477 | 5.041531401 | 4.53142082 |
| Aug-23 | 6.445 | 5.48014038 | 5.924476086 | 6.22069989 | 4.496492357 | 4.733149849 | 4.969807342 | 4.444771619 |
| Sep-23 | 6.46 | 5.375722699 | 5.811592107 | 6.102171713 | 4.598772688 | 4.840813356 | 5.082854024 | 4.602832432 |
| Oct-23 | 6.525 | 5.482297916 | 5.926808558 | 6.223148986 | 4.878591513 | 5.135359488 | 5.392127462 | 4.912945771 |
| Nov-23 | 6.645 | 5.613257269 | 6.068386237 | 6.371805549 | 5.323795708 | 5.603995483 | 5.884195257 | 5.121852216 |
| Dec-23 | 6.88 | 5.639778305 | 6.097057627 | 6.401910508 | 5.32585152 | 5.606159495 | 5.886467469 | 5.163437756 |
| Jan-24 | 7.005 | 5.60896832 | 6.063749535 | 6.366937012 | 5.231007381 | 5.506323559 | 5.781639737 | 5.0419131 |
| Feb-24 | 6.98 | 5.568979733 | 6.02051863 | 6.321544561 | 5.223545743 | 5.498469203 | 5.773392663 | 5.017111254 |
| Mar-24 | 6.905 | 5.412221367 | 5.851050126 | 6.143602632 | 5.084266353 | 5.351859319 | 5.619452285 | 4.872384596 |

APPENDIX E
Detailed Price Forecast

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|---|--------------------------------------|---|--|---------------------------------------|--|
| Mar-20 | 4.778487782 | 5.017412171 | 4.272932171 | 4.497823338 | 4.722714505 | 4.586615562 | 4.828016381 | 5.0694172 |
| Apr-20 | 4.659553022 | 4.892530673 | 4.132330189 | 4.349821252 | 4.567312315 | 4.526391979 | 4.764623136 | 5.002854292 |
| May-20 | 4.612605232 | 4.843235493 | 4.125377776 | 4.342502922 | 4.559628068 | 4.504304992 | 4.741373676 | 4.97844236 |
| Jun-20 | 4.516544302 | 4.742371517 | 4.061172772 | 4.274918707 | 4.488664643 | 4.41555625 | 4.647953947 | 4.880351645 |
| Jul-20 | 4.440635462 | 4.662667235 | 3.98945665 | 4.199428053 | 4.409399455 | 4.346440321 | 4.575200338 | 4.803960355 |
| Aug-20 | 4.385257296 | 4.604520161 | 3.927149216 | 4.13384128 | 4.340533344 | 4.299095322 | 4.525363497 | 4.751631672 |
| Sep-20 | 4.529290314 | 4.755754829 | 4.038859729 | 4.251431294 | 4.464002858 | 4.434500207 | 4.667894955 | 4.901289702 |
| Oct-20 | 4.743826852 | 4.981018195 | 4.191593314 | 4.412203489 | 4.632813663 | 4.616873275 | 4.859866605 | 5.102859935 |
| Nov-20 | 4.942462119 | 5.189585225 | 4.357454802 | 4.586794528 | 4.816134254 | 4.745192958 | 4.994939956 | 5.244686953 |
| Dec-20 | 4.970241634 | 5.218753715 | 4.369218122 | 4.599176971 | 4.829135819 | 4.771199357 | 5.022315112 | 5.273430868 |
| Jan-21 | 5.012949091 | 5.263596546 | 4.425355578 | 4.65826903 | 4.891182481 | 4.812062717 | 5.065329176 | 5.318595635 |
| Feb-21 | 4.984091881 | 5.233296476 | 4.397389028 | 4.628830556 | 4.860272083 | 4.784928772 | 5.036767129 | 5.288605485 |
| Mar-21 | 4.936457832 | 5.183280724 | 4.44114301 | 4.674887378 | 4.908631747 | 4.775761578 | 5.02711745 | 5.278473323 |
| Apr-21 | 4.72288971 | 4.959034196 | 4.233173586 | 4.455972196 | 4.678770805 | 4.626534139 | 4.870035935 | 5.113537732 |
| May-21 | 4.643181143 | 4.8753402 | 4.208873114 | 4.430392752 | 4.65191239 | 4.556711716 | 4.796538649 | 5.036365581 |
| Jun-21 | 4.520684724 | 4.74671896 | 4.177005524 | 4.39684792 | 4.616690316 | 4.473555998 | 4.709006314 | 4.94445663 |
| Jul-21 | 4.431426282 | 4.652997596 | 4.088443801 | 4.303625054 | 4.518806307 | 4.40488847 | 4.636724705 | 4.868560941 |
| Aug-21 | 4.381554517 | 4.600632243 | 4.041199259 | 4.253893957 | 4.466588654 | 4.364982904 | 4.594718847 | 4.824454789 |
| Sep-21 | 4.526422379 | 4.752743498 | 4.06010589 | 4.273795674 | 4.487485458 | 4.456357006 | 4.690902112 | 4.925447217 |
| Oct-21 | 4.775278542 | 5.014042469 | 4.256789746 | 4.480831311 | 4.704872877 | 4.671320581 | 4.917179559 | 5.163038537 |
| Nov-21 | 5.009297942 | 5.259762839 | 4.455547709 | 4.690050219 | 4.92455273 | 4.852720398 | 5.108126735 | 5.363533071 |
| Dec-21 | 5.077197475 | 5.331057348 | 4.499408816 | 4.736219806 | 4.973030796 | 4.902414726 | 5.160436553 | 5.418458381 |
| Jan-22 | 5.199522697 | 5.459498832 | 4.634188319 | 4.878092968 | 5.121997616 | 5.005561567 | 5.269012176 | 5.532462785 |
| Feb-22 | 5.186208311 | 5.445518726 | 4.619254291 | 4.862372938 | 5.105491585 | 4.996390092 | 5.259357992 | 5.522325891 |
| Mar-22 | 5.055533568 | 5.308310246 | 4.597303589 | 4.839266936 | 5.081230283 | 4.89613417 | 5.153825442 | 5.411516714 |
| Apr-22 | 4.977157555 | 5.226015433 | 4.521545103 | 4.759521161 | 4.997497219 | 4.889517987 | 5.146861039 | 5.404204091 |
| May-22 | 4.957949122 | 5.205846578 | 4.500320006 | 4.737178954 | 4.974037902 | 4.841167079 | 5.095965346 | 5.350763613 |
| Jun-22 | 4.846397193 | 5.088717053 | 4.507697781 | 4.744945033 | 4.982192285 | 4.790616721 | 5.042754443 | 5.294892165 |
| Jul-22 | 4.685498544 | 4.919773472 | 4.34762332 | 4.5764456 | 4.80526788 | 4.631176453 | 4.874922582 | 5.118668712 |
| Aug-22 | 4.598643886 | 4.82857608 | 4.265230985 | 4.489716827 | 4.714202668 | 4.57710629 | 4.818006621 | 5.058906953 |
| Sep-22 | 4.763380161 | 5.001549169 | 4.347952461 | 4.576792065 | 4.805631668 | 4.73057159 | 4.979549042 | 5.228526494 |
| Oct-22 | 5.115929389 | 5.371725859 | 4.598136474 | 4.840143657 | 5.08215084 | 5.001871525 | 5.265127921 | 5.528384317 |
| Nov-22 | 5.322547844 | 5.588675236 | 4.800412876 | 5.053066185 | 5.305719494 | 5.199358589 | 5.473009041 | 5.746659493 |
| Dec-22 | 5.33760857 | 5.604488998 | 4.784966475 | 5.036806816 | 5.288647156 | 5.189757639 | 5.462902778 | 5.736047917 |
| Jan-23 | 5.268018663 | 5.531419596 | 4.753781095 | 5.0039801 | 5.254179105 | 5.114279738 | 5.383452356 | 5.652624973 |
| Feb-23 | 5.264571947 | 5.527800545 | 4.747425894 | 4.997290415 | 5.247154936 | 5.11362503 | 5.38276319 | 5.651901349 |
| Mar-23 | 5.18622609 | 5.445537395 | 4.778863691 | 5.030382833 | 5.281901974 | 5.05655434 | 5.322688779 | 5.588823218 |
| Apr-23 | 5.088624177 | 5.343055386 | 4.637880388 | 4.881979356 | 5.126078323 | 4.997787691 | 5.260829148 | 5.523870605 |
| May-23 | 5.059420339 | 5.312391356 | 4.625928611 | 4.869398538 | 5.112868465 | 4.952745513 | 5.21341633 | 5.474087146 |
| Jun-23 | 4.957115293 | 5.204971058 | 4.641265115 | 4.885542226 | 5.129819338 | 4.91096384 | 5.169435621 | 5.427907402 |
| Jul-23 | 4.769916653 | 5.008412485 | 4.461562784 | 4.696381878 | 4.931200972 | 4.73292083 | 4.982021927 | 5.231123023 |
| Aug-23 | 4.678706967 | 4.912642315 | 4.379050336 | 4.609526669 | 4.840003002 | 4.672896881 | 4.918838822 | 5.164780763 |
| Sep-23 | 4.845086771 | 5.087341109 | 4.468580661 | 4.703769117 | 4.938957573 | 4.851923223 | 5.107287603 | 5.362651983 |
| Oct-23 | 5.171521864 | 5.430097957 | 4.732678737 | 4.981767092 | 5.230855447 | 5.137182975 | 5.407561026 | 5.677939077 |
| Nov-23 | 5.391423385 | 5.660994554 | 4.929556164 | 5.189006488 | 5.448456812 | 5.337254199 | 5.618162315 | 5.89907043 |
| Dec-23 | 5.435197638 | 5.70695752 | 4.924303349 | 5.183477209 | 5.44265107 | 5.337897571 | 5.618839548 | 5.899781526 |
| Jan-24 | 5.307276947 | 5.572640795 | 4.83418531 | 5.088616116 | 5.343046922 | 5.195406933 | 5.468849404 | 5.742291874 |
| Feb-24 | 5.281169741 | 5.545228229 | 4.825818134 | 5.079808562 | 5.33379899 | 5.192742968 | 5.46604523 | 5.739347491 |
| Mar-24 | 5.128825891 | 5.385267185 | 4.7948771 | 5.047239053 | 5.299601005 | 5.070119763 | 5.336968171 | 5.60381658 |

Detailed Price Forecast

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------|----------------------------------|-------------------------------|----------------------------------|---------------------------------|------------------------------|---------------------------------|-----------------------------------|
| Apr-24 | 6.655 | 5.569161504 | 6.020715139 | 6.321750896 | 5.110865024 | 5.37985792 | 5.648850816 | 4.903248218 |
| May-24 | 6.64 | 5.655349073 | 6.11389089 | 6.419585435 | 4.934388977 | 5.19409366 | 5.453798343 | 4.889778 |
| Jun-24 | 6.68 | 5.679787623 | 6.140310944 | 6.447326491 | 4.82242361 | 5.076235379 | 5.330047148 | 4.78874205 |
| Jul-24 | 6.73 | 5.680510371 | 6.141092293 | 6.448146908 | 4.693897794 | 4.940945046 | 5.187992298 | 4.664606212 |
| Aug-24 | 6.775 | 5.587069365 | 6.040074989 | 6.342078739 | 4.604579061 | 4.846925327 | 5.089271594 | 4.551792878 |
| Sep-24 | 6.79 | 5.548471606 | 5.998347682 | 6.298265066 | 4.744671524 | 4.994391078 | 5.244110632 | 4.692216933 |
| Oct-24 | 6.855 | 5.564118861 | 6.015263634 | 6.316026815 | 4.951747871 | 5.21236618 | 5.472984489 | 4.936035276 |
| Nov-24 | 6.98 | 5.711309058 | 6.174388171 | 6.48310758 | 5.397798456 | 5.681893111 | 5.965987767 | 5.116073431 |
| Dec-24 | 7.215 | 5.757906879 | 6.224764194 | 6.536002403 | 5.395040247 | 5.678989734 | 5.962939221 | 5.198174379 |
| Jan-25 | 6.800832006 | 5.435052149 | 5.875732054 | 6.169518656 | 5.024952848 | 5.289424051 | 5.553895254 | 4.75807565 |
| Feb-25 | 6.786767148 | 5.394166469 | 5.831531317 | 6.123107883 | 5.004499358 | 5.267894061 | 5.531288764 | 4.726811427 |
| Mar-25 | 6.863765286 | 5.18873312 | 5.60944121 | 5.889913271 | 4.829009109 | 5.083167483 | 5.337325857 | 4.554138808 |
| Apr-25 | 7.007974407 | 5.436418607 | 5.877209305 | 6.17106977 | 4.959666269 | 5.220701336 | 5.481736403 | 4.715900438 |
| May-25 | 7.220157448 | 5.541027849 | 5.990300378 | 6.289815396 | 4.809464157 | 5.06259385 | 5.315723542 | 4.739452375 |
| Jun-25 | 7.263046556 | 5.588740089 | 6.041881177 | 6.343975236 | 4.726560661 | 4.975327012 | 5.224093363 | 4.64482083 |
| Jul-25 | 7.106225839 | 5.584708698 | 6.037522917 | 6.339399063 | 4.572603444 | 4.813266783 | 5.053930122 | 4.503148392 |
| Aug-25 | 6.918342048 | 5.444474405 | 5.885918276 | 6.180214189 | 4.433924379 | 4.66728882 | 4.900653261 | 4.345446696 |
| Sep-25 | 6.952508956 | 5.347877147 | 5.781488807 | 6.070563247 | 4.516658141 | 4.754376991 | 4.99209584 | 4.46219814 |
| Oct-25 | 7.110514592 | 5.369091704 | 5.804423464 | 6.094644637 | 4.976357347 | 5.238270891 | 5.500184436 | 4.719938904 |
| Nov-25 | 7.152821764 | 5.499615901 | 5.945530704 | 6.242807239 | 5.238808025 | 5.514534763 | 5.790261501 | 5.035475195 |
| Dec-25 | 7.195142616 | 5.578220313 | 6.030508446 | 6.332033869 | 5.23223472 | 5.507615494 | 5.782996269 | 5.134840277 |
| Jan-26 | 6.941315368 | 5.559902468 | 6.010705371 | 6.31124064 | 5.207235241 | 5.481300254 | 5.755365267 | 5.113161254 |
| Feb-26 | 6.905999321 | 5.550890217 | 6.000962397 | 6.301010517 | 5.192853774 | 5.466161867 | 5.739469961 | 5.100440921 |
| Mar-26 | 6.983420494 | 5.40848231 | 5.847007902 | 6.139358297 | 5.10792532 | 5.376763495 | 5.645601669 | 4.974782753 |
| Apr-26 | 7.139517211 | 5.566373075 | 6.017700622 | 6.318585653 | 5.173840022 | 5.446147392 | 5.718454761 | 5.102913189 |
| May-26 | 7.368893674 | 5.688105085 | 6.149302795 | 6.456767935 | 5.07624271 | 5.343413379 | 5.610584048 | 5.102327991 |
| Jun-26 | 7.412673049 | 5.742897973 | 6.208538349 | 6.518965267 | 4.992286084 | 5.255037983 | 5.517789882 | 5.006487034 |
| Jul-26 | 7.19797232 | 5.727316999 | 6.191694053 | 6.501278756 | 4.813077044 | 5.066396888 | 5.319716733 | 4.849555397 |
| Aug-26 | 7.107507045 | 5.601662528 | 6.055851382 | 6.358643951 | 4.672080114 | 4.917979067 | 5.16387802 | 4.706962111 |
| Sep-26 | 7.142640514 | 5.473333856 | 5.917117682 | 6.212973566 | 4.791025783 | 5.043185035 | 5.295344286 | 4.843991352 |
| Oct-26 | 7.331147281 | 5.585170211 | 6.03802185 | 6.339922942 | 5.14416779 | 5.414913463 | 5.685659136 | 5.144614443 |
| Nov-26 | 7.37476986 | 5.664953649 | 6.124274215 | 6.430487926 | 5.429485212 | 5.715247592 | 6.001009972 | 5.28990966 |
| Dec-26 | 7.418622898 | 5.760267135 | 6.227315821 | 6.538681612 | 5.437471479 | 5.723654189 | 6.009836898 | 5.315618915 |
| Jan-27 | 7.220728861 | 5.728387032 | 6.192850846 | 6.502493388 | 5.398830848 | 5.68297984 | 5.967128832 | 5.279584818 |
| Feb-27 | 7.213731421 | 5.726611382 | 6.190931224 | 6.500477785 | 5.397678093 | 5.681766414 | 5.965854734 | 5.274073342 |
| Mar-27 | 7.278822495 | 5.611604747 | 6.066599727 | 6.369929713 | 5.34707306 | 5.628497958 | 5.909922856 | 5.174954325 |
| Apr-27 | 7.447814936 | 5.757629694 | 6.224464534 | 6.535687761 | 5.385064189 | 5.66848862 | 5.951913051 | 5.265034024 |
| May-27 | 7.6701445 | 5.853783974 | 6.328415107 | 6.644835862 | 5.284668902 | 5.562809371 | 5.840949839 | 5.257978872 |
| Jun-27 | 7.71571967 | 5.922407599 | 6.402602809 | 6.72273295 | 5.204823176 | 5.478761237 | 5.752699299 | 5.166576782 |
| Jul-27 | 7.511172303 | 5.897686386 | 6.375877174 | 6.694671032 | 5.024171948 | 5.28860205 | 5.553032153 | 5.024167871 |
| Aug-27 | 7.415530113 | 5.77734283 | 6.245776033 | 6.558064835 | 4.895047056 | 5.152681112 | 5.410315167 | 4.886867773 |
| Sep-27 | 7.468232684 | 5.659902495 | 6.118813509 | 6.424754184 | 5.151802477 | 5.422949975 | 5.694097474 | 5.026738175 |
| Oct-27 | 7.60598947 | 5.750030553 | 6.216249246 | 6.527061709 | 5.414344579 | 5.699310083 | 5.984275587 | 5.279904634 |
| Nov-27 | 7.651245259 | 5.841314186 | 6.314934255 | 6.630680968 | 5.629515291 | 5.92580557 | 6.222095848 | 5.437358762 |
| Dec-27 | 7.695579736 | 5.898127401 | 6.376353947 | 6.695171644 | 5.623824506 | 5.91981527 | 6.215806033 | 5.427784901 |
| Jan-28 | 7.434769256 | 5.813013604 | 6.284339031 | 6.598555983 | 5.530667715 | 5.82175549 | 6.112843264 | 5.336586862 |
| Feb-28 | 7.385473063 | 5.799984894 | 6.270253939 | 6.583766636 | 5.512537222 | 5.80267076 | 6.092804298 | 5.312865047 |
| Mar-28 | 7.478941149 | 5.662452235 | 6.121569983 | 6.427648483 | 5.370729374 | 5.653399341 | 5.936069308 | 5.171545528 |
| Apr-28 | 7.663770038 | 5.819553732 | 6.29140944 | 6.605979912 | 5.42925689 | 5.715007253 | 6.000757615 | 5.286379002 |

APPENDIX E
Detailed Price Forecast

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|---|--------------------------------------|---|--|---------------------------------------|--|
| Apr-24 | 5.161313913 | 5.419379609 | 4.803398269 | 5.056208704 | 5.309019139 | 5.161507633 | 5.43316593 | 5.704824226 |
| May-24 | 5.147134737 | 5.404491474 | 4.818961426 | 5.072590975 | 5.326220524 | 5.144087297 | 5.414828733 | 5.68557017 |
| Jun-24 | 5.040781106 | 5.292820161 | 4.733670687 | 4.982811249 | 5.231951812 | 5.046349153 | 5.311946476 | 5.5775438 |
| Jul-24 | 4.910111802 | 5.155617392 | 4.599094666 | 4.841152279 | 5.083209893 | 4.92793238 | 5.187297242 | 5.446662104 |
| Aug-24 | 4.791360924 | 5.03092897 | 4.489976414 | 4.726290962 | 4.96260551 | 4.817191046 | 5.070727417 | 5.324263788 |
| Sep-24 | 4.939175719 | 5.186134505 | 4.629230836 | 4.872874564 | 5.116518293 | 4.963333715 | 5.224561805 | 5.485789895 |
| Oct-24 | 5.195826607 | 5.455617937 | 4.821717111 | 5.075491695 | 5.32926628 | 5.21039188 | 5.484623032 | 5.758854183 |
| Nov-24 | 5.385340453 | 5.654607476 | 5.005580629 | 5.269032241 | 5.532483853 | 5.397280682 | 5.681348086 | 5.965415491 |
| Dec-24 | 5.471762504 | 5.745350629 | 5.000882694 | 5.264087047 | 5.527291399 | 5.398275993 | 5.682395782 | 5.966515571 |
| Jan-25 | 5.008500684 | 5.258925719 | 4.629903348 | 4.873582472 | 5.117261595 | 4.989906414 | 5.252533067 | 5.515159721 |
| Feb-25 | 4.975590975 | 5.224370524 | 4.608553832 | 4.851109297 | 5.093664762 | 4.974253767 | 5.236056597 | 5.497859427 |
| Mar-25 | 4.793830325 | 5.033521841 | 4.540965705 | 4.7799639 | 5.018962095 | 4.816017204 | 5.069491793 | 5.322966383 |
| Apr-25 | 4.964105724 | 5.212311011 | 4.65243326 | 4.897298168 | 5.142163077 | 5.010302084 | 5.274002194 | 5.537702303 |
| May-25 | 4.988897237 | 5.238342098 | 4.682211617 | 4.928643807 | 5.175075997 | 5.019304264 | 5.283478173 | 5.547652082 |
| Jun-25 | 4.889285085 | 5.133749339 | 4.638138878 | 4.88225145 | 5.126364023 | 4.937451717 | 5.197317597 | 5.457183477 |
| Jul-25 | 4.740156202 | 4.977164013 | 4.478136891 | 4.713828306 | 4.949519722 | 4.806020144 | 5.058968573 | 5.311917001 |
| Aug-25 | 4.574154417 | 4.802862138 | 4.319536905 | 4.546880953 | 4.774225 | 4.650632348 | 4.895402471 | 5.140172595 |
| Sep-25 | 4.697050674 | 4.931903208 | 4.398812501 | 4.630328948 | 4.861845396 | 4.73540323 | 4.984634979 | 5.233866728 |
| Oct-25 | 4.968356741 | 5.216774578 | 4.656181809 | 4.901244009 | 5.14630621 | 5.027111846 | 5.29169668 | 5.556281514 |
| Nov-25 | 5.300500206 | 5.565525216 | 4.864804233 | 5.120846561 | 5.376888889 | 5.23769275 | 5.51336079 | 5.789028829 |
| Dec-25 | 5.405095029 | 5.67534978 | 4.837799481 | 5.092420506 | 5.347041532 | 5.216380337 | 5.490926671 | 5.765473004 |
| Jan-26 | 5.382275005 | 5.651388755 | 4.812089253 | 5.065357108 | 5.318624964 | 5.17210002 | 5.44431581 | 5.716531601 |
| Feb-26 | 5.36888518 | 5.637329439 | 4.796602477 | 5.049055239 | 5.301508001 | 5.161695851 | 5.433364054 | 5.705032257 |
| Mar-26 | 5.236613425 | 5.498444096 | 4.828938198 | 5.08309284 | 5.337247482 | 5.075898099 | 5.343050631 | 5.610203162 |
| Apr-26 | 5.371487567 | 5.640061946 | 4.883317103 | 5.140333793 | 5.397350483 | 5.203992295 | 5.477886627 | 5.751780958 |
| May-26 | 5.37087157 | 5.639415148 | 4.959942237 | 5.220991828 | 5.48204142 | 5.260392548 | 5.537255313 | 5.814118079 |
| Jun-26 | 5.269986351 | 5.533485669 | 4.896390784 | 5.154095562 | 5.41180034 | 5.16807544 | 5.440079411 | 5.712083381 |
| Jul-26 | 5.104795154 | 5.360034912 | 4.71087605 | 4.958816894 | 5.206757739 | 4.983179497 | 5.245452102 | 5.507724707 |
| Aug-26 | 4.954696959 | 5.202431807 | 4.564136498 | 4.804354208 | 5.044571919 | 4.846517279 | 5.101597136 | 5.356676993 |
| Sep-26 | 5.098938266 | 5.353885179 | 4.67231311 | 4.918224326 | 5.164135542 | 4.984479691 | 5.246820727 | 5.509161763 |
| Oct-26 | 5.415383624 | 5.686152805 | 4.920523285 | 5.179498195 | 5.438473104 | 5.253421649 | 5.529917525 | 5.806413402 |
| Nov-26 | 5.568325957 | 5.846742255 | 5.071859919 | 5.338799914 | 5.60573991 | 5.41313933 | 5.6980414 | 5.98294347 |
| Dec-26 | 5.595388331 | 5.875157748 | 5.036910838 | 5.302011408 | 5.567111979 | 5.400701851 | 5.684949317 | 5.969196782 |
| Jan-27 | 5.557457703 | 5.835330588 | 4.997344737 | 5.260362881 | 5.523381025 | 5.349755602 | 5.631321686 | 5.91288777 |
| Feb-27 | 5.55165615 | 5.829238957 | 4.995059494 | 5.257957362 | 5.52085523 | 5.346627788 | 5.62802925 | 5.909430713 |
| Mar-27 | 5.447320342 | 5.719686359 | 5.068856031 | 5.335637927 | 5.602419823 | 5.317388278 | 5.597250819 | 5.87711336 |
| Apr-27 | 5.542141078 | 5.819248132 | 5.107609732 | 5.376431296 | 5.645252861 | 5.414391558 | 5.699359534 | 5.984327511 |
| May-27 | 5.534714602 | 5.811450332 | 5.162693757 | 5.434414481 | 5.706135205 | 5.457357053 | 5.744586371 | 6.03181569 |
| Jun-27 | 5.438501876 | 5.71042697 | 5.098985988 | 5.367353671 | 5.635721355 | 5.369749704 | 5.65236811 | 5.934986515 |
| Jul-27 | 5.288597759 | 5.553027646 | 4.911680712 | 5.170190223 | 5.428699734 | 5.183004784 | 5.455794509 | 5.728584235 |
| Aug-27 | 5.14407134 | 5.401274907 | 4.772866251 | 5.024069738 | 5.275273225 | 5.05169419 | 5.317572832 | 5.583451473 |
| Sep-27 | 5.291303342 | 5.555868509 | 4.887667893 | 5.144913572 | 5.40215925 | 5.193902048 | 5.467265314 | 5.740628579 |
| Oct-27 | 5.557794351 | 5.835684069 | 5.111433598 | 5.380456419 | 5.64947924 | 5.446382219 | 5.733033914 | 6.01968561 |
| Nov-27 | 5.723535539 | 6.009712316 | 5.244225122 | 5.52023697 | 5.796248819 | 5.610779859 | 5.906084062 | 6.201388265 |
| Dec-27 | 5.713457791 | 5.99913068 | 5.214993983 | 5.48946735 | 5.763940718 | 5.58720799 | 5.881271569 | 6.175335147 |
| Jan-28 | 5.617459854 | 5.898332847 | 5.120862346 | 5.390381416 | 5.659900487 | 5.498847966 | 5.788261017 | 6.077674068 |
| Feb-28 | 5.592489523 | 5.872113999 | 5.101747946 | 5.370260996 | 5.638774046 | 5.472567181 | 5.760597033 | 6.048626885 |
| Mar-28 | 5.443732135 | 5.715918741 | 5.078024648 | 5.345289103 | 5.612553559 | 5.316951583 | 5.59679114 | 5.876630698 |
| Apr-28 | 5.564609475 | 5.842839949 | 5.16654743 | 5.438470979 | 5.710394528 | 5.458492754 | 5.745781846 | 6.033070939 |

Detailed Price Forecast

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------|----------------------------------|-------------------------------|----------------------------------|---------------------------------|------------------------------|---------------------------------|-----------------------------------|
| May-28 | 7.886209044 | 5.953754889 | 6.436491772 | 6.758316361 | 5.354822108 | 5.636654851 | 5.918487593 | 5.297873351 |
| Jun-28 | 7.933066998 | 6.014467213 | 6.502126716 | 6.827233052 | 5.248316958 | 5.524544166 | 5.800771374 | 5.200919154 |
| Jul-28 | 7.58421738 | 5.944232181 | 6.426196953 | 6.7475068 | 5.032849175 | 5.297735973 | 5.562622772 | 5.004507977 |
| Aug-28 | 7.499695641 | 5.829308127 | 6.301954732 | 6.617052468 | 4.904557362 | 5.16269196 | 5.420826558 | 4.866414705 |
| Sep-28 | 7.567061842 | 5.643696988 | 6.101294041 | 6.406358743 | 5.047464982 | 5.313121033 | 5.578777085 | 4.967994204 |
| Oct-28 | 7.694839425 | 5.809050232 | 6.280054305 | 6.59405702 | 5.534297239 | 5.825576041 | 6.116854843 | 5.282387911 |
| Nov-28 | 7.74062506 | 5.90223745 | 6.380797244 | 6.699837106 | 5.718743451 | 6.019729949 | 6.320716446 | 5.429490097 |
| Dec-28 | 7.786483831 | 5.945841735 | 6.427937011 | 6.749333861 | 5.73384779 | 6.035629253 | 6.337410715 | 5.404239802 |
| Jan-29 | 7.421257921 | 5.821852452 | 6.293894542 | 6.60858927 | 5.59531982 | 5.889810337 | 6.184300854 | 5.248180914 |
| Feb-29 | 7.338566702 | 5.73664599 | 6.201779449 | 6.511868421 | 5.502572043 | 5.792181098 | 6.081790153 | 5.156654413 |
| Mar-29 | 7.407736064 | 5.542399656 | 5.991783411 | 6.291372582 | 5.22503106 | 5.500032694 | 5.775034329 | 4.954279845 |
| Apr-29 | 7.618141726 | 5.738582992 | 6.203873504 | 6.51406718 | 5.359985228 | 5.642089714 | 5.924194199 | 5.142369004 |
| May-29 | 7.862548555 | 5.882445376 | 6.359400406 | 6.677370426 | 5.318063663 | 5.59796175 | 5.877859838 | 5.187751864 |
| Jun-29 | 7.909267603 | 5.970222844 | 6.454294967 | 6.777009715 | 5.260221471 | 5.537075232 | 5.813928994 | 5.080428542 |
| Jul-29 | 7.672975782 | 5.925536215 | 6.405985097 | 6.726284352 | 5.041037367 | 5.306355123 | 5.571672879 | 4.898116897 |
| Aug-29 | 7.46394814 | 5.768247891 | 6.235943666 | 6.547740849 | 4.866280963 | 5.122401014 | 5.378521064 | 4.722330834 |
| Sep-29 | 7.48147094 | 5.629166327 | 6.085585219 | 6.38986448 | 5.086030832 | 5.353716665 | 5.621402499 | 4.820261207 |
| Oct-29 | 7.637834948 | 5.679038732 | 6.139501332 | 6.446476398 | 5.39998325 | 5.684192894 | 5.968402539 | 5.1225798 |
| Nov-29 | 7.683282259 | 5.80900799 | 6.280008638 | 6.59400907 | 5.666229506 | 5.964452112 | 6.262674717 | 5.290860839 |
| Dec-29 | 7.727064266 | 5.894342095 | 6.372261724 | 6.69087481 | 5.717151498 | 6.018054208 | 6.318956919 | 5.297578644 |
| Jan-30 | 7.367588264 | 5.857346808 | 6.33226682 | 6.648880161 | 5.668181622 | 5.96650697 | 6.264832319 | 5.251020514 |
| Feb-30 | 7.321648464 | 5.844755936 | 6.318655066 | 6.634587819 | 5.652267028 | 5.949754766 | 6.247242505 | 5.235030724 |
| Mar-30 | 7.406757927 | 5.651078631 | 6.109274196 | 6.414737906 | 5.3627951 | 5.645047473 | 5.927299847 | 5.002567348 |
| Apr-30 | 7.580241694 | 5.860636326 | 6.335823055 | 6.652614208 | 5.484706732 | 5.773375507 | 6.062044282 | 5.145747109 |
| May-30 | 7.819005427 | 5.994241742 | 6.480261342 | 6.80427441 | 5.489615137 | 5.778542249 | 6.067469362 | 5.187345416 |
| Jun-30 | 7.86546718 | 6.054519199 | 6.545426161 | 6.872697469 | 5.407456253 | 5.692059214 | 5.976662174 | 5.085189054 |
| Jul-30 | 7.674693704 | 6.039804645 | 6.529518535 | 6.855994462 | 5.224090229 | 5.499042347 | 5.773994464 | 4.96363424 |
| Aug-30 | 7.576169194 | 5.909768398 | 6.388938809 | 6.708385749 | 5.078127871 | 5.345397759 | 5.612667647 | 4.819570384 |
| Sep-30 | 7.621866959 | 5.796888056 | 6.266906007 | 6.580251307 | 5.25502175 | 5.531601842 | 5.808181934 | 4.899749767 |
| Oct-30 | 7.834628253 | 5.897418101 | 6.375587136 | 6.694366493 | 5.573282861 | 5.866613538 | 6.159944215 | 5.206878971 |
| Nov-30 | 7.883184134 | 5.987347328 | 6.472807922 | 6.796448318 | 5.795249998 | 6.100263156 | 6.405276314 | 5.35798949 |
| Dec-30 | 7.999686049 | 6.106775651 | 6.601919622 | 6.932015603 | 5.876833936 | 6.186140985 | 6.495448035 | 5.465264603 |
| Jan-31 | 7.441264146 | 5.888864991 | 6.366340531 | 6.684657558 | 5.481198995 | 5.769683153 | 6.05816731 | 5.059866277 |
| Feb-31 | 7.394864948 | 5.833589632 | 6.306583386 | 6.621912555 | 5.476689382 | 5.764936192 | 6.053183002 | 5.055280715 |
| Mar-31 | 7.480825506 | 5.52348101 | 5.971330822 | 6.269897363 | 5.07507302 | 5.342182126 | 5.609291233 | 4.711242991 |
| Apr-31 | 7.656044111 | 5.762721125 | 6.229968784 | 6.541467223 | 5.220102684 | 5.49484493 | 5.769587177 | 4.877753465 |
| May-31 | 7.897195481 | 5.86878125 | 6.344628379 | 6.661859798 | 5.192546138 | 5.46583804 | 5.739129942 | 4.88725372 |
| Jun-31 | 7.944121852 | 5.938843698 | 6.420371565 | 6.741390144 | 5.117111967 | 5.38643365 | 5.655755332 | 4.791622097 |
| Jul-31 | 7.751440641 | 5.986801876 | 6.472218244 | 6.795829156 | 4.995140329 | 5.258042451 | 5.520944574 | 4.732079779 |
| Aug-31 | 7.651930886 | 5.835037496 | 6.308148644 | 6.623556077 | 4.830819642 | 5.085073307 | 5.339326973 | 4.569676581 |
| Sep-31 | 7.698085629 | 5.655714272 | 6.1142857 | 6.419999985 | 4.947225401 | 5.207605685 | 5.46798597 | 4.588400698 |
| Oct-31 | 7.912974535 | 5.723514019 | 6.187582723 | 6.496961859 | 5.232198517 | 5.507577386 | 5.782956256 | 4.862130588 |
| Nov-31 | 7.962015975 | 5.835569709 | 6.30872401 | 6.624160211 | 5.475172862 | 5.763339855 | 6.051506848 | 5.033539749 |
| Dec-31 | 8.079682909 | 5.965520795 | 6.44921167 | 6.771672253 | 5.563658664 | 5.856482804 | 6.149306944 | 5.147973637 |
| Jan-32 | 7.515676788 | 6.123585201 | 6.620092109 | 6.951096715 | 5.537435985 | 5.828879984 | 6.120323983 | 5.11188994 |
| Feb-32 | 7.468813598 | 6.066157375 | 6.558007973 | 6.885908371 | 5.532881276 | 5.824085554 | 6.115289832 | 5.107258522 |
| Mar-32 | 7.555633761 | 5.743972872 | 6.209700402 | 6.520185422 | 5.12724875 | 5.397103947 | 5.666959145 | 4.759780421 |
| Apr-32 | 7.732604552 | 5.992529191 | 6.478409936 | 6.802330433 | 5.27372871 | 5.551293379 | 5.828858048 | 4.927956 |
| May-32 | 7.976167436 | 6.102719383 | 6.597534468 | 6.927411192 | 5.245896599 | 5.52199642 | 5.798096241 | 4.937551257 |

APPENDIX E
Detailed Price Forecast

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|---|--------------------------------------|---|--|---------------------------------------|--|
| May-28 | 5.57670879 | 5.85554423 | 5.233326232 | 5.508764454 | 5.784202677 | 5.517121264 | 5.807496068 | 6.097870871 |
| Jun-28 | 5.474651741 | 5.748384328 | 5.137913124 | 5.408329605 | 5.678746085 | 5.408494737 | 5.693152355 | 5.977809973 |
| Jul-28 | 5.267903133 | 5.53129829 | 4.906436487 | 5.164669987 | 5.422903486 | 5.213744241 | 5.488151832 | 5.762559424 |
| Aug-28 | 5.122541794 | 5.378668884 | 4.777517729 | 5.028966031 | 5.280414332 | 5.08654913 | 5.354262242 | 5.621975354 |
| Sep-28 | 5.229467583 | 5.490940963 | 4.911737352 | 5.170249844 | 5.428762336 | 5.246614853 | 5.522752476 | 5.7988901 |
| Oct-28 | 5.560408328 | 5.838428744 | 5.229102255 | 5.504318163 | 5.779534072 | 5.567411195 | 5.860432837 | 6.153454479 |
| Nov-28 | 5.715252734 | 6.001015371 | 5.354416998 | 5.636228419 | 5.91803984 | 5.71267422 | 6.013341284 | 6.314008349 |
| Dec-28 | 5.688673476 | 5.97310715 | 5.320975642 | 5.601026992 | 5.881078342 | 5.71222723 | 6.012870769 | 6.313514307 |
| Jan-29 | 5.524400963 | 5.800621011 | 5.187257577 | 5.460271133 | 5.73328469 | 5.530531073 | 5.821611656 | 6.112692239 |
| Feb-29 | 5.428057277 | 5.699460141 | 5.09350415 | 5.361583316 | 5.629662482 | 5.442374857 | 5.728815639 | 6.015256421 |
| Mar-29 | 5.215031416 | 5.475782987 | 4.95343365 | 5.214140684 | 5.474847719 | 5.171563118 | 5.443750651 | 5.715938183 |
| Apr-29 | 5.413020004 | 5.683671004 | 5.101769481 | 5.370283664 | 5.638797848 | 5.391958089 | 5.675745357 | 5.959532625 |
| May-29 | 5.460791436 | 5.733831007 | 5.211185945 | 5.485458889 | 5.759731834 | 5.481238006 | 5.769724217 | 6.058210428 |
| Jun-29 | 5.347819518 | 5.615210494 | 5.149202017 | 5.420212649 | 5.691223282 | 5.378251661 | 5.661317538 | 5.944383415 |
| Jul-29 | 5.155912523 | 5.413708149 | 4.923186744 | 5.182301835 | 5.441416927 | 5.180725263 | 5.453395013 | 5.726064764 |
| Aug-29 | 4.970874562 | 5.219418291 | 4.74223427 | 4.991825547 | 5.241416825 | 5.032105329 | 5.296952977 | 5.561800626 |
| Sep-29 | 5.073959166 | 5.327657124 | 4.841089207 | 5.095883375 | 5.350677544 | 5.130796281 | 5.40083819 | 5.6708801 |
| Oct-29 | 5.392189263 | 5.661798726 | 5.116181875 | 5.385454605 | 5.654727336 | 5.440063821 | 5.726382969 | 6.012702118 |
| Nov-29 | 5.569327199 | 5.847793559 | 5.319814487 | 5.599804723 | 5.879794959 | 5.665000983 | 5.963158929 | 6.261316876 |
| Dec-29 | 5.576398573 | 5.855218501 | 5.304657602 | 5.583850107 | 5.863042612 | 5.683741283 | 5.982885561 | 6.282029839 |
| Jan-30 | 5.527390015 | 5.803759516 | 5.260501706 | 5.537370217 | 5.814238728 | 5.606183779 | 5.901246083 | 6.196308387 |
| Feb-30 | 5.510558657 | 5.786086589 | 5.243035151 | 5.518984369 | 5.794933588 | 5.594335724 | 5.888774446 | 6.183213169 |
| Mar-30 | 5.265860366 | 5.529153385 | 5.091783866 | 5.359772491 | 5.627761115 | 5.309505186 | 5.588952827 | 5.868400468 |
| Apr-30 | 5.416575905 | 5.6874047 | 5.277821241 | 5.555601307 | 5.833381372 | 5.516672798 | 5.807023998 | 6.097375198 |
| May-30 | 5.460363595 | 5.733381775 | 5.380849334 | 5.664051931 | 5.947254527 | 5.581680089 | 5.875452726 | 6.169225362 |
| Jun-30 | 5.352830584 | 5.620472113 | 5.295492304 | 5.574202425 | 5.852912546 | 5.482261632 | 5.770801718 | 6.059341804 |
| Jul-30 | 5.224878147 | 5.486122054 | 5.105258419 | 5.37395623 | 5.642654042 | 5.320467698 | 5.600492313 | 5.880516929 |
| Aug-30 | 5.073231983 | 5.326893582 | 4.953052426 | 5.213739395 | 5.474426365 | 5.192321644 | 5.46560173 | 5.738881817 |
| Sep-30 | 5.157631334 | 5.4155129 | 5.083173634 | 5.350709089 | 5.618244543 | 5.309247099 | 5.588681157 | 5.868115215 |
| Oct-30 | 5.480925233 | 5.754971495 | 5.322579135 | 5.602714879 | 5.882850623 | 5.595910882 | 5.890432508 | 6.184954133 |
| Nov-30 | 5.639988937 | 5.921988383 | 5.481180203 | 5.769663371 | 6.05814654 | 5.773442805 | 6.077308215 | 6.381173626 |
| Dec-30 | 5.752910108 | 6.040555614 | 5.485621306 | 5.774338217 | 6.063055127 | 5.816310593 | 6.122432203 | 6.428553813 |
| Jan-31 | 5.326175028 | 5.59248378 | 5.06944228 | 5.336255032 | 5.603067784 | 5.418581174 | 5.703769657 | 5.988958139 |
| Feb-31 | 5.321348121 | 5.587415527 | 5.063365186 | 5.329858091 | 5.596350995 | 5.418178765 | 5.703346069 | 5.988513372 |
| Mar-31 | 4.959203148 | 5.207163305 | 4.801351674 | 5.054054394 | 5.306757114 | 5.021250207 | 5.28526533 | 5.54980286 |
| Apr-31 | 5.134477332 | 5.391201198 | 5.011148338 | 5.274892988 | 5.538637637 | 5.252388411 | 5.528829906 | 5.805271401 |
| May-31 | 5.1444776 | 5.40170148 | 5.082692678 | 5.350202818 | 5.617712959 | 5.28553174 | 5.563717621 | 5.841903502 |
| Jun-31 | 5.043812733 | 5.29600337 | 5.004028378 | 5.267398293 | 5.530768208 | 5.1926654 | 5.465963579 | 5.739261758 |
| Jul-31 | 4.98113661 | 5.23019344 | 4.8751202 | 5.131705473 | 5.388290747 | 5.092481572 | 5.360506917 | 5.628532263 |
| Aug-31 | 4.810185874 | 5.050695168 | 4.704493442 | 4.95209836 | 5.199703279 | 4.946155353 | 5.206479319 | 5.466803285 |
| Sep-31 | 4.829895472 | 5.071390245 | 4.773658804 | 5.024904004 | 5.276149204 | 5.001993004 | 5.265255794 | 5.528518583 |
| Oct-31 | 5.118032198 | 5.373933808 | 4.978987754 | 5.241039741 | 5.503091728 | 5.255052819 | 5.531634546 | 5.808216273 |
| Nov-31 | 5.298462893 | 5.563386038 | 5.157962369 | 5.429434073 | 5.700905776 | 5.453147597 | 5.740155365 | 6.027163133 |
| Dec-31 | 5.418919618 | 5.689865599 | 5.168533907 | 5.440562008 | 5.712590108 | 5.502530087 | 5.792136934 | 6.081743781 |
| Jan-32 | 5.380936779 | 5.649983617 | 5.121561703 | 5.391117582 | 5.660673461 | 5.474191986 | 5.762307353 | 6.050422721 |
| Feb-32 | 5.376061602 | 5.644864682 | 5.115423838 | 5.384656672 | 5.653889505 | 5.473785553 | 5.761879529 | 6.049973506 |
| Mar-32 | 5.01029518 | 5.260809939 | 4.850790191 | 5.106094938 | 5.361399685 | 5.072887709 | 5.339881799 | 5.606875889 |
| Apr-32 | 5.187322105 | 5.44668821 | 5.062684822 | 5.329141918 | 5.595599013 | 5.306337295 | 5.585618205 | 5.864899115 |
| May-32 | 5.197422376 | 5.457293494 | 5.134944604 | 5.405204847 | 5.675465089 | 5.339812058 | 5.620854798 | 5.901897537 |

APPENDIX E
Detailed Price Forecast

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------|----------------------------------|-------------------------------|----------------------------------|---------------------------------|------------------------------|---------------------------------|-----------------------------------|
| Jun-32 | 8.023563071 | 6.175510119 | 6.676227156 | 7.010038514 | 5.169708087 | 5.441797986 | 5.713887885 | 4.840963318 |
| Jul-32 | 7.828955047 | 6.225335827 | 6.730092786 | 7.066597426 | 5.046516732 | 5.312122876 | 5.57772902 | 4.780825577 |
| Aug-32 | 7.728450195 | 6.06766162 | 6.559634184 | 6.887615893 | 4.880552839 | 5.137424041 | 5.394295243 | 4.616798346 |
| Sep-32 | 7.775066485 | 5.881355404 | 6.358222059 | 6.676133162 | 4.998122655 | 5.261181742 | 5.524240829 | 4.635709705 |
| Oct-32 | 7.992104281 | 5.951795328 | 6.434373328 | 6.756091994 | 5.285945502 | 5.56415316 | 5.842360818 | 4.912176894 |
| Nov-32 | 8.041636135 | 6.068214558 | 6.560231954 | 6.888243552 | 5.531349591 | 5.822473254 | 6.113596916 | 5.085300146 |
| Dec-32 | 8.160479738 | 6.203226044 | 6.706190317 | 7.041499833 | 5.62072025 | 5.916547632 | 6.212375014 | 5.200878374 |
| Jan-33 | 7.590833556 | 6.273806136 | 6.782493119 | 7.121617775 | 5.594235345 | 5.888668784 | 6.183102223 | 5.164433839 |
| Feb-33 | 7.543501734 | 6.21500073 | 6.718919708 | 7.054865694 | 5.589635089 | 5.883826409 | 6.17801773 | 5.159756107 |
| Mar-33 | 7.631190099 | 5.885087664 | 6.362256934 | 6.68036978 | 5.179946238 | 5.452574987 | 5.725203736 | 4.808803225 |
| Apr-33 | 7.809930598 | 6.139606353 | 6.637412273 | 6.969282887 | 5.327890998 | 5.608306313 | 5.888721629 | 4.97866056 |
| May-33 | 8.05592911 | 6.252439788 | 6.759394366 | 7.097364084 | 5.299780565 | 5.578716385 | 5.857652204 | 4.988351769 |
| Jun-33 | 8.103798701 | 6.326976629 | 6.839974734 | 7.181973471 | 5.222830168 | 5.497715966 | 5.772601764 | 4.890797951 |
| Jul-33 | 7.907244598 | 6.377997556 | 6.895132493 | 7.239889118 | 5.098406899 | 5.366744105 | 5.63508131 | 4.830058833 |
| Aug-33 | 7.805734697 | 6.216541059 | 6.720584929 | 7.056614175 | 4.930783367 | 5.190298281 | 5.449813195 | 4.66439133 |
| Sep-33 | 7.85281715 | 6.025765729 | 6.514341328 | 6.840058395 | 5.049528882 | 5.31529356 | 5.581058238 | 4.683491802 |
| Oct-33 | 8.072025323 | 6.097895366 | 6.592319315 | 6.92193528 | 5.340229957 | 5.621294692 | 5.902359426 | 4.962723663 |
| Nov-33 | 8.122052497 | 6.217107261 | 6.721197039 | 7.057256891 | 5.588088087 | 5.882197986 | 6.176307886 | 5.137578148 |
| Dec-33 | 8.242084535 | 6.355357403 | 6.870656652 | 7.214189484 | 5.678352453 | 5.977213108 | 6.276073764 | 5.254312157 |
| Jan-34 | 7.666741891 | 6.42402707 | 6.94489413 | 7.292138836 | 5.651602698 | 5.949055472 | 6.246508245 | 5.217503177 |
| Feb-34 | 7.618936751 | 6.363844085 | 6.879831444 | 7.223823016 | 5.64695644 | 5.944164673 | 6.241372907 | 5.212778668 |
| Mar-34 | 7.707502 | 6.026202455 | 6.514813465 | 6.840554138 | 5.2331707 | 5.508600737 | 5.784030774 | 4.858316257 |
| Apr-34 | 7.888029904 | 6.286683515 | 6.796414611 | 7.136235341 | 5.382594908 | 5.665889376 | 5.949183845 | 5.029872165 |
| May-34 | 8.136488401 | 6.402160193 | 6.921254263 | 7.267316976 | 5.354203371 | 5.636003548 | 5.917803726 | 5.039660287 |
| Jun-34 | 8.184836688 | 6.478443138 | 7.003722312 | 7.353908427 | 5.276483469 | 5.554193126 | 5.831902782 | 4.94113093 |
| Jul-34 | 7.986317044 | 6.530659285 | 7.0601722 | 7.41318081 | 5.150815968 | 5.421911546 | 5.693007123 | 4.879784421 |
| Aug-34 | 7.883792044 | 6.365420498 | 6.881535674 | 7.225612457 | 4.981516201 | 5.243701264 | 5.505886327 | 4.712460243 |
| Sep-34 | 7.931345321 | 6.170176053 | 6.670460598 | 7.003983628 | 5.10144917 | 5.369946495 | 5.63844382 | 4.73175172 |
| Oct-34 | 8.152745577 | 6.243995404 | 6.750265302 | 7.087778567 | 5.395057257 | 5.679007639 | 5.962958021 | 5.0137759 |
| Nov-34 | 8.203273022 | 6.365999964 | 6.882162123 | 7.226270229 | 5.645393968 | 5.942519966 | 6.239645964 | 5.190378929 |
| Dec-34 | 8.324505381 | 6.507488762 | 7.035122986 | 7.386879136 | 5.736560977 | 6.038485239 | 6.340409501 | 5.308280279 |
| Jan-35 | 7.74340931 | 6.649358471 | 7.188495645 | 7.547920427 | 5.709543725 | 6.010046027 | 6.310548328 | 5.271103209 |
| Feb-35 | 7.695126119 | 6.587109118 | 7.121199047 | 7.477258999 | 5.704851004 | 6.00510632 | 6.305361636 | 5.266331455 |
| Mar-35 | 7.78457702 | 6.237874642 | 6.743648262 | 7.080830675 | 5.286927407 | 5.565186744 | 5.843446081 | 4.90832442 |
| Apr-35 | 7.966910203 | 6.507299258 | 7.034918117 | 7.386664023 | 5.437845857 | 5.72404827 | 6.010250684 | 5.081595887 |
| May-35 | 8.217853285 | 6.626740801 | 7.164044109 | 7.522246314 | 5.409170405 | 5.693863584 | 5.978556763 | 5.09148189 |
| Jun-35 | 8.266685055 | 6.705642903 | 7.249343679 | 7.611810863 | 5.330673304 | 5.611235057 | 5.89179681 | 4.99196724 |
| Jul-35 | 8.066180214 | 6.759651879 | 7.307731761 | 7.673118349 | 5.203749128 | 5.477630661 | 5.751512194 | 4.930007265 |
| Aug-35 | 7.962629964 | 6.588739657 | 7.122961791 | 7.479109881 | 5.032756363 | 5.297638276 | 5.56252019 | 4.761009846 |
| Sep-35 | 8.010658774 | 6.38679154 | 6.904639503 | 7.249871478 | 5.153888662 | 5.42514596 | 5.696403258 | 4.780494237 |
| Oct-35 | 8.234273032 | 6.463145461 | 6.987184282 | 7.336543496 | 5.450432829 | 5.737297715 | 6.024162601 | 5.065338659 |
| Nov-35 | 8.285305752 | 6.589339018 | 7.12360975 | 7.479790237 | 5.703272908 | 6.003445166 | 6.303617424 | 5.243707719 |
| Dec-35 | 8.407750435 | 6.735685801 | 7.281822488 | 7.645913612 | 5.795351587 | 6.100370092 | 6.405388596 | 5.362788082 |
| Jan-36 | 7.820843403 | 6.717239556 | 7.261880601 | 7.624974631 | 5.768064162 | 6.071646487 | 6.375228811 | 5.325239241 |
| Feb-36 | 7.77207738 | 6.65436771 | 7.193911037 | 7.553606589 | 5.763324514 | 6.066657383 | 6.369990253 | 5.32041977 |
| Mar-36 | 7.86242279 | 6.301640889 | 6.812584745 | 7.153213982 | 5.341221681 | 5.622338612 | 5.903455542 | 4.958832664 |
| Apr-36 | 8.046579305 | 6.573759751 | 7.106767298 | 7.462105663 | 5.493649315 | 5.782788753 | 6.07192819 | 5.133836846 |
| May-36 | 8.300031818 | 6.694395709 | 7.23718455 | 7.599043777 | 5.464687109 | 5.75230222 | 6.039917331 | 5.143821709 |
| Jun-36 | 8.349351906 | 6.774086832 | 7.323337116 | 7.689503971 | 5.385405037 | 5.668847407 | 5.952289778 | 5.043311912 |

APPENDIX E
Detailed Price Forecast

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|---|--------------------------------------|---|--|---------------------------------------|--|
| Jun-32 | 5.095750861 | 5.350538404 | 5.055493662 | 5.321572276 | 5.58765089 | 5.246017054 | 5.522123215 | 5.798229375 |
| Jul-32 | 5.032447976 | 5.284070374 | 4.925296402 | 5.184522528 | 5.443748655 | 5.144831387 | 5.415611987 | 5.686392586 |
| Aug-32 | 4.859787733 | 5.10277712 | 4.752963377 | 5.003119344 | 5.253275311 | 4.997041907 | 5.260044112 | 5.523046318 |
| Sep-32 | 4.879694426 | 5.123679148 | 4.822820392 | 5.076653044 | 5.330485696 | 5.053437934 | 5.319408352 | 5.585378769 |
| Oct-32 | 5.17071252 | 5.429248146 | 5.030202632 | 5.294950138 | 5.559697645 | 5.309028347 | 5.588450891 | 5.867873436 |
| Nov-32 | 5.352947522 | 5.620594899 | 5.210966993 | 5.485228413 | 5.759489834 | 5.509104073 | 5.799056919 | 6.089009765 |
| Dec-32 | 5.474608814 | 5.748339255 | 5.221644246 | 5.496467628 | 5.771291009 | 5.558980388 | 5.851558303 | 6.144136218 |
| Jan-33 | 5.436246146 | 5.708058454 | 5.17420232 | 5.446528758 | 5.718855196 | 5.530358905 | 5.821430427 | 6.112501948 |
| Feb-33 | 5.431322218 | 5.702888329 | 5.168003076 | 5.440003238 | 5.7120034 | 5.529948408 | 5.820998325 | 6.112048241 |
| Mar-33 | 5.061898131 | 5.314993038 | 4.900723093 | 5.158655887 | 5.416588682 | 5.125041586 | 5.394780617 | 5.664519647 |
| Apr-33 | 5.240695326 | 5.502730092 | 5.11473667 | 5.383933337 | 5.653130004 | 5.360825668 | 5.642974387 | 5.925123106 |
| May-33 | 5.250896599 | 5.513441429 | 5.18771905 | 5.460756895 | 5.73379474 | 5.394635178 | 5.678563346 | 5.962491513 |
| Jun-33 | 5.148208369 | 5.405618788 | 5.107473599 | 5.376287999 | 5.645102399 | 5.299902224 | 5.578844447 | 5.857786669 |
| Jul-33 | 5.084272455 | 5.338486078 | 4.975974366 | 5.237867753 | 5.499761141 | 5.197704701 | 5.471268107 | 5.744831512 |
| Aug-33 | 4.90988561 | 5.155379891 | 4.801918011 | 5.054650538 | 5.307383064 | 5.048437326 | 5.314144553 | 5.579851781 |
| Sep-33 | 4.929991371 | 5.176490939 | 4.872473596 | 5.128919575 | 5.385365553 | 5.105397313 | 5.374102435 | 5.642807557 |
| Oct-33 | 5.223919646 | 5.485115628 | 5.081929658 | 5.34939964 | 5.616869622 | 5.36354363 | 5.6458354 | 5.92812717 |
| Nov-33 | 5.407976998 | 5.678375848 | 5.264501662 | 5.541580697 | 5.818659732 | 5.565620113 | 5.858547488 | 6.151474862 |
| Dec-33 | 5.530854903 | 5.807397648 | 5.275285689 | 5.552932304 | 5.830578919 | 5.615995192 | 5.911573886 | 6.207152581 |
| Jan-34 | 5.492108608 | 5.766714038 | 5.227369343 | 5.502494046 | 5.777618748 | 5.587087494 | 5.881144731 | 6.175201968 |
| Feb-34 | 5.48713544 | 5.761492212 | 5.221108107 | 5.495903271 | 5.770698434 | 5.586672893 | 5.880708308 | 6.174743723 |
| Mar-34 | 5.114017113 | 5.369717968 | 4.951155324 | 5.211742446 | 5.472329568 | 5.177717002 | 5.450228423 | 5.722739844 |
| Apr-34 | 5.294602279 | 5.559332393 | 5.167309037 | 5.43927267 | 5.711236304 | 5.415858924 | 5.700904131 | 5.985949337 |
| May-34 | 5.304905565 | 5.570150844 | 5.241021241 | 5.516864464 | 5.792707687 | 5.45000653 | 5.736848979 | 6.023691428 |
| Jun-34 | 5.201190453 | 5.461249976 | 5.159973335 | 5.431550879 | 5.703128423 | 5.354326247 | 5.636132891 | 5.917939536 |
| Jul-34 | 5.13661518 | 5.393445939 | 5.027159109 | 5.291746431 | 5.556333753 | 5.251106748 | 5.527480788 | 5.803854827 |
| Aug-34 | 4.960484467 | 5.20850869 | 4.851362191 | 5.106697043 | 5.362031895 | 5.100346699 | 5.368785999 | 5.637225299 |
| Sep-34 | 4.980791284 | 5.229830849 | 4.922623332 | 5.18170877 | 5.440794209 | 5.157876286 | 5.429343459 | 5.700810632 |
| Oct-34 | 5.277658842 | 5.541541784 | 5.134173954 | 5.404393636 | 5.674613318 | 5.418604066 | 5.703793754 | 5.988983442 |
| Nov-34 | 5.463556768 | 5.736734606 | 5.318571679 | 5.598496504 | 5.87842133 | 5.622701315 | 5.918632963 | 6.214564611 |
| Dec-34 | 5.587663452 | 5.867046624 | 5.329463546 | 5.609961627 | 5.890459708 | 5.673580144 | 5.972189625 | 6.270799106 |
| Jan-35 | 5.548529694 | 5.825956179 | 5.281068037 | 5.559018986 | 5.836969935 | 5.644383369 | 5.941456178 | 6.238528987 |
| Feb-35 | 5.543506795 | 5.820682135 | 5.274744188 | 5.552362303 | 5.829980419 | 5.643964621 | 5.941015391 | 6.238066161 |
| Mar-35 | 5.166657284 | 5.424990148 | 5.002091877 | 5.265359871 | 5.528627864 | 5.230919172 | 5.506230707 | 5.781542242 |
| Apr-35 | 5.349048302 | 5.616500717 | 5.220407127 | 5.495165397 | 5.769923667 | 5.471442514 | 5.759413172 | 6.047383831 |
| May-35 | 5.359454621 | 5.627427352 | 5.294856453 | 5.573533109 | 5.852209764 | 5.505931595 | 5.795717469 | 6.085503342 |
| Jun-35 | 5.254702357 | 5.517437475 | 5.212998068 | 5.487366388 | 5.761734707 | 5.409294509 | 5.69399422 | 5.978693931 |
| Jul-35 | 5.189481332 | 5.448955398 | 5.078855701 | 5.346163895 | 5.61347209 | 5.305042816 | 5.584255595 | 5.863468375 |
| Aug-35 | 5.011589311 | 5.262168777 | 4.901300813 | 5.159264013 | 5.417227214 | 5.152775166 | 5.423973859 | 5.695172552 |
| Sep-35 | 5.032099197 | 5.283704157 | 4.973274565 | 5.235025858 | 5.496777151 | 5.210880049 | 5.485136894 | 5.759393739 |
| Oct-35 | 5.33193543 | 5.598532202 | 5.186940694 | 5.459937573 | 5.732934451 | 5.474215107 | 5.762331692 | 6.050448276 |
| Nov-35 | 5.519692335 | 5.795676952 | 5.373182396 | 5.655981469 | 5.938780543 | 5.680353328 | 5.979319292 | 6.278285257 |
| Dec-35 | 5.645040086 | 5.92729209 | 5.384183181 | 5.667561243 | 5.950939305 | 5.731740945 | 6.033411521 | 6.335082097 |
| Jan-36 | 5.605514991 | 5.88579074 | 5.335303717 | 5.616109176 | 5.896914635 | 5.702252203 | 6.00237074 | 6.302489277 |
| Feb-36 | 5.600441863 | 5.880463956 | 5.32891663 | 5.609385927 | 5.889855223 | 5.701829268 | 6.001925545 | 6.302021822 |
| Mar-36 | 5.219823857 | 5.480815049 | 5.053537796 | 5.319513469 | 5.585489143 | 5.284653363 | 5.562793014 | 5.840932665 |
| Apr-36 | 5.404038785 | 5.674240724 | 5.274036198 | 5.551617051 | 5.829197903 | 5.527581939 | 5.818507304 | 6.109432669 |
| May-36 | 5.414549167 | 5.685276626 | 5.349230018 | 5.63076844 | 5.912306862 | 5.562415911 | 5.855174644 | 6.147933376 |
| Jun-36 | 5.308749381 | 5.57418685 | 5.266553049 | 5.543740051 | 5.820927054 | 5.464812454 | 5.752434162 | 6.04005587 |

APPENDIX E
Detailed Price Forecast

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------|----------------------------------|-------------------------------|----------------------------------|---------------------------------|------------------------------|---------------------------------|-----------------------------------|
| Jul-36 | 8.146842016 | 6.828635898 | 7.382309079 | 7.751424532 | 5.257211619 | 5.533906968 | 5.810602316 | 4.980732338 |
| Aug-36 | 8.042256264 | 6.656014553 | 7.195691409 | 7.55547598 | 5.084508926 | 5.352114659 | 5.619720392 | 4.810044944 |
| Sep-36 | 8.090765362 | 6.452046956 | 6.975185898 | 7.323945193 | 5.206852549 | 5.48089742 | 5.754942291 | 4.82972418 |
| Oct-36 | 8.316615763 | 6.529164415 | 7.058556125 | 7.411483931 | 5.506362158 | 5.796170692 | 6.085979227 | 5.117417046 |
| Nov-36 | 8.368158809 | 6.656619909 | 7.196345847 | 7.55616314 | 5.761730637 | 6.064979617 | 6.368228598 | 5.297569796 |
| Dec-36 | 8.491827939 | 6.804430159 | 7.356140713 | 7.723947749 | 5.854730103 | 6.162873793 | 6.471017482 | 5.417840963 |
| Jan-37 | 7.899051837 | 6.785799452 | 7.335999407 | 7.702799378 | 5.827169804 | 6.133862952 | 6.440556099 | 5.379916634 |
| Feb-37 | 7.849798154 | 6.722298887 | 7.267350148 | 7.630717655 | 5.822382759 | 6.128823957 | 6.435265155 | 5.375048967 |
| Mar-37 | 7.941047018 | 6.366044798 | 6.882210592 | 7.226321122 | 5.396058898 | 5.680061998 | 5.964065098 | 5.00984599 |
| Apr-37 | 8.127045098 | 6.640884848 | 7.179334971 | 7.538301719 | 5.550010808 | 5.84211664 | 6.134222472 | 5.186600214 |
| May-37 | 8.383032136 | 6.762727166 | 7.311056395 | 7.676609215 | 5.52075898 | 5.811325242 | 6.101891504 | 5.196684926 |
| Jun-37 | 8.432845425 | 6.8432152 | 7.398070487 | 7.767974011 | 5.440684087 | 5.727035882 | 6.013387676 | 5.095170031 |
| Jul-37 | 8.228310437 | 6.898309757 | 7.457632169 | 7.830513778 | 5.311208736 | 5.590746037 | 5.870283339 | 5.031964661 |
| Aug-37 | 8.122678826 | 6.723962199 | 7.269148323 | 7.632605739 | 5.136779015 | 5.407135806 | 5.677492596 | 4.859570394 |
| Sep-37 | 8.171673016 | 6.517954925 | 7.046437757 | 7.398759645 | 5.260346074 | 5.537206394 | 5.814066714 | 4.879446422 |
| Oct-37 | 8.39978192 | 6.595843559 | 7.130641686 | 7.48717377 | 5.562850779 | 5.855632399 | 6.148414019 | 5.170016216 |
| Nov-37 | 8.451840397 | 6.724573608 | 7.269809306 | 7.633299771 | 5.820772943 | 6.127129414 | 6.433485884 | 5.351970494 |
| Dec-37 | 8.576746218 | 6.873861961 | 7.43120212 | 7.802762226 | 5.914702404 | 6.226002531 | 6.537302657 | 5.473444372 |
| Jan-38 | 7.978042356 | 6.855044946 | 7.410859401 | 7.781402371 | 5.886866502 | 6.196701581 | 6.50653666 | 5.4351408 |
| Feb-38 | 7.928296135 | 6.790909376 | 7.341523649 | 7.708599832 | 5.882031587 | 6.191612197 | 6.501192807 | 5.430224457 |
| Mar-38 | 8.020457488 | 6.431092746 | 6.952532698 | 7.300159333 | 5.451444487 | 5.738362618 | 6.025280749 | 5.06136945 |
| Apr-38 | 8.208315549 | 6.708681197 | 7.252628321 | 7.615259737 | 5.606935916 | 5.902037807 | 6.197139697 | 5.239891216 |
| May-38 | 8.466862458 | 6.831741937 | 7.385666959 | 7.754950307 | 5.57739157 | 5.870938494 | 6.164485419 | 5.250076775 |
| Jun-38 | 8.517173879 | 6.913034852 | 7.473551192 | 7.847228751 | 5.496515928 | 5.78580624 | 6.075096552 | 5.147546731 |
| Jul-38 | 8.310593541 | 6.968680354 | 7.533708491 | 7.910393916 | 5.365745823 | 5.648153498 | 5.930561173 | 5.083709308 |
| Aug-38 | 8.203905615 | 6.792589321 | 7.343339806 | 7.710506797 | 5.189571806 | 5.462707164 | 5.735842522 | 4.909591098 |
| Sep-38 | 8.253389746 | 6.584521974 | 7.118402134 | 7.474322241 | 5.314374535 | 5.594078458 | 5.873782381 | 4.929665886 |
| Oct-38 | 8.48377974 | 6.663189495 | 7.203448103 | 7.563620508 | 5.619904287 | 5.915688723 | 6.211473159 | 5.223141378 |
| Nov-38 | 8.536358801 | 6.793206844 | 7.344007399 | 7.711207769 | 5.880405672 | 6.189900708 | 6.499395743 | 5.406915199 |
| Dec-38 | 8.662513681 | 6.943988081 | 7.507014141 | 7.882364848 | 5.975274428 | 6.289762556 | 6.604250684 | 5.529603816 |
| Jan-39 | 8.057822779 | 6.924982896 | 7.486467995 | 7.860791395 | 5.947160167 | 6.260168597 | 6.573177027 | 5.490917208 |
| Feb-39 | 8.007579096 | 6.860205969 | 7.416438886 | 7.78726083 | 5.942276903 | 6.255028319 | 6.567779735 | 5.485951702 |
| Mar-39 | 8.100662063 | 6.496791173 | 7.023558025 | 7.374735926 | 5.507383932 | 5.797246244 | 6.087108556 | 5.113408145 |
| Apr-39 | 8.290398704 | 6.777155508 | 7.326654604 | 7.692987334 | 5.664430276 | 5.962558185 | 6.260686094 | 5.293715129 |
| May-39 | 8.551531082 | 6.901446857 | 7.461023629 | 7.83407481 | 5.634590485 | 5.931147879 | 6.227705273 | 5.304002543 |
| Jun-39 | 8.602345618 | 6.983552701 | 7.549786703 | 7.927276039 | 5.552906088 | 5.845164303 | 6.137422518 | 5.200447199 |
| Jul-39 | 8.393699476 | 7.039754658 | 7.610545576 | 7.991072855 | 5.420828281 | 5.706135033 | 5.991441784 | 5.135971401 |
| Aug-39 | 8.285944671 | 6.861902714 | 7.418273204 | 7.789186865 | 5.242892524 | 5.518834235 | 5.794775947 | 4.960112009 |
| Sep-39 | 8.335923643 | 6.651754694 | 7.191086156 | 7.550640464 | 5.36894328 | 5.651519242 | 5.934095205 | 4.980387545 |
| Oct-39 | 8.568617537 | 6.73120889 | 7.276982584 | 7.640831713 | 5.67752833 | 5.97634561 | 6.275162891 | 5.276797792 |
| Nov-39 | 8.621722389 | 6.862526412 | 7.418947473 | 7.789894846 | 5.940634729 | 6.253299715 | 6.565964701 | 5.462409351 |

2012 CNGC IRP

APPENDIX E
Detailed Price Forecast

14

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|---|--------------------------------------|---|--|---------------------------------------|--|
| Jul-36 | 5.242876145 | 5.505019952 | 5.131069258 | 5.401125534 | 5.671181811 | 5.359518244 | 5.641598151 | 5.923678059 |
| Aug-36 | 5.063205204 | 5.316365465 | 4.951738821 | 5.212356653 | 5.472974486 | 5.205727918 | 5.479713597 | 5.753699277 |
| Sep-36 | 5.083920189 | 5.338116199 | 5.024432311 | 5.288876117 | 5.553319923 | 5.26441385 | 5.541488263 | 5.818562676 |
| Oct-36 | 5.386754785 | 5.656092524 | 5.240235101 | 5.516036948 | 5.791838796 | 5.530382258 | 5.821455009 | 6.112527759 |
| Nov-36 | 5.576389259 | 5.855208722 | 5.42833922 | 5.714041284 | 5.999743348 | 5.738581861 | 6.040612485 | 6.34264311 |
| Dec-36 | 5.702990487 | 5.988140011 | 5.439450013 | 5.725736856 | 6.012023698 | 5.790483355 | 6.095245637 | 6.400007918 |
| Jan-37 | 5.663070141 | 5.946223648 | 5.390081754 | 5.673770268 | 5.957458781 | 5.760699725 | 6.063894447 | 6.36708917 |
| Feb-37 | 5.657946281 | 5.940843596 | 5.383630796 | 5.666979786 | 5.950328775 | 5.76027256 | 6.0634448 | 6.36661704 |
| Mar-37 | 5.273522095 | 5.5371982 | 5.105498174 | 5.374208604 | 5.642919034 | 5.338924897 | 5.619920944 | 5.900916991 |
| Apr-37 | 5.459579173 | 5.732558131 | 5.32820156 | 5.608633221 | 5.889064882 | 5.584282758 | 5.878192377 | 6.172101996 |
| May-37 | 5.470194659 | 5.743704392 | 5.404147318 | 5.688576124 | 5.97300493 | 5.61946507 | 5.91522639 | 6.210987709 |
| Jun-37 | 5.363336875 | 5.631503719 | 5.320643579 | 5.600677452 | 5.880711325 | 5.520885579 | 5.811458504 | 6.102031429 |
| Jul-37 | 5.296804907 | 5.561645152 | 5.18380495 | 5.45663679 | 5.729468629 | 5.414538426 | 5.699514133 | 5.98448984 |
| Aug-37 | 5.115337256 | 5.371104119 | 5.002681209 | 5.26598022 | 5.529279231 | 5.259210197 | 5.536010733 | 5.81281127 |
| Sep-37 | 5.136259391 | 5.393072361 | 5.076101634 | 5.343264878 | 5.610428122 | 5.318482988 | 5.598403146 | 5.878323303 |
| Oct-37 | 5.442122333 | 5.714228449 | 5.294062452 | 5.572697318 | 5.851332184 | 5.587111081 | 5.881169559 | 6.175228037 |
| Nov-37 | 5.633653151 | 5.915335809 | 5.484047612 | 5.772681697 | 6.061315782 | 5.79739268 | 6.10251861 | 6.407644541 |
| Dec-37 | 5.761520392 | 6.049596411 | 5.495269513 | 5.784494224 | 6.073718935 | 5.849813188 | 6.157698093 | 6.465582998 |
| Jan-38 | 5.721200842 | 6.007260884 | 5.445407572 | 5.73200797 | 6.018608369 | 5.819731722 | 6.126033392 | 6.432335062 |
| Feb-38 | 5.716025744 | 6.001827031 | 5.438892104 | 5.725149584 | 6.011407063 | 5.819300286 | 6.125579248 | 6.431858211 |
| Mar-38 | 5.327757316 | 5.594145182 | 5.157978156 | 5.42945069 | 5.700923225 | 5.393739146 | 5.677620154 | 5.961501161 |
| Apr-38 | 5.515674965 | 5.791458713 | 5.382908576 | 5.666219553 | 5.949530531 | 5.641550586 | 5.938474301 | 6.235398016 |
| May-38 | 5.526396606 | 5.802716436 | 5.459613791 | 5.746961885 | 6.03430998 | 5.677084721 | 5.975878654 | 6.274672587 |
| Jun-38 | 5.418470244 | 5.689393756 | 5.375275015 | 5.658184226 | 5.941093438 | 5.577519434 | 5.871073089 | 6.164626743 |
| Jul-38 | 5.351272956 | 5.618836603 | 5.237068 | 5.512703157 | 5.788338315 | 5.470108811 | 5.758009274 | 6.045909738 |
| Aug-38 | 5.167990629 | 5.42639016 | 5.054133021 | 5.320140022 | 5.586147023 | 5.313227299 | 5.592870841 | 5.872514383 |
| Sep-38 | 5.189121985 | 5.448578084 | 5.12828765 | 5.398197527 | 5.668107403 | 5.373092818 | 5.655887177 | 5.938681536 |
| Oct-38 | 5.498043556 | 5.772945734 | 5.348428076 | 5.629924291 | 5.911420506 | 5.644407192 | 5.941481254 | 6.238555317 |
| Nov-38 | 5.691489683 | 5.976064167 | 5.540313088 | 5.831908514 | 6.12350394 | 5.856791606 | 6.165043796 | 6.473295986 |
| Dec-38 | 5.820635596 | 6.111667376 | 5.551647208 | 5.843839166 | 6.136031125 | 5.90973632 | 6.220775074 | 6.531813828 |
| Jan-39 | 5.779912851 | 6.068908493 | 5.501286648 | 5.79082805 | 6.080369453 | 5.87935404 | 6.188793726 | 6.498233412 |
| Feb-39 | 5.774686002 | 6.063420302 | 5.494706025 | 5.783901079 | 6.073096133 | 5.878918289 | 6.188335041 | 6.497751793 |
| Mar-39 | 5.382534889 | 5.651661634 | 5.210982937 | 5.485245197 | 5.759507457 | 5.449101537 | 5.735896355 | 6.022691173 |
| Apr-39 | 5.572331714 | 5.8509483 | 5.438162662 | 5.724381749 | 6.010600836 | 5.699391092 | 5.999359044 | 6.299326996 |
| May-39 | 5.583160572 | 5.8623186 | 5.515634929 | 5.805931504 | 6.096228079 | 5.735280568 | 6.03713744 | 6.338994312 |
| Jun-39 | 5.474154946 | 5.747862693 | 5.430452765 | 5.716266069 | 6.002079372 | 5.634719629 | 5.93128382 | 6.227848011 |
| Jul-39 | 5.406285685 | 5.676599969 | 5.29086368 | 5.569330189 | 5.847796699 | 5.526234899 | 5.817089367 | 6.107943835 |
| Aug-39 | 5.221170535 | 5.482229062 | 5.106099351 | 5.374841422 | 5.643583494 | 5.367784572 | 5.650299549 | 5.932814527 |
| Sep-39 | 5.242513205 | 5.504638865 | 5.180995527 | 5.453679502 | 5.726363477 | 5.428248746 | 5.713946049 | 5.999643351 |
| Oct-39 | 5.554523992 | 5.832250191 | 5.403337357 | 5.687723534 | 5.972109711 | 5.702276263 | 6.002396067 | 6.30251587 |
| Nov-39 | 5.74990458 | 6.037399809 | 5.597141219 | 5.891727599 | 6.186313979 | 5.916784522 | 6.228194234 | 6.539603946 |

Appendix F

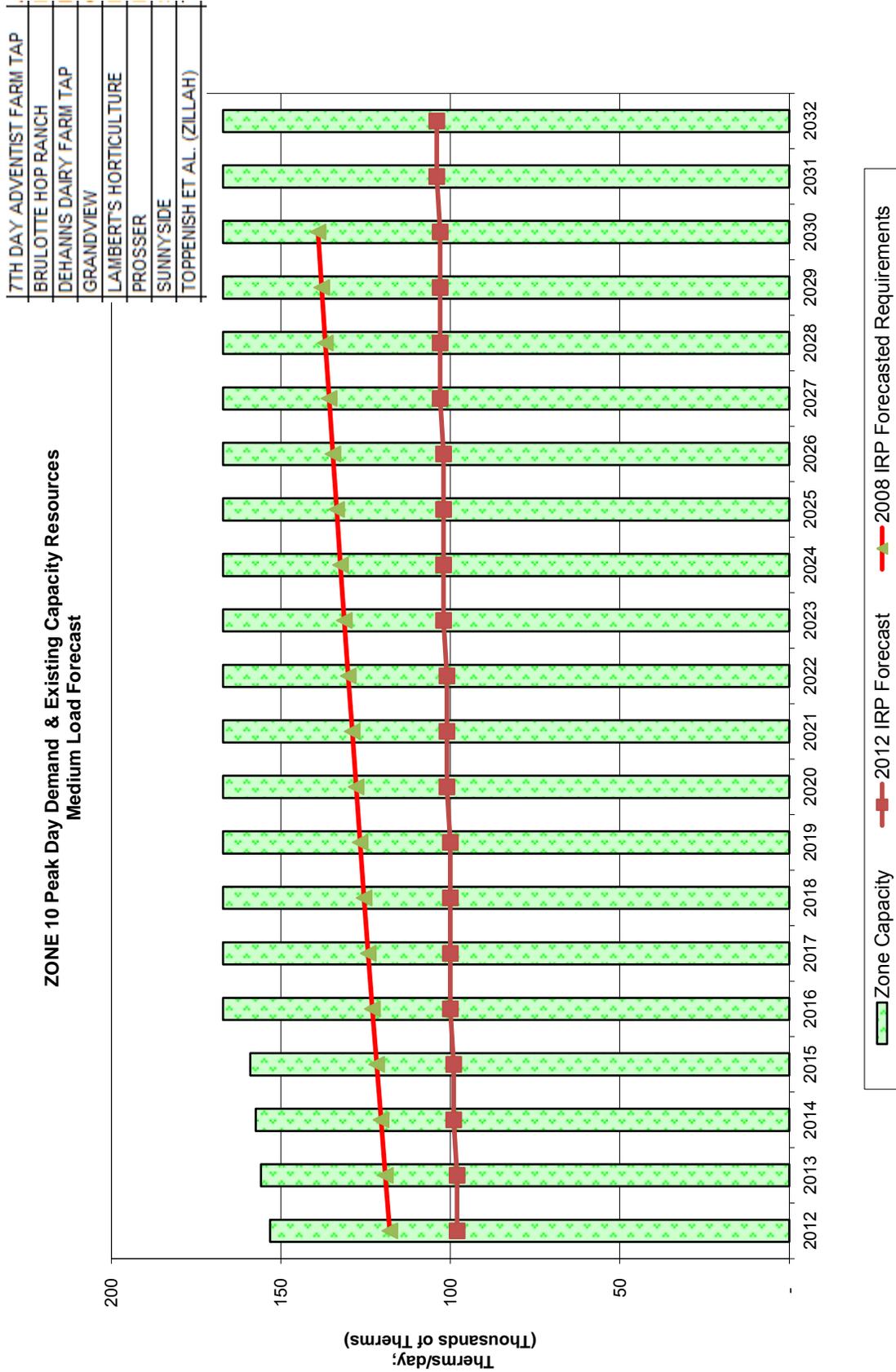
Capacity Requirements & Peak Day Planning

APPENDIX F
 TRANSPORTATION CAPACITY VS PEAK REQUIREMENTS
 Existing Upstream Pipeline Capacity vs Zonal Peak Demand
 (000's of Therms)

| | YEAR | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Zone 10 | Zone Capacity | 153 | 156 | 157 | 159 | 167 | 167 | 167 | 167 | 167 | 167 |
| | 2012 IRP Forecast | 98 | 98 | 99 | 99 | 100 | 100 | 100 | 100 | 101 | 101 |
| | Excess/(Shortfall) | 55 | 58 | 58 | 60 | 67 | 67 | 67 | 67 | 66 | 66 |
| Zone 11 | Zone Capacity | 361 | 367 | 371 | 374 | 393 | 393 | 393 | 393 | 393 | 393 |
| | 2012 IRP Forecast | 364 | 367 | 370 | 373 | 376 | 379 | 381 | 384 | 386 | 389 |
| | Excess/(Shortfall) | (3) | (0) | 1 | 1 | 17 | 14 | 12 | 9 | 7 | 4 |
| Zone 20 | Zone Capacity | 596 | 606 | 613 | 619 | 649 | 649 | 649 | 649 | 649 | 649 |
| | 2012 IRP Forecast | 457 | 469 | 480 | 497 | 515 | 533 | 551 | 570 | 589 | 608 |
| | Excess/(Shortfall) | 139 | 137 | 133 | 122 | 134 | 116 | 98 | 79 | 60 | 41 |
| Zone 24 | Zone Capacity | 139 | 142 | 143 | 145 | 152 | 152 | 152 | 152 | 152 | 152 |
| | 2012 IRP Forecast | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 |
| | Excess/(Shortfall) | 82 | 85 | 86 | 88 | 95 | 95 | 95 | 95 | 95 | 95 |
| Zone 26 | Zone Capacity | 479 | 487 | 491 | 495 | 518 | 518 | 518 | 518 | 518 | 518 |
| | 2012 IRP Forecast | 79 | 78 | 78 | 78 | 79 | 80 | 80 | 81 | 82 | 82 |
| | Excess/(Shortfall) | 400 | 409 | 413 | 417 | 439 | 438 | 438 | 437 | 436 | 436 |
| Zone 30-S | Zone Capacity | 647 | 652 | 656 | 660 | 678 | 678 | 678 | 678 | 678 | 678 |
| | 2012 IRP Forecast | 428 | 431 | 434 | 442 | 449 | 457 | 465 | 473 | 481 | 490 |
| | Excess/(Shortfall) | 219 | 221 | 222 | 218 | 229 | 221 | 213 | 205 | 197 | 188 |
| Zone 30-W | Zone Capacity | 1,265 | 1,392 | 1,405 | 1,418 | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 |
| | 2012 IRP Forecast | 1,184 | 1,204 | 1,223 | 1,253 | 1,283 | 1,314 | 1,345 | 1,376 | 1,407 | 1,439 |
| | Excess/(Shortfall) | 81 | 188 | 182 | 165 | 202 | 171 | 140 | 109 | 78 | 46 |
| Zone GTN | Zone Capacity | 512 | 512 | 512 | 512 | 512 | 512 | 512 | 512 | 512 | 512 |
| | 2012 IRP Forecast | 578 | 581 | 584 | 596 | 607 | 619 | 630 | 642 | 654 | 667 |
| | Excess/(Shortfall) | (66) | (69) | (72) | (84) | (95) | (107) | (118) | (130) | (142) | (155) |
| Zone ME-OR | Zone Capacity | 245 | 250 | 252 | 255 | 268 | 268 | 268 | 268 | 268 | 268 |
| | 2012 IRP Forecast | 200 | 204 | 208 | 213 | 218 | 222 | 227 | 231 | 235 | 239 |
| | Excess/(Shortfall) | 45 | 46 | 44 | 42 | 50 | 46 | 41 | 37 | 33 | 29 |
| Zone ME-WA | Zone Capacity | 129 | 131 | 132 | 133 | 140 | 140 | 140 | 140 | 140 | 140 |
| | 2012 IRP Forecast | 159 | 161 | 162 | 164 | 166 | 168 | 170 | 172 | 174 | 176 |
| | Excess/(Shortfall) | (30) | (30) | (30) | (31) | (26) | (28) | (30) | (32) | (34) | (36) |
| Zone 30 Combined | Zone Capacity | 1,912 | 2,045 | 2,061 | 2,078 | 2,162 | 2,162 | 2,162 | 2,162 | 2,162 | 2,162 |
| | 2012 IRP Forecast | 1,612 | 1,635 | 1,657 | 1,695 | 1,732 | 1,771 | 1,810 | 1,849 | 1,888 | 1,929 |
| | Excess/(Shortfall) | 300 | 410 | 404 | 383 | 430 | 391 | 352 | 313 | 274 | 233 |

APPENDIX F
 TRANSPORTATION CAPACITY VS PEAK REQUIREMENTS
 Existing Upstream Pipeline Capacity vs Zonal Peak Demand
 (000's of Therms)

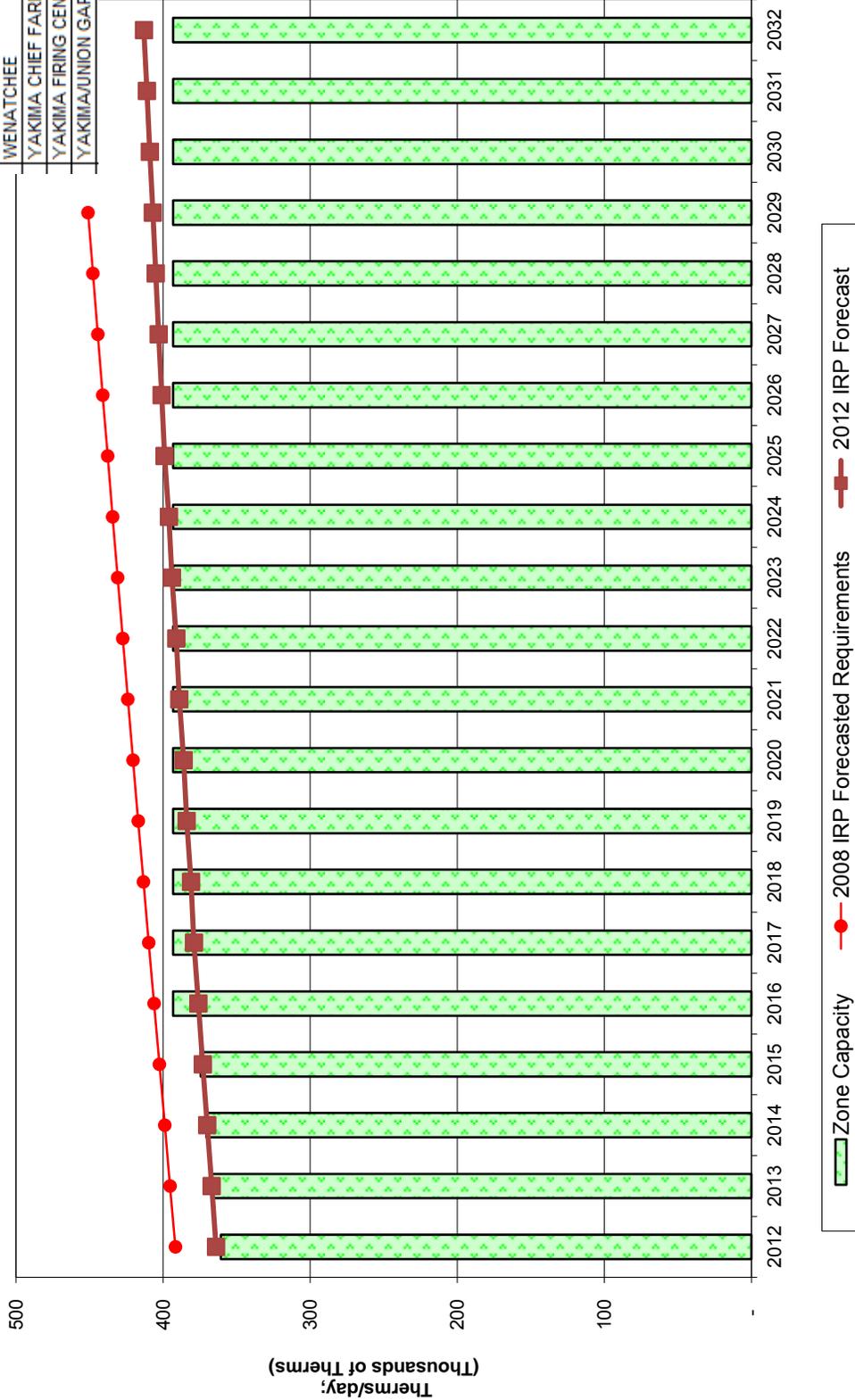
| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Zone 10 | 167 | 167 | 167 | 167 | 167 | 167 | 167 | 167 | 167 | 167 | 167 |
| | 101 | 102 | 102 | 102 | 102 | 103 | 103 | 103 | 103 | 104 | 104 |
| | 66 | 65 | 65 | 65 | 65 | 64 | 64 | 64 | 64 | 63 | 63 |
| Zone 11 | 393 | 393 | 393 | 393 | 393 | 393 | 393 | 393 | 393 | 393 | 393 |
| | 391 | 394 | 396 | 399 | 401 | 403 | 405 | 407 | 409 | 411 | 413 |
| | 2 | (1) | (3) | (6) | (8) | (10) | (12) | (14) | (16) | (18) | (20) |
| Zone 20 | 649 | 649 | 649 | 649 | 649 | 649 | 649 | 649 | 649 | 649 | 649 |
| | 628 | 648 | 669 | 690 | 712 | 734 | 756 | 779 | 802 | 823 | 847 |
| | 21 | 1 | (20) | (41) | (63) | (85) | (107) | (130) | (153) | (174) | (198) |
| Zone 24 | 152 | 152 | 152 | 152 | 152 | 152 | 152 | 152 | 152 | 152 | 152 |
| | 57 | 57 | 58 | 58 | 58 | 58 | 59 | 59 | 59 | 59 | 60 |
| | 95 | 95 | 94 | 94 | 94 | 94 | 93 | 93 | 93 | 93 | 92 |
| Zone 26 | 518 | 518 | 518 | 518 | 518 | 518 | 518 | 518 | 518 | 518 | 518 |
| | 83 | 84 | 85 | 86 | 87 | 87 | 88 | 89 | 90 | 91 | 92 |
| | 435 | 434 | 433 | 432 | 431 | 431 | 430 | 429 | 428 | 427 | 426 |
| Zone 30-S | 678 | 678 | 678 | 678 | 678 | 678 | 678 | 678 | 678 | 678 | 678 |
| | 498 | 506 | 515 | 523 | 532 | 541 | 549 | 558 | 567 | 575 | 584 |
| | 180 | 172 | 163 | 155 | 146 | 137 | 129 | 120 | 111 | 103 | 94 |
| Zone 30-W | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 |
| | 1,471 | 1,503 | 1,535 | 1,568 | 1,600 | 1,633 | 1,666 | 1,699 | 1,732 | 1,763 | 1,797 |
| | 14 | (18) | (50) | (83) | (115) | (148) | (181) | (214) | (247) | (278) | (312) |
| Zone GTN | 512 | 512 | 512 | 512 | 512 | 512 | 512 | 512 | 512 | 512 | 512 |
| | 679 | 692 | 705 | 718 | 731 | 745 | 759 | 773 | 787 | 799 | 813 |
| | (167) | (180) | (193) | (206) | (219) | (233) | (247) | (261) | (275) | (287) | (301) |
| Zone ME-OR | 268 | 268 | 268 | 268 | 268 | 268 | 268 | 268 | 268 | 268 | 268 |
| | 243 | 247 | 251 | 255 | 258 | 262 | 265 | 268 | 271 | 273 | 276 |
| | 25 | 21 | 17 | 13 | 10 | 6 | 3 | (0) | (3) | (5) | (8) |
| Zone ME-WA | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 |
| | 177 | 179 | 181 | 182 | 184 | 185 | 187 | 188 | 189 | 190 | 191 |
| | (37) | (39) | (41) | (42) | (44) | (45) | (47) | (48) | (49) | (50) | (51) |
| Zone 30 Combined | 2,162 | 2,162 | 2,162 | 2,162 | 2,162 | 2,162 | 2,162 | 2,162 | 2,162 | 2,162 | 2,162 |
| | 1,969 | 2,009 | 2,050 | 2,091 | 2,132 | 2,174 | 2,215 | 2,257 | 2,299 | 2,338 | 2,381 |
| | 193 | 153 | 112 | 71 | 30 | (12) | (53) | (95) | (137) | (176) | (219) |



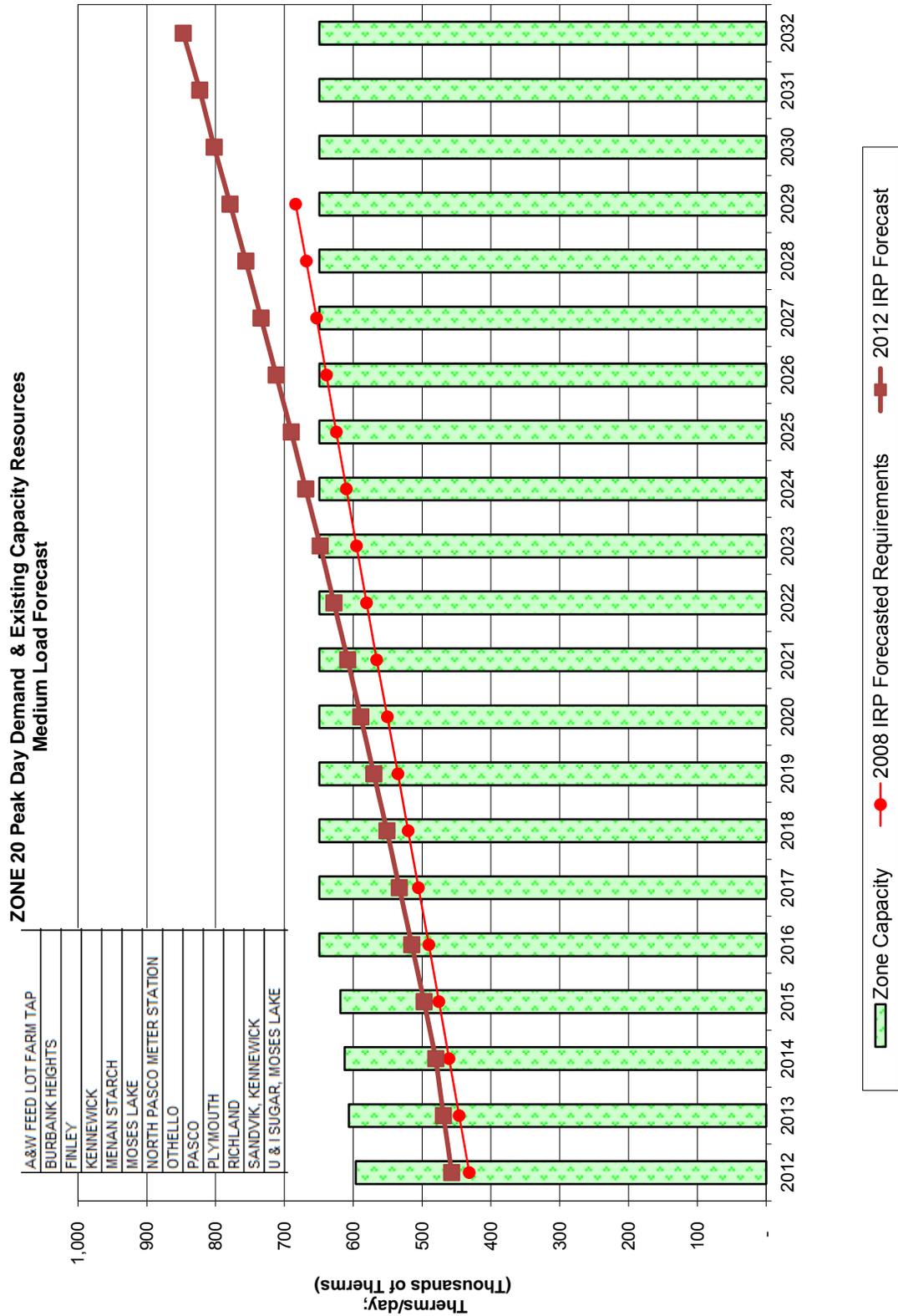
Note: NWP Capacity is net of Non-Core primary term capacity requirements

| |
|----------------------|
| ALCOA, WENATCHEE |
| KAWECKI, WENATCHEE |
| MOXEE CITY |
| QUINCY |
| SELAH |
| WENATCHEE |
| YAKIMA CHIEF FARMS |
| YAKIMA FIRING CENTER |
| YAKIMA/JUNION GAP |

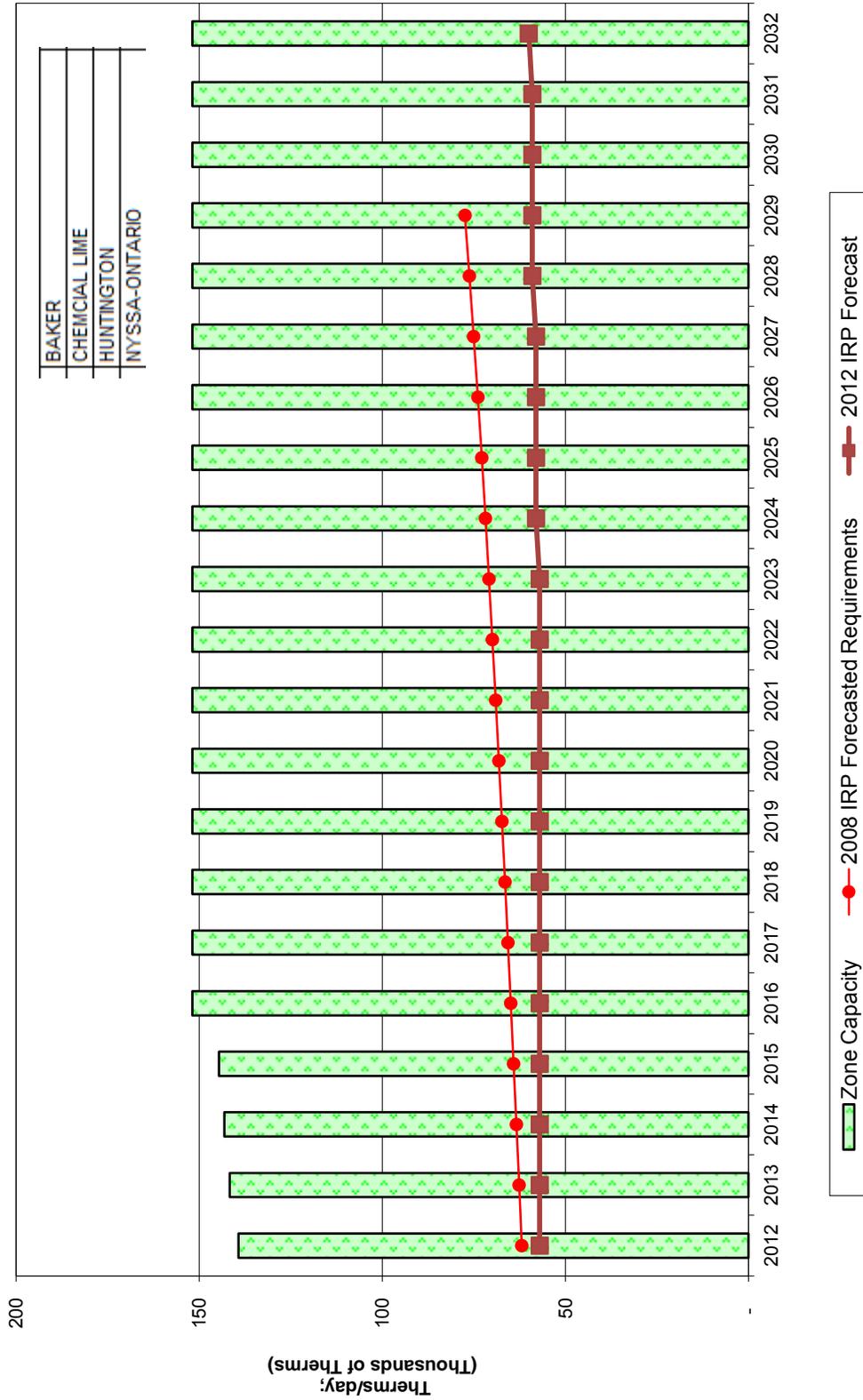
**ZONE 11 Peak Day Demand & Existing Capacity Resources
Medium Load Forecast**



Note: NWP Capacity is net of Non-Core primary term capacity requirements



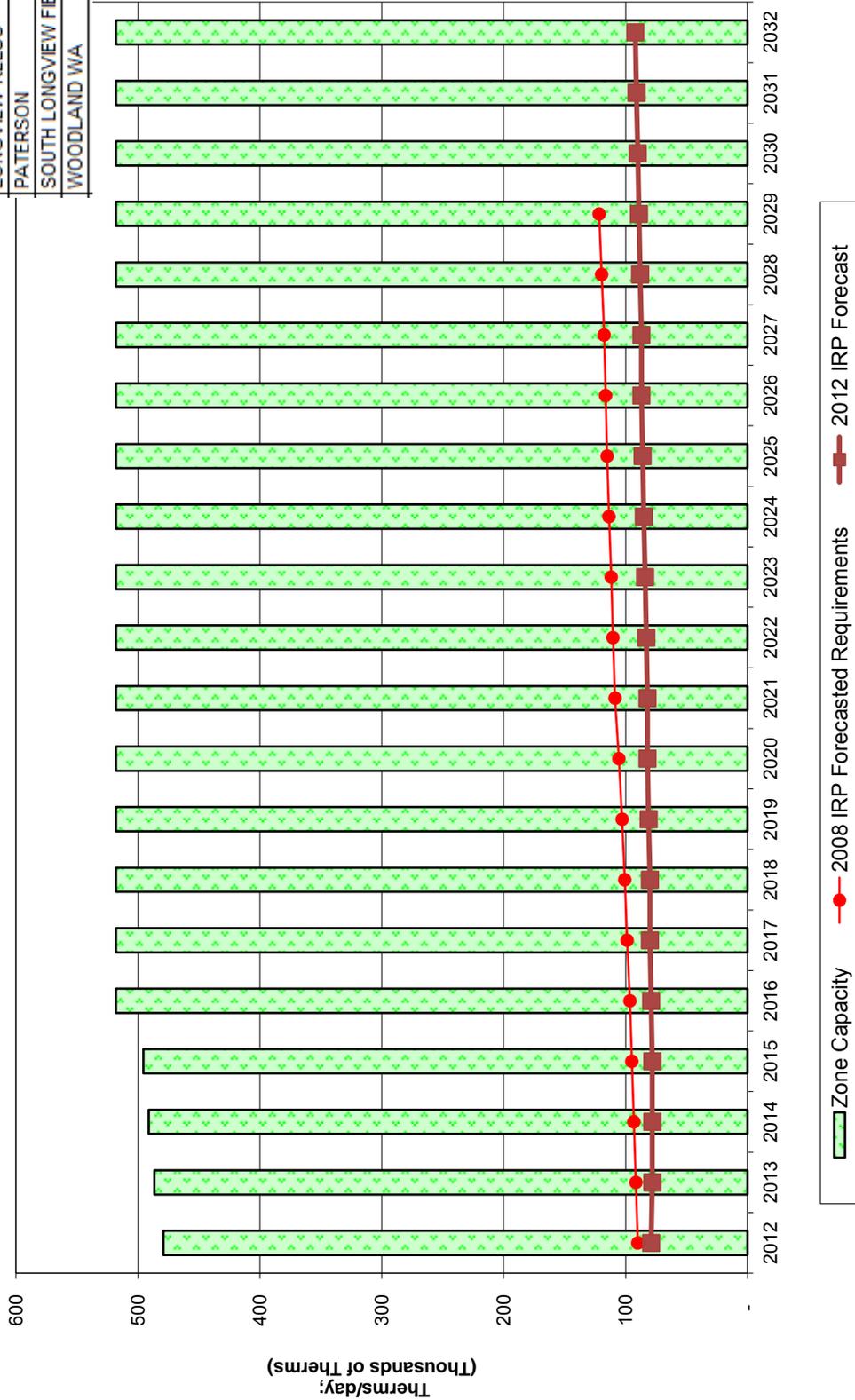
ZONE 24 Peak Day Demand & Existing Capacity Resources Medium Load Forecast



Note: NWP Capacity is net of Non-Core primary term capacity requirements

| |
|-----------------------|
| CASTLE ROCK |
| GREEN CIRCLE FARM TAP |
| KALAMA FARM TAP |
| KALAMA NO. 2 |
| LONGVIEW-KELSO |
| PATERSON |
| SOUTH LONGVIEW FIBRE |
| WOODLAND WA |

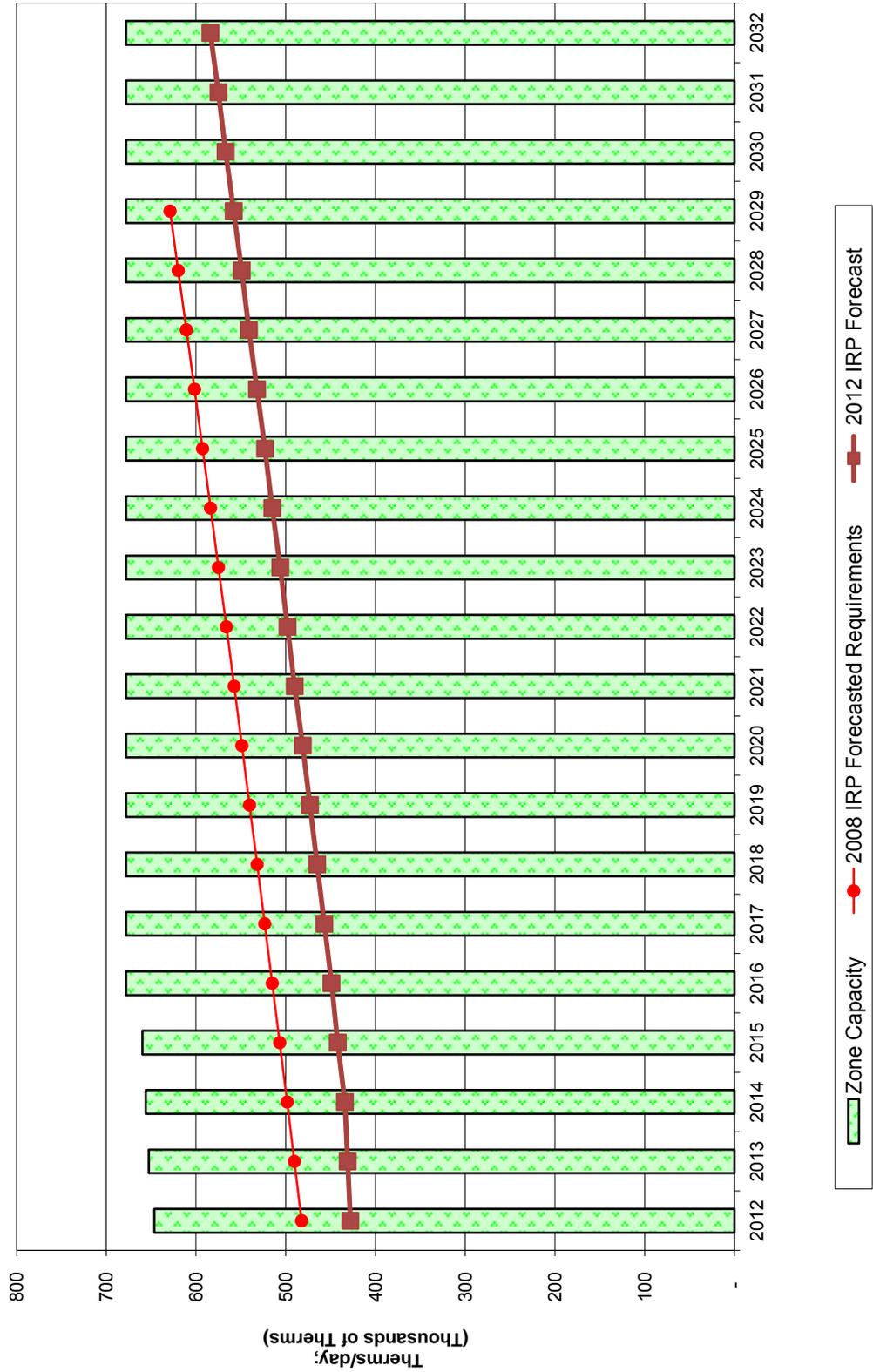
**ZONE 26 Peak Day Demand & Existing Capacity Resources
Medium Load Forecast**



Note: NWP Capacity is net of Non-Core primary term capacity requirements

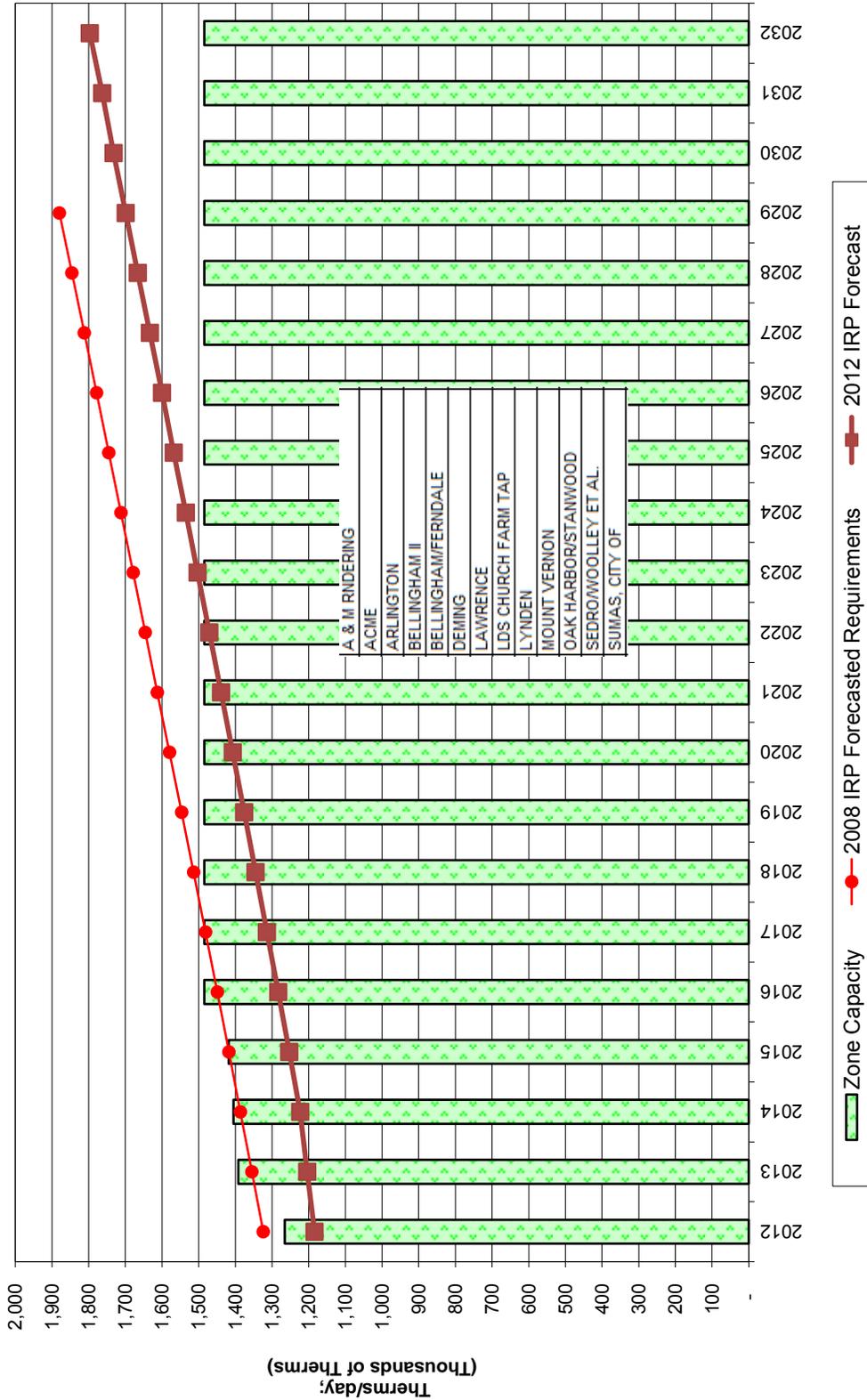
ABERDEEN/HOQUIAM/MCCLEARY
BREMERTON (SHELTON)

ZONE 30-S Peak Day Demand & Existing Capacity Resources
Medium Load Forecast

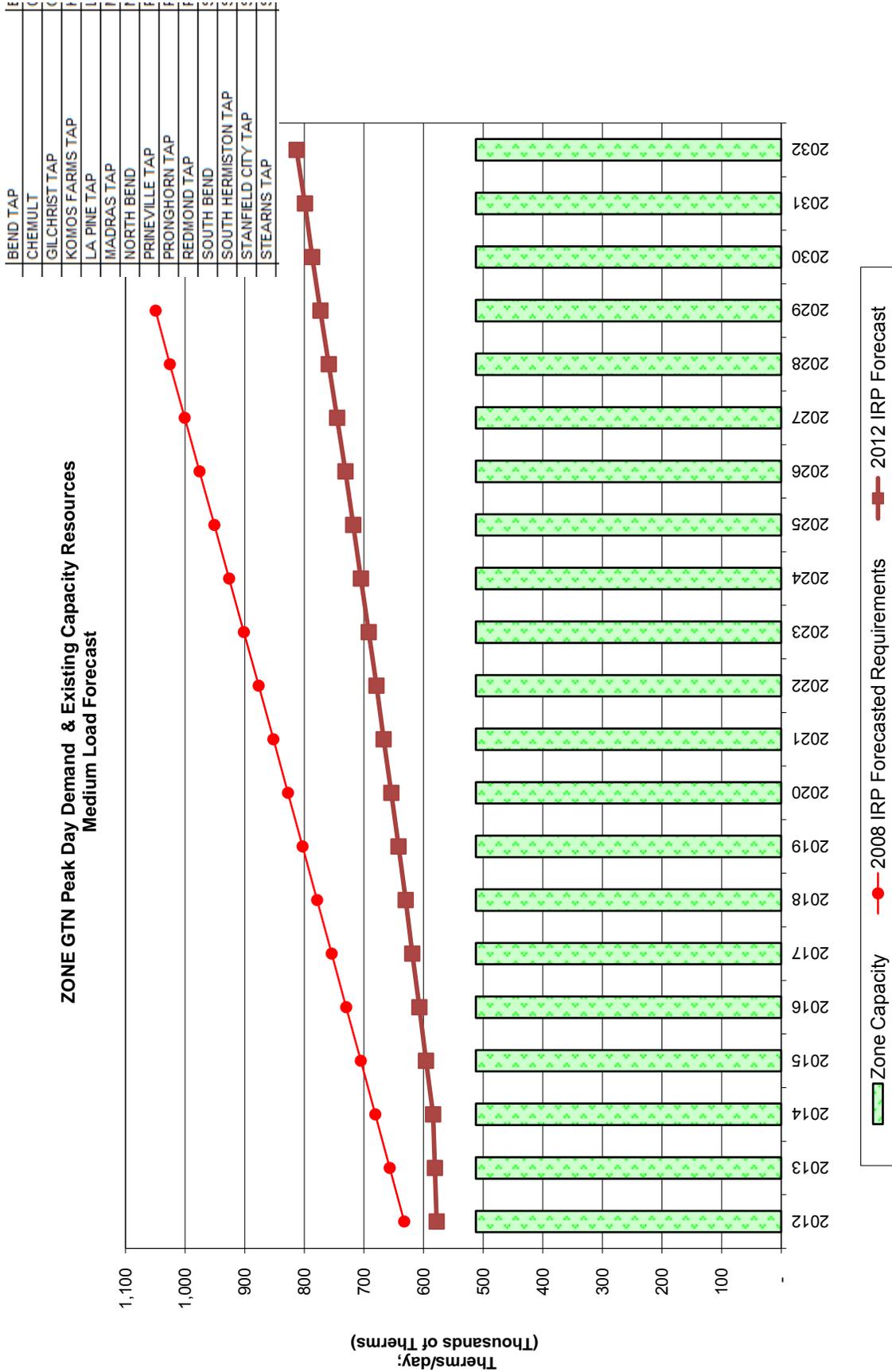


Note: NWP Capacity is net of Non-Core primary term capacity requirements

**ZONE 30-W Peak Day Demand & Existing Capacity Resources
Medium Load Forecast**



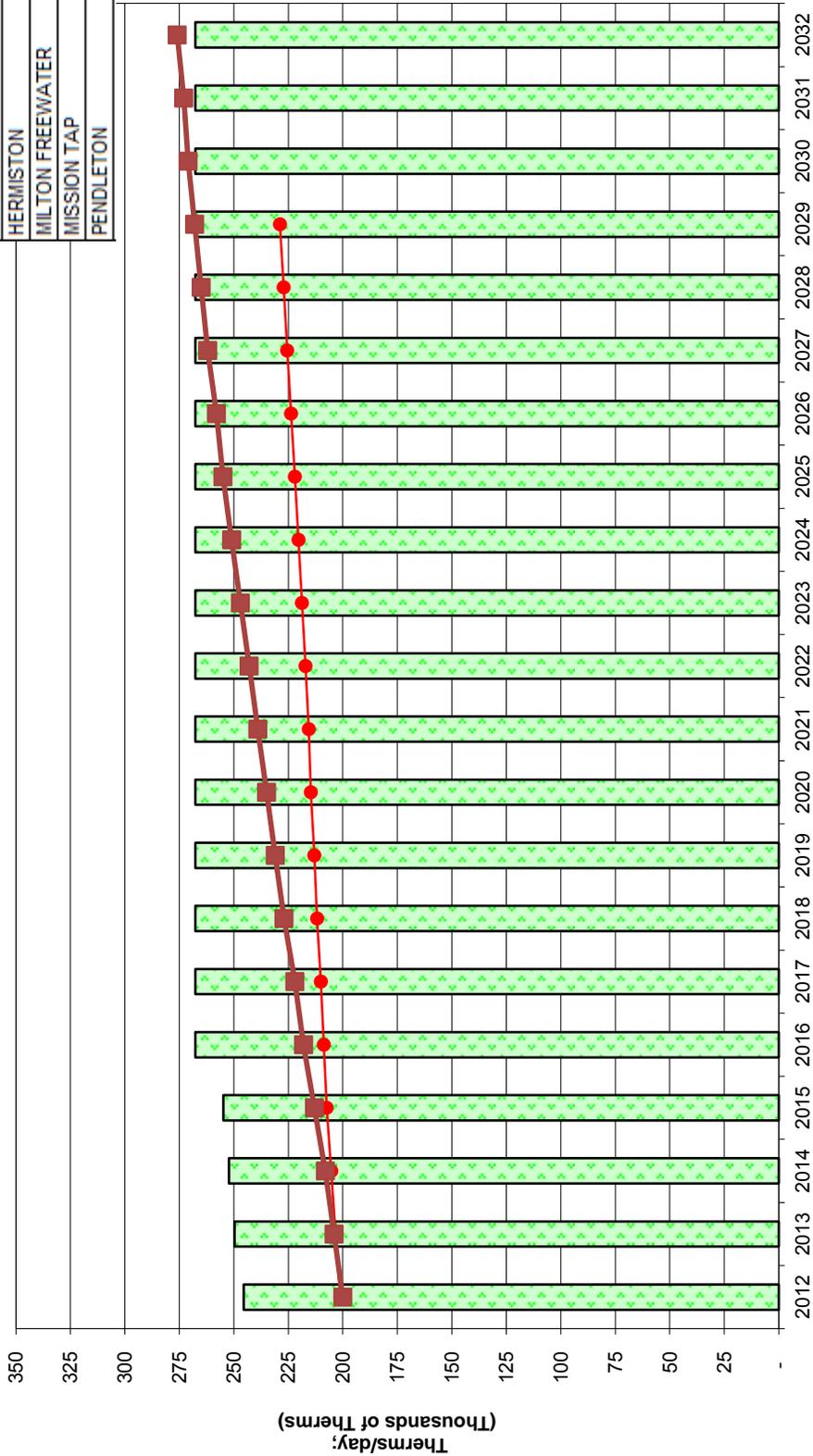
Note: NWP Capacity is net of Non-Core primary term capacity requirements



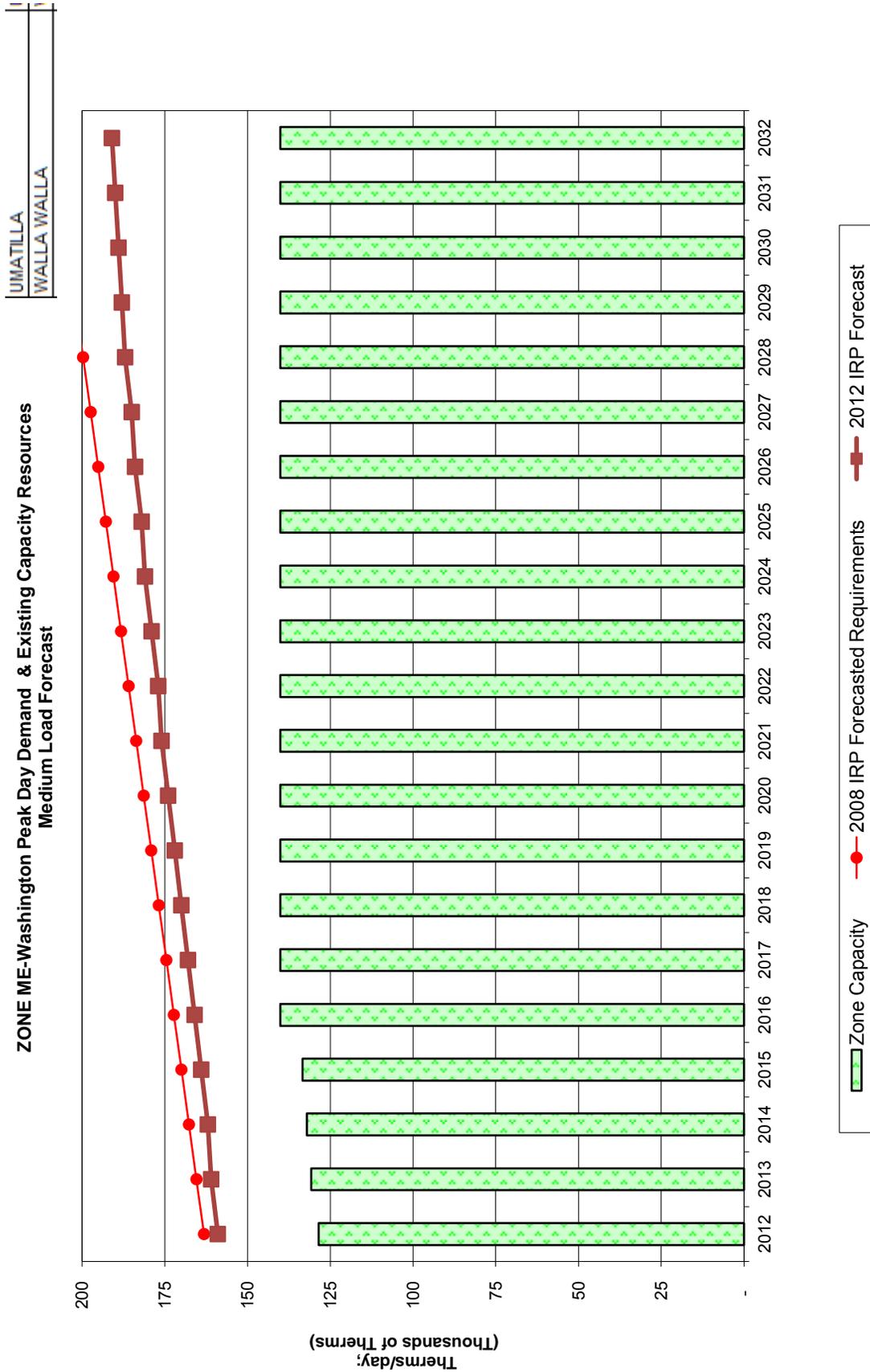
| |
|---------------------|
| BEND TAP |
| CHEMULT |
| GILCHRIST TAP |
| KOMOS FARMS TAP |
| LA PINE TAP |
| MADRAS TAP |
| NORTH BEND |
| PRINEVILLE TAP |
| PRONGHORN TAP |
| REDMOND TAP |
| SOUTH BEND |
| SOUTH HERMISTON TAP |
| STANFIELD CITY TAP |
| STEARNS TAP |

**ZONE ME-Oregon Peak Day Demand & Existing Capacity Resources
Medium Load Forecast**

| |
|------------------|
| ATHENA/WESTON |
| HERMISTON |
| MILTON FREEWATER |
| MISSION TAP |
| PENDLETON |

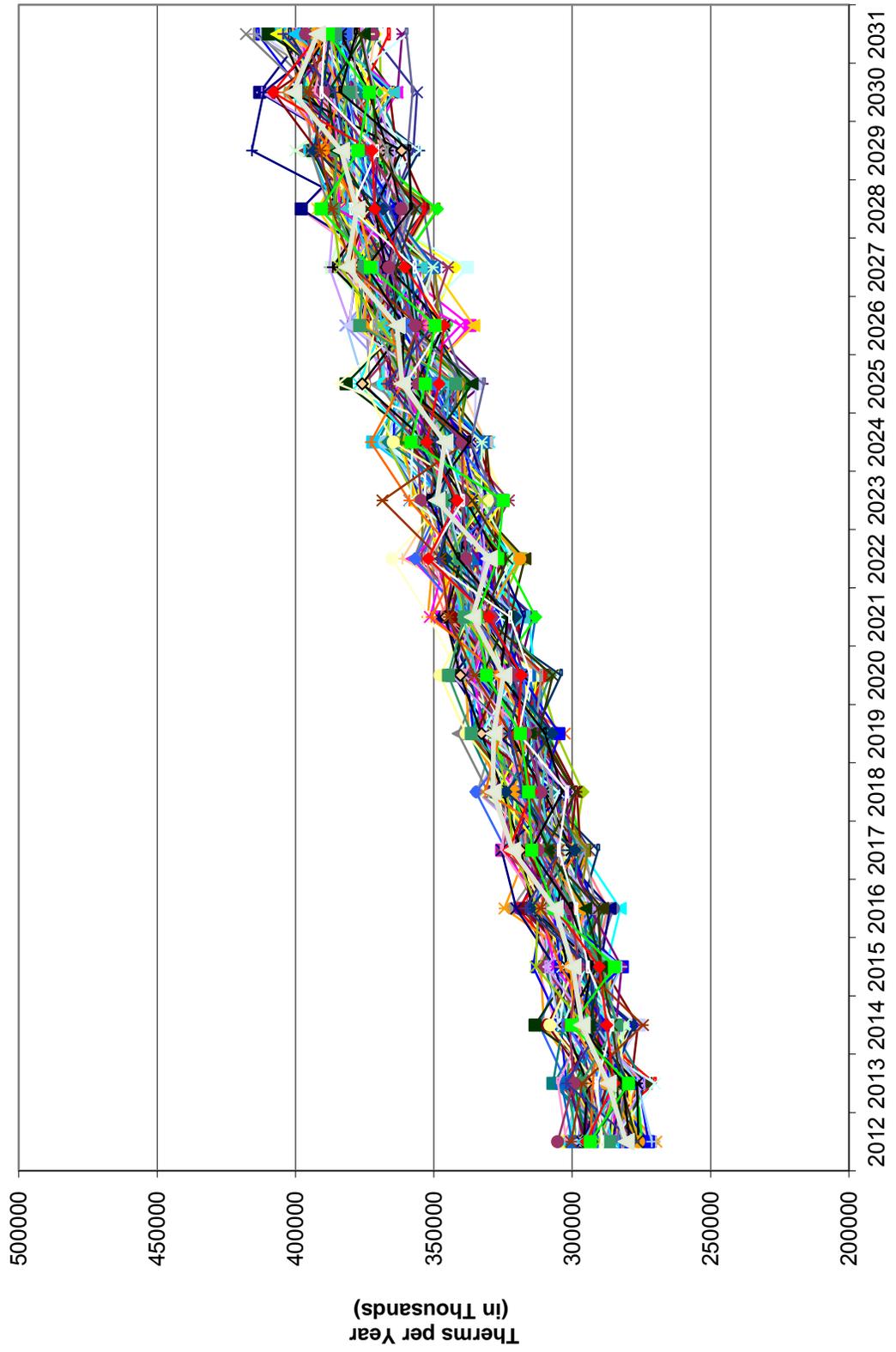


Note: NWP Capacity is net of Non-Core primary term capacity requirements



Appendix G-1
Weather Uncertainty Analysis
&
Impact on Annual Loads

G -1 Monte-Carlo Simulation Results - Total System Demand Medium Growth Forecast



APPENDIX G-2 WEATHER PRICE UNCERTAINTIES
Annual Load in Therms
(000's)

2012 CNGC IRP

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| High Growth-Cold Weather | 303,558 | 306,513 | 312,114 | 316,367 | 325,883 | 332,187 | 340,985 | 345,466 | 354,577 | 361,012 | 369,441 |
| High Growth-Avg weather | 300,762 | 304,145 | 309,251 | 315,437 | 322,849 | 330,266 | 336,808 | 343,372 | 350,965 | 358,509 | 365,246 |
| Medium 95%-Max | 301,666 | 304,086 | 308,389 | 311,466 | 319,708 | 325,022 | 332,372 | 335,865 | 343,639 | 348,793 | 355,393 |
| Medium-Avg Weather | 298,887 | 301,736 | 305,560 | 310,551 | 316,731 | 323,142 | 328,301 | 333,829 | 340,139 | 346,374 | 351,358 |
| Medium expected high | 294,500 | 296,533 | 300,860 | 304,662 | 311,838 | 317,361 | 323,995 | 328,195 | 334,767 | 340,719 | 346,570 |
| Medium Load-Expected | 287,335 | 288,980 | 293,332 | 297,859 | 303,969 | 309,700 | 315,619 | 320,525 | 325,896 | 332,644 | 337,746 |
| Medium Expected Low | 280,169 | 281,427 | 285,803 | 291,055 | 296,100 | 302,039 | 307,243 | 312,856 | 317,024 | 324,569 | 328,923 |
| Medium 95%-Min | 273,003 | 273,874 | 278,275 | 284,251 | 288,231 | 294,379 | 298,867 | 305,186 | 308,153 | 316,494 | 320,099 |
| Low Growth-Average Weather | 295,999 | 297,532 | 300,764 | 305,019 | 310,410 | 315,745 | 320,195 | 324,613 | 329,935 | 335,139 | 339,527 |
| Low Growth-Warm Weather | 270,365 | 270,059 | 273,907 | 279,188 | 282,479 | 287,640 | 291,487 | 296,761 | 298,909 | 306,228 | 309,321 |

APPENDIX G-2 WEATHER PRICE UNCERTAINTIES
Annual Load in Therms
(000's)

2012 CNGC IRP

| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| High Growth-Cold Weather | 374,640 | 385,296 | 392,161 | 399,137 | 407,873 | 416,681 | 421,904 | 432,349 | 439,223 |
| High Growth-Avg weather | 371,740 | 379,756 | 389,006 | 396,263 | 403,745 | 412,136 | 419,888 | 427,466 | 435,251 |
| Medium 95%-Max | 359,144 | 368,186 | 373,999 | 378,823 | 385,614 | 392,392 | 396,181 | 404,355 | 409,224 |
| Medium-Avg Weather | 356,364 | 362,891 | 370,990 | 376,096 | 381,712 | 388,112 | 394,288 | 399,789 | 405,524 |
| Medium expected high | 350,825 | 358,833 | 365,045 | 370,225 | 376,129 | 383,021 | 387,058 | 394,058 | 398,889 |
| Medium Load-Expected | 342,506 | 349,479 | 356,092 | 361,627 | 366,644 | 373,649 | 377,936 | 383,762 | 388,554 |
| Medium Expected Low | 334,187 | 340,126 | 347,139 | 353,029 | 357,159 | 364,277 | 368,814 | 373,465 | 378,219 |
| Medium 95%-Min | 325,868 | 330,773 | 338,185 | 344,430 | 347,674 | 354,905 | 359,692 | 363,169 | 367,885 |
| Low Growth-Average Weather | 343,636 | 349,069 | 355,531 | 360,120 | 364,845 | 370,297 | 375,105 | 379,687 | 384,367 |
| Low Growth-Warm Weather | 314,229 | 318,174 | 324,094 | 329,800 | 332,312 | 338,613 | 342,192 | 344,908 | 348,691 |

**APPENDIX G:
Total System Annual Load Forecast
Monte-Carlo Results**

| Draw | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 283,594 | 282,875 | 293,626 | 303,152 | 297,218 | 302,929 | 316,925 | 332,695 | 327,829 | 347,282 | 338,687 | 344,062 |
| 2 | 293,419 | 289,917 | 299,660 | 298,956 | 300,209 | 316,761 | 328,421 | 328,459 | 316,179 | 346,156 | 338,302 | 354,361 |
| 3 | 291,938 | 301,067 | 281,916 | 298,760 | 298,171 | 320,635 | 322,317 | 311,379 | 339,103 | 318,046 | 330,478 | 348,195 |
| 4 | 282,288 | 279,184 | 285,768 | 297,452 | 300,846 | 299,237 | 313,024 | 326,373 | 338,292 | 344,280 | 329,893 | 349,756 |
| 5 | 286,704 | 294,636 | 286,041 | 296,279 | 317,296 | 311,824 | 311,186 | 326,010 | 334,612 | 337,387 | 339,412 | 354,615 |
| 6 | 294,085 | 288,518 | 303,055 | 301,922 | 300,316 | 314,637 | 309,972 | 320,747 | 332,409 | 318,716 | 337,063 | 350,398 |
| 7 | 284,606 | 284,833 | 282,835 | 297,196 | 294,441 | 314,975 | 301,226 | 312,441 | 322,283 | 328,397 | 341,374 | 345,834 |
| 8 | 278,331 | 278,522 | 294,566 | 285,970 | 296,205 | 308,691 | 309,028 | 314,158 | 327,335 | 333,890 | 318,097 | 344,134 |
| 9 | 281,250 | 285,175 | 285,379 | 296,291 | 294,180 | 307,407 | 318,355 | 325,817 | 318,783 | 324,042 | 333,465 | 353,665 |
| 10 | 278,907 | 285,911 | 289,847 | 299,185 | 318,055 | 308,846 | 315,485 | 310,836 | 341,038 | 321,300 | 330,789 | 336,296 |
| 11 | 287,897 | 279,396 | 293,034 | 288,494 | 297,833 | 307,306 | 298,976 | 324,887 | 313,120 | 326,060 | 331,287 | 324,647 |
| 12 | 295,348 | 292,933 | 293,888 | 293,449 | 304,411 | 309,973 | 318,343 | 311,205 | 338,491 | 330,766 | 346,178 | 341,515 |
| 13 | 303,636 | 295,545 | 305,882 | 312,601 | 302,825 | 323,627 | 315,460 | 326,593 | 328,060 | 341,304 | 338,818 | 346,376 |
| 14 | 289,960 | 296,091 | 285,736 | 309,039 | 304,702 | 310,973 | 334,260 | 321,882 | 330,494 | 343,857 | 325,598 | 357,124 |
| 15 | 293,929 | 290,993 | 295,569 | 298,586 | 299,352 | 309,398 | 311,977 | 313,189 | 344,866 | 322,445 | 361,334 | 348,560 |
| 16 | 283,233 | 287,116 | 285,317 | 285,745 | 306,580 | 300,978 | 317,840 | 310,881 | 311,425 | 323,931 | 354,162 | 346,363 |
| 17 | 292,206 | 289,593 | 300,949 | 288,783 | 296,946 | 313,031 | 308,193 | 325,057 | 327,024 | 317,895 | 333,643 | 335,445 |
| 18 | 289,050 | 290,622 | 284,114 | 296,338 | 291,929 | 299,562 | 296,125 | 305,745 | 311,910 | 329,783 | 324,523 | 346,935 |
| 19 | 286,222 | 299,732 | 305,217 | 300,413 | 309,139 | 308,267 | 307,257 | 325,846 | 319,596 | 333,537 | 338,116 | 335,112 |
| 20 | 284,318 | 295,624 | 310,175 | 311,416 | 304,537 | 298,695 | 320,463 | 326,510 | 321,979 | 352,160 | 350,277 | 330,173 |
| 21 | 297,077 | 290,566 | 295,341 | 293,454 | 314,538 | 318,428 | 318,186 | 302,689 | 331,077 | 321,945 | 331,300 | 356,964 |
| 22 | 283,579 | 289,987 | 296,768 | 305,832 | 298,262 | 303,417 | 321,205 | 320,346 | 317,139 | 326,713 | 333,646 | 337,888 |
| 23 | 286,113 | 293,685 | 295,917 | 297,509 | 321,737 | 307,145 | 334,247 | 328,036 | 335,723 | 333,790 | 341,366 | 330,144 |
| 24 | 287,903 | 282,856 | 286,985 | 295,091 | 296,705 | 303,481 | 314,114 | 311,274 | 313,708 | 327,633 | 332,837 | 340,922 |
| 25 | 284,928 | 300,314 | 288,873 | 289,920 | 306,125 | 320,945 | 309,799 | 325,842 | 326,748 | 338,592 | 328,339 | 343,264 |
| 26 | 273,893 | 294,820 | 284,396 | 302,503 | 305,418 | 318,750 | 315,633 | 317,728 | 313,464 | 330,935 | 336,448 | 355,351 |
| 27 | 285,169 | 289,958 | 278,717 | 300,381 | 314,739 | 308,110 | 319,390 | 312,550 | 320,404 | 329,984 | 331,671 | 337,155 |
| 28 | 281,968 | 290,225 | 307,524 | 302,617 | 312,799 | 323,421 | 326,167 | 323,585 | 328,027 | 345,712 | 334,929 | 338,294 |
| 29 | 288,033 | 288,983 | 293,419 | 299,343 | 309,604 | 314,972 | 324,564 | 323,316 | 334,449 | 328,159 | 341,796 | 353,096 |
| 30 | 271,631 | 292,182 | 292,455 | 282,529 | 302,984 | 293,672 | 306,782 | 315,707 | 316,786 | 320,745 | 333,214 | 342,326 |
| 31 | 287,383 | 285,289 | 293,333 | 302,201 | 303,504 | 316,770 | 323,374 | 326,274 | 310,377 | 348,619 | 330,723 | 338,478 |
| 32 | 284,391 | 284,957 | 277,796 | 297,186 | 295,819 | 298,672 | 308,197 | 321,950 | 320,730 | 315,469 | 324,833 | 355,300 |
| 33 | 284,854 | 304,754 | 286,462 | 288,226 | 310,854 | 318,708 | 325,760 | 335,136 | 310,409 | 338,335 | 345,263 | 342,908 |
| 34 | 287,365 | 283,887 | 301,949 | 301,749 | 304,255 | 296,644 | 301,015 | 308,323 | 324,941 | 322,652 | 329,120 | 342,398 |
| 35 | 280,338 | 296,257 | 286,217 | 304,152 | 310,221 | 313,438 | 308,561 | 317,422 | 322,089 | 330,761 | 327,024 | 345,421 |
| 36 | 291,616 | 281,297 | 281,701 | 302,095 | 303,183 | 312,804 | 311,825 | 315,464 | 328,528 | 331,627 | 326,248 | 350,633 |
| 37 | 291,024 | 288,186 | 289,116 | 299,980 | 308,517 | 325,480 | 317,133 | 310,022 | 316,694 | 335,038 | 328,207 | 349,045 |
| 38 | 297,979 | 291,510 | 285,258 | 287,633 | 282,608 | 296,805 | 317,168 | 321,627 | 316,997 | 327,378 | 321,476 | 339,859 |
| 39 | 284,527 | 278,704 | 276,243 | 288,953 | 303,568 | 314,438 | 299,189 | 310,796 | 315,231 | 327,539 | 324,564 | 331,526 |
| 40 | 294,229 | 288,045 | 292,996 | 299,367 | 294,396 | 314,453 | 320,948 | 336,917 | 319,002 | 328,986 | 331,513 | 349,932 |
| 41 | 281,121 | 280,062 | 305,895 | 299,637 | 316,281 | 307,409 | 309,338 | 324,745 | 337,243 | 346,583 | 339,509 | 329,293 |
| 42 | 288,876 | 299,811 | 294,503 | 299,522 | 310,239 | 312,122 | 312,331 | 335,045 | 338,523 | 338,939 | 354,063 | 354,210 |
| 43 | 288,219 | 302,069 | 289,272 | 293,562 | 316,573 | 312,315 | 328,969 | 316,569 | 334,399 | 344,416 | 348,584 | 351,359 |
| 44 | 288,390 | 283,680 | 294,792 | 298,386 | 299,773 | 322,669 | 314,962 | 328,193 | 327,755 | 345,491 | 322,263 | 333,332 |
| 45 | 270,301 | 291,864 | 294,304 | 293,987 | 286,028 | 306,403 | 310,276 | 319,886 | 321,394 | 333,532 | 349,288 | 340,457 |
| 46 | 286,217 | 283,535 | 305,266 | 307,029 | 311,389 | 305,288 | 301,729 | 312,891 | 321,143 | 331,220 | 338,996 | 353,275 |
| 47 | 275,890 | 285,353 | 301,950 | 308,404 | 294,674 | 318,321 | 311,575 | 312,983 | 322,994 | 332,919 | 344,736 | 326,778 |
| 48 | 294,145 | 292,333 | 293,175 | 295,995 | 310,066 | 313,697 | 320,072 | 322,001 | 339,029 | 335,791 | 355,143 | 345,978 |
| 49 | 290,315 | 296,573 | 292,805 | 313,097 | 316,014 | 313,823 | 331,133 | 315,052 | 327,105 | 334,867 | 347,249 | 347,377 |
| 50 | 304,196 | 284,861 | 292,661 | 305,830 | 317,187 | 304,751 | 322,883 | 314,777 | 322,298 | 340,297 | 331,849 | 345,246 |
| 51 | 279,341 | 292,097 | 287,307 | 300,449 | 296,783 | 304,255 | 299,210 | 316,515 | 326,870 | 326,591 | 337,064 | 337,520 |
| 52 | 285,915 | 277,489 | 296,292 | 292,484 | 287,177 | 298,149 | 318,377 | 321,901 | 308,496 | 346,939 | 340,556 | 342,767 |
| 53 | 280,683 | 287,775 | 302,825 | 286,776 | 295,665 | 323,821 | 322,830 | 320,054 | 316,419 | 313,258 | 337,527 | 342,392 |
| 54 | 295,763 | 292,099 | 301,564 | 299,189 | 300,653 | 318,906 | 319,162 | 306,199 | 331,278 | 326,978 | 341,367 | 339,084 |
| 55 | 297,095 | 292,731 | 303,977 | 298,156 | 297,853 | 311,958 | 311,893 | 317,136 | 341,753 | 339,633 | 335,001 | 353,210 |
| 56 | 285,000 | 287,734 | 297,066 | 288,999 | 303,110 | 303,632 | 318,864 | 316,754 | 323,218 | 331,345 | 335,764 | 343,616 |
| 57 | 286,710 | 287,203 | 304,841 | 295,738 | 303,770 | 321,266 | 315,477 | 319,508 | 332,436 | 344,765 | 345,464 | 356,376 |
| 58 | 279,781 | 278,598 | 296,100 | 293,419 | 304,823 | 312,139 | 308,440 | 317,137 | 313,411 | 315,708 | 337,179 | 336,143 |
| 59 | 301,600 | 279,042 | 285,123 | 295,677 | 318,897 | 308,302 | 312,200 | 330,746 | 327,569 | 331,552 | 340,640 | 350,440 |
| 60 | 294,358 | 272,958 | 301,169 | 299,873 | 300,944 | 309,034 | 300,919 | 313,152 | 315,524 | 327,902 | 339,119 | 349,977 |
| 61 | 289,433 | 306,433 | 295,264 | 300,737 | 307,239 | 315,354 | 327,460 | 313,066 | 340,611 | 322,386 | 346,507 | 343,040 |
| 62 | 282,820 | 302,141 | 304,135 | 314,157 | 310,590 | 312,990 | 318,376 | 335,695 | 338,085 | 330,302 | 332,899 | 355,518 |
| 63 | 288,211 | 289,278 | 290,199 | 298,751 | 295,234 | 305,346 | 322,190 | 316,608 | 316,319 | 327,085 | 346,952 | 337,183 |
| 64 | 277,474 | 298,616 | 296,497 | 297,981 | 299,253 | 315,011 | 316,679 | 324,489 | 341,168 | 329,179 | 341,080 | 346,750 |
| 65 | 293,016 | 289,004 | 286,948 | 293,666 | 312,513 | 303,275 | 322,413 | 331,416 | 327,949 | 331,976 | 340,769 | 340,891 |
| 66 | 288,823 | 296,018 | 297,665 | 299,731 | 301,263 | 312,044 | 331,138 | 324,292 | 333,125 | 333,133 | 345,830 | 349,387 |
| 67 | 287,474 | 281,552 | 286,436 | 297,289 | 314,886 | 311,162 | 309,556 | 321,571 | 326,045 | 337,464 | 336,379 | 353,393 |
| 68 | 280,304 | 290,704 | 296,512 | 301,671 | 307,544 | 317,223 | 321,415 | 323,482 | 333,907 | 341,158 | 342,554 | 341,371 |

**APPENDIX G:
Total System Annual Load Forecast
Monte-Carlo Results**

| Draw | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 69 | 294,043 | 298,260 | 293,274 | 293,965 | 312,277 | 312,524 | 314,958 | 328,536 | 320,915 | 337,019 | 348,134 | 342,847 |
| 70 | 271,682 | 283,528 | 283,205 | 293,532 | 313,550 | 306,822 | 300,433 | 322,770 | 312,558 | 323,058 | 331,735 | 328,417 |
| 71 | 286,052 | 296,955 | 292,822 | 295,818 | 305,934 | 304,588 | 316,339 | 326,806 | 332,995 | 345,981 | 335,397 | 354,736 |
| 72 | 276,916 | 276,677 | 289,574 | 292,505 | 309,939 | 305,483 | 301,576 | 320,452 | 321,193 | 330,176 | 334,466 | 342,406 |
| 73 | 295,072 | 301,006 | 292,001 | 294,939 | 314,088 | 300,849 | 326,492 | 315,181 | 326,790 | 327,892 | 318,512 | 334,956 |
| 74 | 284,190 | 281,780 | 288,491 | 285,502 | 301,090 | 313,710 | 302,346 | 317,415 | 335,048 | 323,060 | 333,724 | 350,008 |
| 75 | 269,576 | 288,433 | 282,804 | 300,757 | 302,599 | 294,332 | 308,448 | 317,035 | 312,515 | 331,615 | 326,261 | 347,604 |
| 76 | 284,161 | 276,363 | 285,870 | 296,303 | 304,241 | 301,003 | 304,058 | 316,988 | 331,365 | 329,108 | 349,587 | 334,361 |
| 77 | 285,950 | 284,819 | 284,257 | 292,162 | 285,083 | 319,091 | 319,161 | 314,559 | 321,440 | 335,545 | 339,914 | 341,832 |
| 78 | 293,751 | 296,310 | 292,528 | 305,898 | 298,489 | 305,634 | 328,837 | 324,089 | 335,244 | 330,506 | 338,596 | 356,336 |
| 79 | 277,194 | 287,072 | 296,197 | 298,154 | 296,692 | 290,608 | 311,157 | 313,885 | 304,034 | 334,194 | 329,731 | 324,653 |
| 80 | 296,752 | 285,187 | 293,087 | 291,794 | 288,728 | 321,198 | 315,237 | 313,937 | 315,227 | 323,716 | 342,069 | 345,962 |
| 81 | 276,716 | 284,860 | 298,340 | 296,819 | 298,979 | 305,946 | 306,915 | 320,405 | 318,762 | 328,736 | 332,477 | 335,778 |
| 82 | 288,205 | 286,798 | 292,388 | 304,856 | 301,829 | 295,503 | 314,011 | 325,501 | 310,002 | 332,095 | 326,144 | 329,242 |
| 83 | 292,731 | 286,608 | 302,632 | 308,022 | 316,755 | 304,070 | 319,450 | 336,943 | 323,831 | 340,119 | 343,847 | 336,832 |
| 84 | 289,077 | 296,800 | 293,711 | 307,034 | 293,562 | 319,867 | 328,990 | 326,724 | 329,636 | 338,635 | 326,469 | 337,389 |
| 85 | 284,408 | 283,833 | 288,901 | 299,965 | 297,021 | 298,120 | 320,942 | 322,553 | 336,598 | 335,613 | 337,603 | 358,803 |
| 86 | 281,787 | 296,353 | 285,424 | 297,022 | 301,586 | 301,533 | 321,998 | 312,896 | 335,072 | 334,214 | 349,374 | 341,949 |
| 87 | 281,569 | 278,044 | 300,859 | 292,280 | 301,372 | 311,783 | 314,882 | 328,370 | 324,302 | 328,745 | 332,283 | 341,814 |
| 88 | 294,848 | 270,087 | 294,550 | 301,104 | 319,756 | 302,219 | 323,840 | 317,814 | 328,670 | 317,770 | 338,047 | 338,193 |
| 89 | 289,236 | 295,130 | 285,720 | 290,540 | 293,572 | 303,703 | 326,890 | 322,518 | 333,454 | 321,520 | 349,111 | 326,945 |
| 90 | 286,927 | 298,557 | 300,463 | 294,292 | 307,173 | 320,948 | 321,440 | 331,582 | 325,812 | 337,041 | 340,789 | 332,685 |
| 91 | 301,601 | 283,552 | 297,667 | 310,009 | 299,034 | 315,791 | 308,478 | 314,865 | 312,836 | 336,581 | 335,014 | 356,126 |
| 92 | 293,359 | 290,937 | 289,590 | 290,894 | 315,827 | 306,417 | 304,136 | 323,547 | 333,285 | 337,835 | 357,837 | 336,897 |
| 93 | 288,152 | 293,965 | 297,386 | 294,421 | 297,298 | 315,784 | 310,391 | 319,851 | 317,061 | 343,187 | 339,229 | 345,387 |
| 94 | 283,873 | 290,512 | 291,451 | 290,188 | 304,323 | 296,969 | 298,368 | 309,436 | 317,827 | 319,548 | 337,777 | 339,216 |
| 95 | 289,621 | 284,698 | 296,945 | 301,097 | 302,230 | 319,312 | 317,807 | 309,314 | 319,455 | 335,638 | 327,940 | 337,126 |
| 96 | 298,456 | 290,384 | 285,092 | 305,397 | 300,258 | 311,352 | 319,347 | 329,316 | 342,817 | 327,009 | 343,278 | 346,449 |
| 97 | 283,817 | 286,768 | 289,199 | 297,953 | 308,812 | 295,436 | 305,097 | 315,517 | 322,626 | 326,522 | 342,793 | 332,979 |
| 98 | 281,592 | 286,973 | 299,017 | 292,180 | 309,751 | 303,202 | 311,451 | 334,094 | 323,835 | 340,026 | 336,124 | 345,611 |
| 99 | 296,983 | 282,833 | 306,463 | 290,214 | 295,591 | 302,267 | 308,475 | 314,776 | 323,896 | 332,074 | 326,878 | 337,712 |
| 100 | 286,706 | 300,632 | 297,806 | 306,387 | 299,839 | 305,062 | 328,212 | 324,268 | 332,334 | 335,443 | 328,623 | 330,895 |
| 101 | 281,195 | 287,373 | 297,879 | 310,310 | 308,815 | 312,197 | 330,485 | 341,175 | 331,451 | 334,567 | 357,105 | 349,550 |
| 102 | 297,075 | 298,508 | 294,069 | 296,705 | 304,537 | 295,620 | 318,433 | 317,793 | 321,640 | 342,710 | 329,964 | 349,310 |
| 103 | 286,053 | 287,362 | 295,047 | 293,147 | 291,570 | 303,725 | 306,353 | 319,719 | 340,415 | 328,852 | 334,408 | 322,868 |
| 104 | 286,237 | 289,924 | 286,628 | 300,150 | 302,123 | 323,783 | 326,494 | 322,574 | 341,006 | 351,562 | 365,133 | 346,373 |
| 105 | 293,216 | 287,949 | 293,892 | 294,384 | 300,641 | 316,744 | 310,346 | 322,555 | 320,184 | 340,071 | 329,011 | 340,286 |
| 106 | 286,689 | 299,911 | 298,930 | 295,398 | 306,618 | 317,905 | 329,699 | 306,968 | 319,701 | 314,488 | 335,070 | 333,827 |
| 107 | 285,607 | 296,042 | 295,516 | 303,339 | 299,129 | 318,813 | 317,679 | 327,161 | 326,753 | 345,522 | 353,321 | 337,215 |
| 108 | 287,056 | 289,878 | 296,372 | 305,921 | 302,602 | 309,634 | 324,067 | 311,636 | 326,458 | 332,009 | 346,962 | 345,526 |
| 109 | 286,392 | 287,947 | 275,723 | 307,924 | 293,849 | 308,966 | 300,654 | 316,107 | 317,256 | 325,471 | 346,274 | 338,794 |
| 110 | 276,501 | 292,887 | 289,607 | 289,949 | 286,325 | 305,439 | 307,186 | 320,107 | 326,238 | 338,704 | 330,633 | 349,542 |
| 111 | 293,220 | 287,962 | 294,103 | 303,384 | 313,422 | 314,069 | 321,065 | 325,598 | 318,744 | 351,427 | 345,690 | 342,101 |
| 112 | 289,734 | 299,515 | 297,520 | 302,329 | 312,729 | 307,639 | 321,260 | 316,692 | 333,648 | 344,539 | 347,154 | 355,787 |
| 113 | 301,208 | 297,921 | 296,362 | 284,908 | 311,683 | 311,916 | 319,894 | 319,603 | 338,057 | 337,737 | 339,098 | 342,352 |
| 114 | 281,385 | 296,567 | 296,656 | 294,341 | 312,118 | 318,146 | 307,706 | 325,517 | 331,164 | 331,893 | 339,066 | 337,817 |
| 115 | 286,305 | 281,234 | 284,506 | 290,217 | 305,728 | 300,708 | 298,658 | 312,571 | 330,252 | 331,349 | 328,635 | 326,577 |
| 116 | 283,561 | 273,908 | 286,009 | 295,757 | 291,626 | 312,353 | 321,634 | 329,703 | 330,683 | 340,219 | 341,055 | 337,871 |
| 117 | 273,055 | 286,072 | 277,986 | 303,461 | 291,609 | 300,366 | 316,843 | 310,242 | 319,370 | 328,627 | 330,809 | 349,711 |
| 118 | 290,259 | 280,287 | 293,747 | 305,373 | 299,194 | 319,383 | 313,102 | 335,189 | 335,318 | 340,462 | 343,227 | 344,080 |
| 119 | 290,191 | 288,694 | 291,910 | 300,138 | 308,147 | 308,419 | 321,550 | 317,888 | 314,041 | 336,730 | 337,451 | 347,672 |
| 120 | 289,108 | 292,919 | 280,243 | 303,487 | 299,173 | 307,707 | 307,294 | 329,043 | 334,537 | 333,247 | 330,603 | 340,587 |
| 121 | 276,545 | 298,169 | 289,211 | 304,237 | 301,043 | 301,910 | 314,146 | 323,892 | 312,724 | 338,134 | 333,031 | 344,511 |
| 122 | 288,169 | 284,225 | 285,202 | 308,081 | 310,653 | 311,932 | 326,392 | 322,616 | 326,496 | 332,469 | 343,767 | 351,909 |
| 123 | 278,758 | 294,480 | 299,916 | 309,057 | 312,697 | 316,228 | 315,792 | 319,636 | 322,690 | 341,936 | 351,071 | 342,795 |
| 124 | 281,529 | 282,217 | 294,360 | 290,495 | 306,087 | 303,534 | 319,950 | 323,438 | 332,157 | 321,662 | 334,424 | 339,173 |
| 125 | 285,436 | 286,789 | 287,081 | 302,940 | 301,188 | 305,532 | 324,652 | 312,775 | 327,917 | 339,262 | 339,326 | 344,554 |
| 126 | 292,326 | 301,961 | 311,876 | 303,677 | 299,077 | 323,894 | 334,796 | 317,456 | 327,798 | 339,310 | 356,802 | 346,888 |
| 127 | 281,704 | 294,671 | 302,430 | 303,245 | 306,425 | 306,057 | 321,979 | 316,651 | 338,077 | 317,363 | 347,923 | 332,554 |
| 128 | 294,540 | 289,311 | 300,156 | 301,599 | 304,851 | 306,140 | 313,809 | 333,239 | 329,795 | 337,141 | 335,227 | 356,179 |
| 129 | 283,369 | 286,501 | 294,071 | 290,184 | 306,043 | 323,650 | 318,047 | 312,332 | 328,949 | 342,924 | 346,992 | 341,509 |
| 130 | 275,120 | 284,427 | 295,384 | 294,238 | 324,472 | 316,110 | 324,131 | 337,309 | 338,588 | 330,528 | 338,288 | 356,844 |
| 131 | 285,827 | 290,412 | 291,321 | 290,820 | 310,569 | 312,275 | 306,646 | 331,586 | 330,892 | 329,459 | 347,149 | 346,262 |
| 132 | 281,249 | 284,186 | 293,573 | 310,457 | 300,306 | 317,228 | 319,958 | 307,785 | 324,384 | 322,945 | 322,920 | 343,128 |
| 133 | 289,418 | 300,534 | 283,969 | 288,814 | 291,358 | 295,590 | 311,745 | 321,215 | 324,292 | 328,596 | 353,029 | 346,392 |
| 134 | 285,385 | 287,466 | 277,512 | 301,873 | 300,888 | 301,924 | 323,670 | 330,015 | 327,688 | 344,303 | 337,165 | 341,282 |
| 135 | 297,916 | 302,104 | 299,487 | 291,148 | 297,195 | 316,572 | 314,679 | 315,887 | 307,914 | 327,817 | 341,864 | 344,054 |
| 136 | 298,310 | 284,068 | 313,437 | 299,538 | 315,535 | 310,466 | 311,105 | 321,659 | 343,555 | 338,258 | 342,269 | 347,349 |

**APPENDIX G:
Total System Annual Load Forecast
Monte-Carlo Results**

| Draw | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 137 | 283,356 | 273,286 | 294,537 | 299,546 | 288,978 | 308,135 | 308,373 | 318,036 | 320,895 | 322,320 | 317,067 | 336,424 |
| 138 | 295,765 | 300,828 | 290,770 | 303,746 | 312,239 | 313,995 | 324,554 | 319,319 | 309,611 | 333,439 | 335,852 | 351,319 |
| 139 | 277,611 | 293,231 | 287,602 | 296,702 | 313,740 | 301,975 | 308,135 | 312,783 | 330,206 | 329,855 | 326,679 | 344,709 |
| 140 | 281,496 | 284,562 | 289,755 | 296,580 | 304,592 | 308,507 | 303,568 | 318,134 | 321,999 | 321,225 | 332,471 | 337,047 |
| 141 | 288,987 | 285,989 | 301,066 | 294,049 | 315,676 | 309,404 | 324,777 | 319,944 | 321,805 | 331,218 | 337,245 | 347,122 |
| 142 | 298,358 | 297,503 | 306,659 | 297,794 | 309,025 | 309,556 | 325,041 | 312,142 | 328,022 | 330,786 | 345,831 | 353,254 |
| 143 | 290,930 | 294,342 | 293,203 | 289,384 | 298,650 | 308,490 | 308,445 | 319,619 | 310,028 | 334,909 | 337,014 | 340,294 |
| 144 | 274,790 | 276,607 | 296,705 | 284,573 | 302,308 | 312,556 | 322,261 | 327,887 | 327,378 | 313,191 | 324,312 | 341,111 |
| 145 | 272,427 | 275,904 | 304,251 | 281,862 | 307,070 | 309,106 | 316,230 | 318,624 | 334,447 | 327,768 | 346,282 | 349,777 |
| 146 | 285,656 | 284,578 | 300,569 | 291,029 | 306,873 | 301,958 | 312,792 | 320,444 | 318,558 | 341,073 | 333,470 | 341,827 |
| 147 | 283,922 | 286,302 | 283,158 | 295,340 | 309,613 | 305,606 | 320,239 | 323,576 | 322,769 | 335,037 | 332,169 | 333,845 |
| 148 | 293,273 | 292,511 | 302,128 | 299,761 | 305,661 | 306,245 | 320,611 | 333,603 | 317,829 | 336,116 | 332,729 | 334,289 |
| 149 | 292,285 | 294,073 | 308,942 | 298,435 | 317,120 | 305,551 | 317,439 | 318,567 | 325,072 | 343,367 | 340,325 | 345,033 |
| 150 | 295,269 | 299,103 | 288,280 | 310,966 | 302,514 | 298,810 | 318,787 | 324,740 | 331,010 | 334,317 | 343,362 | 332,196 |
| 151 | 285,265 | 281,853 | 297,171 | 303,794 | 302,856 | 309,530 | 321,500 | 315,611 | 322,324 | 317,434 | 326,969 | 346,090 |
| 152 | 283,145 | 280,154 | 299,769 | 303,495 | 297,836 | 294,301 | 311,840 | 309,814 | 331,511 | 329,304 | 331,914 | 324,659 |
| 153 | 294,749 | 294,692 | 284,126 | 282,150 | 293,550 | 300,798 | 302,143 | 315,838 | 317,585 | 323,762 | 336,230 | 331,249 |
| 154 | 284,867 | 306,978 | 303,419 | 309,905 | 298,525 | 313,774 | 327,370 | 337,174 | 325,837 | 338,996 | 342,972 | 348,562 |
| 155 | 289,239 | 288,980 | 287,224 | 295,058 | 298,676 | 307,710 | 319,939 | 316,496 | 327,560 | 325,234 | 334,101 | 344,055 |
| 156 | 285,572 | 291,624 | 297,422 | 302,593 | 297,669 | 320,677 | 323,801 | 324,984 | 330,146 | 335,710 | 346,928 | 347,214 |
| 157 | 289,479 | 280,796 | 286,077 | 293,481 | 308,674 | 306,240 | 308,696 | 320,205 | 335,436 | 331,739 | 346,569 | 336,675 |
| 158 | 290,313 | 284,225 | 294,017 | 310,501 | 301,641 | 325,154 | 320,476 | 325,515 | 335,012 | 334,163 | 334,099 | 354,660 |
| 159 | 286,634 | 292,707 | 296,864 | 297,815 | 308,370 | 302,579 | 319,532 | 323,557 | 334,975 | 330,086 | 343,414 | 348,101 |
| 160 | 292,748 | 287,101 | 304,319 | 302,507 | 293,637 | 303,407 | 307,281 | 315,475 | 319,498 | 331,040 | 332,120 | 343,122 |
| 161 | 295,062 | 301,570 | 292,385 | 296,799 | 301,576 | 311,996 | 314,886 | 312,695 | 328,592 | 345,792 | 342,156 | 333,197 |
| 162 | 290,569 | 281,120 | 298,243 | 299,386 | 295,237 | 316,766 | 317,427 | 325,875 | 323,504 | 337,584 | 329,807 | 339,592 |
| 163 | 300,012 | 303,734 | 283,704 | 295,094 | 295,267 | 311,631 | 323,968 | 311,707 | 315,392 | 337,745 | 335,664 | 339,519 |
| 164 | 297,727 | 280,158 | 304,906 | 308,513 | 304,632 | 303,184 | 315,114 | 319,318 | 329,808 | 332,881 | 338,474 | 331,533 |
| 165 | 296,589 | 286,439 | 300,402 | 306,291 | 320,189 | 325,516 | 301,610 | 327,840 | 327,235 | 333,102 | 339,736 | 330,756 |
| 166 | 287,649 | 286,559 | 290,864 | 306,162 | 311,622 | 309,434 | 321,007 | 332,180 | 335,579 | 328,741 | 329,539 | 346,442 |
| 167 | 277,125 | 279,751 | 284,653 | 301,152 | 311,794 | 310,685 | 327,307 | 315,449 | 316,993 | 334,917 | 338,758 | 325,087 |
| 168 | 292,738 | 286,421 | 288,030 | 293,604 | 303,310 | 312,853 | 314,680 | 315,241 | 319,052 | 329,059 | 320,732 | 340,944 |
| 169 | 287,666 | 293,119 | 298,967 | 296,499 | 302,360 | 321,300 | 314,238 | 312,024 | 327,092 | 322,578 | 333,886 | 347,654 |
| 170 | 292,400 | 287,480 | 291,524 | 290,810 | 305,466 | 316,481 | 307,369 | 334,577 | 325,813 | 334,710 | 324,475 | 343,501 |
| 171 | 288,923 | 297,317 | 292,020 | 296,193 | 299,887 | 297,900 | 306,689 | 308,155 | 324,722 | 331,753 | 337,442 | 337,686 |
| 172 | 280,971 | 287,102 | 286,940 | 304,214 | 306,818 | 308,045 | 310,684 | 304,795 | 318,511 | 326,780 | 331,133 | 334,849 |
| 173 | 285,243 | 292,244 | 284,122 | 300,380 | 306,261 | 306,218 | 315,146 | 323,180 | 325,429 | 331,189 | 340,174 | 339,437 |
| 174 | 285,746 | 270,130 | 303,304 | 295,206 | 300,408 | 312,067 | 305,011 | 332,547 | 320,491 | 325,729 | 327,979 | 358,486 |
| 175 | 288,696 | 283,300 | 281,132 | 303,557 | 299,002 | 302,295 | 309,547 | 319,696 | 324,034 | 333,119 | 321,221 | 332,814 |
| 176 | 290,148 | 291,205 | 308,045 | 298,918 | 310,013 | 321,329 | 320,625 | 338,314 | 347,769 | 337,166 | 347,720 | 330,052 |
| 177 | 271,199 | 276,436 | 291,909 | 282,155 | 309,584 | 303,944 | 314,742 | 327,205 | 326,643 | 320,125 | 340,298 | 344,968 |
| 178 | 302,124 | 305,155 | 295,413 | 297,987 | 311,189 | 325,417 | 323,379 | 316,602 | 339,022 | 329,791 | 342,292 | 347,222 |
| 179 | 285,046 | 274,288 | 293,359 | 309,329 | 292,143 | 306,018 | 301,758 | 322,512 | 343,527 | 335,632 | 331,557 | 332,811 |
| 180 | 295,784 | 294,460 | 302,783 | 290,910 | 314,458 | 318,570 | 324,965 | 332,768 | 340,409 | 345,749 | 340,057 | 338,991 |
| 181 | 292,687 | 289,158 | 301,556 | 288,938 | 313,860 | 308,232 | 318,704 | 317,362 | 317,442 | 337,248 | 346,553 | 325,134 |
| 182 | 296,409 | 282,385 | 296,889 | 298,508 | 297,411 | 308,220 | 310,853 | 308,958 | 334,644 | 339,331 | 344,670 | 346,199 |
| 183 | 290,142 | 283,901 | 295,556 | 313,205 | 312,387 | 321,226 | 323,576 | 328,341 | 324,751 | 338,752 | 344,168 | 332,994 |
| 184 | 275,997 | 276,492 | 296,887 | 301,781 | 305,706 | 300,280 | 310,126 | 322,780 | 317,849 | 335,118 | 326,581 | 338,410 |
| 185 | 275,992 | 287,765 | 299,422 | 300,554 | 295,722 | 310,921 | 321,140 | 315,938 | 325,902 | 331,697 | 318,936 | 337,048 |
| 186 | 293,446 | 292,522 | 291,066 | 304,262 | 312,330 | 297,788 | 331,407 | 325,881 | 326,461 | 350,812 | 340,355 | 358,836 |
| 187 | 283,863 | 280,592 | 285,783 | 294,008 | 304,478 | 314,744 | 311,415 | 314,399 | 319,312 | 335,212 | 338,355 | 327,583 |
| 188 | 281,782 | 286,349 | 283,250 | 290,661 | 309,290 | 303,870 | 307,615 | 313,280 | 311,170 | 332,336 | 350,729 | 340,094 |
| 189 | 292,898 | 279,509 | 292,388 | 293,339 | 314,994 | 299,071 | 323,985 | 307,218 | 323,571 | 320,477 | 345,500 | 348,188 |
| 190 | 286,549 | 296,983 | 283,904 | 289,419 | 300,318 | 308,274 | 315,002 | 336,440 | 344,717 | 339,032 | 340,455 | 346,624 |
| 191 | 281,416 | 284,064 | 293,931 | 289,328 | 295,091 | 308,615 | 317,465 | 315,087 | 332,295 | 323,358 | 347,688 | 342,585 |
| 192 | 276,597 | 282,364 | 285,730 | 289,641 | 290,412 | 309,910 | 298,653 | 311,977 | 307,079 | 331,836 | 323,423 | 336,081 |
| 193 | 300,407 | 296,368 | 274,416 | 296,275 | 311,331 | 304,825 | 315,904 | 322,252 | 335,289 | 344,713 | 347,548 | 368,572 |
| 194 | 305,288 | 299,542 | 300,957 | 297,485 | 300,520 | 312,405 | 311,320 | 316,884 | 320,768 | 329,057 | 338,380 | 339,419 |
| 195 | 277,598 | 302,225 | 289,493 | 294,034 | 316,891 | 304,511 | 318,116 | 322,779 | 318,034 | 331,315 | 348,427 | 342,265 |
| 196 | 279,179 | 281,648 | 296,668 | 293,022 | 300,439 | 314,886 | 303,604 | 309,849 | 325,878 | 323,338 | 341,117 | 352,012 |
| 197 | 289,174 | 291,153 | 285,523 | 294,337 | 298,555 | 304,815 | 301,930 | 319,307 | 315,114 | 322,382 | 352,221 | 339,440 |
| 198 | 294,933 | 284,969 | 287,505 | 290,206 | 306,017 | 322,845 | 314,619 | 319,588 | 318,351 | 330,143 | 351,994 | 341,562 |
| 199 | 293,470 | 279,629 | 300,228 | 284,750 | 306,333 | 314,626 | 315,753 | 318,735 | 330,901 | 334,607 | 326,898 | 324,877 |
| 200 | 280,521 | 287,018 | 296,494 | 299,775 | 306,291 | 321,584 | 328,654 | 328,406 | 324,802 | 336,019 | 330,011 | 348,945 |
| Max | 305,288 | 306,978 | 313,437 | 314,157 | 324,472 | 325,516 | 334,796 | 341,175 | 347,769 | 352,160 | 365,133 | 368,572 |
| Min | 269,576 | 270,087 | 274,416 | 281,862 | 282,608 | 290,608 | 296,125 | 302,689 | 304,034 | 313,191 | 317,067 | 322,868 |
| Averag | 287,335 | 288,980 | 293,332 | 297,859 | 303,969 | 309,700 | 315,619 | 320,525 | 325,896 | 332,644 | 337,746 | 342,506 |

**APPENDIX G:
Total System Annual Load Forecast
Monte-Carlo Results**

| Draw | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 20 Yr Total |
|------|---------|---------|---------|---------|---------|---------|---------|---------|-------------|
| 1 | 358,144 | 366,581 | 366,649 | 369,671 | 366,217 | 369,003 | 384,534 | 397,127 | 6,748,800 |
| 2 | 357,714 | 349,578 | 365,965 | 370,619 | 357,436 | 388,862 | 381,606 | 383,335 | 6,765,914 |
| 3 | 329,880 | 355,541 | 362,119 | 369,585 | 357,549 | 373,032 | 371,791 | 396,760 | 6,678,262 |
| 4 | 357,706 | 365,968 | 358,088 | 358,845 | 365,161 | 381,737 | 363,134 | 361,434 | 6,658,468 |
| 5 | 349,582 | 362,992 | 354,537 | 365,599 | 369,294 | 374,172 | 379,260 | 393,079 | 6,744,516 |
| 6 | 341,874 | 362,761 | 350,697 | 365,616 | 366,676 | 392,245 | 371,618 | 403,996 | 6,727,320 |
| 7 | 331,450 | 355,709 | 354,583 | 355,805 | 366,394 | 378,121 | 383,749 | 397,525 | 6,633,775 |
| 8 | 329,208 | 355,278 | 353,810 | 366,431 | 364,177 | 379,618 | 392,082 | 379,653 | 6,609,183 |
| 9 | 350,194 | 358,774 | 359,707 | 370,615 | 368,865 | 362,856 | 379,929 | 386,079 | 6,660,829 |
| 10 | 354,458 | 359,017 | 368,048 | 386,905 | 375,740 | 363,848 | 379,440 | 386,254 | 6,710,207 |
| 11 | 333,448 | 358,146 | 357,822 | 354,594 | 385,402 | 370,907 | 386,473 | 390,186 | 6,609,916 |
| 12 | 353,168 | 375,319 | 381,632 | 359,204 | 383,929 | 367,391 | 393,160 | 378,017 | 6,768,320 |
| 13 | 355,832 | 367,457 | 355,023 | 368,959 | 398,263 | 374,932 | 396,982 | 392,156 | 6,850,332 |
| 14 | 358,260 | 365,566 | 368,045 | 362,437 | 388,542 | 374,695 | 377,456 | 395,418 | 6,800,133 |
| 15 | 340,016 | 362,056 | 358,049 | 372,703 | 383,336 | 385,382 | 386,246 | 383,143 | 6,761,128 |
| 16 | 342,452 | 354,242 | 363,316 | 357,496 | 369,901 | 371,447 | 377,757 | 378,961 | 6,629,142 |
| 17 | 345,178 | 347,290 | 372,030 | 356,863 | 377,939 | 374,161 | 376,378 | 395,471 | 6,674,075 |
| 18 | 352,786 | 359,652 | 356,836 | 363,408 | 351,996 | 371,938 | 369,240 | 369,467 | 6,561,958 |
| 19 | 342,767 | 346,407 | 351,760 | 374,599 | 382,481 | 377,577 | 395,106 | 404,487 | 6,743,639 |
| 20 | 351,537 | 361,762 | 362,885 | 373,498 | 370,240 | 385,943 | 399,980 | 395,001 | 6,807,173 |
| 21 | 344,254 | 350,064 | 373,402 | 373,815 | 375,852 | 372,783 | 368,113 | 382,870 | 6,712,720 |
| 22 | 361,183 | 347,778 | 369,501 | 359,069 | 380,412 | 379,180 | 390,289 | 382,875 | 6,705,069 |
| 23 | 351,287 | 354,354 | 347,965 | 373,483 | 379,426 | 378,622 | 373,166 | 401,369 | 6,765,084 |
| 24 | 333,578 | 358,037 | 363,887 | 349,596 | 366,421 | 355,209 | 381,631 | 379,487 | 6,581,356 |
| 25 | 340,801 | 346,774 | 373,996 | 376,499 | 387,235 | 372,180 | 384,339 | 368,846 | 6,714,359 |
| 26 | 362,863 | 351,257 | 363,778 | 373,155 | 362,457 | 378,063 | 382,134 | 384,987 | 6,708,034 |
| 27 | 340,084 | 351,213 | 354,398 | 369,093 | 383,120 | 384,818 | 364,803 | 379,662 | 6,655,419 |
| 28 | 359,901 | 362,221 | 371,428 | 378,392 | 384,133 | 379,045 | 398,424 | 402,704 | 6,851,519 |
| 29 | 354,149 | 361,318 | 364,909 | 358,863 | 372,869 | 396,411 | 378,275 | 405,058 | 6,791,585 |
| 30 | 348,577 | 365,412 | 359,696 | 377,320 | 366,028 | 357,392 | 356,056 | 372,614 | 6,574,110 |
| 31 | 360,107 | 346,285 | 358,459 | 366,233 | 388,570 | 377,079 | 386,520 | 379,710 | 6,729,287 |
| 32 | 357,387 | 343,131 | 363,427 | 364,126 | 369,837 | 379,779 | 378,451 | 369,340 | 6,610,781 |
| 33 | 360,028 | 343,232 | 375,003 | 367,522 | 378,459 | 388,140 | 378,027 | 391,070 | 6,773,149 |
| 34 | 339,487 | 355,521 | 343,827 | 362,175 | 378,421 | 387,551 | 376,599 | 392,114 | 6,639,992 |
| 35 | 342,259 | 362,299 | 362,142 | 355,959 | 373,751 | 372,942 | 381,858 | 395,466 | 6,688,576 |
| 36 | 345,554 | 348,918 | 351,144 | 342,149 | 372,337 | 378,959 | 381,407 | 371,065 | 6,628,554 |
| 37 | 358,095 | 355,215 | 336,941 | 363,731 | 365,254 | 372,470 | 374,876 | 381,782 | 6,666,806 |
| 38 | 352,148 | 343,218 | 350,141 | 360,323 | 369,896 | 370,225 | 396,144 | 392,332 | 6,620,725 |
| 39 | 330,890 | 364,165 | 347,079 | 352,601 | 366,434 | 365,140 | 384,963 | 385,836 | 6,552,385 |
| 40 | 341,343 | 364,126 | 361,078 | 366,921 | 375,235 | 369,774 | 392,092 | 387,914 | 6,729,266 |
| 41 | 349,657 | 365,328 | 357,121 | 378,203 | 373,996 | 375,358 | 383,359 | 407,437 | 6,767,574 |
| 42 | 362,261 | 355,124 | 366,823 | 367,026 | 382,141 | 382,683 | 379,218 | 394,956 | 6,828,416 |
| 43 | 361,248 | 348,515 | 380,698 | 377,755 | 378,693 | 379,972 | 394,747 | 383,260 | 6,831,194 |
| 44 | 364,249 | 361,821 | 361,784 | 358,147 | 379,511 | 379,675 | 386,634 | 397,640 | 6,749,149 |
| 45 | 357,506 | 367,884 | 367,753 | 378,344 | 376,578 | 371,441 | 385,095 | 398,637 | 6,720,957 |
| 46 | 350,868 | 358,553 | 377,548 | 376,249 | 372,371 | 378,454 | 392,087 | 413,052 | 6,777,160 |
| 47 | 365,191 | 355,961 | 365,536 | 359,525 | 371,105 | 372,754 | 386,850 | 401,117 | 6,714,614 |
| 48 | 350,903 | 352,196 | 365,878 | 382,557 | 384,534 | 392,430 | 390,078 | 389,456 | 6,825,455 |
| 49 | 368,946 | 356,918 | 357,302 | 378,268 | 391,691 | 378,120 | 379,518 | 392,911 | 6,829,086 |
| 50 | 368,041 | 352,320 | 359,601 | 368,224 | 376,795 | 371,085 | 392,730 | 387,609 | 6,763,242 |
| 51 | 356,315 | 332,267 | 353,141 | 359,214 | 385,325 | 371,134 | 376,901 | 376,296 | 6,614,594 |
| 52 | 345,334 | 360,079 | 373,885 | 359,503 | 381,312 | 365,186 | 390,138 | 395,322 | 6,687,302 |
| 53 | 353,693 | 339,987 | 358,630 | 376,520 | 373,716 | 372,769 | 392,558 | 383,842 | 6,681,741 |
| 54 | 351,251 | 367,196 | 362,305 | 375,338 | 376,101 | 379,878 | 381,099 | 412,793 | 6,778,203 |
| 55 | 355,130 | 357,898 | 364,218 | 364,569 | 397,893 | 377,581 | 412,928 | 396,813 | 6,827,426 |
| 56 | 342,594 | 347,438 | 364,129 | 364,803 | 371,030 | 374,625 | 363,425 | 387,146 | 6,650,293 |
| 57 | 350,849 | 365,090 | 368,733 | 365,685 | 386,051 | 375,358 | 400,163 | 393,113 | 6,818,596 |
| 58 | 345,230 | 337,852 | 369,045 | 356,237 | 381,128 | 372,283 | 382,673 | 379,411 | 6,616,737 |
| 59 | 357,646 | 351,326 | 360,329 | 380,618 | 376,058 | 378,197 | 371,354 | 390,484 | 6,747,802 |
| 60 | 345,018 | 364,703 | 348,854 | 367,374 | 383,078 | 384,675 | 388,400 | 386,226 | 6,693,256 |
| 61 | 370,468 | 359,561 | 370,382 | 384,707 | 372,363 | 360,699 | 370,648 | 397,446 | 6,793,803 |
| 62 | 361,065 | 359,314 | 364,899 | 363,725 | 374,774 | 379,363 | 397,574 | 413,633 | 6,852,056 |
| 63 | 345,819 | 337,452 | 363,234 | 379,821 | 366,966 | 371,677 | 379,091 | 386,728 | 6,664,146 |
| 64 | 367,218 | 357,176 | 357,465 | 337,872 | 375,606 | 379,008 | 383,246 | 402,394 | 6,744,159 |
| 65 | 346,624 | 352,664 | 354,644 | 387,533 | 381,051 | 387,812 | 388,926 | 393,185 | 6,766,273 |
| 66 | 361,710 | 364,293 | 367,551 | 372,596 | 374,446 | 395,906 | 390,139 | 390,872 | 6,829,963 |
| 67 | 351,676 | 357,310 | 363,720 | 372,093 | 374,892 | 364,187 | 377,024 | 383,407 | 6,707,517 |
| 68 | 358,117 | 367,676 | 375,793 | 378,988 | 384,219 | 392,579 | 399,278 | 395,661 | 6,850,156 |

**APPENDIX G:
Total System Annual Load Forecast
Monte-Carlo Results**

| Draw | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 20 Yr Total |
|------|---------|---------|---------|---------|---------|---------|---------|---------|-------------|
| 69 | 353,870 | 354,968 | 380,294 | 387,764 | 385,904 | 376,602 | 412,133 | 383,794 | 6,832,079 |
| 70 | 331,192 | 340,798 | 359,027 | 354,655 | 377,295 | 371,796 | 374,018 | 371,525 | 6,551,597 |
| 71 | 367,466 | 341,108 | 350,603 | 368,344 | 372,798 | 381,912 | 388,431 | 381,221 | 6,746,309 |
| 72 | 348,880 | 348,972 | 350,124 | 379,946 | 368,739 | 370,783 | 381,723 | 381,363 | 6,631,894 |
| 73 | 354,913 | 353,199 | 349,065 | 354,563 | 380,414 | 375,782 | 395,324 | 385,562 | 6,696,599 |
| 74 | 341,313 | 356,508 | 335,532 | 350,536 | 370,496 | 390,417 | 367,406 | 384,842 | 6,613,415 |
| 75 | 343,325 | 351,091 | 353,471 | 370,016 | 364,737 | 367,121 | 379,131 | 394,108 | 6,604,981 |
| 76 | 344,932 | 354,919 | 365,097 | 361,092 | 376,353 | 380,928 | 373,515 | 383,166 | 6,653,418 |
| 77 | 352,700 | 339,019 | 346,215 | 350,325 | 353,677 | 379,591 | 392,125 | 379,919 | 6,617,384 |
| 78 | 338,013 | 373,106 | 374,261 | 377,013 | 380,563 | 384,533 | 381,980 | 415,081 | 6,830,767 |
| 79 | 345,538 | 352,553 | 346,316 | 369,722 | 352,674 | 375,503 | 364,797 | 392,752 | 6,563,426 |
| 80 | 343,656 | 349,260 | 358,562 | 373,020 | 376,691 | 388,915 | 390,099 | 384,271 | 6,697,366 |
| 81 | 348,353 | 339,178 | 350,592 | 370,893 | 377,488 | 381,977 | 374,452 | 377,012 | 6,624,679 |
| 82 | 331,072 | 347,453 | 364,655 | 368,836 | 374,110 | 377,869 | 379,078 | 391,181 | 6,640,827 |
| 83 | 335,621 | 368,559 | 371,955 | 374,681 | 377,678 | 395,545 | 370,924 | 396,410 | 6,803,213 |
| 84 | 353,894 | 357,471 | 368,804 | 362,114 | 380,935 | 375,987 | 383,931 | 394,274 | 6,765,302 |
| 85 | 346,191 | 360,941 | 371,740 | 379,385 | 372,687 | 377,219 | 394,237 | 375,618 | 6,742,376 |
| 86 | 348,075 | 354,965 | 376,341 | 373,061 | 376,141 | 366,843 | 378,413 | 378,719 | 6,711,765 |
| 87 | 365,472 | 351,549 | 363,908 | 359,996 | 379,758 | 377,793 | 396,519 | 382,326 | 6,713,624 |
| 88 | 346,317 | 363,469 | 365,918 | 372,432 | 365,633 | 373,089 | 392,911 | 393,527 | 6,720,193 |
| 89 | 346,789 | 356,224 | 362,413 | 368,575 | 375,873 | 373,850 | 388,441 | 387,677 | 6,698,182 |
| 90 | 364,546 | 364,005 | 361,876 | 376,990 | 371,889 | 386,551 | 381,127 | 388,611 | 6,793,304 |
| 91 | 347,454 | 360,487 | 375,580 | 378,972 | 383,307 | 374,256 | 379,512 | 392,075 | 6,763,197 |
| 92 | 342,525 | 352,233 | 370,918 | 374,120 | 362,789 | 390,086 | 399,299 | 388,757 | 6,761,288 |
| 93 | 348,683 | 358,860 | 366,259 | 379,538 | 355,974 | 389,063 | 397,794 | 386,669 | 6,744,951 |
| 94 | 337,476 | 358,726 | 360,221 | 362,298 | 367,259 | 363,433 | 366,029 | 391,040 | 6,585,969 |
| 95 | 341,507 | 337,662 | 363,372 | 369,598 | 363,860 | 368,275 | 386,335 | 379,735 | 6,651,527 |
| 96 | 350,775 | 365,375 | 368,604 | 371,826 | 375,127 | 415,730 | 411,537 | 385,766 | 6,843,896 |
| 97 | 339,722 | 339,242 | 357,708 | 363,054 | 348,282 | 383,512 | 374,843 | 389,562 | 6,603,442 |
| 98 | 348,488 | 362,175 | 360,665 | 372,882 | 373,854 | 378,316 | 398,071 | 399,329 | 6,757,635 |
| 99 | 355,796 | 350,718 | 365,990 | 356,429 | 378,816 | 377,766 | 373,388 | 380,221 | 6,657,287 |
| 100 | 356,501 | 357,278 | 365,384 | 373,991 | 378,837 | 383,058 | 385,274 | 401,457 | 6,777,987 |
| 101 | 354,747 | 369,937 | 365,615 | 370,378 | 391,273 | 378,808 | 378,543 | 382,276 | 6,833,679 |
| 102 | 356,966 | 362,224 | 381,995 | 364,284 | 383,690 | 376,715 | 373,283 | 393,795 | 6,759,316 |
| 103 | 340,972 | 356,665 | 351,684 | 344,851 | 376,055 | 381,212 | 379,417 | 380,780 | 6,621,156 |
| 104 | 364,529 | 344,582 | 365,743 | 370,599 | 370,638 | 379,228 | 392,287 | 408,005 | 6,837,597 |
| 105 | 351,520 | 348,225 | 358,183 | 362,994 | 370,810 | 392,716 | 372,492 | 392,909 | 6,699,126 |
| 106 | 338,180 | 359,953 | 353,780 | 351,468 | 369,018 | 386,591 | 383,035 | 382,304 | 6,669,533 |
| 107 | 353,791 | 357,581 | 368,331 | 362,740 | 380,833 | 369,709 | 368,788 | 405,982 | 6,773,851 |
| 108 | 362,274 | 358,757 | 359,198 | 360,343 | 379,798 | 379,423 | 376,709 | 376,447 | 6,731,072 |
| 109 | 335,341 | 334,746 | 360,630 | 359,534 | 372,479 | 365,986 | 380,559 | 401,823 | 6,616,456 |
| 110 | 351,302 | 351,996 | 361,800 | 360,595 | 369,452 | 373,446 | 365,101 | 387,588 | 6,634,398 |
| 111 | 345,013 | 357,747 | 355,773 | 366,576 | 374,170 | 379,149 | 394,121 | 397,759 | 6,781,093 |
| 112 | 362,659 | 359,910 | 377,167 | 379,126 | 366,730 | 383,075 | 394,213 | 400,146 | 6,851,573 |
| 113 | 354,705 | 368,337 | 368,993 | 366,111 | 382,945 | 381,891 | 402,275 | 387,169 | 6,813,165 |
| 114 | 347,215 | 363,837 | 360,858 | 372,485 | 370,827 | 372,126 | 385,459 | 390,653 | 6,735,837 |
| 115 | 334,541 | 356,009 | 360,053 | 364,200 | 352,325 | 361,805 | 386,568 | 379,652 | 6,571,893 |
| 116 | 337,572 | 354,363 | 367,341 | 374,276 | 366,465 | 387,667 | 367,492 | 382,824 | 6,682,378 |
| 117 | 344,402 | 344,512 | 370,027 | 363,328 | 358,661 | 381,917 | 366,077 | 387,162 | 6,604,238 |
| 118 | 372,108 | 357,870 | 358,941 | 359,621 | 385,947 | 394,851 | 385,830 | 405,631 | 6,820,420 |
| 119 | 345,684 | 355,934 | 356,593 | 351,778 | 377,565 | 388,425 | 390,060 | 374,175 | 6,703,045 |
| 120 | 351,978 | 364,602 | 357,923 | 373,767 | 361,800 | 400,078 | 375,662 | 386,593 | 6,720,351 |
| 121 | 347,498 | 350,480 | 363,453 | 355,110 | 391,721 | 368,080 | 367,352 | 388,532 | 6,669,779 |
| 122 | 367,794 | 359,210 | 352,956 | 358,979 | 387,319 | 373,484 | 386,135 | 373,849 | 6,751,635 |
| 123 | 361,755 | 361,243 | 358,900 | 386,165 | 375,539 | 385,903 | 390,553 | 401,276 | 6,826,390 |
| 124 | 345,725 | 357,649 | 375,983 | 372,775 | 361,356 | 388,861 | 383,657 | 400,223 | 6,715,256 |
| 125 | 349,239 | 360,579 | 353,130 | 363,514 | 367,335 | 371,395 | 393,305 | 392,398 | 6,708,351 |
| 126 | 361,970 | 358,361 | 353,418 | 380,043 | 381,417 | 382,057 | 387,786 | 388,879 | 6,849,790 |
| 127 | 345,058 | 364,554 | 364,390 | 353,923 | 368,333 | 374,911 | 385,121 | 382,004 | 6,707,371 |
| 128 | 367,136 | 364,509 | 365,350 | 367,333 | 387,515 | 371,661 | 390,240 | 395,838 | 6,811,571 |
| 129 | 350,961 | 351,540 | 365,979 | 377,091 | 392,098 | 379,597 | 366,356 | 404,616 | 6,762,810 |
| 130 | 361,264 | 355,592 | 368,654 | 366,996 | 381,259 | 389,769 | 386,294 | 399,178 | 6,824,446 |
| 131 | 352,397 | 366,226 | 357,313 | 370,356 | 373,766 | 386,850 | 387,437 | 397,966 | 6,765,527 |
| 132 | 347,621 | 339,862 | 353,026 | 370,216 | 360,568 | 363,522 | 376,335 | 374,686 | 6,613,958 |
| 133 | 349,544 | 358,381 | 371,759 | 359,705 | 369,646 | 383,729 | 388,790 | 379,121 | 6,695,625 |
| 134 | 343,037 | 347,245 | 368,733 | 360,575 | 379,552 | 384,901 | 389,355 | 402,029 | 6,744,598 |
| 135 | 344,385 | 356,872 | 355,453 | 368,397 | 362,984 | 365,890 | 383,271 | 380,823 | 6,674,713 |
| 136 | 354,467 | 381,702 | 361,071 | 376,302 | 384,172 | 393,788 | 377,766 | 409,840 | 6,864,657 |

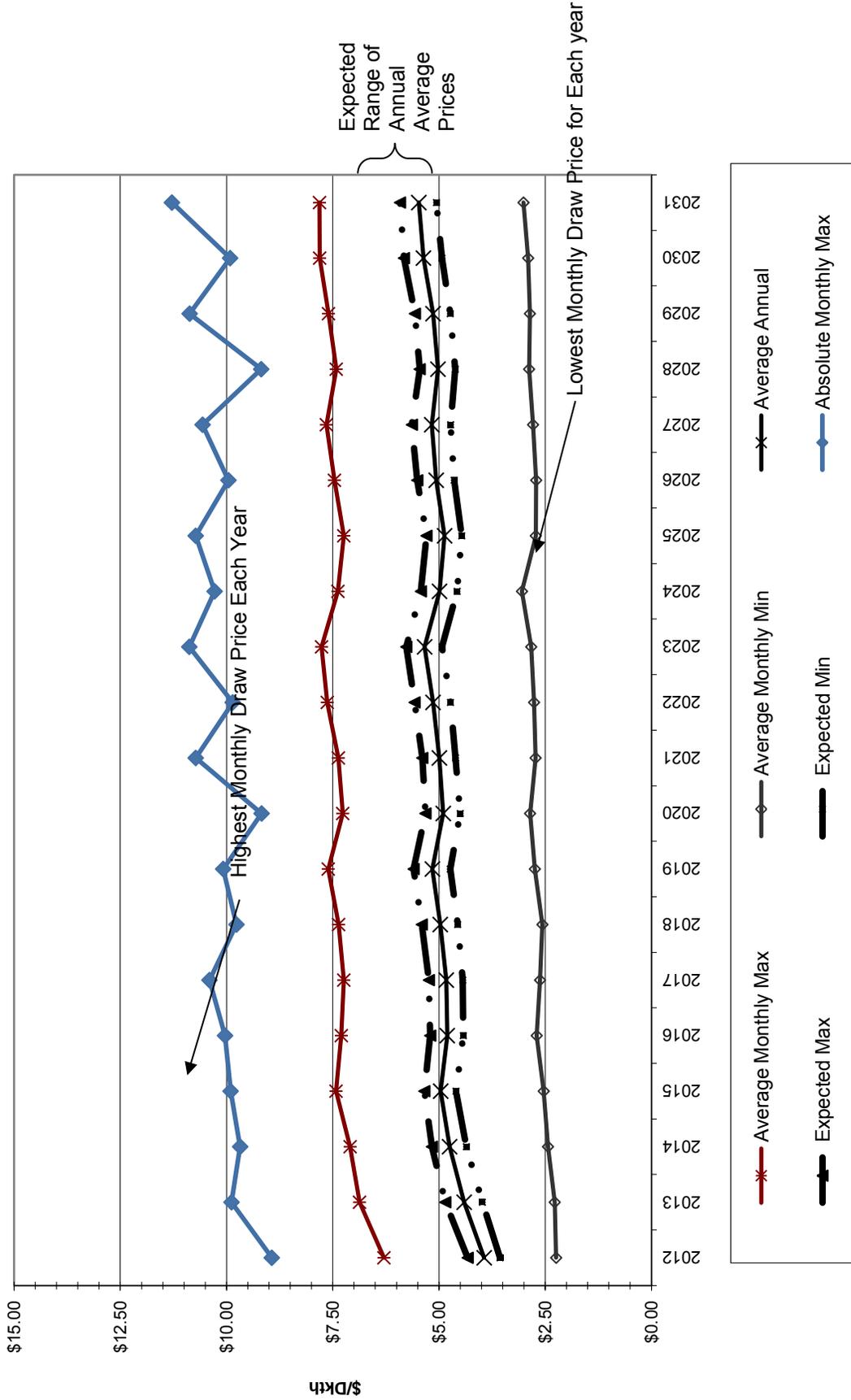
**APPENDIX G:
Total System Annual Load Forecast
Monte-Carlo Results**

| Draw | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 20 Yr Total |
|--------|---------|---------|---------|---------|---------|---------|---------|---------|-------------|
| 137 | 338,793 | 364,530 | 360,648 | 350,388 | 377,232 | 375,816 | 378,833 | 393,767 | 6,610,960 |
| 138 | 348,521 | 358,927 | 362,983 | 363,064 | 382,605 | 375,322 | 392,798 | 391,613 | 6,767,271 |
| 139 | 347,474 | 342,222 | 364,868 | 349,593 | 367,800 | 380,316 | 376,827 | 398,448 | 6,650,776 |
| 140 | 358,130 | 355,293 | 368,175 | 356,973 | 382,830 | 393,301 | 382,145 | 390,931 | 6,687,715 |
| 141 | 346,366 | 350,681 | 365,778 | 386,521 | 372,092 | 378,830 | 395,844 | 405,161 | 6,778,555 |
| 142 | 353,058 | 358,043 | 360,557 | 355,072 | 370,773 | 372,866 | 372,009 | 387,830 | 6,744,178 |
| 143 | 339,088 | 352,183 | 356,627 | 365,103 | 353,419 | 376,744 | 376,056 | 366,280 | 6,610,808 |
| 144 | 341,657 | 358,462 | 355,723 | 362,753 | 348,683 | 374,629 | 370,664 | 377,429 | 6,593,678 |
| 145 | 343,196 | 359,970 | 362,990 | 357,870 | 364,365 | 383,515 | 378,367 | 383,866 | 6,677,889 |
| 146 | 345,490 | 359,117 | 366,319 | 372,645 | 384,334 | 384,549 | 381,568 | 406,806 | 6,739,656 |
| 147 | 354,029 | 360,327 | 340,325 | 378,811 | 374,142 | 381,792 | 386,115 | 389,910 | 6,697,028 |
| 148 | 356,574 | 377,177 | 368,241 | 357,415 | 370,540 | 381,599 | 377,980 | 384,789 | 6,749,072 |
| 149 | 349,837 | 362,007 | 374,360 | 358,895 | 370,017 | 390,318 | 386,316 | 388,516 | 6,786,475 |
| 150 | 361,799 | 359,765 | 370,875 | 372,976 | 365,716 | 368,770 | 388,350 | 391,644 | 6,759,250 |
| 151 | 355,162 | 349,100 | 361,582 | 363,992 | 362,719 | 383,165 | 379,434 | 398,298 | 6,683,851 |
| 152 | 349,984 | 361,110 | 348,129 | 349,632 | 385,176 | 386,420 | 396,721 | 379,520 | 6,654,435 |
| 153 | 354,891 | 352,480 | 367,029 | 361,082 | 362,994 | 390,131 | 378,082 | 386,405 | 6,629,965 |
| 154 | 342,068 | 363,146 | 352,447 | 377,014 | 364,152 | 381,252 | 377,653 | 372,390 | 6,768,506 |
| 155 | 330,848 | 364,467 | 354,420 | 350,493 | 366,846 | 372,236 | 386,465 | 388,285 | 6,648,334 |
| 156 | 349,406 | 346,893 | 371,504 | 366,811 | 387,727 | 394,503 | 395,775 | 417,876 | 6,834,835 |
| 157 | 347,555 | 344,771 | 357,831 | 365,382 | 373,764 | 360,960 | 385,843 | 388,953 | 6,669,125 |
| 158 | 356,078 | 375,072 | 356,369 | 370,736 | 358,001 | 374,831 | 392,185 | 371,887 | 6,764,935 |
| 159 | 332,433 | 384,649 | 360,166 | 366,973 | 371,400 | 376,173 | 379,112 | 373,314 | 6,728,853 |
| 160 | 348,441 | 348,565 | 361,491 | 361,276 | 380,286 | 355,146 | 386,363 | 359,609 | 6,633,432 |
| 161 | 346,569 | 365,610 | 366,258 | 367,316 | 378,016 | 375,274 | 401,457 | 383,019 | 6,760,226 |
| 162 | 340,139 | 360,962 | 351,891 | 365,075 | 372,449 | 384,191 | 388,847 | 381,836 | 6,700,499 |
| 163 | 332,168 | 351,106 | 365,089 | 350,019 | 365,732 | 375,143 | 382,491 | 385,514 | 6,660,699 |
| 164 | 342,114 | 349,219 | 380,548 | 378,355 | 376,999 | 377,433 | 388,302 | 395,339 | 6,754,555 |
| 165 | 336,534 | 355,511 | 348,231 | 364,267 | 374,851 | 376,255 | 389,801 | 382,005 | 6,723,160 |
| 166 | 350,814 | 361,754 | 354,742 | 355,025 | 383,983 | 385,573 | 386,586 | 386,087 | 6,750,342 |
| 167 | 345,414 | 355,154 | 348,952 | 356,616 | 378,526 | 375,836 | 372,798 | 380,683 | 6,637,651 |
| 168 | 341,847 | 354,592 | 366,549 | 356,490 | 370,374 | 378,411 | 386,019 | 383,068 | 6,654,014 |
| 169 | 341,324 | 351,506 | 365,644 | 367,483 | 371,602 | 370,159 | 383,777 | 389,672 | 6,698,552 |
| 170 | 358,821 | 352,865 | 357,117 | 381,182 | 373,694 | 392,217 | 407,831 | 377,253 | 6,755,585 |
| 171 | 366,521 | 344,243 | 364,393 | 361,376 | 368,234 | 377,473 | 397,311 | 394,298 | 6,692,538 |
| 172 | 339,404 | 350,765 | 361,842 | 366,443 | 363,188 | 377,676 | 382,705 | 384,772 | 6,627,637 |
| 173 | 345,047 | 356,175 | 368,694 | 372,254 | 379,610 | 373,788 | 373,755 | 400,357 | 6,718,700 |
| 174 | 357,750 | 353,117 | 346,683 | 357,784 | 367,258 | 361,631 | 371,703 | 395,118 | 6,648,148 |
| 175 | 332,638 | 356,363 | 357,092 | 350,383 | 372,826 | 375,158 | 381,966 | 376,767 | 6,601,606 |
| 176 | 364,677 | 375,321 | 371,098 | 379,207 | 377,694 | 378,162 | 380,463 | 391,062 | 6,858,987 |
| 177 | 344,631 | 360,224 | 355,897 | 361,495 | 371,017 | 382,751 | 386,469 | 387,029 | 6,658,723 |
| 178 | 346,697 | 354,548 | 357,228 | 359,618 | 361,860 | 368,804 | 393,287 | 387,595 | 6,765,230 |
| 179 | 347,170 | 358,693 | 357,849 | 379,743 | 367,581 | 364,553 | 371,412 | 375,955 | 6,650,937 |
| 180 | 352,422 | 375,872 | 359,898 | 367,238 | 371,289 | 361,613 | 401,088 | 388,563 | 6,817,888 |
| 181 | 342,530 | 350,114 | 359,422 | 357,797 | 370,703 | 376,991 | 380,918 | 381,064 | 6,676,412 |
| 182 | 345,343 | 344,668 | 369,791 | 354,620 | 381,458 | 378,665 | 364,527 | 387,865 | 6,691,415 |
| 183 | 345,264 | 353,975 | 369,349 | 383,773 | 386,707 | 381,440 | 382,017 | 387,529 | 6,799,054 |
| 184 | 348,217 | 356,413 | 346,205 | 366,611 | 362,177 | 366,617 | 373,485 | 383,531 | 6,611,263 |
| 185 | 340,085 | 341,492 | 375,629 | 372,636 | 377,067 | 390,200 | 383,533 | 392,919 | 6,694,598 |
| 186 | 372,797 | 361,438 | 365,410 | 378,455 | 378,550 | 386,950 | 403,791 | 388,638 | 6,861,195 |
| 187 | 336,661 | 331,864 | 362,905 | 365,042 | 358,037 | 359,475 | 357,670 | 359,854 | 6,541,252 |
| 188 | 354,633 | 360,977 | 371,344 | 365,756 | 359,182 | 367,033 | 378,334 | 378,706 | 6,646,391 |
| 189 | 341,115 | 360,794 | 355,968 | 358,387 | 368,313 | 393,238 | 389,863 | 387,772 | 6,696,587 |
| 190 | 353,252 | 342,057 | 376,789 | 375,373 | 386,211 | 385,078 | 380,668 | 385,466 | 6,772,614 |
| 191 | 350,550 | 336,165 | 357,112 | 360,204 | 372,283 | 385,311 | 388,224 | 375,142 | 6,655,913 |
| 192 | 353,594 | 353,088 | 364,218 | 363,639 | 356,369 | 370,519 | 372,015 | 376,584 | 6,553,729 |
| 193 | 338,272 | 363,394 | 355,523 | 379,539 | 386,745 | 390,985 | 395,404 | 388,447 | 6,816,208 |
| 194 | 339,833 | 355,577 | 356,738 | 366,282 | 361,800 | 373,022 | 389,707 | 396,338 | 6,711,320 |
| 195 | 349,098 | 367,086 | 350,306 | 356,772 | 365,850 | 382,128 | 385,662 | 404,482 | 6,727,072 |
| 196 | 337,137 | 361,523 | 360,842 | 374,204 | 358,249 | 358,856 | 383,773 | 378,195 | 6,634,418 |
| 197 | 346,356 | 360,161 | 346,980 | 356,939 | 379,850 | 370,439 | 390,595 | 389,365 | 6,654,637 |
| 198 | 352,585 | 348,124 | 346,348 | 360,509 | 371,382 | 372,338 | 408,099 | 391,247 | 6,713,366 |
| 199 | 358,270 | 353,093 | 349,564 | 372,906 | 390,700 | 377,369 | 373,290 | 388,088 | 6,694,088 |
| 200 | 346,053 | 361,453 | 363,333 | 381,366 | 377,892 | 383,441 | 400,747 | 392,116 | 6,794,922 |
| Max | 372,797 | 384,649 | 381,995 | 387,764 | 398,263 | 415,730 | 412,928 | 417,876 | 6,864,657 |
| Min | 329,208 | 331,864 | 335,532 | 337,872 | 348,282 | 355,146 | 356,056 | 359,609 | 6,541,252 |
| Averag | 349,479 | 356,092 | 361,627 | 366,644 | 373,649 | 377,936 | 383,762 | 388,554 | 6,713,855 |

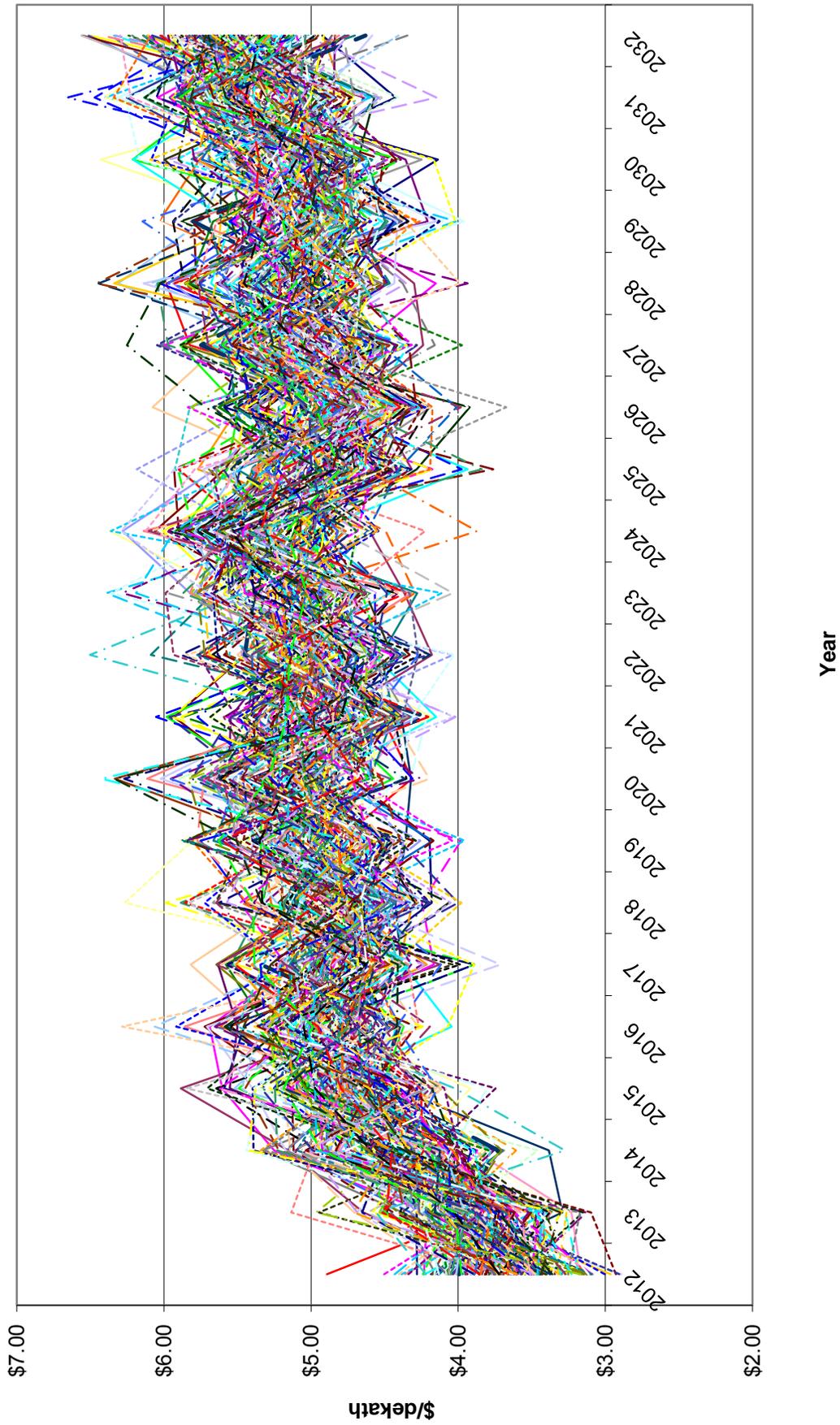
Appendix G-2

Price Uncertainty Analysis

G-2: NYMEX Annual Price Forecast



G-2 NYMEX ANNUAL AVERAGE PRICE



| Draw | 2012 | | | 2013 | | | 2014 | | | max |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | max | min | avg | max | min | avg | max | min | avg | |
| 1 | \$5.48 | \$2.20 | \$3.71 | \$7.13 | \$2.20 | \$4.51 | \$7.36 | \$2.20 | \$5.08 | \$7.06 |
| 2 | \$7.23 | \$2.76 | \$4.23 | \$7.12 | \$2.20 | \$5.27 | \$7.03 | \$2.20 | \$5.62 | \$7.18 |
| 3 | \$5.63 | \$2.20 | \$3.86 | \$5.44 | \$2.20 | \$4.07 | \$7.31 | \$2.20 | \$4.54 | \$8.02 |
| 4 | \$6.06 | \$2.20 | \$3.61 | \$7.19 | \$2.20 | \$4.48 | \$7.19 | \$2.20 | \$4.48 | \$6.79 |
| 5 | \$5.14 | \$2.27 | \$4.08 | \$8.66 | \$2.27 | \$4.31 | \$9.38 | \$3.04 | \$4.50 | \$6.60 |
| 6 | \$5.73 | \$2.20 | \$3.97 | \$7.74 | \$2.20 | \$4.51 | \$7.29 | \$2.20 | \$5.09 | \$8.47 |
| 7 | \$5.33 | \$2.22 | \$3.69 | \$6.51 | \$2.22 | \$4.68 | \$7.91 | \$2.22 | \$5.16 | \$7.95 |
| 8 | \$6.84 | \$2.22 | \$4.08 | \$6.92 | \$2.22 | \$3.72 | \$7.88 | \$2.22 | \$4.97 | \$6.97 |
| 9 | \$6.35 | \$2.24 | \$4.26 | \$7.49 | \$2.44 | \$4.69 | \$5.28 | \$2.24 | \$4.60 | \$7.70 |
| 10 | \$6.09 | \$2.24 | \$4.38 | \$7.30 | \$2.48 | \$4.62 | \$7.84 | \$2.24 | \$4.60 | \$6.28 |
| 11 | \$8.94 | \$2.24 | \$3.88 | \$6.86 | \$2.24 | \$4.04 | \$6.34 | \$2.66 | \$5.22 | \$6.58 |
| 12 | \$6.31 | \$2.27 | \$3.47 | \$5.91 | \$2.27 | \$4.34 | \$6.42 | \$2.27 | \$3.93 | \$7.16 |
| 13 | \$7.39 | \$2.27 | \$4.09 | \$8.44 | \$2.27 | \$4.93 | \$6.99 | \$2.27 | \$4.10 | \$8.18 |
| 14 | \$5.27 | \$2.20 | \$3.14 | \$6.15 | \$2.20 | \$3.79 | \$6.75 | \$2.68 | \$4.28 | \$6.98 |
| 15 | \$5.95 | \$2.22 | \$3.80 | \$7.37 | \$2.58 | \$4.21 | \$7.84 | \$2.22 | \$4.67 | \$8.05 |
| 16 | \$5.79 | \$2.27 | \$3.81 | \$7.31 | \$2.27 | \$4.59 | \$6.62 | \$2.58 | \$4.16 | \$7.26 |
| 17 | \$6.11 | \$2.20 | \$4.30 | \$7.24 | \$2.20 | \$5.13 | \$6.66 | \$3.31 | \$4.67 | \$7.45 |
| 18 | \$5.26 | \$2.22 | \$4.07 | \$6.76 | \$2.78 | \$4.63 | \$7.60 | \$2.58 | \$4.72 | \$6.50 |
| 19 | \$6.92 | \$2.24 | \$4.55 | \$6.66 | \$2.24 | \$4.34 | \$7.05 | \$2.24 | \$4.63 | \$6.38 |
| 20 | \$6.50 | \$2.20 | \$4.05 | \$9.06 | \$2.20 | \$5.01 | \$7.26 | \$2.20 | \$5.15 | \$6.47 |
| 21 | \$8.00 | \$2.27 | \$4.03 | \$5.75 | \$2.27 | \$3.79 | \$7.17 | \$2.27 | \$4.71 | \$6.43 |
| 22 | \$6.81 | \$2.24 | \$4.19 | \$6.21 | \$2.24 | \$4.02 | \$7.32 | \$2.24 | \$4.40 | \$8.29 |
| 23 | \$6.78 | \$2.22 | \$3.95 | \$6.36 | \$2.22 | \$4.56 | \$7.77 | \$2.22 | \$5.07 | \$8.10 |
| 24 | \$6.67 | \$2.22 | \$4.29 | \$7.26 | \$2.39 | \$3.66 | \$7.24 | \$2.22 | \$5.04 | \$9.34 |
| 25 | \$5.42 | \$2.20 | \$3.34 | \$5.10 | \$2.20 | \$3.43 | \$6.68 | \$2.20 | \$4.49 | \$8.94 |
| 26 | \$7.40 | \$2.27 | \$4.05 | \$6.51 | \$2.27 | \$4.05 | \$6.97 | \$2.48 | \$4.64 | \$6.64 |
| 27 | \$6.90 | \$2.22 | \$4.09 | \$8.08 | \$2.22 | \$4.88 | \$7.49 | \$2.22 | \$5.07 | \$9.90 |
| 28 | \$7.45 | \$2.27 | \$4.55 | \$6.68 | \$2.42 | \$4.31 | \$6.21 | \$2.27 | \$4.62 | \$7.14 |
| 29 | \$5.70 | \$2.27 | \$3.99 | \$5.11 | \$2.39 | \$4.06 | \$5.76 | \$2.86 | \$4.72 | \$7.54 |
| 30 | \$6.60 | \$2.20 | \$4.75 | \$8.21 | \$2.53 | \$5.28 | \$9.06 | \$3.10 | \$6.02 | \$7.94 |
| 31 | \$6.19 | \$2.27 | \$3.52 | \$6.08 | \$2.27 | \$4.29 | \$7.23 | \$2.27 | \$5.02 | \$5.79 |
| 32 | \$6.76 | \$2.22 | \$3.63 | \$9.02 | \$2.22 | \$4.56 | \$7.73 | \$2.22 | \$4.98 | \$7.69 |
| 33 | \$5.70 | \$2.24 | \$4.37 | \$6.88 | \$2.24 | \$3.98 | \$6.57 | \$2.78 | \$4.13 | \$7.29 |
| 34 | \$5.92 | \$2.20 | \$3.73 | \$5.30 | \$2.20 | \$3.87 | \$6.22 | \$2.20 | \$4.88 | \$6.43 |
| 35 | \$6.27 | \$2.39 | \$4.16 | \$6.89 | \$2.27 | \$4.91 | \$7.65 | \$3.24 | \$5.05 | \$7.52 |
| 36 | \$6.20 | \$2.27 | \$3.58 | \$6.71 | \$2.27 | \$4.42 | \$6.43 | \$2.47 | \$4.53 | \$7.83 |
| 37 | \$5.61 | \$2.22 | \$3.68 | \$7.50 | \$2.22 | \$4.83 | \$6.57 | \$2.84 | \$4.32 | \$7.40 |
| 38 | \$4.91 | \$2.27 | \$3.89 | \$5.24 | \$2.27 | \$4.05 | \$8.21 | \$2.27 | \$4.50 | \$6.95 |
| 39 | \$6.12 | \$2.22 | \$3.99 | \$7.56 | \$2.22 | \$4.43 | \$7.97 | \$2.22 | \$4.96 | \$7.80 |
| 40 | \$6.31 | \$2.24 | \$3.90 | \$6.49 | \$2.24 | \$4.13 | \$7.49 | \$2.24 | \$4.32 | \$6.49 |
| 41 | \$6.32 | \$2.20 | \$3.63 | \$6.70 | \$2.20 | \$4.20 | \$6.68 | \$2.28 | \$4.63 | \$7.12 |
| 42 | \$5.83 | \$2.20 | \$4.30 | \$6.63 | \$2.89 | \$4.41 | \$7.98 | \$2.20 | \$5.61 | \$7.28 |
| 43 | \$5.46 | \$2.20 | \$3.37 | \$8.78 | \$2.20 | \$4.42 | \$7.33 | \$2.20 | \$4.83 | \$7.12 |
| 44 | \$7.13 | \$2.20 | \$4.20 | \$6.11 | \$2.20 | \$3.73 | \$6.98 | \$2.20 | \$4.58 | \$7.48 |
| 45 | \$6.91 | \$2.27 | \$4.10 | \$7.44 | \$2.27 | \$4.48 | \$8.25 | \$2.27 | \$4.83 | \$7.35 |
| 46 | \$7.08 | \$2.22 | \$3.97 | \$6.35 | \$2.22 | \$4.25 | \$8.73 | \$2.33 | \$5.22 | \$8.41 |
| 47 | \$6.63 | \$2.27 | \$4.48 | \$8.68 | \$2.93 | \$5.45 | \$6.18 | \$3.55 | \$4.40 | \$7.28 |
| 48 | \$5.68 | \$2.27 | \$4.21 | \$7.36 | \$2.27 | \$4.61 | \$7.80 | \$2.27 | \$4.90 | \$8.97 |
| 49 | \$6.10 | \$2.24 | \$3.79 | \$8.87 | \$2.47 | \$4.94 | \$7.26 | \$2.24 | \$4.73 | \$7.29 |
| 50 | \$5.27 | \$2.22 | \$3.91 | \$7.85 | \$2.22 | \$4.11 | \$6.83 | \$2.22 | \$4.44 | \$6.61 |
| 51 | \$7.28 | \$2.24 | \$4.02 | \$6.69 | \$2.24 | \$4.49 | \$6.06 | \$2.24 | \$4.72 | \$7.46 |
| 52 | \$6.86 | \$2.22 | \$4.22 | \$6.38 | \$2.22 | \$4.53 | \$8.28 | \$2.49 | \$5.57 | \$8.37 |
| 53 | \$6.00 | \$2.20 | \$3.61 | \$9.33 | \$2.20 | \$4.83 | \$6.15 | \$2.53 | \$4.62 | \$9.38 |
| 54 | \$5.95 | \$2.22 | \$4.24 | \$7.13 | \$2.22 | \$3.71 | \$7.61 | \$2.22 | \$4.93 | \$7.37 |
| 55 | \$5.22 | \$2.27 | \$3.91 | \$7.26 | \$2.27 | \$5.24 | \$7.27 | \$2.79 | \$5.47 | \$7.44 |
| 56 | \$5.80 | \$2.27 | \$3.35 | \$6.16 | \$2.27 | \$4.01 | \$6.50 | \$2.27 | \$4.63 | \$6.86 |
| 57 | \$7.52 | \$2.27 | \$4.15 | \$5.37 | \$2.27 | \$3.84 | \$7.94 | \$2.79 | \$5.13 | \$8.21 |

| Draw | 2012 | | | 2013 | | | 2014 | | | max |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | max | min | avg | max | min | avg | max | min | avg | |
| 58 | \$6.94 | \$2.22 | \$4.13 | \$7.62 | \$2.22 | \$4.69 | \$6.38 | \$2.22 | \$4.54 | \$8.22 |
| 59 | \$5.96 | \$2.30 | \$3.28 | \$6.80 | \$2.24 | \$4.89 | \$8.70 | \$2.70 | \$4.92 | \$7.89 |
| 60 | \$4.81 | \$2.22 | \$3.11 | \$7.86 | \$2.22 | \$5.07 | \$6.65 | \$3.70 | \$4.47 | \$7.49 |
| 61 | \$6.93 | \$2.27 | \$4.41 | \$9.27 | \$2.27 | \$5.08 | \$9.68 | \$2.88 | \$5.10 | \$8.17 |
| 62 | \$5.16 | \$2.20 | \$3.82 | \$6.04 | \$2.20 | \$4.10 | \$6.51 | \$2.20 | \$4.91 | \$7.94 |
| 63 | \$6.52 | \$2.20 | \$3.67 | \$7.40 | \$2.20 | \$4.65 | \$7.14 | \$2.73 | \$5.16 | \$7.63 |
| 64 | \$6.70 | \$2.20 | \$3.81 | \$7.10 | \$2.28 | \$4.08 | \$7.86 | \$2.20 | \$4.67 | \$6.44 |
| 65 | \$5.92 | \$2.22 | \$3.78 | \$6.00 | \$2.22 | \$3.95 | \$7.58 | \$2.22 | \$4.95 | \$7.66 |
| 66 | \$5.64 | \$2.24 | \$4.25 | \$7.27 | \$2.61 | \$4.16 | \$7.96 | \$2.24 | \$4.97 | \$7.57 |
| 67 | \$6.89 | \$2.27 | \$4.09 | \$7.01 | \$2.27 | \$4.57 | \$7.34 | \$2.27 | \$4.42 | \$7.28 |
| 68 | \$6.81 | \$2.24 | \$4.01 | \$6.87 | \$2.24 | \$4.45 | \$7.85 | \$2.24 | \$4.75 | \$7.74 |
| 69 | \$7.06 | \$2.22 | \$4.41 | \$6.00 | \$2.22 | \$4.27 | \$6.53 | \$3.22 | \$4.54 | \$7.84 |
| 70 | \$6.31 | \$2.20 | \$3.87 | \$7.00 | \$2.20 | \$4.77 | \$5.78 | \$2.20 | \$4.46 | \$8.47 |
| 71 | \$6.77 | \$2.34 | \$4.72 | \$7.10 | \$2.27 | \$5.16 | \$7.41 | \$2.84 | \$5.20 | \$7.12 |
| 72 | \$5.49 | \$2.22 | \$3.54 | \$7.32 | \$2.22 | \$4.82 | \$7.42 | \$3.32 | \$4.78 | \$6.91 |
| 73 | \$5.65 | \$2.22 | \$3.71 | \$5.69 | \$2.22 | \$4.12 | \$6.21 | \$2.34 | \$4.59 | \$8.80 |
| 74 | \$6.54 | \$2.43 | \$4.07 | \$4.94 | \$2.90 | \$3.68 | \$7.93 | \$2.27 | \$4.98 | \$8.34 |
| 75 | \$6.98 | \$2.24 | \$4.21 | \$6.26 | \$2.35 | \$3.76 | \$6.65 | \$2.46 | \$4.25 | \$6.31 |
| 76 | \$6.63 | \$2.20 | \$4.10 | \$5.64 | \$2.20 | \$3.65 | \$5.47 | \$2.20 | \$4.37 | \$8.22 |
| 77 | \$6.33 | \$2.22 | \$3.57 | \$6.40 | \$2.22 | \$4.62 | \$7.77 | \$2.22 | \$4.52 | \$6.95 |
| 78 | \$6.88 | \$2.27 | \$4.47 | \$6.26 | \$2.27 | \$4.38 | \$5.46 | \$2.27 | \$4.18 | \$7.82 |
| 79 | \$5.70 | \$2.27 | \$4.07 | \$6.24 | \$2.27 | \$3.78 | \$6.26 | \$2.27 | \$4.60 | \$5.89 |
| 80 | \$6.63 | \$2.22 | \$3.99 | \$7.54 | \$2.22 | \$4.54 | \$7.24 | \$2.65 | \$4.51 | \$7.73 |
| 81 | \$6.67 | \$2.22 | \$4.21 | \$6.51 | \$2.22 | \$4.69 | \$7.10 | \$2.22 | \$4.75 | \$7.47 |
| 82 | \$6.62 | \$2.24 | \$4.00 | \$8.48 | \$2.24 | \$3.95 | \$6.53 | \$2.24 | \$4.11 | \$6.75 |
| 83 | \$7.25 | \$2.22 | \$3.44 | \$5.94 | \$2.22 | \$4.04 | \$7.58 | \$2.22 | \$4.53 | \$9.58 |
| 84 | \$6.75 | \$2.22 | \$3.90 | \$7.49 | \$2.22 | \$5.23 | \$8.37 | \$2.37 | \$5.47 | \$7.51 |
| 85 | \$6.95 | \$2.22 | \$4.14 | \$6.17 | \$2.22 | \$4.69 | \$8.21 | \$3.08 | \$4.64 | \$6.94 |
| 86 | \$5.54 | \$2.29 | \$3.78 | \$7.91 | \$2.22 | \$4.70 | \$6.35 | \$2.22 | \$4.61 | \$8.12 |
| 87 | \$5.31 | \$2.20 | \$3.65 | \$7.25 | \$2.20 | \$4.82 | \$7.09 | \$2.53 | \$5.49 | \$7.28 |
| 88 | \$5.51 | \$2.24 | \$3.40 | \$5.86 | \$2.24 | \$4.03 | \$5.51 | \$2.49 | \$4.24 | \$8.28 |
| 89 | \$7.22 | \$2.22 | \$4.62 | \$5.47 | \$2.22 | \$4.19 | \$6.18 | \$2.82 | \$4.77 | \$7.52 |
| 90 | \$7.79 | \$2.24 | \$4.42 | \$9.88 | \$2.24 | \$4.54 | \$7.48 | \$2.24 | \$5.40 | \$7.53 |
| 91 | \$6.50 | \$2.27 | \$4.12 | \$6.84 | \$2.27 | \$4.01 | \$6.34 | \$2.27 | \$4.50 | \$6.97 |
| 92 | \$6.89 | \$2.27 | \$3.92 | \$6.78 | \$2.27 | \$4.23 | \$5.96 | \$2.27 | \$4.71 | \$7.01 |
| 93 | \$5.51 | \$2.24 | \$3.76 | \$6.45 | \$2.24 | \$4.34 | \$8.02 | \$2.24 | \$5.76 | \$6.99 |
| 94 | \$5.47 | \$2.27 | \$3.40 | \$6.50 | \$2.27 | \$4.31 | \$6.40 | \$2.27 | \$4.67 | \$7.72 |
| 95 | \$6.53 | \$2.24 | \$3.90 | \$5.77 | \$2.24 | \$4.62 | \$6.28 | \$2.24 | \$4.75 | \$7.76 |
| 96 | \$5.20 | \$2.20 | \$3.36 | \$5.78 | \$2.20 | \$4.45 | \$6.38 | \$2.69 | \$4.63 | \$7.26 |
| 97 | \$5.90 | \$2.24 | \$3.97 | \$7.18 | \$2.24 | \$4.23 | \$7.66 | \$2.24 | \$4.41 | \$7.15 |
| 98 | \$6.10 | \$2.20 | \$3.95 | \$5.39 | \$2.20 | \$3.68 | \$6.38 | \$2.20 | \$4.09 | \$7.32 |
| 99 | \$7.37 | \$2.22 | \$3.90 | \$6.56 | \$2.22 | \$4.64 | \$7.01 | \$3.37 | \$4.73 | \$8.32 |
| 100 | \$6.85 | \$2.24 | \$3.58 | \$7.34 | \$2.24 | \$4.03 | \$7.72 | \$2.24 | \$4.87 | \$6.82 |
| 101 | \$5.95 | \$2.27 | \$4.49 | \$6.81 | \$2.27 | \$3.68 | \$8.01 | \$2.27 | \$4.85 | \$7.47 |
| 102 | \$7.02 | \$2.24 | \$4.13 | \$7.21 | \$2.24 | \$5.14 | \$5.98 | \$3.92 | \$4.63 | \$6.52 |
| 103 | \$5.35 | \$2.20 | \$3.96 | \$6.89 | \$2.20 | \$4.87 | \$6.82 | \$2.20 | \$4.95 | \$6.44 |
| 104 | \$5.27 | \$2.24 | \$3.81 | \$5.79 | \$2.24 | \$4.09 | \$9.02 | \$2.24 | \$4.56 | \$7.93 |
| 105 | \$6.30 | \$2.24 | \$4.19 | \$5.98 | \$2.24 | \$3.72 | \$6.73 | \$2.24 | \$4.45 | \$8.05 |
| 106 | \$5.60 | \$2.27 | \$3.95 | \$5.45 | \$2.27 | \$4.27 | \$7.55 | \$2.78 | \$4.81 | \$7.67 |
| 107 | \$5.56 | \$2.27 | \$3.48 | \$7.03 | \$2.27 | \$4.11 | \$7.81 | \$2.27 | \$4.88 | \$7.82 |
| 108 | \$7.10 | \$2.24 | \$3.31 | \$6.09 | \$2.24 | \$4.16 | \$7.67 | \$2.24 | \$4.82 | \$7.03 |
| 109 | \$5.68 | \$2.22 | \$3.83 | \$6.63 | \$2.22 | \$4.58 | \$7.34 | \$2.50 | \$5.31 | \$8.12 |
| 110 | \$7.70 | \$2.27 | \$4.05 | \$5.80 | \$2.27 | \$4.21 | \$7.52 | \$2.40 | \$4.82 | \$7.66 |
| 111 | \$7.41 | \$2.22 | \$4.15 | \$6.52 | \$2.24 | \$4.73 | \$6.24 | \$2.22 | \$4.34 | \$6.53 |
| 112 | \$6.45 | \$3.02 | \$3.89 | \$7.45 | \$2.27 | \$4.10 | \$7.17 | \$2.27 | \$5.20 | \$6.69 |
| 113 | \$6.89 | \$2.20 | \$4.64 | \$7.02 | \$2.87 | \$4.35 | \$7.28 | \$2.20 | \$4.77 | \$5.80 |
| 114 | \$5.81 | \$2.24 | \$3.51 | \$6.49 | \$2.24 | \$4.77 | \$6.49 | \$2.42 | \$4.82 | \$7.31 |

| Draw | 2012 | | | 2013 | | | 2014 | | | max |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | max | min | avg | max | min | avg | max | min | avg | |
| 115 | \$5.86 | \$2.24 | \$3.74 | \$5.83 | \$2.24 | \$4.28 | \$6.06 | \$2.24 | \$4.18 | \$6.38 |
| 116 | \$5.03 | \$2.20 | \$3.17 | \$7.56 | \$2.20 | \$4.66 | \$6.96 | \$2.20 | \$4.97 | \$7.53 |
| 117 | \$6.09 | \$2.20 | \$3.64 | \$9.26 | \$2.20 | \$4.53 | \$6.13 | \$2.20 | \$4.44 | \$7.47 |
| 118 | \$5.79 | \$2.20 | \$3.69 | \$6.50 | \$2.20 | \$4.25 | \$5.87 | \$2.20 | \$4.21 | \$7.98 |
| 119 | \$5.61 | \$2.27 | \$3.50 | \$6.57 | \$2.27 | \$4.43 | \$6.39 | \$2.27 | \$4.26 | \$7.87 |
| 120 | \$5.85 | \$2.27 | \$4.03 | \$8.28 | \$2.27 | \$5.57 | \$7.10 | \$3.19 | \$5.45 | \$6.83 |
| 121 | \$5.64 | \$2.22 | \$3.99 | \$4.46 | \$2.22 | \$3.44 | \$6.97 | \$2.22 | \$4.97 | \$7.37 |
| 122 | \$6.70 | \$2.20 | \$4.19 | \$7.30 | \$2.20 | \$4.15 | \$7.45 | \$2.53 | \$4.61 | \$6.38 |
| 123 | \$4.87 | \$2.20 | \$3.39 | \$6.78 | \$2.20 | \$4.84 | \$7.33 | \$2.20 | \$5.43 | \$7.86 |
| 124 | \$5.81 | \$2.20 | \$3.67 | \$5.88 | \$2.20 | \$4.02 | \$7.22 | \$2.93 | \$4.73 | \$7.52 |
| 125 | \$6.37 | \$2.27 | \$4.10 | \$6.29 | \$2.27 | \$4.34 | \$6.45 | \$2.27 | \$4.71 | \$7.12 |
| 126 | \$5.86 | \$2.22 | \$3.73 | \$9.79 | \$2.22 | \$4.74 | \$7.17 | \$2.22 | \$3.99 | \$9.18 |
| 127 | \$6.92 | \$2.22 | \$3.92 | \$6.62 | \$2.22 | \$4.45 | \$7.13 | \$2.39 | \$4.72 | \$6.77 |
| 128 | \$5.77 | \$2.20 | \$4.01 | \$5.30 | \$2.47 | \$3.83 | \$5.86 | \$2.20 | \$4.59 | \$8.62 |
| 129 | \$5.49 | \$2.20 | \$3.51 | \$6.47 | \$2.21 | \$4.06 | \$7.53 | \$2.20 | \$5.20 | \$7.06 |
| 130 | \$4.59 | \$2.20 | \$3.24 | \$7.30 | \$2.20 | \$4.67 | \$6.63 | \$2.50 | \$4.78 | \$7.49 |
| 131 | \$5.17 | \$2.27 | \$3.53 | \$8.36 | \$2.30 | \$5.36 | \$8.13 | \$3.35 | \$4.77 | \$8.65 |
| 132 | \$5.99 | \$2.20 | \$3.82 | \$6.06 | \$2.38 | \$4.13 | \$6.51 | \$2.20 | \$4.36 | \$6.09 |
| 133 | \$6.33 | \$2.27 | \$4.08 | \$7.68 | \$2.27 | \$4.46 | \$7.99 | \$2.27 | \$4.77 | \$6.67 |
| 134 | \$7.04 | \$2.24 | \$4.25 | \$6.34 | \$2.24 | \$4.05 | \$6.64 | \$2.24 | \$4.39 | \$7.38 |
| 135 | \$6.01 | \$2.27 | \$4.35 | \$6.35 | \$2.40 | \$3.86 | \$6.46 | \$2.27 | \$4.47 | \$6.53 |
| 136 | \$6.51 | \$2.27 | \$3.96 | \$7.06 | \$2.27 | \$4.14 | \$8.60 | \$2.27 | \$5.31 | \$7.55 |
| 137 | \$4.87 | \$2.22 | \$3.16 | \$6.61 | \$2.22 | \$4.50 | \$7.88 | \$2.22 | \$5.72 | \$8.64 |
| 138 | \$7.06 | \$2.22 | \$4.86 | \$7.03 | \$2.26 | \$3.87 | \$6.54 | \$2.22 | \$4.94 | \$8.77 |
| 139 | \$7.15 | \$2.27 | \$3.96 | \$7.24 | \$2.27 | \$3.98 | \$8.09 | \$2.27 | \$4.67 | \$8.36 |
| 140 | \$5.82 | \$2.69 | \$4.00 | \$7.40 | \$2.22 | \$4.67 | \$6.77 | \$2.22 | \$4.24 | \$8.16 |
| 141 | \$5.50 | \$2.20 | \$3.94 | \$6.58 | \$2.20 | \$4.29 | \$5.56 | \$2.20 | \$4.61 | \$7.69 |
| 142 | \$5.48 | \$2.27 | \$3.32 | \$7.25 | \$2.27 | \$4.27 | \$7.13 | \$2.27 | \$4.55 | \$7.34 |
| 143 | \$7.47 | \$2.27 | \$3.74 | \$6.45 | \$2.27 | \$3.57 | \$6.09 | \$2.27 | \$4.59 | \$7.50 |
| 144 | \$8.20 | \$2.24 | \$4.49 | \$8.98 | \$2.24 | \$4.20 | \$5.73 | \$2.85 | \$4.23 | \$7.93 |
| 145 | \$6.41 | \$2.22 | \$4.10 | \$5.95 | \$2.47 | \$4.25 | \$7.94 | \$2.22 | \$5.10 | \$7.32 |
| 146 | \$5.70 | \$2.24 | \$4.03 | \$7.18 | \$2.24 | \$4.51 | \$7.08 | \$2.71 | \$4.59 | \$7.05 |
| 147 | \$6.38 | \$2.24 | \$4.11 | \$7.38 | \$2.24 | \$4.21 | \$7.67 | \$2.24 | \$5.19 | \$7.06 |
| 148 | \$5.48 | \$2.27 | \$3.46 | \$7.30 | \$2.27 | \$4.94 | \$7.24 | \$2.27 | \$4.96 | \$8.11 |
| 149 | \$5.82 | \$2.29 | \$3.85 | \$6.45 | \$2.27 | \$3.95 | \$7.11 | \$2.27 | \$4.79 | \$5.86 |
| 150 | \$5.71 | \$2.24 | \$3.70 | \$6.56 | \$2.24 | \$3.97 | \$6.57 | \$2.24 | \$4.27 | \$6.04 |
| 151 | \$8.57 | \$2.22 | \$4.12 | \$7.41 | \$2.22 | \$3.73 | \$7.41 | \$2.22 | \$4.95 | \$7.94 |
| 152 | \$6.84 | \$2.20 | \$3.76 | \$7.59 | \$2.20 | \$5.46 | \$7.80 | \$2.71 | \$5.47 | \$7.38 |
| 153 | \$5.78 | \$2.20 | \$4.51 | \$6.79 | \$2.20 | \$5.00 | \$8.33 | \$2.50 | \$5.15 | \$8.24 |
| 154 | \$6.28 | \$2.24 | \$3.78 | \$6.37 | \$2.24 | \$3.93 | \$5.80 | \$2.24 | \$4.02 | \$6.84 |
| 155 | \$7.03 | \$2.27 | \$3.91 | \$7.22 | \$2.27 | \$5.11 | \$6.93 | \$2.27 | \$4.84 | \$8.58 |
| 156 | \$7.07 | \$2.20 | \$4.23 | \$5.98 | \$2.20 | \$4.15 | \$7.43 | \$2.20 | \$5.98 | \$7.63 |
| 157 | \$6.21 | \$2.20 | \$3.22 | \$6.99 | \$2.20 | \$5.40 | \$8.09 | \$3.31 | \$4.76 | \$7.77 |
| 158 | \$7.16 | \$2.20 | \$4.21 | \$6.64 | \$2.20 | \$4.84 | \$7.66 | \$2.43 | \$4.69 | \$8.46 |
| 159 | \$5.35 | \$2.27 | \$3.67 | \$6.64 | \$2.20 | \$4.64 | \$7.41 | \$2.20 | \$4.31 | \$6.52 |
| 160 | \$4.89 | \$2.22 | \$3.19 | \$6.84 | \$2.22 | \$3.91 | \$7.19 | \$2.22 | \$5.26 | \$6.08 |
| 161 | \$7.96 | \$2.20 | \$4.70 | \$6.72 | \$2.20 | \$4.35 | \$7.45 | \$2.20 | \$5.41 | \$7.67 |
| 162 | \$4.75 | \$2.24 | \$3.55 | \$8.71 | \$2.24 | \$4.12 | \$5.31 | \$2.24 | \$3.68 | \$8.00 |
| 163 | \$7.30 | \$2.22 | \$5.15 | \$7.26 | \$4.00 | \$4.99 | \$6.94 | \$2.22 | \$4.81 | \$5.87 |
| 164 | \$5.66 | \$2.20 | \$3.67 | \$8.61 | \$2.20 | \$4.37 | \$7.46 | \$2.20 | \$4.46 | \$7.76 |
| 165 | \$6.98 | \$2.22 | \$4.66 | \$6.95 | \$2.26 | \$4.25 | \$6.85 | \$2.22 | \$4.74 | \$6.81 |
| 166 | \$6.56 | \$2.20 | \$4.62 | \$5.75 | \$2.62 | \$4.46 | \$7.55 | \$2.20 | \$4.30 | \$7.12 |
| 167 | \$7.18 | \$2.20 | \$3.60 | \$6.07 | \$2.20 | \$4.06 | \$7.47 | \$2.20 | \$4.37 | \$6.82 |
| 168 | \$4.82 | \$2.20 | \$3.28 | \$7.33 | \$2.20 | \$5.39 | \$8.16 | \$3.94 | \$5.34 | \$5.47 |
| 169 | \$5.39 | \$2.24 | \$3.41 | \$8.02 | \$2.24 | \$4.71 | \$6.75 | \$2.24 | \$4.38 | \$8.37 |
| 170 | \$7.03 | \$2.22 | \$3.50 | \$5.87 | \$2.22 | \$3.98 | \$5.73 | \$2.72 | \$4.57 | \$7.14 |
| 171 | \$5.07 | \$2.24 | \$3.63 | \$6.27 | \$2.24 | \$5.05 | \$5.72 | \$3.74 | \$4.33 | \$7.02 |

| Draw | 2012 | | | 2013 | | | 2014 | | | max |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | max | min | avg | max | min | avg | max | min | avg | |
| 172 | \$6.48 | \$2.20 | \$4.17 | \$5.73 | \$2.20 | \$4.14 | \$6.83 | \$2.20 | \$4.66 | \$6.59 |
| 173 | \$5.92 | \$2.27 | \$3.99 | \$6.82 | \$2.27 | \$3.99 | \$5.92 | \$2.27 | \$4.42 | \$7.07 |
| 174 | \$5.70 | \$2.27 | \$3.41 | \$7.34 | \$2.27 | \$4.93 | \$8.69 | \$4.16 | \$4.94 | \$8.41 |
| 175 | \$7.35 | \$2.24 | \$4.26 | \$5.73 | \$2.24 | \$4.06 | \$4.61 | \$2.31 | \$3.82 | \$7.93 |
| 176 | \$5.62 | \$2.24 | \$4.07 | \$7.08 | \$2.24 | \$4.49 | \$6.58 | \$2.24 | \$5.04 | \$7.22 |
| 177 | \$5.83 | \$2.20 | \$3.59 | \$7.69 | \$2.20 | \$4.95 | \$7.74 | \$2.20 | \$4.72 | \$6.52 |
| 178 | \$5.55 | \$2.22 | \$3.93 | \$5.47 | \$2.22 | \$4.06 | \$7.12 | \$2.22 | \$5.48 | \$7.16 |
| 179 | \$6.64 | \$2.24 | \$3.59 | \$6.32 | \$2.24 | \$4.17 | \$7.31 | \$2.30 | \$5.65 | \$6.88 |
| 180 | \$7.29 | \$2.27 | \$4.65 | \$7.86 | \$2.27 | \$4.98 | \$6.31 | \$2.27 | \$4.21 | \$7.33 |
| 181 | \$6.55 | \$2.27 | \$3.97 | \$8.20 | \$2.27 | \$5.14 | \$6.89 | \$2.72 | \$4.13 | \$7.45 |
| 182 | \$5.74 | \$2.20 | \$3.73 | \$6.68 | \$2.20 | \$4.29 | \$5.67 | \$2.20 | \$4.07 | \$7.40 |
| 183 | \$8.93 | \$2.20 | \$4.62 | \$4.86 | \$2.77 | \$3.32 | \$5.58 | \$2.20 | \$4.08 | \$8.44 |
| 184 | \$8.76 | \$2.22 | \$5.03 | \$7.03 | \$2.22 | \$4.50 | \$8.50 | \$2.54 | \$5.30 | \$6.35 |
| 185 | \$5.77 | \$2.20 | \$4.16 | \$6.49 | \$2.20 | \$4.39 | \$6.24 | \$2.20 | \$4.66 | \$7.95 |
| 186 | \$7.08 | \$2.20 | \$4.68 | \$7.18 | \$2.20 | \$4.43 | \$7.65 | \$2.20 | \$5.09 | \$9.30 |
| 187 | \$6.18 | \$2.20 | \$3.79 | \$5.27 | \$2.20 | \$4.05 | \$6.53 | \$2.20 | \$4.80 | \$7.82 |
| 188 | \$6.52 | \$2.20 | \$4.23 | \$6.71 | \$2.20 | \$4.27 | \$7.69 | \$2.20 | \$4.67 | \$6.37 |
| 189 | \$6.19 | \$2.20 | \$4.03 | \$7.24 | \$2.24 | \$5.19 | \$6.14 | \$3.30 | \$4.27 | \$5.97 |
| 190 | \$6.19 | \$2.27 | \$4.05 | \$6.11 | \$2.27 | \$4.01 | \$7.82 | \$2.27 | \$5.05 | \$6.43 |
| 191 | \$5.94 | \$2.24 | \$3.91 | \$9.55 | \$2.24 | \$5.19 | \$8.76 | \$2.24 | \$5.21 | \$8.53 |
| 192 | \$5.94 | \$2.20 | \$3.67 | \$5.78 | \$2.20 | \$4.29 | \$8.07 | \$2.20 | \$5.16 | \$6.78 |
| 193 | \$6.59 | \$2.20 | \$3.32 | \$6.72 | \$2.20 | \$4.36 | \$6.71 | \$2.20 | \$4.67 | \$8.24 |
| 194 | \$6.75 | \$2.20 | \$4.29 | \$6.27 | \$2.20 | \$4.38 | \$6.62 | \$2.20 | \$4.48 | \$7.59 |
| 195 | \$5.27 | \$2.27 | \$3.57 | \$6.13 | \$2.27 | \$4.65 | \$7.45 | \$3.16 | \$4.82 | \$6.96 |
| 196 | \$6.53 | \$2.24 | \$3.77 | \$7.67 | \$2.24 | \$4.86 | \$8.01 | \$2.36 | \$5.20 | \$7.12 |
| 197 | \$5.68 | \$2.22 | \$4.04 | \$7.25 | \$2.22 | \$4.61 | \$8.19 | \$2.52 | \$4.99 | \$6.46 |
| 198 | \$5.74 | \$2.22 | \$3.53 | \$6.22 | \$2.22 | \$4.87 | \$5.97 | \$2.52 | \$3.93 | \$7.39 |
| 199 | \$8.59 | \$2.24 | \$4.41 | \$8.15 | \$2.24 | \$4.38 | \$6.74 | \$2.24 | \$4.72 | \$6.40 |
| 200 | \$7.40 | \$2.27 | \$3.99 | \$6.52 | \$2.27 | \$4.90 | \$7.05 | \$3.37 | \$5.15 | \$7.73 |
| average | \$6.30 | \$2.24 | \$3.94 | \$6.87 | \$2.28 | \$4.41 | \$7.09 | \$2.43 | \$4.75 | \$7.42 |
| Max | \$8.94 | | | \$9.88 | | | \$9.68 | | | \$9.90 |
| Avg | | | \$3.94 | | | \$4.41 | | | \$4.75 | |
| Min | \$2.20 | | | \$2.20 | | | \$2.20 | | | \$2.20 |
| Range | 6.74 | | | 7.68 | | | 7.48 | | | 7.71 |

| Draw | 2015 | | 2016 | | | 2017 | | | 2018 | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | min | avg | max | min | avg | max | min | avg | max | min |
| 1 | \$2.81 | \$4.80 | \$7.33 | \$2.73 | \$4.96 | \$6.58 | \$3.62 | \$4.52 | \$8.12 | \$2.99 |
| 2 | \$2.20 | \$5.71 | \$8.53 | \$4.39 | \$5.15 | \$7.09 | \$2.20 | \$4.30 | \$7.35 | \$2.20 |
| 3 | \$3.07 | \$5.04 | \$8.81 | \$2.65 | \$5.44 | \$7.22 | \$3.30 | \$4.67 | \$6.83 | \$2.20 |
| 4 | \$2.20 | \$4.39 | \$8.01 | \$2.71 | \$5.19 | \$7.51 | \$2.74 | \$4.32 | \$5.90 | \$2.20 |
| 5 | \$2.27 | \$4.70 | \$7.02 | \$2.27 | \$4.68 | \$9.05 | \$2.28 | \$5.28 | \$6.77 | \$3.46 |
| 6 | \$2.20 | \$5.69 | \$7.24 | \$3.27 | \$4.73 | \$6.70 | \$2.20 | \$4.62 | \$7.38 | \$2.41 |
| 7 | \$2.22 | \$5.20 | \$7.59 | \$2.61 | \$5.21 | \$7.17 | \$2.38 | \$4.33 | \$7.80 | \$2.22 |
| 8 | \$2.81 | \$4.52 | \$7.36 | \$2.22 | \$4.82 | \$7.75 | \$2.91 | \$4.90 | \$7.64 | \$2.22 |
| 9 | \$2.77 | \$5.04 | \$7.88 | \$2.76 | \$5.62 | \$6.56 | \$3.49 | \$4.58 | \$7.94 | \$3.18 |
| 10 | \$2.24 | \$4.60 | \$6.09 | \$2.24 | \$4.46 | \$7.19 | \$2.24 | \$5.44 | \$6.80 | \$3.32 |
| 11 | \$4.17 | \$4.78 | \$7.92 | \$2.36 | \$4.99 | \$6.84 | \$2.24 | \$4.39 | \$7.17 | \$2.96 |
| 12 | \$2.31 | \$4.90 | \$8.55 | \$3.90 | \$4.86 | \$7.30 | \$2.27 | \$5.01 | \$8.62 | \$2.99 |
| 13 | \$2.27 | \$5.03 | \$6.60 | \$2.27 | \$4.31 | \$6.58 | \$2.65 | \$4.57 | \$8.33 | \$2.79 |
| 14 | \$2.39 | \$4.73 | \$6.02 | \$2.68 | \$4.85 | \$6.50 | \$3.33 | \$4.52 | \$7.13 | \$2.20 |
| 15 | \$2.22 | \$5.12 | \$6.91 | \$2.22 | \$4.78 | \$8.40 | \$3.19 | \$4.53 | \$6.46 | \$2.22 |
| 16 | \$2.27 | \$5.36 | \$7.95 | \$2.27 | \$5.84 | \$7.27 | \$2.47 | \$5.20 | \$6.80 | \$2.27 |
| 17 | \$2.60 | \$4.36 | \$8.03 | \$2.46 | \$4.59 | \$7.17 | \$2.20 | \$4.41 | \$7.98 | \$2.20 |
| 18 | \$2.40 | \$5.06 | \$8.57 | \$3.41 | \$5.41 | \$6.94 | \$2.22 | \$5.00 | \$8.44 | \$2.22 |
| 19 | \$2.24 | \$4.64 | \$7.44 | \$2.24 | \$4.83 | \$7.67 | \$3.26 | \$4.89 | \$7.78 | \$2.24 |
| 20 | \$3.04 | \$4.70 | \$8.35 | \$2.26 | \$5.27 | \$7.75 | \$2.88 | \$4.34 | \$5.87 | \$2.20 |
| 21 | \$2.27 | \$5.08 | \$6.09 | \$3.81 | \$4.19 | \$7.10 | \$2.52 | \$4.74 | \$6.58 | \$2.27 |
| 22 | \$2.24 | \$5.52 | \$6.99 | \$3.06 | \$5.02 | \$7.57 | \$3.14 | \$5.18 | \$9.13 | \$3.46 |
| 23 | \$3.05 | \$4.78 | \$7.97 | \$2.59 | \$5.04 | \$6.96 | \$2.22 | \$4.72 | \$7.99 | \$2.22 |
| 24 | \$3.29 | \$5.29 | \$5.98 | \$2.80 | \$4.86 | \$6.36 | \$3.30 | \$4.28 | \$6.43 | \$2.22 |
| 25 | \$2.20 | \$5.66 | \$5.40 | \$3.66 | \$4.45 | \$5.93 | \$2.20 | \$4.49 | \$6.38 | \$2.20 |
| 26 | \$2.27 | \$4.86 | \$7.49 | \$2.85 | \$5.45 | \$7.28 | \$3.03 | \$5.24 | \$8.12 | \$2.48 |
| 27 | \$2.22 | \$5.66 | \$6.25 | \$3.30 | \$5.00 | \$6.88 | \$2.71 | \$5.11 | \$8.31 | \$3.40 |
| 28 | \$2.27 | \$4.95 | \$5.77 | \$2.27 | \$4.58 | \$7.81 | \$2.43 | \$5.18 | \$7.17 | \$2.27 |
| 29 | \$3.10 | \$5.37 | \$7.88 | \$2.27 | \$5.17 | \$7.33 | \$2.27 | \$5.27 | \$6.76 | \$2.28 |
| 30 | \$2.84 | \$4.78 | \$8.35 | \$2.20 | \$5.70 | \$7.61 | \$2.88 | \$4.95 | \$8.38 | \$2.20 |
| 31 | \$3.73 | \$4.59 | \$6.72 | \$2.69 | \$4.45 | \$7.91 | \$2.70 | \$4.83 | \$7.22 | \$2.43 |
| 32 | \$3.15 | \$5.51 | \$7.37 | \$3.74 | \$4.94 | \$6.83 | \$3.48 | \$4.27 | \$6.66 | \$2.22 |
| 33 | \$2.24 | \$5.04 | \$6.84 | \$3.28 | \$4.57 | \$6.94 | \$2.76 | \$4.99 | \$6.10 | \$2.51 |
| 34 | \$2.28 | \$4.51 | \$6.68 | \$2.90 | \$4.52 | \$8.89 | \$2.20 | \$4.64 | \$7.78 | \$2.73 |
| 35 | \$2.27 | \$5.38 | \$6.72 | \$3.02 | \$4.72 | \$8.53 | \$2.41 | \$4.69 | \$7.75 | \$2.27 |
| 36 | \$2.94 | \$5.27 | \$7.27 | \$2.47 | \$4.45 | \$8.60 | \$2.27 | \$5.35 | \$8.39 | \$3.02 |
| 37 | \$2.26 | \$4.90 | \$7.37 | \$2.22 | \$4.57 | \$8.29 | \$2.22 | \$4.78 | \$9.01 | \$2.65 |
| 38 | \$2.27 | \$5.11 | \$7.14 | \$3.10 | \$4.90 | \$5.86 | \$2.72 | \$4.80 | \$5.71 | \$3.44 |
| 39 | \$2.55 | \$4.06 | \$6.93 | \$2.22 | \$4.39 | \$7.59 | \$2.22 | \$5.11 | \$7.08 | \$3.15 |
| 40 | \$2.24 | \$5.02 | \$6.91 | \$3.36 | \$4.82 | \$7.11 | \$3.16 | \$4.55 | \$6.28 | \$2.93 |
| 41 | \$2.31 | \$5.17 | \$8.38 | \$3.46 | \$5.43 | \$6.89 | \$3.43 | \$4.74 | \$6.60 | \$2.34 |
| 42 | \$2.20 | \$5.47 | \$6.94 | \$3.55 | \$4.77 | \$5.69 | \$2.20 | \$4.19 | \$5.60 | \$2.20 |
| 43 | \$2.39 | \$5.04 | \$7.54 | \$2.28 | \$5.55 | \$7.13 | \$3.00 | \$4.89 | \$7.19 | \$2.20 |
| 44 | \$2.93 | \$5.27 | \$6.58 | \$3.33 | \$4.36 | \$6.98 | \$2.74 | \$4.75 | \$6.73 | \$2.79 |
| 45 | \$2.27 | \$5.18 | \$6.43 | \$3.01 | \$4.88 | \$6.11 | \$3.30 | \$4.46 | \$9.18 | \$3.07 |
| 46 | \$3.39 | \$4.63 | \$7.20 | \$2.47 | \$5.20 | \$7.32 | \$3.34 | \$4.59 | \$7.60 | \$2.22 |
| 47 | \$2.63 | \$5.13 | \$7.12 | \$3.18 | \$4.65 | \$6.37 | \$2.67 | \$4.81 | \$7.60 | \$2.27 |
| 48 | \$2.64 | \$4.98 | \$6.78 | \$2.27 | \$4.61 | \$7.44 | \$2.60 | \$4.71 | \$7.35 | \$2.80 |
| 49 | \$2.24 | \$5.36 | \$6.34 | \$3.08 | \$4.14 | \$7.84 | \$2.24 | \$5.24 | \$6.60 | \$2.40 |
| 50 | \$2.60 | \$4.30 | \$7.43 | \$2.22 | \$4.81 | \$7.06 | \$2.22 | \$4.79 | \$6.34 | \$3.06 |
| 51 | \$3.47 | \$5.01 | \$7.08 | \$2.24 | \$4.67 | \$6.66 | \$2.66 | \$4.43 | \$7.24 | \$2.24 |
| 52 | \$2.22 | \$5.52 | \$8.02 | \$2.22 | \$5.65 | \$7.33 | \$2.45 | \$4.92 | \$6.32 | \$3.12 |
| 53 | \$2.20 | \$5.88 | \$8.37 | \$3.27 | \$4.65 | \$7.04 | \$2.28 | \$5.14 | \$6.40 | \$2.20 |
| 54 | \$2.55 | \$5.06 | \$7.29 | \$2.53 | \$4.93 | \$7.50 | \$3.15 | \$4.87 | \$5.60 | \$2.29 |
| 55 | \$2.58 | \$5.78 | \$7.63 | \$4.31 | \$4.56 | \$8.00 | \$2.27 | \$4.79 | \$7.32 | \$2.27 |
| 56 | \$2.87 | \$4.72 | \$7.38 | \$2.36 | \$4.31 | \$7.79 | \$2.57 | \$5.01 | \$7.30 | \$2.27 |
| 57 | \$2.27 | \$5.05 | \$6.68 | \$2.27 | \$4.14 | \$6.58 | \$2.27 | \$4.22 | \$6.52 | \$2.27 |

| Draw | 2015 | | 2016 | | | 2017 | | | 2018 | |
|------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|
| | min | avg | max | min | avg | max | min | avg | max | min |
| 58 | \$2.22 | \$4.76 | \$8.78 | \$2.60 | \$5.32 | \$6.79 | \$2.22 | \$4.75 | \$8.28 | \$2.45 |
| 59 | \$2.81 | \$4.76 | \$7.02 | \$2.65 | \$4.95 | \$7.62 | \$2.24 | \$4.60 | \$7.41 | \$2.24 |
| 60 | \$2.22 | \$5.03 | \$6.79 | \$2.31 | \$4.21 | \$8.55 | \$2.22 | \$4.86 | \$7.62 | \$2.35 |
| 61 | \$2.27 | \$4.90 | \$6.32 | \$2.27 | \$4.54 | \$7.28 | \$2.74 | \$4.47 | \$6.70 | \$2.27 |
| 62 | \$2.49 | \$5.28 | \$7.51 | \$2.20 | \$4.70 | \$6.12 | \$2.20 | \$4.65 | \$7.45 | \$2.96 |
| 63 | \$2.20 | \$4.84 | \$6.95 | \$2.20 | \$4.65 | \$7.62 | \$2.20 | \$5.04 | \$6.54 | \$2.35 |
| 64 | \$2.20 | \$4.97 | \$7.85 | \$3.16 | \$4.59 | \$7.20 | \$2.20 | \$4.51 | \$7.74 | \$2.74 |
| 65 | \$2.22 | \$4.35 | \$10.04 | \$2.48 | \$5.33 | \$6.58 | \$2.22 | \$4.35 | \$8.92 | \$2.22 |
| 66 | \$2.64 | \$5.05 | \$7.44 | \$2.37 | \$5.00 | \$6.97 | \$2.77 | \$4.73 | \$7.45 | \$2.24 |
| 67 | \$2.46 | \$4.90 | \$7.20 | \$2.36 | \$4.47 | \$5.93 | \$2.49 | \$4.07 | \$6.41 | \$2.27 |
| 68 | \$2.24 | \$6.02 | \$8.62 | \$4.52 | \$5.10 | \$7.86 | \$3.19 | \$5.20 | \$7.28 | \$2.79 |
| 69 | \$2.22 | \$4.82 | \$7.80 | \$3.02 | \$4.76 | \$8.05 | \$2.58 | \$4.94 | \$6.81 | \$3.06 |
| 70 | \$2.20 | \$4.73 | \$5.76 | \$2.20 | \$4.20 | \$7.13 | \$2.32 | \$5.53 | \$7.69 | \$2.49 |
| 71 | \$2.27 | \$4.29 | \$7.50 | \$2.27 | \$4.59 | \$7.57 | \$2.27 | \$5.19 | \$7.33 | \$2.27 |
| 72 | \$2.59 | \$4.44 | \$8.31 | \$2.22 | \$4.58 | \$6.85 | \$2.22 | \$4.48 | \$6.80 | \$2.41 |
| 73 | \$2.22 | \$4.53 | \$7.57 | \$2.22 | \$4.26 | \$7.83 | \$2.27 | \$4.39 | \$5.87 | \$2.22 |
| 74 | \$3.24 | \$5.24 | \$8.04 | \$2.27 | \$4.69 | \$7.04 | \$2.76 | \$4.84 | \$7.40 | \$2.27 |
| 75 | \$2.24 | \$4.89 | \$6.64 | \$2.24 | \$5.11 | \$6.62 | \$3.03 | \$4.57 | \$6.98 | \$2.24 |
| 76 | \$2.20 | \$5.37 | \$8.68 | \$2.20 | \$4.46 | \$7.56 | \$2.24 | \$4.37 | \$7.08 | \$2.20 |
| 77 | \$2.66 | \$5.05 | \$6.16 | \$3.02 | \$4.58 | \$7.64 | \$2.76 | \$5.55 | \$6.68 | \$2.22 |
| 78 | \$2.27 | \$5.67 | \$8.44 | \$3.96 | \$5.15 | \$8.38 | \$2.27 | \$4.44 | \$7.73 | \$2.27 |
| 79 | \$2.27 | \$4.46 | \$7.43 | \$2.27 | \$5.41 | \$7.16 | \$2.46 | \$5.18 | \$7.83 | \$3.17 |
| 80 | \$2.28 | \$4.93 | \$6.53 | \$2.69 | \$4.85 | \$7.38 | \$2.77 | \$5.15 | \$6.46 | \$3.09 |
| 81 | \$2.22 | \$4.97 | \$8.22 | \$2.22 | \$4.64 | \$8.89 | \$2.22 | \$5.85 | \$7.39 | \$4.19 |
| 82 | \$2.24 | \$4.67 | \$8.19 | \$2.28 | \$4.56 | \$5.61 | \$2.60 | \$3.99 | \$8.66 | \$2.24 |
| 83 | \$2.46 | \$5.36 | \$6.70 | \$2.64 | \$4.70 | \$8.92 | \$3.03 | \$5.29 | \$6.38 | \$2.23 |
| 84 | \$2.22 | \$5.22 | \$6.47 | \$2.83 | \$4.91 | \$7.08 | \$2.22 | \$4.88 | \$8.42 | \$2.22 |
| 85 | \$2.22 | \$4.25 | \$7.85 | \$2.23 | \$4.87 | \$7.04 | \$3.01 | \$5.11 | \$7.15 | \$3.27 |
| 86 | \$3.45 | \$5.25 | \$6.58 | \$3.51 | \$4.88 | \$5.77 | \$3.32 | \$4.10 | \$7.10 | \$2.22 |
| 87 | \$2.20 | \$4.36 | \$7.42 | \$2.20 | \$4.54 | \$8.25 | \$2.20 | \$4.57 | \$7.55 | \$2.82 |
| 88 | \$3.31 | \$4.91 | \$6.62 | \$2.24 | \$4.97 | \$7.14 | \$3.82 | \$4.86 | \$7.82 | \$2.33 |
| 89 | \$2.76 | \$4.99 | \$7.63 | \$2.22 | \$4.98 | \$6.25 | \$2.22 | \$4.69 | \$6.56 | \$3.07 |
| 90 | \$3.84 | \$4.89 | \$6.27 | \$2.24 | \$3.83 | \$8.10 | \$2.72 | \$5.23 | \$6.72 | \$2.24 |
| 91 | \$2.27 | \$5.08 | \$7.18 | \$2.27 | \$4.76 | \$6.83 | \$2.27 | \$4.82 | \$6.52 | \$2.27 |
| 92 | \$3.61 | \$4.43 | \$8.15 | \$2.57 | \$4.65 | \$8.37 | \$2.49 | \$5.95 | \$7.91 | \$3.29 |
| 93 | \$3.66 | \$5.11 | \$8.00 | \$3.44 | \$5.29 | \$7.51 | \$3.11 | \$5.61 | \$7.16 | \$2.24 |
| 94 | \$2.27 | \$5.12 | \$7.75 | \$3.02 | \$5.16 | \$7.94 | \$2.27 | \$5.23 | \$7.51 | \$2.27 |
| 95 | \$2.42 | \$5.07 | \$7.88 | \$3.39 | \$5.15 | \$6.52 | \$2.24 | \$4.86 | \$7.68 | \$2.24 |
| 96 | \$2.20 | \$4.88 | \$7.22 | \$2.91 | \$4.71 | \$6.29 | \$2.20 | \$4.82 | \$7.76 | \$2.48 |
| 97 | \$2.24 | \$4.92 | \$8.14 | \$2.80 | \$3.82 | \$8.68 | \$2.24 | \$5.53 | \$7.84 | \$2.30 |
| 98 | \$2.22 | \$4.67 | \$7.47 | \$2.70 | \$4.93 | \$6.09 | \$2.98 | \$4.57 | \$6.27 | \$2.20 |
| 99 | \$2.71 | \$5.67 | \$7.31 | \$2.22 | \$4.58 | \$8.90 | \$2.22 | \$4.93 | \$6.75 | \$2.80 |
| 100 | \$2.75 | \$5.01 | \$7.22 | \$3.54 | \$5.01 | \$7.03 | \$3.25 | \$4.74 | \$7.89 | \$2.67 |
| 101 | \$2.60 | \$5.16 | \$6.39 | \$3.05 | \$4.38 | \$8.35 | \$2.69 | \$4.69 | \$9.53 | \$2.77 |
| 102 | \$2.80 | \$4.78 | \$6.73 | \$2.56 | \$4.54 | \$6.24 | \$3.09 | \$4.96 | \$8.65 | \$3.81 |
| 103 | \$3.33 | \$4.91 | \$6.28 | \$3.08 | \$4.49 | \$6.41 | \$2.20 | \$4.90 | \$6.26 | \$2.83 |
| 104 | \$2.24 | \$4.64 | \$7.88 | \$2.49 | \$5.54 | \$7.35 | \$2.24 | \$4.76 | \$7.67 | \$2.41 |
| 105 | \$2.24 | \$4.96 | \$7.50 | \$3.05 | \$4.79 | \$8.71 | \$2.36 | \$4.88 | \$7.85 | \$2.24 |
| 106 | \$2.77 | \$5.27 | \$8.01 | \$3.31 | \$4.66 | \$6.17 | \$2.60 | \$4.32 | \$7.06 | \$2.27 |
| 107 | \$2.85 | \$5.28 | \$6.86 | \$2.79 | \$4.89 | \$7.70 | \$3.72 | \$5.41 | \$7.61 | \$3.58 |
| 108 | \$3.49 | \$4.66 | \$6.21 | \$2.97 | \$4.45 | \$9.99 | \$3.10 | \$5.27 | \$8.17 | \$2.42 |
| 109 | \$2.64 | \$5.11 | \$6.27 | \$2.22 | \$4.67 | \$6.85 | \$3.39 | \$5.13 | \$6.72 | \$2.22 |
| 110 | \$2.27 | \$4.94 | \$5.69 | \$2.42 | \$3.72 | \$8.26 | \$2.27 | \$4.72 | \$7.63 | \$2.27 |
| 111 | \$2.22 | \$4.81 | \$8.26 | \$2.22 | \$5.71 | \$6.46 | \$2.22 | \$4.29 | \$7.01 | \$2.22 |
| 112 | \$2.94 | \$4.74 | \$6.94 | \$2.58 | \$4.70 | \$7.30 | \$2.63 | \$4.88 | \$7.57 | \$2.89 |
| 113 | \$2.36 | \$4.12 | \$8.11 | \$2.20 | \$3.94 | \$8.18 | \$2.20 | \$4.86 | \$7.64 | \$2.20 |
| 114 | \$2.54 | \$5.26 | \$6.38 | \$2.46 | \$5.07 | \$6.78 | \$2.55 | \$5.11 | \$7.79 | \$3.77 |

| Draw | 2015 | | 2016 | | | 2017 | | | 2018 | |
|------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|
| | min | avg | max | min | avg | max | min | avg | max | min |
| 115 | \$2.24 | \$4.61 | \$6.64 | \$2.24 | \$4.90 | \$6.83 | \$3.48 | \$4.73 | \$6.17 | \$2.24 |
| 116 | \$2.20 | \$5.12 | \$7.76 | \$2.20 | \$4.88 | \$8.28 | \$2.20 | \$5.09 | \$6.42 | \$2.20 |
| 117 | \$2.76 | \$4.46 | \$7.99 | \$2.20 | \$4.84 | \$6.80 | \$2.22 | \$5.02 | \$9.44 | \$3.10 |
| 118 | \$2.20 | \$5.82 | \$6.85 | \$3.71 | \$5.10 | \$7.28 | \$3.06 | \$5.63 | \$7.61 | \$4.18 |
| 119 | \$2.27 | \$5.25 | \$7.45 | \$3.14 | \$5.23 | \$6.89 | \$3.84 | \$4.85 | \$6.54 | \$2.27 |
| 120 | \$2.52 | \$5.14 | \$7.53 | \$3.04 | \$4.69 | \$7.03 | \$2.62 | \$5.27 | \$7.43 | \$3.24 |
| 121 | \$2.22 | \$4.82 | \$6.92 | \$2.33 | \$4.84 | \$7.45 | \$3.37 | \$4.72 | \$7.06 | \$2.22 |
| 122 | \$2.20 | \$4.77 | \$6.45 | \$2.64 | \$4.45 | \$9.38 | \$2.51 | \$6.16 | \$7.71 | \$2.37 |
| 123 | \$2.20 | \$5.30 | \$6.85 | \$2.54 | \$4.39 | \$6.22 | \$2.52 | \$4.69 | \$9.58 | \$2.52 |
| 124 | \$2.20 | \$4.85 | \$7.61 | \$2.20 | \$4.82 | \$6.90 | \$2.20 | \$4.32 | \$7.02 | \$2.20 |
| 125 | \$2.54 | \$4.82 | \$6.03 | \$2.28 | \$4.69 | \$7.11 | \$2.27 | \$4.07 | \$8.27 | \$2.27 |
| 126 | \$2.22 | \$6.12 | \$7.23 | \$3.39 | \$4.25 | \$7.59 | \$2.22 | \$5.28 | \$6.78 | \$3.01 |
| 127 | \$2.22 | \$4.43 | \$7.81 | \$2.81 | \$4.75 | \$7.34 | \$3.27 | \$4.30 | \$7.40 | \$2.24 |
| 128 | \$2.20 | \$5.57 | \$7.42 | \$2.82 | \$5.40 | \$6.77 | \$3.27 | \$5.19 | \$8.49 | \$2.82 |
| 129 | \$2.97 | \$5.11 | \$7.03 | \$3.08 | \$4.81 | \$6.63 | \$2.51 | \$4.75 | \$7.14 | \$2.20 |
| 130 | \$2.20 | \$4.95 | \$6.66 | \$2.52 | \$4.42 | \$5.94 | \$2.20 | \$3.95 | \$7.78 | \$2.20 |
| 131 | \$2.53 | \$4.84 | \$9.26 | \$3.07 | \$5.42 | \$7.68 | \$3.19 | \$4.60 | \$9.33 | \$2.27 |
| 132 | \$2.20 | \$4.43 | \$7.39 | \$2.97 | \$4.62 | \$6.60 | \$2.74 | \$4.36 | \$7.01 | \$3.24 |
| 133 | \$2.27 | \$4.75 | \$7.26 | \$2.28 | \$5.16 | \$6.26 | \$3.24 | \$4.53 | \$8.89 | \$2.73 |
| 134 | \$2.24 | \$5.05 | \$8.36 | \$2.98 | \$4.37 | \$8.95 | \$2.24 | \$5.52 | \$7.62 | \$2.90 |
| 135 | \$2.67 | \$4.51 | \$7.12 | \$2.27 | \$4.74 | \$6.42 | \$2.27 | \$5.01 | \$6.33 | \$3.10 |
| 136 | \$2.86 | \$4.95 | \$8.06 | \$2.27 | \$4.85 | \$6.74 | \$2.53 | \$4.65 | \$6.23 | \$2.27 |
| 137 | \$2.93 | \$5.20 | \$6.61 | \$3.03 | \$4.64 | \$6.58 | \$2.22 | \$5.02 | \$6.43 | \$3.16 |
| 138 | \$3.07 | \$5.20 | \$5.17 | \$2.96 | \$3.97 | \$9.05 | \$2.68 | \$5.55 | \$8.26 | \$2.22 |
| 139 | \$2.27 | \$4.93 | \$8.07 | \$2.63 | \$4.89 | \$7.79 | \$3.28 | \$5.00 | \$8.45 | \$2.27 |
| 140 | \$2.61 | \$4.57 | \$7.61 | \$2.22 | \$5.51 | \$6.34 | \$2.52 | \$5.17 | \$6.58 | \$2.69 |
| 141 | \$3.81 | \$4.95 | \$7.95 | \$2.20 | \$4.58 | \$6.19 | \$2.20 | \$4.73 | \$6.69 | \$2.78 |
| 142 | \$3.28 | \$5.21 | \$6.49 | \$2.73 | \$3.92 | \$6.84 | \$2.27 | \$5.08 | \$6.07 | \$2.61 |
| 143 | \$2.27 | \$5.18 | \$7.06 | \$3.45 | \$4.36 | \$6.86 | \$2.27 | \$4.86 | \$7.33 | \$3.19 |
| 144 | \$2.24 | \$4.79 | \$5.92 | \$3.22 | \$4.43 | \$9.25 | \$2.24 | \$5.82 | \$7.29 | \$3.42 |
| 145 | \$2.22 | \$5.03 | \$6.87 | \$2.49 | \$5.03 | \$7.05 | \$2.22 | \$4.77 | \$8.21 | \$2.88 |
| 146 | \$2.24 | \$4.51 | \$8.50 | \$2.24 | \$4.93 | \$7.41 | \$2.96 | \$4.87 | \$6.42 | \$2.73 |
| 147 | \$2.92 | \$5.13 | \$7.29 | \$2.24 | \$4.60 | \$7.43 | \$2.98 | \$4.57 | \$7.60 | \$2.24 |
| 148 | \$2.27 | \$5.26 | \$6.73 | \$3.33 | \$4.51 | \$7.64 | \$2.27 | \$5.05 | \$6.28 | \$3.53 |
| 149 | \$2.65 | \$4.87 | \$7.64 | \$3.24 | \$4.83 | \$7.30 | \$2.27 | \$4.65 | \$6.20 | \$2.27 |
| 150 | \$2.24 | \$4.79 | \$7.86 | \$3.39 | \$5.21 | \$7.26 | \$2.24 | \$4.63 | \$7.44 | \$2.24 |
| 151 | \$2.22 | \$5.20 | \$5.49 | \$2.67 | \$4.29 | \$7.05 | \$2.39 | \$5.01 | \$7.46 | \$2.22 |
| 152 | \$4.07 | \$4.84 | \$6.89 | \$2.21 | \$4.69 | \$6.26 | \$2.20 | \$4.70 | \$7.54 | \$2.20 |
| 153 | \$3.52 | \$5.45 | \$6.88 | \$2.81 | \$5.19 | \$7.09 | \$3.61 | \$5.04 | \$7.45 | \$2.87 |
| 154 | \$2.88 | \$4.59 | \$5.86 | \$2.24 | \$4.25 | \$6.39 | \$2.80 | \$4.50 | \$7.70 | \$2.48 |
| 155 | \$2.27 | \$4.82 | \$7.76 | \$3.73 | \$4.35 | \$6.39 | \$2.27 | \$5.13 | \$6.98 | \$2.27 |
| 156 | \$3.44 | \$4.48 | \$7.35 | \$2.20 | \$5.27 | \$10.01 | \$2.73 | \$5.97 | \$7.75 | \$3.39 |
| 157 | \$2.20 | \$5.03 | \$8.05 | \$2.20 | \$4.98 | \$8.28 | \$2.88 | \$5.15 | \$8.25 | \$3.38 |
| 158 | \$2.20 | \$4.92 | \$5.92 | \$2.20 | \$4.97 | \$5.91 | \$3.62 | \$4.46 | \$7.60 | \$2.20 |
| 159 | \$2.20 | \$4.60 | \$7.61 | \$2.20 | \$5.08 | \$6.64 | \$2.20 | \$4.29 | \$6.76 | \$2.20 |
| 160 | \$2.81 | \$4.43 | \$6.95 | \$2.22 | \$4.35 | \$7.39 | \$2.76 | \$4.88 | \$8.15 | \$2.22 |
| 161 | \$2.60 | \$4.87 | \$8.55 | \$2.20 | \$4.72 | \$7.53 | \$2.20 | \$5.36 | \$6.51 | \$2.20 |
| 162 | \$2.24 | \$5.14 | \$6.25 | \$3.06 | \$4.45 | \$6.42 | \$2.24 | \$4.47 | \$8.41 | \$2.24 |
| 163 | \$2.40 | \$4.28 | \$6.05 | \$2.22 | \$4.36 | \$7.58 | \$2.22 | \$4.92 | \$8.55 | \$2.57 |
| 164 | \$2.38 | \$5.00 | \$6.76 | \$2.26 | \$4.74 | \$7.88 | \$2.20 | \$5.45 | \$9.77 | \$2.20 |
| 165 | \$3.34 | \$4.72 | \$7.20 | \$2.22 | \$5.14 | \$6.36 | \$2.84 | \$5.04 | \$6.44 | \$3.05 |
| 166 | \$2.20 | \$5.13 | \$7.44 | \$2.89 | \$4.67 | \$7.64 | \$2.20 | \$4.67 | \$6.97 | \$2.20 |
| 167 | \$2.20 | \$4.98 | \$8.10 | \$2.20 | \$5.01 | \$6.21 | \$2.20 | \$4.48 | \$6.50 | \$2.20 |
| 168 | \$2.20 | \$4.21 | \$8.05 | \$2.27 | \$5.47 | \$7.39 | \$3.82 | \$4.78 | \$8.92 | \$2.40 |
| 169 | \$2.24 | \$5.07 | \$6.32 | \$2.24 | \$4.24 | \$8.55 | \$2.65 | \$5.01 | \$7.55 | \$2.58 |
| 170 | \$2.95 | \$4.58 | \$7.87 | \$2.22 | \$4.76 | \$6.33 | \$2.22 | \$4.50 | \$7.18 | \$3.05 |
| 171 | \$2.61 | \$5.39 | \$7.50 | \$4.18 | \$4.95 | \$6.39 | \$2.50 | \$4.73 | \$6.67 | \$3.12 |

| Draw | 2015 | | 2016 | | | 2017 | | | 2018 | |
|---------|--------|--------|---------|--------|--------|---------|--------|--------|--------|--------|
| | min | avg | max | min | avg | max | min | avg | max | min |
| 172 | \$2.20 | \$4.69 | \$8.09 | \$3.00 | \$5.17 | \$6.07 | \$2.20 | \$4.44 | \$7.73 | \$2.20 |
| 173 | \$2.30 | \$5.22 | \$7.40 | \$3.19 | \$5.25 | \$5.94 | \$3.52 | \$4.28 | \$7.85 | \$2.27 |
| 174 | \$2.27 | \$4.98 | \$7.74 | \$2.27 | \$4.89 | \$6.17 | \$2.27 | \$4.57 | \$7.72 | \$2.27 |
| 175 | \$2.24 | \$5.14 | \$7.88 | \$3.82 | \$5.56 | \$5.71 | \$3.29 | \$4.60 | \$6.41 | \$2.94 |
| 176 | \$2.84 | \$4.63 | \$6.07 | \$2.24 | \$4.45 | \$6.82 | \$3.15 | \$4.54 | \$8.76 | \$2.24 |
| 177 | \$2.20 | \$4.39 | \$8.07 | \$2.20 | \$5.40 | \$7.20 | \$2.52 | \$4.85 | \$5.63 | \$2.20 |
| 178 | \$2.25 | \$5.03 | \$6.45 | \$2.22 | \$5.07 | \$6.25 | \$3.97 | \$4.18 | \$8.58 | \$2.22 |
| 179 | \$4.30 | \$5.30 | \$7.21 | \$2.24 | \$5.24 | \$8.18 | \$3.63 | \$4.86 | \$7.51 | \$2.27 |
| 180 | \$2.34 | \$5.28 | \$7.36 | \$2.27 | \$4.82 | \$7.37 | \$2.27 | \$4.34 | \$8.43 | \$2.27 |
| 181 | \$2.27 | \$4.99 | \$9.28 | \$2.73 | \$5.69 | \$6.83 | \$2.27 | \$4.85 | \$6.04 | \$3.47 |
| 182 | \$2.28 | \$4.34 | \$7.64 | \$2.20 | \$4.05 | \$7.12 | \$2.20 | \$4.55 | \$7.06 | \$2.20 |
| 183 | \$2.20 | \$5.12 | \$7.63 | \$3.14 | \$4.47 | \$7.27 | \$2.20 | \$4.56 | \$7.91 | \$2.20 |
| 184 | \$2.22 | \$5.35 | \$8.88 | \$3.69 | \$5.10 | \$7.62 | \$2.22 | \$4.56 | \$6.42 | \$2.22 |
| 185 | \$3.04 | \$5.46 | \$6.75 | \$3.47 | \$4.51 | \$6.97 | \$2.20 | \$4.81 | \$6.71 | \$2.35 |
| 186 | \$2.20 | \$5.12 | \$9.19 | \$2.20 | \$5.47 | \$7.65 | \$2.20 | \$5.09 | \$6.14 | \$3.53 |
| 187 | \$2.20 | \$4.81 | \$7.01 | \$2.39 | \$4.60 | \$6.88 | \$2.20 | \$4.80 | \$6.53 | \$2.20 |
| 188 | \$2.20 | \$4.45 | \$7.34 | \$2.20 | \$4.97 | \$7.57 | \$3.24 | \$4.44 | \$7.23 | \$2.61 |
| 189 | \$2.37 | \$4.75 | \$7.10 | \$3.62 | \$4.70 | \$6.32 | \$2.20 | \$4.83 | \$8.68 | \$2.20 |
| 190 | \$2.27 | \$4.57 | \$6.59 | \$2.27 | \$4.44 | \$6.59 | \$2.45 | \$4.10 | \$7.31 | \$2.27 |
| 191 | \$3.22 | \$4.70 | \$7.14 | \$3.29 | \$5.06 | \$7.27 | \$2.70 | \$5.15 | \$6.79 | \$2.24 |
| 192 | \$2.90 | \$4.34 | \$5.90 | \$2.20 | \$4.34 | \$7.27 | \$3.18 | \$5.25 | \$7.91 | \$2.26 |
| 193 | \$2.20 | \$5.48 | \$7.79 | \$3.33 | \$5.29 | \$7.23 | \$2.62 | \$4.79 | \$7.71 | \$2.20 |
| 194 | \$2.20 | \$5.46 | \$6.62 | \$3.65 | \$4.40 | \$6.87 | \$2.20 | \$4.95 | \$7.42 | \$2.20 |
| 195 | \$2.27 | \$4.36 | \$7.06 | \$2.27 | \$5.09 | \$8.69 | \$2.27 | \$5.55 | \$7.53 | \$4.53 |
| 196 | \$3.47 | \$4.55 | \$6.82 | \$2.24 | \$5.00 | \$5.75 | \$2.24 | \$4.08 | \$8.39 | \$2.24 |
| 197 | \$2.22 | \$5.07 | \$7.04 | \$3.15 | \$4.65 | \$10.40 | \$3.43 | \$5.35 | \$8.65 | \$2.22 |
| 198 | \$2.22 | \$5.57 | \$8.88 | \$2.24 | \$4.73 | \$7.37 | \$2.22 | \$4.78 | \$6.34 | \$2.93 |
| 199 | \$2.24 | \$4.87 | \$8.05 | \$2.24 | \$5.42 | \$6.54 | \$2.24 | \$4.86 | \$8.23 | \$2.68 |
| 200 | \$2.27 | \$4.95 | \$7.82 | \$2.81 | \$5.35 | \$8.42 | \$2.91 | \$5.36 | \$7.90 | \$2.88 |
| average | \$2.53 | \$4.96 | \$7.30 | \$2.70 | \$4.81 | \$7.24 | \$2.62 | \$4.83 | \$7.36 | \$2.57 |
| Max | | | \$10.04 | | | \$10.40 | | | \$9.77 | |
| Avg | | \$4.96 | | | \$4.81 | | | \$4.83 | | |
| Min | | | \$2.20 | | | \$2.20 | | | \$2.20 | |
| Range | | | 7.84 | | | 8.20 | | | 7.57 | |

| Draw | 2019 | | | 2020 | | | 2021 | | | |
|------|--------|---------|--------|--------|--------|--------|--------|---------|--------|--------|
| | avg | max | min | avg | max | min | avg | max | min | avg |
| 1 | \$4.68 | \$7.25 | \$2.20 | \$5.65 | \$6.76 | \$4.42 | \$4.75 | \$7.12 | \$2.53 | \$5.11 |
| 2 | \$4.84 | \$7.41 | \$2.20 | \$5.13 | \$6.66 | \$2.20 | \$4.98 | \$9.05 | \$3.24 | \$5.04 |
| 3 | \$5.34 | \$7.93 | \$4.17 | \$5.03 | \$8.21 | \$3.05 | \$4.60 | \$7.99 | \$2.66 | \$5.23 |
| 4 | \$4.49 | \$7.32 | \$2.20 | \$4.93 | \$7.39 | \$2.91 | \$5.09 | \$7.31 | \$3.22 | \$5.22 |
| 5 | \$4.78 | \$6.91 | \$2.53 | \$4.96 | \$7.01 | \$2.27 | \$5.34 | \$10.73 | \$3.53 | \$4.96 |
| 6 | \$5.33 | \$6.68 | \$3.43 | \$5.34 | \$8.41 | \$2.20 | \$5.89 | \$7.64 | \$3.11 | \$5.41 |
| 7 | \$5.74 | \$7.89 | \$3.57 | \$5.55 | \$7.78 | \$2.22 | \$5.42 | \$7.01 | \$2.98 | \$5.30 |
| 8 | \$5.42 | \$10.07 | \$2.90 | \$5.48 | \$8.43 | \$2.85 | \$5.03 | \$7.06 | \$2.34 | \$4.57 |
| 9 | \$5.69 | \$9.23 | \$3.38 | \$5.23 | \$6.56 | \$3.70 | \$4.38 | \$6.96 | \$2.24 | \$5.31 |
| 10 | \$5.25 | \$6.94 | \$2.55 | \$5.46 | \$7.09 | \$3.48 | \$5.01 | \$7.32 | \$2.78 | \$5.56 |
| 11 | \$4.89 | \$6.61 | \$2.56 | \$5.05 | \$6.64 | \$2.24 | \$4.77 | \$5.83 | \$3.22 | \$4.56 |
| 12 | \$5.49 | \$6.86 | \$2.98 | \$4.83 | \$7.03 | \$2.35 | \$4.19 | \$7.76 | \$2.27 | \$4.99 |
| 13 | \$5.29 | \$7.68 | \$2.58 | \$5.48 | \$7.16 | \$2.78 | \$4.32 | \$8.49 | \$2.27 | \$5.31 |
| 14 | \$4.97 | \$6.19 | \$2.44 | \$4.52 | \$7.01 | \$2.20 | \$4.23 | \$6.71 | \$2.20 | \$4.76 |
| 15 | \$4.77 | \$9.91 | \$2.50 | \$5.23 | \$6.29 | \$2.22 | \$4.79 | \$6.29 | \$2.43 | \$4.79 |
| 16 | \$5.34 | \$6.84 | \$3.98 | \$5.03 | \$9.17 | \$2.27 | \$4.99 | \$7.94 | \$2.27 | \$5.52 |
| 17 | \$5.28 | \$7.60 | \$2.20 | \$5.17 | \$6.69 | \$4.13 | \$4.36 | \$6.58 | \$2.20 | \$4.77 |
| 18 | \$4.92 | \$8.91 | \$2.22 | \$5.35 | \$8.50 | \$3.59 | \$5.31 | \$6.88 | \$3.23 | \$4.92 |
| 19 | \$5.09 | \$8.23 | \$2.24 | \$5.45 | \$5.63 | \$2.67 | \$4.42 | \$9.11 | \$2.31 | \$5.06 |
| 20 | \$4.98 | \$7.82 | \$3.31 | \$5.11 | \$6.13 | \$3.39 | \$4.91 | \$6.57 | \$2.87 | \$4.56 |
| 21 | \$4.58 | \$7.98 | \$3.11 | \$5.54 | \$7.65 | \$2.42 | \$4.80 | \$6.92 | \$2.27 | \$4.64 |
| 22 | \$5.24 | \$8.47 | \$3.95 | \$5.18 | \$7.82 | \$3.13 | \$4.73 | \$6.79 | \$2.77 | \$5.35 |
| 23 | \$5.22 | \$7.02 | \$2.89 | \$5.24 | \$7.91 | \$2.30 | \$5.16 | \$6.30 | \$2.56 | \$4.89 |
| 24 | \$5.12 | \$8.76 | \$2.66 | \$5.50 | \$7.24 | \$2.37 | \$5.05 | \$7.20 | \$3.47 | \$5.31 |
| 25 | \$4.42 | \$5.36 | \$2.42 | \$4.38 | \$6.58 | \$2.74 | \$4.45 | \$7.25 | \$2.20 | \$4.88 |
| 26 | \$5.14 | \$7.28 | \$3.63 | \$4.88 | \$6.95 | \$2.88 | \$4.32 | \$8.96 | \$2.27 | \$5.27 |
| 27 | \$4.97 | \$7.70 | \$2.22 | \$5.70 | \$6.60 | \$2.74 | \$5.00 | \$7.08 | \$3.32 | \$5.06 |
| 28 | \$4.76 | \$8.06 | \$2.27 | \$5.39 | \$7.37 | \$3.02 | \$5.09 | \$6.52 | \$2.69 | \$4.65 |
| 29 | \$5.26 | \$8.62 | \$3.43 | \$6.42 | \$7.41 | \$4.69 | \$4.93 | \$7.91 | \$2.93 | \$5.06 |
| 30 | \$5.22 | \$8.57 | \$2.20 | \$5.84 | \$6.56 | \$3.31 | \$5.04 | \$8.98 | \$2.98 | \$5.60 |
| 31 | \$5.28 | \$7.12 | \$4.07 | \$5.31 | \$8.21 | \$3.17 | \$4.52 | \$7.05 | \$2.27 | \$5.01 |
| 32 | \$4.51 | \$6.50 | \$2.22 | \$4.80 | \$7.70 | \$3.12 | \$4.74 | \$7.37 | \$2.22 | \$5.63 |
| 33 | \$3.85 | \$8.00 | \$2.24 | \$5.44 | \$6.50 | \$2.24 | \$4.47 | \$8.22 | \$2.74 | \$4.36 |
| 34 | \$4.68 | \$6.13 | \$3.53 | \$4.20 | \$8.02 | \$2.20 | \$4.40 | \$7.32 | \$2.20 | \$5.58 |
| 35 | \$5.34 | \$6.31 | \$3.87 | \$4.46 | \$6.94 | \$2.27 | \$4.90 | \$7.52 | \$2.27 | \$5.34 |
| 36 | \$5.65 | \$6.51 | \$2.47 | \$4.24 | \$7.38 | \$2.80 | \$4.61 | \$7.33 | \$2.27 | \$4.32 |
| 37 | \$4.64 | \$7.90 | \$2.52 | \$4.66 | \$7.90 | \$3.13 | \$4.72 | \$7.82 | \$3.44 | \$4.93 |
| 38 | \$4.72 | \$7.44 | \$2.44 | \$5.31 | \$6.28 | \$2.66 | \$5.43 | \$8.26 | \$2.30 | \$5.29 |
| 39 | \$5.14 | \$7.22 | \$3.67 | \$4.95 | \$5.43 | \$2.22 | \$4.16 | \$6.38 | \$2.22 | \$4.59 |
| 40 | \$4.39 | \$7.47 | \$2.87 | \$4.95 | \$6.80 | \$3.35 | \$4.50 | \$8.28 | \$2.24 | \$4.81 |
| 41 | \$5.04 | \$6.60 | \$2.26 | \$4.83 | \$8.55 | \$2.55 | \$4.64 | \$6.50 | \$2.20 | \$4.95 |
| 42 | \$4.21 | \$7.66 | \$2.20 | \$4.76 | \$6.33 | \$2.20 | \$4.50 | \$6.81 | \$2.49 | \$4.99 |
| 43 | \$4.50 | \$6.76 | \$2.20 | \$4.82 | \$7.12 | \$2.20 | \$4.99 | \$7.55 | \$2.84 | \$5.11 |
| 44 | \$4.89 | \$7.82 | \$2.20 | \$5.52 | \$7.61 | \$3.70 | \$5.51 | \$8.18 | \$3.16 | \$5.18 |
| 45 | \$6.02 | \$7.18 | \$4.27 | \$4.71 | \$6.42 | \$2.34 | \$4.55 | \$7.52 | \$3.32 | \$4.63 |
| 46 | \$5.22 | \$7.80 | \$2.41 | \$4.83 | \$7.12 | \$2.91 | \$5.23 | \$8.85 | \$2.69 | \$5.34 |
| 47 | \$4.54 | \$8.52 | \$2.27 | \$5.57 | \$6.84 | \$2.90 | \$5.12 | \$7.63 | \$2.81 | \$4.51 |
| 48 | \$4.78 | \$5.85 | \$2.27 | \$4.90 | \$6.20 | \$3.11 | \$4.66 | \$6.94 | \$2.99 | \$5.13 |
| 49 | \$4.77 | \$8.43 | \$2.33 | \$5.12 | \$7.82 | \$3.22 | \$4.88 | \$5.86 | \$2.24 | \$4.19 |
| 50 | \$4.90 | \$9.02 | \$2.63 | \$5.22 | \$7.65 | \$3.37 | \$5.88 | \$7.14 | \$2.93 | \$4.97 |
| 51 | \$5.35 | \$8.06 | \$2.79 | \$5.10 | \$7.77 | \$3.36 | \$4.81 | \$9.48 | \$2.82 | \$5.18 |
| 52 | \$5.10 | \$6.98 | \$2.53 | \$5.45 | \$6.60 | \$2.22 | \$4.38 | \$6.86 | \$2.22 | \$5.79 |
| 53 | \$4.57 | \$8.95 | \$2.20 | \$6.13 | \$6.89 | \$4.19 | \$5.20 | \$7.17 | \$2.74 | \$5.00 |
| 54 | \$4.19 | \$7.61 | \$2.22 | \$4.88 | \$8.06 | \$3.64 | \$5.40 | \$8.18 | \$3.24 | \$5.42 |
| 55 | \$4.86 | \$9.04 | \$2.27 | \$6.10 | \$7.79 | \$4.41 | \$5.24 | \$7.40 | \$3.75 | \$4.97 |
| 56 | \$5.06 | \$8.37 | \$2.94 | \$5.25 | \$7.84 | \$3.36 | \$5.32 | \$8.36 | \$3.73 | \$5.26 |
| 57 | \$3.95 | \$7.98 | \$2.27 | \$5.21 | \$6.55 | \$2.27 | \$4.93 | \$8.69 | \$3.28 | \$4.76 |

| Draw | 2019 | | | 2020 | | | 2021 | | | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | avg | max | min | avg | max | min | avg | max | min | avg |
| 58 | \$4.95 | \$6.77 | \$2.22 | \$4.96 | \$8.63 | \$2.37 | \$6.08 | \$8.86 | \$4.09 | \$5.58 |
| 59 | \$5.30 | \$6.48 | \$3.68 | \$4.63 | \$7.06 | \$2.74 | \$4.60 | \$7.86 | \$2.77 | \$4.86 |
| 60 | \$5.26 | \$8.80 | \$3.66 | \$5.91 | \$6.54 | \$3.43 | \$4.83 | \$6.41 | \$2.58 | \$5.22 |
| 61 | \$4.77 | \$7.31 | \$3.10 | \$5.26 | \$7.08 | \$2.46 | \$5.05 | \$6.71 | \$2.27 | \$4.30 |
| 62 | \$4.53 | \$8.03 | \$2.20 | \$5.60 | \$8.75 | \$2.53 | \$5.40 | \$8.63 | \$2.57 | \$5.32 |
| 63 | \$4.72 | \$7.54 | \$2.57 | \$4.97 | \$7.53 | \$2.20 | \$4.32 | \$7.84 | \$2.20 | \$4.81 |
| 64 | \$4.87 | \$9.44 | \$2.20 | \$5.20 | \$6.88 | \$2.78 | \$4.54 | \$7.04 | \$2.20 | \$5.18 |
| 65 | \$5.46 | \$6.36 | \$2.42 | \$4.38 | \$6.45 | \$2.22 | \$4.27 | \$8.37 | \$2.22 | \$5.13 |
| 66 | \$5.02 | \$6.97 | \$2.24 | \$5.91 | \$7.94 | \$3.27 | \$4.90 | \$6.64 | \$3.11 | \$5.17 |
| 67 | \$4.72 | \$6.11 | \$2.27 | \$4.50 | \$7.96 | \$2.37 | \$4.49 | \$6.88 | \$2.58 | \$5.36 |
| 68 | \$5.52 | \$7.91 | \$3.23 | \$5.29 | \$7.39 | \$2.24 | \$4.80 | \$8.14 | \$2.78 | \$5.09 |
| 69 | \$4.46 | \$8.66 | \$2.56 | \$5.31 | \$7.39 | \$2.27 | \$5.27 | \$6.97 | \$2.43 | \$4.80 |
| 70 | \$5.34 | \$7.73 | \$2.47 | \$5.62 | \$8.71 | \$2.99 | \$5.11 | \$7.48 | \$3.40 | \$5.43 |
| 71 | \$5.32 | \$6.77 | \$3.33 | \$4.21 | \$6.47 | \$2.96 | \$4.47 | \$6.69 | \$2.27 | \$5.27 |
| 72 | \$4.72 | \$9.13 | \$3.07 | \$5.86 | \$7.83 | \$3.06 | \$4.96 | \$6.06 | \$3.36 | \$4.44 |
| 73 | \$4.59 | \$7.46 | \$2.93 | \$5.15 | \$8.32 | \$2.22 | \$4.95 | \$8.50 | \$3.31 | \$5.46 |
| 74 | \$4.67 | \$8.91 | \$3.53 | \$5.10 | \$8.56 | \$2.51 | \$4.94 | \$6.12 | \$3.00 | \$4.83 |
| 75 | \$4.27 | \$7.68 | \$2.60 | \$5.35 | \$6.40 | \$3.57 | \$4.72 | \$8.39 | \$2.24 | \$5.59 |
| 76 | \$5.22 | \$6.32 | \$3.58 | \$4.91 | \$7.01 | \$3.42 | \$5.35 | \$7.29 | \$3.24 | \$4.99 |
| 77 | \$4.61 | \$8.05 | \$2.22 | \$5.80 | \$7.32 | \$3.11 | \$4.65 | \$7.02 | \$2.78 | \$5.01 |
| 78 | \$5.29 | \$6.38 | \$2.88 | \$4.48 | \$8.39 | \$2.45 | \$5.57 | \$6.64 | \$3.61 | \$4.71 |
| 79 | \$4.97 | \$6.72 | \$3.55 | \$5.45 | \$6.18 | \$4.08 | \$4.27 | \$7.77 | \$2.27 | \$5.52 |
| 80 | \$4.79 | \$8.23 | \$2.22 | \$5.60 | \$7.73 | \$2.74 | \$5.32 | \$6.78 | \$3.21 | \$4.48 |
| 81 | \$4.83 | \$6.88 | \$2.22 | \$5.17 | \$6.21 | \$3.15 | \$4.50 | \$6.76 | \$2.22 | \$4.73 |
| 82 | \$4.86 | \$7.34 | \$2.24 | \$5.26 | \$6.49 | \$2.24 | \$4.53 | \$7.47 | \$2.50 | \$4.97 |
| 83 | \$4.92 | \$7.44 | \$2.22 | \$5.23 | \$8.64 | \$3.07 | \$5.30 | \$6.56 | \$3.30 | \$5.10 |
| 84 | \$5.52 | \$9.16 | \$3.18 | \$5.62 | \$8.89 | \$3.16 | \$4.73 | \$7.33 | \$2.22 | \$5.29 |
| 85 | \$4.89 | \$7.66 | \$2.22 | \$5.43 | \$7.87 | \$2.78 | \$5.67 | \$7.25 | \$2.81 | \$4.42 |
| 86 | \$4.51 | \$8.24 | \$2.22 | \$5.56 | \$7.70 | \$3.13 | \$6.10 | \$5.93 | \$3.69 | \$4.29 |
| 87 | \$5.26 | \$7.23 | \$2.92 | \$4.24 | \$6.72 | \$2.20 | \$4.32 | \$7.77 | \$2.20 | \$4.94 |
| 88 | \$5.24 | \$9.38 | \$2.55 | \$5.50 | \$7.10 | \$2.94 | \$4.59 | \$7.24 | \$2.24 | \$4.97 |
| 89 | \$4.85 | \$6.97 | \$2.76 | \$5.41 | \$5.66 | \$3.22 | \$4.30 | \$6.92 | \$2.22 | \$5.41 |
| 90 | \$5.25 | \$8.35 | \$2.24 | \$5.24 | \$6.86 | \$2.93 | \$4.54 | \$6.67 | \$2.36 | \$5.06 |
| 91 | \$4.75 | \$6.63 | \$2.27 | \$4.94 | \$7.79 | \$3.23 | \$6.20 | \$8.62 | \$4.98 | \$5.02 |
| 92 | \$4.53 | \$8.54 | \$2.27 | \$5.59 | \$7.03 | \$2.27 | \$5.12 | \$7.81 | \$3.32 | \$5.14 |
| 93 | \$5.03 | \$7.12 | \$2.24 | \$4.67 | \$8.38 | \$2.24 | \$5.70 | \$6.65 | \$3.27 | \$4.85 |
| 94 | \$4.51 | \$7.84 | \$2.33 | \$5.19 | \$7.07 | \$2.37 | \$4.91 | \$6.69 | \$2.27 | \$4.98 |
| 95 | \$5.04 | \$7.50 | \$3.19 | \$4.87 | \$5.86 | \$2.24 | \$4.74 | \$7.27 | \$2.24 | \$5.61 |
| 96 | \$4.98 | \$7.72 | \$2.20 | \$4.56 | \$8.21 | \$2.20 | \$5.89 | \$6.46 | \$3.90 | \$4.62 |
| 97 | \$4.71 | \$7.71 | \$2.24 | \$5.37 | \$8.74 | \$2.24 | \$4.59 | \$8.61 | \$2.50 | \$5.79 |
| 98 | \$4.47 | \$8.74 | \$2.20 | \$4.94 | \$8.15 | \$2.86 | \$5.14 | \$6.60 | \$2.24 | \$5.12 |
| 99 | \$5.62 | \$7.88 | \$3.87 | \$5.00 | \$6.82 | \$3.19 | \$4.69 | \$7.69 | \$2.22 | \$4.96 |
| 100 | \$4.76 | \$8.49 | \$3.28 | \$5.59 | \$6.55 | \$3.29 | \$4.22 | \$7.67 | \$2.24 | \$5.93 |
| 101 | \$5.09 | \$7.63 | \$2.27 | \$4.88 | \$8.04 | \$2.27 | \$5.11 | \$7.47 | \$4.04 | \$4.88 |
| 102 | \$5.73 | \$6.68 | \$3.72 | \$5.06 | \$7.84 | \$3.60 | \$5.42 | \$6.19 | \$3.20 | \$4.67 |
| 103 | \$4.36 | \$7.60 | \$2.39 | \$5.22 | \$5.77 | \$3.04 | \$4.37 | \$5.86 | \$3.03 | \$4.74 |
| 104 | \$5.48 | \$6.64 | \$4.41 | \$4.95 | \$6.66 | \$3.22 | \$4.26 | \$7.16 | \$2.24 | \$4.95 |
| 105 | \$5.38 | \$7.73 | \$2.24 | \$5.71 | \$5.84 | \$3.62 | \$4.58 | \$9.04 | \$2.65 | \$4.90 |
| 106 | \$5.08 | \$7.42 | \$2.63 | \$4.70 | \$6.37 | \$2.27 | \$4.75 | \$6.66 | \$2.75 | \$4.96 |
| 107 | \$5.18 | \$6.83 | \$2.27 | \$5.14 | \$8.29 | \$2.99 | \$5.60 | \$6.54 | \$3.54 | \$4.91 |
| 108 | \$5.68 | \$7.95 | \$3.35 | \$5.63 | \$6.58 | \$3.10 | \$4.38 | \$6.92 | \$2.40 | \$4.83 |
| 109 | \$5.41 | \$6.98 | \$2.22 | \$4.84 | \$8.57 | \$2.22 | \$5.08 | \$6.85 | \$2.22 | \$5.26 |
| 110 | \$5.25 | \$6.68 | \$3.52 | \$4.98 | \$6.59 | \$3.18 | \$4.61 | \$8.15 | \$2.90 | \$5.08 |
| 111 | \$4.71 | \$7.78 | \$2.22 | \$5.09 | \$7.75 | \$3.77 | \$5.59 | \$5.95 | \$2.30 | \$5.24 |
| 112 | \$4.94 | \$7.02 | \$3.31 | \$5.84 | \$7.52 | \$3.42 | \$5.04 | \$7.19 | \$2.78 | \$4.59 |
| 113 | \$4.99 | \$7.28 | \$2.20 | \$5.14 | \$8.30 | \$2.74 | \$5.54 | \$7.76 | \$2.49 | \$5.09 |
| 114 | \$5.14 | \$8.89 | \$3.21 | \$5.51 | \$8.04 | \$4.19 | \$5.24 | \$7.00 | \$2.24 | \$4.99 |

| Draw | 2019 | | | 2020 | | | 2021 | | | |
|------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| | avg | max | min | avg | max | min | avg | max | min | avg |
| 115 | \$4.47 | \$7.17 | \$2.88 | \$4.85 | \$7.51 | \$2.46 | \$5.42 | \$8.25 | \$3.51 | \$5.67 |
| 116 | \$4.82 | \$7.66 | \$3.10 | \$4.98 | \$8.83 | \$2.72 | \$5.33 | \$7.79 | \$2.20 | \$5.29 |
| 117 | \$4.77 | \$6.66 | \$2.20 | \$5.13 | \$7.06 | \$3.62 | \$5.09 | \$6.35 | \$2.44 | \$4.24 |
| 118 | \$5.12 | \$7.08 | \$3.81 | \$5.12 | \$7.79 | \$3.79 | \$5.40 | \$6.64 | \$3.40 | \$4.70 |
| 119 | \$3.97 | \$7.22 | \$2.62 | \$4.98 | \$8.28 | \$2.27 | \$4.98 | \$8.45 | \$2.74 | \$4.94 |
| 120 | \$5.38 | \$7.78 | \$4.12 | \$4.99 | \$6.65 | \$2.27 | \$5.04 | \$8.73 | \$2.81 | \$4.88 |
| 121 | \$4.58 | \$7.92 | \$2.22 | \$5.01 | \$6.57 | \$2.29 | \$5.06 | \$6.95 | \$3.27 | \$4.96 |
| 122 | \$5.71 | \$7.70 | \$2.88 | \$4.61 | \$9.16 | \$2.20 | \$5.59 | \$6.56 | \$4.00 | \$5.02 |
| 123 | \$5.13 | \$7.45 | \$2.20 | \$4.56 | \$6.32 | \$2.69 | \$4.72 | \$7.23 | \$2.99 | \$5.12 |
| 124 | \$4.37 | \$7.46 | \$2.67 | \$5.57 | \$7.59 | \$3.50 | \$5.00 | \$7.55 | \$3.39 | \$4.86 |
| 125 | \$4.73 | \$6.08 | \$3.16 | \$5.15 | \$7.55 | \$3.64 | \$4.69 | \$7.29 | \$2.82 | \$5.29 |
| 126 | \$4.67 | \$6.49 | \$2.22 | \$5.16 | \$7.56 | \$3.31 | \$4.74 | \$8.01 | \$2.22 | \$5.69 |
| 127 | \$5.60 | \$7.68 | \$4.02 | \$5.49 | \$7.70 | \$2.47 | \$4.98 | \$7.28 | \$2.22 | \$4.67 |
| 128 | \$5.42 | \$7.96 | \$3.26 | \$5.79 | \$6.98 | \$2.20 | \$4.76 | \$6.95 | \$2.81 | \$4.76 |
| 129 | \$4.92 | \$7.18 | \$2.86 | \$5.27 | \$7.79 | \$2.78 | \$5.29 | \$8.15 | \$3.08 | \$5.23 |
| 130 | \$4.66 | \$7.58 | \$2.20 | \$4.93 | \$7.00 | \$2.64 | \$4.36 | \$9.12 | \$2.20 | \$4.90 |
| 131 | \$5.22 | \$8.24 | \$2.63 | \$5.61 | \$7.83 | \$2.27 | \$5.35 | \$7.03 | \$2.27 | \$4.89 |
| 132 | \$5.09 | \$7.89 | \$2.94 | \$5.49 | \$7.51 | \$3.20 | \$4.59 | \$7.79 | \$2.20 | \$5.21 |
| 133 | \$5.18 | \$6.72 | \$3.31 | \$4.86 | \$6.30 | \$2.27 | \$4.35 | \$6.04 | \$2.49 | \$4.24 |
| 134 | \$5.13 | \$8.41 | \$2.24 | \$5.56 | \$6.51 | \$3.59 | \$5.20 | \$6.62 | \$2.95 | \$4.87 |
| 135 | \$4.33 | \$7.42 | \$2.27 | \$5.60 | \$6.68 | \$3.13 | \$4.93 | \$6.60 | \$2.66 | \$4.70 |
| 136 | \$4.44 | \$7.85 | \$2.27 | \$5.01 | \$6.60 | \$2.27 | \$5.05 | \$7.96 | \$3.66 | \$5.32 |
| 137 | \$4.30 | \$7.16 | \$2.22 | \$5.03 | \$8.22 | \$3.18 | \$5.70 | \$7.86 | \$2.22 | \$5.16 |
| 138 | \$5.38 | \$7.84 | \$3.32 | \$4.48 | \$8.98 | \$2.50 | \$4.75 | \$7.70 | \$2.22 | \$4.66 |
| 139 | \$4.64 | \$7.43 | \$3.09 | \$5.34 | \$6.90 | \$2.27 | \$4.45 | \$7.27 | \$2.27 | \$5.53 |
| 140 | \$4.80 | \$7.31 | \$2.91 | \$5.79 | \$6.40 | \$4.45 | \$4.95 | \$8.30 | \$2.22 | \$5.08 |
| 141 | \$5.08 | \$8.01 | \$3.04 | \$4.98 | \$7.48 | \$2.37 | \$5.39 | \$7.54 | \$2.80 | \$4.95 |
| 142 | \$4.77 | \$8.46 | \$2.27 | \$5.52 | \$7.51 | \$3.68 | \$4.98 | \$6.76 | \$2.27 | \$4.19 |
| 143 | \$4.27 | \$7.32 | \$2.27 | \$5.17 | \$8.00 | \$2.40 | \$4.85 | \$6.99 | \$2.27 | \$4.41 |
| 144 | \$5.08 | \$7.35 | \$2.24 | \$4.48 | \$7.57 | \$2.24 | \$4.98 | \$6.73 | \$2.92 | \$4.71 |
| 145 | \$5.44 | \$7.13 | \$3.95 | \$4.68 | \$6.85 | \$2.22 | \$4.89 | \$6.40 | \$3.37 | \$4.59 |
| 146 | \$4.52 | \$6.16 | \$2.24 | \$4.99 | \$6.50 | \$2.24 | \$4.73 | \$6.99 | \$2.25 | \$4.70 |
| 147 | \$4.82 | \$7.30 | \$2.24 | \$4.83 | \$6.58 | \$2.24 | \$4.76 | \$8.85 | \$2.57 | \$5.11 |
| 148 | \$4.05 | \$8.54 | \$2.34 | \$4.71 | \$7.16 | \$2.27 | \$5.30 | \$6.70 | \$3.72 | \$4.92 |
| 149 | \$4.68 | \$6.87 | \$2.27 | \$5.28 | \$7.99 | \$3.82 | \$5.24 | \$6.57 | \$3.06 | \$5.25 |
| 150 | \$5.42 | \$6.41 | \$2.24 | \$5.34 | \$6.69 | \$3.62 | \$5.35 | \$7.15 | \$4.12 | \$4.91 |
| 151 | \$4.97 | \$6.87 | \$2.29 | \$4.95 | \$6.99 | \$2.61 | \$4.99 | \$8.49 | \$2.79 | \$5.23 |
| 152 | \$4.53 | \$7.05 | \$2.20 | \$5.23 | \$6.95 | \$2.26 | \$5.22 | \$8.02 | \$3.04 | \$5.71 |
| 153 | \$4.69 | \$8.38 | \$2.20 | \$5.11 | \$7.56 | \$2.56 | \$5.57 | \$7.38 | \$2.79 | \$4.93 |
| 154 | \$5.03 | \$8.07 | \$2.24 | \$5.12 | \$6.62 | \$2.81 | \$4.80 | \$8.05 | \$2.83 | \$4.50 |
| 155 | \$4.91 | \$7.99 | \$2.46 | \$5.79 | \$8.60 | \$2.87 | \$4.71 | \$7.11 | \$2.51 | \$5.79 |
| 156 | \$5.05 | \$6.87 | \$2.20 | \$5.65 | \$6.24 | \$3.42 | \$4.62 | \$5.73 | \$2.20 | \$4.63 |
| 157 | \$4.66 | \$6.78 | \$2.20 | \$5.07 | \$7.85 | \$3.74 | \$4.54 | \$7.76 | \$2.20 | \$5.20 |
| 158 | \$4.34 | \$6.47 | \$2.20 | \$4.68 | \$7.77 | \$2.20 | \$4.96 | \$5.69 | \$2.65 | \$4.01 |
| 159 | \$4.54 | \$7.83 | \$2.41 | \$5.74 | \$7.33 | \$3.06 | \$4.72 | \$9.20 | \$2.20 | \$5.95 |
| 160 | \$5.80 | \$6.23 | \$2.94 | \$4.47 | \$6.47 | \$2.30 | \$4.60 | \$7.78 | \$2.22 | \$4.55 |
| 161 | \$4.86 | \$7.02 | \$2.67 | \$4.41 | \$6.81 | \$2.29 | \$4.33 | \$5.16 | \$2.20 | \$4.04 |
| 162 | \$5.49 | \$7.67 | \$3.12 | \$4.57 | \$6.86 | \$2.86 | \$4.79 | \$7.77 | \$2.72 | \$4.91 |
| 163 | \$5.27 | \$6.48 | \$2.89 | \$4.68 | \$5.90 | \$2.24 | \$5.02 | \$6.83 | \$3.02 | \$4.95 |
| 164 | \$5.83 | \$6.96 | \$2.20 | \$4.91 | \$6.41 | \$3.01 | \$4.83 | \$6.66 | \$2.32 | \$5.19 |
| 165 | \$4.63 | \$7.27 | \$2.95 | \$5.10 | \$6.55 | \$2.65 | \$4.00 | \$7.49 | \$2.22 | \$4.95 |
| 166 | \$5.05 | \$8.52 | \$3.19 | \$6.23 | \$7.67 | \$4.10 | \$4.72 | \$6.69 | \$3.20 | \$4.41 |
| 167 | \$4.58 | \$7.27 | \$2.94 | \$4.69 | \$6.60 | \$2.38 | \$5.12 | \$7.42 | \$4.33 | \$4.42 |
| 168 | \$4.78 | \$7.93 | \$2.20 | \$4.96 | \$8.13 | \$2.20 | \$5.84 | \$7.39 | \$3.60 | \$4.79 |
| 169 | \$4.67 | \$8.77 | \$3.08 | \$6.32 | \$7.59 | \$4.74 | \$4.55 | \$6.88 | \$2.24 | \$4.73 |
| 170 | \$5.81 | \$7.07 | \$2.89 | \$4.23 | \$7.45 | \$2.22 | \$4.81 | \$6.47 | \$2.22 | \$4.71 |
| 171 | \$4.32 | \$10.08 | \$2.29 | \$5.49 | \$8.39 | \$2.24 | \$5.26 | \$7.12 | \$3.68 | \$5.15 |

| Draw | 2019 | | | 2020 | | | 2021 | | | |
|---------|--------|---------|--------|--------|--------|--------|--------|---------|--------|--------|
| | avg | max | min | avg | max | min | avg | max | min | avg |
| 172 | \$5.86 | \$6.69 | \$3.01 | \$4.90 | \$7.65 | \$2.20 | \$4.82 | \$6.17 | \$2.35 | \$4.70 |
| 173 | \$4.79 | \$8.33 | \$2.27 | \$5.18 | \$7.51 | \$2.41 | \$5.68 | \$8.87 | \$4.35 | \$5.05 |
| 174 | \$5.12 | \$7.07 | \$3.83 | \$5.12 | \$7.57 | \$2.49 | \$4.70 | \$8.04 | \$2.27 | \$4.94 |
| 175 | \$5.34 | \$8.11 | \$3.93 | \$5.59 | \$7.66 | \$3.76 | \$4.61 | \$6.90 | \$2.24 | \$4.93 |
| 176 | \$5.56 | \$6.99 | \$3.18 | \$5.68 | \$7.45 | \$4.12 | \$5.01 | \$7.61 | \$2.45 | \$5.57 |
| 177 | \$4.27 | \$7.42 | \$2.26 | \$4.84 | \$5.93 | \$3.40 | \$4.55 | \$8.24 | \$2.20 | \$5.08 |
| 178 | \$4.98 | \$7.27 | \$2.40 | \$4.95 | \$5.80 | \$2.89 | \$4.63 | \$6.99 | \$3.09 | \$4.96 |
| 179 | \$5.58 | \$7.63 | \$2.24 | \$5.35 | \$7.49 | \$2.26 | \$4.78 | \$8.04 | \$2.24 | \$4.57 |
| 180 | \$5.30 | \$6.84 | \$2.90 | \$4.81 | \$5.95 | \$2.53 | \$3.99 | \$7.08 | \$2.27 | \$5.05 |
| 181 | \$4.56 | \$6.98 | \$3.51 | \$4.91 | \$7.51 | \$2.66 | \$4.92 | \$8.42 | \$2.27 | \$4.82 |
| 182 | \$4.91 | \$8.45 | \$3.27 | \$4.52 | \$6.37 | \$2.20 | \$4.51 | \$6.56 | \$2.20 | \$4.20 |
| 183 | \$4.94 | \$8.26 | \$2.20 | \$5.51 | \$8.27 | \$3.15 | \$5.03 | \$10.44 | \$2.83 | \$6.59 |
| 184 | \$5.04 | \$9.41 | \$2.40 | \$5.91 | \$6.76 | \$2.96 | \$4.70 | \$5.74 | \$2.22 | \$4.68 |
| 185 | \$5.06 | \$8.38 | \$3.72 | \$4.77 | \$6.74 | \$2.20 | \$4.81 | \$8.17 | \$2.32 | \$5.04 |
| 186 | \$4.65 | \$8.04 | \$2.20 | \$5.08 | \$7.70 | \$2.20 | \$4.56 | \$7.31 | \$2.26 | \$5.16 |
| 187 | \$4.83 | \$7.19 | \$2.85 | \$5.14 | \$7.17 | \$3.68 | \$5.15 | \$8.86 | \$2.20 | \$5.01 |
| 188 | \$5.05 | \$9.46 | \$2.20 | \$4.80 | \$7.33 | \$2.20 | \$4.53 | \$6.82 | \$2.20 | \$5.40 |
| 189 | \$5.61 | \$8.35 | \$2.91 | \$5.56 | \$6.11 | \$3.36 | \$4.40 | \$6.68 | \$2.24 | \$4.66 |
| 190 | \$5.24 | \$6.41 | \$3.75 | \$4.25 | \$8.03 | \$2.27 | \$4.87 | \$5.73 | \$2.67 | \$4.08 |
| 191 | \$4.87 | \$7.04 | \$2.24 | \$5.01 | \$6.40 | \$3.83 | \$4.42 | \$7.65 | \$2.24 | \$4.98 |
| 192 | \$5.42 | \$8.97 | \$3.40 | \$6.23 | \$7.77 | \$3.37 | \$4.52 | \$7.51 | \$2.20 | \$4.70 |
| 193 | \$5.86 | \$8.21 | \$2.32 | \$4.97 | \$6.95 | \$2.97 | \$5.00 | \$6.40 | \$3.54 | \$4.46 |
| 194 | \$4.32 | \$6.91 | \$2.48 | \$4.45 | \$7.36 | \$2.33 | \$5.00 | \$7.61 | \$2.90 | \$4.89 |
| 195 | \$5.24 | \$8.45 | \$3.20 | \$5.13 | \$6.08 | \$3.62 | \$4.36 | \$6.85 | \$2.27 | \$5.31 |
| 196 | \$4.74 | \$8.31 | \$2.28 | \$5.66 | \$7.96 | \$3.65 | \$5.39 | \$7.88 | \$2.55 | \$4.45 |
| 197 | \$5.37 | \$8.73 | \$3.73 | \$5.16 | \$6.49 | \$2.34 | \$4.81 | \$8.25 | \$3.28 | \$4.69 |
| 198 | \$4.65 | \$7.61 | \$2.80 | \$5.58 | \$7.23 | \$2.22 | \$4.54 | \$7.08 | \$2.22 | \$5.41 |
| 199 | \$5.51 | \$7.91 | \$3.16 | \$4.59 | \$7.57 | \$2.77 | \$4.89 | \$6.91 | \$2.56 | \$5.27 |
| 200 | \$5.59 | \$8.41 | \$2.96 | \$5.25 | \$6.75 | \$3.03 | \$5.13 | \$7.79 | \$3.76 | \$5.11 |
| average | \$4.97 | \$7.61 | \$2.74 | \$5.15 | \$7.27 | \$2.86 | \$4.90 | \$7.37 | \$2.73 | \$4.99 |
| Max | | \$10.08 | | | \$9.17 | | | \$10.73 | | |
| Avg | \$4.97 | | | \$5.15 | | | \$4.90 | | | \$4.99 |
| Min | | \$2.20 | | | \$2.20 | | | \$2.20 | | |
| Range | | 7.88 | | | 6.98 | | | 8.53 | | |

| Draw | 2022 | | | 2023 | | | 2024 | | | max |
|------|--------|--------|--------|---------|--------|--------|--------|--------|--------|---------|
| | max | min | avg | max | min | avg | max | min | avg | |
| 1 | \$7.76 | \$2.20 | \$5.53 | \$9.15 | \$3.48 | \$5.91 | \$7.21 | \$2.97 | \$5.27 | \$10.73 |
| 2 | \$6.97 | \$3.50 | \$5.34 | \$7.10 | \$3.16 | \$5.53 | \$5.32 | \$3.10 | \$4.19 | \$7.75 |
| 3 | \$8.03 | \$2.20 | \$4.68 | \$7.45 | \$2.20 | \$5.08 | \$6.52 | \$2.20 | \$4.49 | \$7.51 |
| 4 | \$7.43 | \$3.25 | \$4.95 | \$6.60 | \$2.20 | \$4.94 | \$6.58 | \$3.48 | \$3.91 | \$7.47 |
| 5 | \$7.25 | \$2.27 | \$5.34 | \$7.83 | \$3.06 | \$5.19 | \$6.25 | \$2.27 | \$4.41 | \$5.81 |
| 6 | \$7.92 | \$3.27 | \$4.87 | \$6.67 | \$2.37 | \$5.29 | \$7.00 | \$2.93 | \$4.87 | \$7.82 |
| 7 | \$8.48 | \$3.77 | \$5.28 | \$10.88 | \$3.14 | \$4.84 | \$8.33 | \$2.22 | \$5.58 | \$7.51 |
| 8 | \$6.87 | \$2.22 | \$4.58 | \$8.31 | \$2.22 | \$5.27 | \$8.28 | \$2.22 | \$5.10 | \$6.23 |
| 9 | \$7.39 | \$2.77 | \$4.52 | \$8.24 | \$2.24 | \$5.03 | \$7.45 | \$2.24 | \$5.47 | \$6.90 |
| 10 | \$6.49 | \$2.40 | \$4.98 | \$8.79 | \$3.65 | \$5.65 | \$7.44 | \$3.57 | \$5.25 | \$7.78 |
| 11 | \$7.87 | \$2.57 | \$5.41 | \$7.21 | \$3.28 | \$5.20 | \$8.40 | \$2.70 | \$4.77 | \$8.21 |
| 12 | \$8.69 | \$2.53 | \$5.56 | \$8.66 | \$2.88 | \$6.39 | \$6.97 | \$4.42 | \$5.07 | \$5.57 |
| 13 | \$6.78 | \$3.08 | \$4.79 | \$9.37 | \$2.35 | \$5.82 | \$7.82 | \$2.27 | \$5.09 | \$7.33 |
| 14 | \$8.34 | \$2.58 | \$5.03 | \$6.99 | \$2.20 | \$4.87 | \$7.95 | \$3.05 | \$5.20 | \$6.40 |
| 15 | \$6.88 | \$2.69 | \$5.31 | \$8.05 | \$2.22 | \$5.61 | \$6.61 | \$2.46 | \$4.59 | \$6.85 |
| 16 | \$6.68 | \$3.47 | \$4.99 | \$7.90 | \$3.19 | \$5.29 | \$7.83 | \$3.05 | \$5.12 | \$7.77 |
| 17 | \$7.09 | \$3.65 | \$5.16 | \$8.56 | \$3.60 | \$5.67 | \$7.81 | \$2.92 | \$5.32 | \$6.66 |
| 18 | \$7.49 | \$2.22 | \$5.32 | \$8.13 | \$3.82 | \$5.35 | \$7.68 | \$3.46 | \$4.59 | \$6.97 |
| 19 | \$8.92 | \$2.24 | \$5.45 | \$7.31 | \$2.57 | \$4.86 | \$8.61 | \$2.36 | \$5.40 | \$7.06 |
| 20 | \$7.31 | \$2.88 | \$5.21 | \$7.31 | \$3.57 | \$5.04 | \$6.32 | \$3.00 | \$5.33 | \$6.15 |
| 21 | \$8.37 | \$2.79 | \$5.38 | \$7.17 | \$2.27 | \$4.57 | \$8.10 | \$2.79 | \$5.73 | \$8.55 |
| 22 | \$6.91 | \$4.13 | \$5.14 | \$7.02 | \$3.67 | \$4.68 | \$7.36 | \$2.44 | \$5.56 | \$7.19 |
| 23 | \$8.18 | \$2.43 | \$5.90 | \$8.82 | \$2.45 | \$5.78 | \$7.79 | \$2.98 | \$5.39 | \$6.91 |
| 24 | \$6.53 | \$2.70 | \$4.54 | \$6.97 | \$2.22 | \$5.21 | \$6.57 | \$3.04 | \$4.78 | \$7.06 |
| 25 | \$6.62 | \$3.26 | \$5.05 | \$8.85 | \$3.87 | \$5.88 | \$7.29 | \$3.35 | \$5.00 | \$6.47 |
| 26 | \$7.14 | \$3.70 | \$5.03 | \$8.00 | \$2.91 | \$5.39 | \$6.96 | \$3.11 | \$5.07 | \$8.29 |
| 27 | \$7.61 | \$2.24 | \$4.83 | \$8.03 | \$2.22 | \$5.02 | \$5.37 | \$2.37 | \$4.34 | \$6.63 |
| 28 | \$7.15 | \$2.27 | \$4.90 | \$8.38 | \$3.03 | \$5.91 | \$7.67 | \$4.07 | \$4.76 | \$7.21 |
| 29 | \$7.62 | \$3.32 | \$5.28 | \$7.11 | \$3.17 | \$5.32 | \$7.03 | \$3.04 | \$4.95 | \$7.34 |
| 30 | \$9.45 | \$3.65 | \$4.95 | \$7.39 | \$2.20 | \$5.28 | \$5.98 | \$2.20 | \$4.42 | \$5.93 |
| 31 | \$7.62 | \$3.25 | \$5.31 | \$7.65 | \$2.82 | \$5.59 | \$7.61 | \$3.00 | \$5.50 | \$7.70 |
| 32 | \$7.44 | \$3.38 | \$5.05 | \$8.92 | \$2.82 | \$5.73 | \$7.73 | \$3.81 | \$5.21 | \$8.45 |
| 33 | \$8.38 | \$2.24 | \$4.76 | \$8.06 | \$2.24 | \$6.25 | \$7.68 | \$3.41 | \$5.06 | \$7.62 |
| 34 | \$8.85 | \$4.08 | \$4.94 | \$7.60 | \$2.38 | \$5.20 | \$7.39 | \$3.09 | \$4.98 | \$6.19 |
| 35 | \$5.89 | \$3.42 | \$4.89 | \$8.73 | \$2.72 | \$5.90 | \$7.41 | \$4.04 | \$5.59 | \$8.50 |
| 36 | \$6.92 | \$2.40 | \$4.94 | \$7.31 | \$2.64 | \$5.36 | \$7.76 | \$2.51 | \$5.13 | \$7.05 |
| 37 | \$7.50 | \$2.22 | \$5.46 | \$7.83 | \$2.57 | \$5.91 | \$7.63 | \$3.62 | \$5.18 | \$6.88 |
| 38 | \$7.07 | \$2.27 | \$5.18 | \$8.07 | \$3.98 | \$5.32 | \$7.31 | \$2.81 | \$4.70 | \$6.98 |
| 39 | \$6.54 | \$2.73 | \$5.15 | \$6.60 | \$2.98 | \$4.90 | \$7.48 | \$2.99 | \$4.75 | \$6.19 |
| 40 | \$7.29 | \$2.24 | \$5.11 | \$8.31 | \$2.24 | \$5.90 | \$7.14 | \$2.24 | \$5.44 | \$8.09 |
| 41 | \$8.93 | \$2.83 | \$5.21 | \$7.19 | \$3.32 | \$4.97 | \$6.76 | \$3.03 | \$4.82 | \$8.70 |
| 42 | \$7.24 | \$2.20 | \$5.55 | \$8.82 | \$2.56 | \$5.57 | \$6.82 | \$3.31 | \$5.13 | \$5.81 |
| 43 | \$8.23 | \$2.20 | \$4.60 | \$8.16 | \$2.29 | \$5.47 | \$7.43 | \$4.11 | \$5.31 | \$6.52 |
| 44 | \$6.59 | \$2.67 | \$4.78 | \$7.51 | \$2.20 | \$5.02 | \$7.90 | \$2.20 | \$4.51 | \$6.36 |
| 45 | \$7.02 | \$2.27 | \$4.38 | \$6.95 | \$2.32 | \$5.55 | \$8.11 | \$3.97 | \$5.36 | \$6.68 |
| 46 | \$7.35 | \$3.00 | \$5.03 | \$7.88 | \$2.22 | \$5.51 | \$8.34 | \$3.67 | \$5.03 | \$8.04 |
| 47 | \$7.83 | \$2.82 | \$5.57 | \$7.59 | \$2.95 | \$5.58 | \$9.46 | \$2.27 | \$5.13 | \$6.68 |
| 48 | \$8.12 | \$2.27 | \$5.72 | \$10.24 | \$4.69 | \$6.18 | \$7.52 | \$3.42 | \$5.55 | \$7.15 |
| 49 | \$6.88 | \$2.47 | \$4.38 | \$7.73 | \$2.42 | \$4.62 | \$7.54 | \$2.24 | \$5.37 | \$7.22 |
| 50 | \$7.87 | \$2.22 | \$4.84 | \$6.52 | \$2.22 | \$4.89 | \$7.25 | \$3.30 | \$5.13 | \$7.41 |
| 51 | \$8.16 | \$2.25 | \$5.12 | \$7.67 | \$2.32 | \$5.71 | \$7.88 | \$3.94 | \$5.20 | \$8.76 |
| 52 | \$7.17 | \$4.50 | \$5.21 | \$7.05 | \$3.58 | \$5.57 | \$6.81 | \$3.92 | \$5.29 | \$8.03 |
| 53 | \$6.74 | \$2.40 | \$4.33 | \$9.18 | \$2.94 | \$6.16 | \$6.23 | \$3.83 | \$4.48 | \$8.37 |
| 54 | \$7.21 | \$3.63 | \$4.93 | \$7.98 | \$2.80 | \$5.35 | \$6.91 | \$3.18 | \$5.26 | \$7.45 |
| 55 | \$7.83 | \$2.61 | \$5.27 | \$7.38 | \$2.27 | \$5.62 | \$8.16 | \$3.44 | \$5.81 | \$6.71 |
| 56 | \$6.75 | \$2.83 | \$5.34 | \$8.57 | \$2.33 | \$4.96 | \$6.76 | \$3.09 | \$4.70 | \$7.04 |
| 57 | \$8.02 | \$2.27 | \$5.39 | \$7.88 | \$2.66 | \$5.56 | \$6.34 | \$3.55 | \$4.37 | \$7.48 |

| Draw | 2022 | | | 2023 | | | 2024 | | | max |
|------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|
| | max | min | avg | max | min | avg | max | min | avg | |
| 58 | \$7.20 | \$3.46 | \$4.84 | \$7.96 | \$2.22 | \$5.50 | \$7.19 | \$3.34 | \$5.45 | \$7.28 |
| 59 | \$8.24 | \$2.57 | \$5.05 | \$8.66 | \$2.79 | \$5.07 | \$7.20 | \$2.24 | \$4.54 | \$8.44 |
| 60 | \$6.17 | \$3.75 | \$5.20 | \$6.98 | \$2.29 | \$5.04 | \$8.77 | \$3.98 | \$5.04 | \$7.07 |
| 61 | \$7.76 | \$2.39 | \$4.74 | \$7.83 | \$2.63 | \$5.86 | \$10.28 | \$3.48 | \$5.89 | \$6.91 |
| 62 | \$6.91 | \$3.55 | \$4.73 | \$7.57 | \$3.26 | \$5.47 | \$6.90 | \$2.86 | \$4.72 | \$8.90 |
| 63 | \$8.27 | \$2.20 | \$5.63 | \$8.07 | \$3.85 | \$5.34 | \$5.26 | \$3.06 | \$3.91 | \$7.09 |
| 64 | \$8.19 | \$3.08 | \$6.22 | \$8.01 | \$3.12 | \$4.85 | \$7.61 | \$2.20 | \$4.78 | \$6.55 |
| 65 | \$7.96 | \$2.22 | \$5.59 | \$8.73 | \$2.45 | \$6.05 | \$6.74 | \$4.30 | \$4.89 | \$7.89 |
| 66 | \$8.73 | \$3.12 | \$5.42 | \$8.02 | \$3.10 | \$5.56 | \$8.18 | \$2.94 | \$5.03 | \$7.08 |
| 67 | \$9.00 | \$3.33 | \$4.66 | \$6.54 | \$2.27 | \$4.92 | \$6.62 | \$3.20 | \$4.92 | \$5.91 |
| 68 | \$8.18 | \$2.70 | \$5.60 | \$7.28 | \$3.89 | \$5.75 | \$7.79 | \$3.88 | \$5.46 | \$8.30 |
| 69 | \$8.55 | \$3.17 | \$4.44 | \$7.67 | \$2.22 | \$5.99 | \$7.40 | \$4.32 | \$4.87 | \$7.64 |
| 70 | \$6.99 | \$3.01 | \$5.55 | \$5.85 | \$4.66 | \$4.64 | \$6.52 | \$2.20 | \$5.36 | \$8.36 |
| 71 | \$8.31 | \$3.11 | \$4.88 | \$7.83 | \$2.27 | \$6.10 | \$8.86 | \$3.75 | \$4.92 | \$7.81 |
| 72 | \$8.70 | \$2.61 | \$5.41 | \$7.83 | \$2.22 | \$5.11 | \$8.43 | \$2.22 | \$5.21 | \$7.03 |
| 73 | \$7.79 | \$3.16 | \$5.34 | \$7.35 | \$2.31 | \$5.56 | \$8.80 | \$3.31 | \$5.24 | \$7.01 |
| 74 | \$9.43 | \$2.52 | \$5.78 | \$7.77 | \$2.27 | \$5.39 | \$7.02 | \$2.27 | \$4.89 | \$6.80 |
| 75 | \$8.30 | \$3.66 | \$5.64 | \$8.56 | \$2.87 | \$5.24 | \$5.74 | \$2.81 | \$4.30 | \$8.12 |
| 76 | \$7.72 | \$3.11 | \$5.14 | \$7.24 | \$2.20 | \$5.00 | \$8.57 | \$2.72 | \$4.91 | \$7.80 |
| 77 | \$6.91 | \$2.22 | \$4.35 | \$6.40 | \$2.22 | \$4.55 | \$9.00 | \$2.55 | \$5.44 | \$7.64 |
| 78 | \$7.12 | \$2.30 | \$5.14 | \$7.09 | \$3.00 | \$5.49 | \$6.29 | \$3.48 | \$5.13 | \$6.72 |
| 79 | \$6.97 | \$3.50 | \$5.45 | \$7.39 | \$2.40 | \$5.27 | \$6.36 | \$2.48 | \$4.89 | \$5.80 |
| 80 | \$7.56 | \$2.62 | \$5.34 | \$8.87 | \$2.74 | \$5.23 | \$6.03 | \$2.25 | \$4.35 | \$6.61 |
| 81 | \$9.16 | \$2.28 | \$5.83 | \$7.89 | \$3.59 | \$5.39 | \$8.18 | \$4.29 | \$4.87 | \$8.23 |
| 82 | \$8.11 | \$2.24 | \$5.31 | \$7.73 | \$3.94 | \$5.01 | \$7.10 | \$2.95 | \$4.80 | \$7.73 |
| 83 | \$6.64 | \$2.66 | \$4.74 | \$7.80 | \$2.71 | \$5.53 | \$7.14 | \$2.33 | \$4.71 | \$6.22 |
| 84 | \$8.45 | \$2.22 | \$5.11 | \$7.27 | \$2.22 | \$5.09 | \$8.72 | \$2.22 | \$5.04 | \$6.60 |
| 85 | \$8.98 | \$2.94 | \$5.39 | \$7.56 | \$3.15 | \$5.66 | \$8.11 | \$3.04 | \$5.18 | \$6.43 |
| 86 | \$7.17 | \$2.22 | \$5.12 | \$6.79 | \$2.91 | \$5.43 | \$7.55 | \$3.43 | \$5.73 | \$6.63 |
| 87 | \$8.47 | \$2.56 | \$5.41 | \$7.60 | \$2.20 | \$5.01 | \$5.65 | \$3.30 | \$4.34 | \$6.61 |
| 88 | \$7.98 | \$3.23 | \$5.47 | \$6.82 | \$4.06 | \$5.10 | \$8.63 | \$3.09 | \$5.19 | \$6.56 |
| 89 | \$7.50 | \$2.90 | \$5.29 | \$8.11 | \$2.22 | \$5.69 | \$7.16 | \$4.23 | \$5.48 | \$7.11 |
| 90 | \$8.52 | \$2.24 | \$5.32 | \$7.78 | \$2.24 | \$5.71 | \$7.63 | \$2.97 | \$5.81 | \$8.58 |
| 91 | \$6.33 | \$2.53 | \$4.83 | \$6.98 | \$2.29 | \$5.03 | \$7.25 | \$2.87 | \$5.04 | \$6.59 |
| 92 | \$7.56 | \$3.14 | \$5.55 | \$9.14 | \$2.27 | \$5.40 | \$7.82 | \$3.05 | \$4.14 | \$7.65 |
| 93 | \$8.31 | \$3.15 | \$4.80 | \$8.16 | \$3.35 | \$6.02 | \$8.06 | \$4.15 | \$5.33 | \$8.00 |
| 94 | \$7.74 | \$3.59 | \$5.19 | \$7.51 | \$2.84 | \$5.78 | \$7.07 | \$2.27 | \$5.09 | \$6.76 |
| 95 | \$8.02 | \$2.24 | \$5.13 | \$8.69 | \$2.69 | \$5.89 | \$6.24 | \$2.24 | \$3.77 | \$8.18 |
| 96 | \$7.78 | \$3.15 | \$4.96 | \$8.77 | \$2.20 | \$5.94 | \$6.90 | \$3.86 | \$4.93 | \$7.53 |
| 97 | \$7.27 | \$2.67 | \$4.90 | \$7.81 | \$3.15 | \$5.55 | \$8.08 | \$3.17 | \$4.90 | \$9.78 |
| 98 | \$8.31 | \$3.42 | \$5.15 | \$9.21 | \$2.20 | \$5.51 | \$8.96 | \$3.84 | \$5.11 | \$8.73 |
| 99 | \$6.63 | \$2.22 | \$4.75 | \$7.95 | \$2.22 | \$5.01 | \$7.77 | \$2.78 | \$4.94 | \$7.35 |
| 100 | \$7.78 | \$3.65 | \$5.51 | \$6.90 | \$2.25 | \$4.74 | \$7.27 | \$2.66 | \$4.81 | \$6.88 |
| 101 | \$5.87 | \$2.27 | \$3.93 | \$6.79 | \$2.27 | \$4.67 | \$7.14 | \$2.33 | \$4.32 | \$6.99 |
| 102 | \$6.42 | \$2.49 | \$4.95 | \$6.23 | \$2.24 | \$5.34 | \$7.83 | \$3.65 | \$4.73 | \$7.30 |
| 103 | \$7.86 | \$2.83 | \$4.92 | \$8.58 | \$2.20 | \$5.58 | \$8.20 | \$3.07 | \$4.79 | \$7.99 |
| 104 | \$8.35 | \$2.92 | \$5.32 | \$7.76 | \$3.48 | \$5.65 | \$7.29 | \$4.76 | \$5.03 | \$6.14 |
| 105 | \$7.32 | \$2.24 | \$4.94 | \$7.30 | \$2.89 | \$5.43 | \$6.56 | \$3.27 | \$4.90 | \$8.36 |
| 106 | \$7.96 | \$3.35 | \$4.77 | \$7.57 | \$2.27 | \$5.27 | \$6.64 | \$4.24 | \$4.99 | \$7.53 |
| 107 | \$5.73 | \$2.90 | \$4.43 | \$7.62 | \$3.02 | \$5.12 | \$7.82 | \$2.87 | \$5.06 | \$6.88 |
| 108 | \$7.71 | \$3.21 | \$5.73 | \$7.33 | \$3.73 | \$5.54 | \$7.87 | \$3.39 | \$5.00 | \$7.90 |
| 109 | \$7.10 | \$3.99 | \$5.10 | \$7.79 | \$2.31 | \$4.68 | \$7.22 | \$2.37 | \$4.46 | \$6.30 |
| 110 | \$7.18 | \$2.52 | \$5.25 | \$7.03 | \$3.60 | \$5.28 | \$5.80 | \$3.11 | \$4.37 | \$7.73 |
| 111 | \$7.67 | \$3.38 | \$5.28 | \$8.44 | \$3.32 | \$5.85 | \$6.57 | \$3.35 | \$4.91 | \$8.01 |
| 112 | \$6.29 | \$2.76 | \$5.08 | \$7.55 | \$2.27 | \$5.46 | \$6.87 | \$3.49 | \$4.91 | \$7.66 |
| 113 | \$7.92 | \$2.20 | \$5.34 | \$6.25 | \$4.07 | \$5.67 | \$6.65 | \$4.44 | \$4.58 | \$8.26 |
| 114 | \$8.54 | \$2.43 | \$5.18 | \$7.19 | \$3.33 | \$4.98 | \$7.25 | \$2.82 | \$5.17 | \$6.32 |

| Draw | 2022 | | | 2023 | | | 2024 | | | max |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | max | min | avg | max | min | avg | max | min | avg | |
| 115 | \$8.05 | \$3.76 | \$4.99 | \$7.84 | \$2.98 | \$5.88 | \$7.05 | \$3.49 | \$4.87 | \$6.96 |
| 116 | \$7.61 | \$2.36 | \$4.76 | \$7.95 | \$2.29 | \$5.01 | \$6.60 | \$2.20 | \$4.43 | \$6.69 |
| 117 | \$8.83 | \$2.20 | \$4.93 | \$7.14 | \$2.60 | \$5.08 | \$7.35 | \$2.97 | \$5.26 | \$7.78 |
| 118 | \$7.11 | \$2.92 | \$5.04 | \$7.26 | \$3.43 | \$5.59 | \$5.93 | \$3.22 | \$4.48 | \$7.42 |
| 119 | \$7.77 | \$2.62 | \$4.13 | \$8.26 | \$2.27 | \$6.38 | \$8.18 | \$3.62 | \$5.49 | \$7.60 |
| 120 | \$9.26 | \$3.23 | \$6.51 | \$7.96 | \$3.72 | \$5.68 | \$6.57 | \$3.77 | \$5.18 | \$6.58 |
| 121 | \$7.06 | \$3.55 | \$4.80 | \$7.91 | \$2.22 | \$4.62 | \$5.94 | \$2.22 | \$4.40 | \$6.44 |
| 122 | \$7.40 | \$2.55 | \$5.55 | \$7.10 | \$3.53 | \$5.26 | \$6.39 | \$3.00 | \$4.74 | \$7.00 |
| 123 | \$7.37 | \$3.45 | \$4.85 | \$7.28 | \$2.41 | \$5.40 | \$6.47 | \$3.30 | \$4.85 | \$7.11 |
| 124 | \$7.56 | \$2.53 | \$4.65 | \$9.93 | \$3.06 | \$6.02 | \$8.26 | \$3.69 | \$5.69 | \$6.10 |
| 125 | \$7.29 | \$3.17 | \$5.36 | \$7.88 | \$2.85 | \$4.59 | \$6.80 | \$2.27 | \$5.12 | \$7.63 |
| 126 | \$7.58 | \$2.55 | \$4.29 | \$7.66 | \$2.22 | \$5.18 | \$8.01 | \$3.35 | \$5.46 | \$7.40 |
| 127 | \$7.09 | \$2.22 | \$5.07 | \$8.76 | \$2.79 | \$5.84 | \$7.09 | \$2.93 | \$4.98 | \$6.93 |
| 128 | \$7.42 | \$2.20 | \$4.80 | \$8.16 | \$2.20 | \$5.32 | \$8.69 | \$2.20 | \$6.01 | \$7.53 |
| 129 | \$8.17 | \$3.68 | \$5.82 | \$7.85 | \$2.94 | \$5.06 | \$8.61 | \$2.66 | \$4.82 | \$8.20 |
| 130 | \$8.35 | \$2.20 | \$5.51 | \$5.66 | \$3.34 | \$4.96 | \$8.74 | \$3.48 | \$5.31 | \$7.29 |
| 131 | \$7.07 | \$2.41 | \$5.04 | \$7.95 | \$2.66 | \$5.30 | \$7.42 | \$2.75 | \$5.38 | \$7.01 |
| 132 | \$6.66 | \$3.14 | \$5.06 | \$8.11 | \$3.87 | \$5.63 | \$6.55 | \$3.64 | \$4.20 | \$5.76 |
| 133 | \$5.99 | \$2.27 | \$4.30 | \$8.17 | \$2.45 | \$5.35 | \$6.50 | \$3.47 | \$4.66 | \$7.57 |
| 134 | \$6.85 | \$2.85 | \$4.78 | \$7.24 | \$2.24 | \$4.90 | \$7.42 | \$2.29 | \$4.48 | \$5.43 |
| 135 | \$7.45 | \$2.27 | \$5.35 | \$6.38 | \$3.51 | \$4.54 | \$8.50 | \$2.27 | \$5.16 | \$7.64 |
| 136 | \$7.68 | \$2.62 | \$5.52 | \$9.97 | \$4.28 | \$5.54 | \$7.72 | \$2.96 | \$4.73 | \$6.64 |
| 137 | \$7.77 | \$2.72 | \$5.20 | \$7.93 | \$3.07 | \$5.32 | \$6.89 | \$2.22 | \$5.55 | \$9.24 |
| 138 | \$8.15 | \$2.22 | \$5.35 | \$7.98 | \$2.51 | \$5.50 | \$6.83 | \$3.22 | \$4.38 | \$8.48 |
| 139 | \$7.96 | \$3.73 | \$5.62 | \$7.17 | \$4.02 | \$5.48 | \$7.64 | \$3.31 | \$4.67 | \$6.82 |
| 140 | \$7.52 | \$2.31 | \$5.20 | \$6.93 | \$3.24 | \$4.88 | \$7.51 | \$2.73 | \$5.20 | \$6.71 |
| 141 | \$8.15 | \$2.20 | \$5.63 | \$8.84 | \$2.82 | \$5.66 | \$6.58 | \$3.09 | \$4.89 | \$6.89 |
| 142 | \$7.25 | \$2.89 | \$5.30 | \$7.90 | \$3.19 | \$5.33 | \$7.15 | \$2.27 | \$4.59 | \$7.51 |
| 143 | \$7.92 | \$2.27 | \$5.24 | \$7.70 | \$2.27 | \$5.04 | \$6.92 | \$3.90 | \$4.95 | \$5.96 |
| 144 | \$7.80 | \$3.06 | \$5.73 | \$8.45 | \$4.13 | \$5.37 | \$8.03 | \$3.39 | \$5.86 | \$8.23 |
| 145 | \$6.44 | \$2.22 | \$4.72 | \$7.11 | \$2.74 | \$5.18 | \$7.46 | \$2.70 | \$5.72 | \$5.71 |
| 146 | \$7.32 | \$2.24 | \$5.24 | \$7.09 | \$2.24 | \$4.56 | \$7.25 | \$2.24 | \$4.92 | \$6.75 |
| 147 | \$8.37 | \$2.76 | \$5.14 | \$7.04 | \$2.24 | \$4.73 | \$6.96 | \$2.40 | \$4.84 | \$8.44 |
| 148 | \$7.92 | \$2.39 | \$5.43 | \$7.17 | \$3.62 | \$4.70 | \$6.48 | \$2.27 | \$4.59 | \$6.82 |
| 149 | \$7.77 | \$3.43 | \$5.18 | \$6.94 | \$2.27 | \$5.37 | \$7.39 | \$3.20 | \$4.76 | \$5.95 |
| 150 | \$6.80 | \$2.31 | \$4.60 | \$8.08 | \$3.72 | \$4.98 | \$6.60 | \$2.98 | \$4.46 | \$6.72 |
| 151 | \$7.00 | \$2.22 | \$4.68 | \$7.69 | \$2.91 | \$4.61 | \$7.86 | \$2.22 | \$5.01 | \$7.16 |
| 152 | \$8.04 | \$3.15 | \$5.74 | \$6.74 | \$2.65 | \$4.99 | \$6.65 | \$2.20 | \$4.60 | \$7.99 |
| 153 | \$8.21 | \$2.95 | \$5.16 | \$8.87 | \$3.72 | \$5.77 | \$9.74 | \$3.60 | \$5.44 | \$7.46 |
| 154 | \$6.78 | \$2.24 | \$4.88 | \$9.05 | \$3.08 | \$5.48 | \$7.32 | \$3.40 | \$5.58 | \$6.80 |
| 155 | \$8.56 | \$3.75 | \$5.06 | \$7.13 | \$2.27 | \$5.02 | \$7.31 | \$2.80 | \$4.98 | \$7.18 |
| 156 | \$7.91 | \$2.20 | \$5.59 | \$8.22 | \$2.75 | \$5.48 | \$6.86 | \$2.72 | \$5.21 | \$7.81 |
| 157 | \$8.81 | \$2.20 | \$5.64 | \$8.34 | \$2.26 | \$5.39 | \$7.40 | \$2.81 | \$5.30 | \$6.38 |
| 158 | \$8.54 | \$2.55 | \$5.75 | \$8.17 | \$2.73 | \$5.40 | \$8.70 | \$2.20 | \$6.14 | \$7.79 |
| 159 | \$9.23 | \$2.60 | \$6.01 | \$8.40 | \$3.52 | \$5.53 | \$7.79 | \$2.72 | \$4.59 | \$7.29 |
| 160 | \$7.21 | \$2.64 | \$5.40 | \$6.22 | \$2.36 | \$4.51 | \$6.82 | \$2.22 | \$5.12 | \$7.70 |
| 161 | \$8.06 | \$2.88 | \$5.72 | \$7.74 | \$2.43 | \$5.57 | \$7.67 | \$4.26 | \$4.67 | \$7.19 |
| 162 | \$9.51 | \$2.86 | \$5.58 | \$7.98 | \$2.24 | \$5.39 | \$8.30 | \$3.03 | \$4.34 | \$6.71 |
| 163 | \$6.23 | \$2.22 | \$4.78 | \$6.82 | \$2.78 | \$4.24 | \$7.51 | \$2.40 | \$5.42 | \$6.00 |
| 164 | \$7.23 | \$2.20 | \$5.21 | \$7.89 | \$3.38 | \$5.12 | \$6.70 | \$2.20 | \$4.74 | \$7.23 |
| 165 | \$7.69 | \$2.98 | \$5.66 | \$7.42 | \$2.22 | \$6.24 | \$8.32 | \$4.01 | \$5.89 | \$6.87 |
| 166 | \$8.25 | \$2.41 | \$5.34 | \$8.27 | \$2.20 | \$5.49 | \$6.19 | \$2.76 | \$4.29 | \$8.53 |
| 167 | \$7.75 | \$2.20 | \$5.41 | \$8.00 | \$3.03 | \$5.43 | \$7.80 | \$2.73 | \$5.13 | \$7.90 |
| 168 | \$8.96 | \$2.65 | \$4.93 | \$7.58 | \$2.20 | \$4.88 | \$6.56 | \$2.20 | \$5.49 | \$8.74 |
| 169 | \$7.84 | \$2.39 | \$5.07 | \$7.59 | \$3.36 | \$5.63 | \$6.44 | \$3.37 | \$4.54 | \$7.09 |
| 170 | \$8.94 | \$2.36 | \$6.24 | \$8.52 | \$4.47 | \$5.27 | \$6.69 | \$2.22 | \$5.07 | \$7.94 |
| 171 | \$8.27 | \$3.19 | \$5.68 | \$7.49 | \$2.59 | \$5.53 | \$8.44 | \$4.41 | \$4.97 | \$6.32 |

| Draw | 2022 | | | 2023 | | | 2024 | | | max |
|---------|--------|--------|--------|---------|--------|--------|----------|--------|--------|---------|
| | max | min | avg | max | min | avg | max | min | avg | |
| 172 | \$8.79 | \$2.81 | \$5.17 | \$9.27 | \$2.71 | \$5.64 | \$6.40 | \$3.50 | \$4.95 | \$7.96 |
| 173 | \$6.77 | \$3.30 | \$5.19 | \$7.22 | \$2.99 | \$4.82 | \$8.58 | \$2.81 | \$5.14 | \$6.63 |
| 174 | \$8.87 | \$3.81 | \$6.15 | \$8.54 | \$3.98 | \$5.89 | \$7.60 | \$3.63 | \$5.26 | \$6.75 |
| 175 | \$6.20 | \$2.59 | \$4.85 | \$7.94 | \$3.22 | \$5.71 | \$8.08 | \$3.90 | \$5.09 | \$8.41 |
| 176 | \$8.01 | \$2.24 | \$5.62 | \$8.09 | \$3.06 | \$5.05 | \$8.98 | \$2.77 | \$5.54 | \$5.81 |
| 177 | \$7.62 | \$2.20 | \$5.05 | \$8.63 | \$2.71 | \$5.86 | \$5.58 | \$4.14 | \$4.97 | \$8.10 |
| 178 | \$6.85 | \$2.22 | \$4.66 | \$7.61 | \$2.22 | \$5.40 | \$9.23 | \$2.79 | \$5.49 | \$6.73 |
| 179 | \$8.12 | \$2.24 | \$4.75 | \$8.32 | \$2.24 | \$5.69 | \$7.55 | \$3.12 | \$5.55 | \$7.62 |
| 180 | \$6.32 | \$2.39 | \$4.53 | \$6.14 | \$2.47 | \$5.34 | \$8.39 | \$4.74 | \$4.75 | \$6.84 |
| 181 | \$7.73 | \$2.27 | \$5.23 | \$7.98 | \$2.89 | \$5.35 | \$8.33 | \$2.64 | \$5.14 | \$6.87 |
| 182 | \$7.59 | \$2.20 | \$4.87 | \$8.06 | \$2.46 | \$4.74 | \$7.81 | \$2.49 | \$5.22 | \$6.23 |
| 183 | \$8.23 | \$4.09 | \$5.53 | \$7.61 | \$2.77 | \$5.42 | \$7.58 | \$2.88 | \$4.38 | \$7.43 |
| 184 | \$7.76 | \$2.50 | \$4.93 | \$8.02 | \$2.49 | \$5.68 | \$7.57 | \$4.03 | \$5.32 | \$7.30 |
| 185 | \$6.57 | \$2.85 | \$4.78 | \$8.54 | \$2.20 | \$5.17 | \$6.74 | \$2.20 | \$4.75 | \$6.39 |
| 186 | \$9.01 | \$2.87 | \$5.26 | \$6.60 | \$3.27 | \$4.52 | \$7.45 | \$2.20 | \$4.90 | \$7.15 |
| 187 | \$7.70 | \$3.63 | \$5.18 | \$5.51 | \$3.02 | \$3.89 | \$8.06 | \$2.53 | \$4.65 | \$7.42 |
| 188 | \$9.86 | \$3.30 | \$5.73 | \$7.97 | \$4.27 | \$4.95 | \$6.86 | \$3.16 | \$4.83 | \$7.29 |
| 189 | \$8.26 | \$2.20 | \$6.05 | \$7.15 | \$2.20 | \$5.62 | \$8.29 | \$2.21 | \$5.72 | \$6.67 |
| 190 | \$7.24 | \$2.27 | \$5.09 | \$8.20 | \$3.08 | \$4.59 | \$8.46 | \$2.39 | \$5.40 | \$8.10 |
| 191 | \$7.60 | \$2.68 | \$4.56 | \$8.29 | \$2.24 | \$5.41 | \$7.51 | \$2.90 | \$3.81 | \$7.30 |
| 192 | \$6.92 | \$2.20 | \$4.89 | \$7.24 | \$3.24 | \$5.63 | \$7.37 | \$4.59 | \$4.85 | \$8.88 |
| 193 | \$6.87 | \$2.69 | \$4.64 | \$6.98 | \$2.20 | \$5.65 | \$7.04 | \$2.82 | \$4.54 | \$7.15 |
| 194 | \$7.15 | \$2.20 | \$5.01 | \$6.48 | \$3.61 | \$4.77 | \$6.59 | \$2.47 | \$5.14 | \$6.09 |
| 195 | \$7.02 | \$3.10 | \$4.55 | \$7.82 | \$2.27 | \$6.00 | \$7.77 | \$3.58 | \$4.74 | \$5.80 |
| 196 | \$7.06 | \$2.24 | \$4.37 | \$6.45 | \$2.74 | \$4.75 | \$6.92 | \$2.99 | \$4.87 | \$7.20 |
| 197 | \$6.66 | \$2.43 | \$5.25 | \$8.72 | \$3.40 | \$5.56 | \$7.17 | \$2.63 | \$4.86 | \$6.64 |
| 198 | \$6.74 | \$3.37 | \$4.68 | \$8.14 | \$2.88 | \$5.71 | \$6.61 | \$2.70 | \$4.59 | \$6.63 |
| 199 | \$5.89 | \$2.97 | \$4.28 | \$7.95 | \$2.71 | \$5.26 | \$6.14 | \$2.78 | \$5.10 | \$6.30 |
| 200 | \$7.41 | \$2.27 | \$5.00 | \$7.31 | \$3.51 | \$5.13 | \$7.11 | \$3.50 | \$4.77 | \$6.88 |
| average | \$7.63 | \$2.76 | \$5.14 | \$7.76 | \$2.83 | \$5.34 | \$7.38 | \$3.05 | \$4.99 | \$7.24 |
| Max | \$9.86 | | | \$10.88 | | | \$10.28 | | | \$10.73 |
| Avg | | | \$5.14 | | | \$5.34 | | | \$4.99 | |
| Min | \$2.20 | | | \$2.20 | | | 2.197948 | | | \$2.20 |
| Range | 7.66 | | | 8.68 | | | 8.082959 | | | 8.53 |

| Draw | 2025 | | 2026 | | | 2027 | | | 2028 | |
|------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|
| | min | avg | max | min | avg | max | min | avg | max | min |
| 1 | \$2.73 | \$5.61 | \$7.06 | \$2.58 | \$4.64 | \$7.31 | \$2.20 | \$5.35 | \$6.24 | \$3.15 |
| 2 | \$3.04 | \$5.39 | \$6.89 | \$3.17 | \$4.68 | \$6.89 | \$2.42 | \$4.16 | \$8.85 | \$2.54 |
| 3 | \$2.35 | \$4.64 | \$7.01 | \$2.39 | \$5.06 | \$7.79 | \$2.20 | \$5.38 | \$7.65 | \$2.76 |
| 4 | \$2.20 | \$4.90 | \$6.52 | \$2.20 | \$4.65 | \$6.35 | \$2.20 | \$4.89 | \$6.21 | \$3.78 |
| 5 | \$2.58 | \$4.80 | \$5.74 | \$2.68 | \$4.70 | \$7.70 | \$2.30 | \$5.61 | \$7.12 | \$3.95 |
| 6 | \$2.30 | \$4.78 | \$7.25 | \$2.20 | \$5.31 | \$9.67 | \$3.22 | \$5.74 | \$8.10 | \$2.20 |
| 7 | \$2.94 | \$4.52 | \$8.11 | \$2.22 | \$5.80 | \$7.88 | \$3.40 | \$5.43 | \$7.64 | \$2.22 |
| 8 | \$2.22 | \$4.24 | \$7.70 | \$2.22 | \$5.19 | \$7.88 | \$2.22 | \$4.49 | \$7.02 | \$2.22 |
| 9 | \$3.64 | \$4.32 | \$7.70 | \$2.81 | \$5.40 | \$8.47 | \$2.56 | \$5.35 | \$8.62 | \$3.77 |
| 10 | \$2.24 | \$5.62 | \$7.69 | \$3.43 | \$5.67 | \$7.45 | \$3.16 | \$5.37 | \$6.19 | \$2.24 |
| 11 | \$2.24 | \$5.06 | \$7.69 | \$3.65 | \$4.72 | \$7.66 | \$2.42 | \$5.43 | \$7.86 | \$3.87 |
| 12 | \$2.27 | \$4.38 | \$7.71 | \$2.99 | \$5.21 | \$7.05 | \$3.06 | \$5.46 | \$7.34 | \$2.27 |
| 13 | \$2.47 | \$4.37 | \$8.18 | \$2.92 | \$5.26 | \$9.02 | \$3.05 | \$6.21 | \$7.35 | \$5.14 |
| 14 | \$2.48 | \$4.56 | \$6.68 | \$2.23 | \$4.89 | \$7.60 | \$3.41 | \$5.45 | \$6.14 | \$2.61 |
| 15 | \$2.50 | \$4.89 | \$8.43 | \$2.22 | \$5.36 | \$8.68 | \$2.22 | \$4.97 | \$6.92 | \$2.70 |
| 16 | \$3.56 | \$6.10 | \$7.80 | \$4.78 | \$5.64 | \$7.74 | \$4.71 | \$4.86 | \$7.81 | \$3.14 |
| 17 | \$2.67 | \$4.76 | \$7.36 | \$2.20 | \$4.68 | \$10.42 | \$2.20 | \$5.54 | \$6.60 | \$2.96 |
| 18 | \$2.76 | \$5.01 | \$7.47 | \$2.28 | \$5.33 | \$7.74 | \$2.22 | \$5.83 | \$9.18 | \$3.54 |
| 19 | \$2.24 | \$4.78 | \$6.39 | \$2.53 | \$4.62 | \$8.26 | \$2.69 | \$4.83 | \$8.44 | \$2.24 |
| 20 | \$2.67 | \$4.88 | \$7.35 | \$3.83 | \$4.62 | \$7.86 | \$2.20 | \$6.42 | \$7.84 | \$3.39 |
| 21 | \$4.45 | \$5.45 | \$6.29 | \$2.27 | \$4.49 | \$6.57 | \$3.11 | \$4.87 | \$7.81 | \$3.67 |
| 22 | \$4.06 | \$4.89 | \$7.63 | \$3.16 | \$5.60 | \$7.43 | \$2.24 | \$4.87 | \$7.81 | \$2.95 |
| 23 | \$2.78 | \$4.99 | \$6.36 | \$2.22 | \$5.10 | \$7.77 | \$3.19 | \$5.59 | \$6.36 | \$3.52 |
| 24 | \$2.70 | \$4.16 | \$7.13 | \$2.78 | \$5.24 | \$7.86 | \$2.22 | \$4.82 | \$7.06 | \$2.22 |
| 25 | \$2.20 | \$4.70 | \$6.81 | \$2.32 | \$4.49 | \$7.29 | \$2.20 | \$5.18 | \$7.73 | \$3.94 |
| 26 | \$2.60 | \$5.28 | \$6.63 | \$2.86 | \$4.67 | \$7.83 | \$2.75 | \$4.97 | \$8.21 | \$3.11 |
| 27 | \$2.87 | \$3.97 | \$8.35 | \$2.22 | \$5.59 | \$7.49 | \$2.22 | \$4.85 | \$8.79 | \$3.18 |
| 28 | \$3.37 | \$4.84 | \$7.10 | \$2.33 | \$4.80 | \$9.50 | \$2.27 | \$5.47 | \$7.47 | \$2.53 |
| 29 | \$2.27 | \$5.11 | \$7.62 | \$2.73 | \$5.60 | \$8.16 | \$4.09 | \$4.64 | \$7.31 | \$2.27 |
| 30 | \$2.20 | \$4.67 | \$7.01 | \$2.20 | \$4.59 | \$9.14 | \$2.20 | \$5.75 | \$6.35 | \$3.71 |
| 31 | \$3.20 | \$5.00 | \$7.65 | \$2.27 | \$4.84 | \$7.86 | \$2.27 | \$5.22 | \$7.37 | \$2.27 |
| 32 | \$2.87 | \$5.26 | \$7.24 | \$3.55 | \$4.68 | \$7.38 | \$2.40 | \$4.89 | \$6.63 | \$2.22 |
| 33 | \$2.86 | \$4.51 | \$8.30 | \$2.89 | \$5.66 | \$7.33 | \$3.09 | \$5.01 | \$7.28 | \$3.22 |
| 34 | \$3.43 | \$4.34 | \$8.86 | \$2.20 | \$5.67 | \$8.91 | \$2.20 | \$5.82 | \$6.61 | \$3.36 |
| 35 | \$3.33 | \$5.51 | \$8.23 | \$2.88 | \$5.91 | \$6.80 | \$3.37 | \$5.33 | \$7.53 | \$3.53 |
| 36 | \$2.27 | \$5.32 | \$9.20 | \$3.19 | \$4.84 | \$8.22 | \$2.52 | \$5.93 | \$7.19 | \$4.17 |
| 37 | \$2.91 | \$4.46 | \$6.90 | \$2.81 | \$5.27 | \$7.94 | \$2.46 | \$4.65 | \$7.33 | \$2.22 |
| 38 | \$3.31 | \$4.92 | \$6.22 | \$2.47 | \$5.11 | \$6.80 | \$3.36 | \$5.02 | \$8.58 | \$2.76 |
| 39 | \$2.84 | \$4.79 | \$8.75 | \$2.55 | \$5.17 | \$8.32 | \$2.22 | \$5.70 | \$7.36 | \$2.90 |
| 40 | \$3.79 | \$5.15 | \$7.51 | \$3.15 | \$5.05 | \$8.45 | \$3.25 | \$5.67 | \$8.32 | \$4.02 |
| 41 | \$2.82 | \$5.48 | \$6.07 | \$3.54 | \$4.57 | \$7.41 | \$3.09 | \$5.68 | \$8.86 | \$3.90 |
| 42 | \$2.20 | \$4.32 | \$6.78 | \$2.31 | \$4.98 | \$8.94 | \$3.07 | \$5.03 | \$6.75 | \$2.30 |
| 43 | \$3.91 | \$4.51 | \$8.34 | \$2.46 | \$5.78 | \$10.56 | \$4.00 | \$4.46 | \$6.94 | \$2.20 |
| 44 | \$2.20 | \$4.85 | \$7.37 | \$3.01 | \$4.94 | \$8.86 | \$3.10 | \$5.00 | \$6.82 | \$2.20 |
| 45 | \$2.76 | \$5.34 | \$7.34 | \$3.64 | \$4.61 | \$6.59 | \$2.27 | \$4.91 | \$6.58 | \$2.27 |
| 46 | \$2.22 | \$5.10 | \$6.66 | \$2.71 | \$4.51 | \$8.30 | \$2.55 | \$5.09 | \$6.57 | \$2.22 |
| 47 | \$2.27 | \$4.60 | \$7.93 | \$2.78 | \$5.19 | \$7.14 | \$2.86 | \$4.62 | \$8.49 | \$2.99 |
| 48 | \$2.72 | \$5.10 | \$8.12 | \$2.40 | \$5.31 | \$10.53 | \$2.94 | \$5.84 | \$7.67 | \$2.47 |
| 49 | \$3.38 | \$4.73 | \$5.67 | \$2.58 | \$4.25 | \$5.79 | \$2.81 | \$4.31 | \$6.96 | \$2.51 |
| 50 | \$3.11 | \$4.42 | \$7.10 | \$2.22 | \$5.01 | \$8.35 | \$2.22 | \$5.34 | \$6.46 | \$2.86 |
| 51 | \$2.69 | \$4.80 | \$7.32 | \$2.24 | \$4.86 | \$7.02 | \$2.33 | \$4.85 | \$7.51 | \$2.79 |
| 52 | \$3.08 | \$5.05 | \$6.99 | \$2.22 | \$4.78 | \$7.04 | \$2.22 | \$5.01 | \$6.77 | \$2.22 |
| 53 | \$2.20 | \$5.08 | \$6.74 | \$2.83 | \$5.20 | \$6.18 | \$2.99 | \$4.72 | \$8.13 | \$2.20 |
| 54 | \$3.40 | \$5.12 | \$6.80 | \$3.05 | \$4.64 | \$6.96 | \$2.22 | \$4.96 | \$6.34 | \$3.07 |
| 55 | \$2.98 | \$4.80 | \$6.49 | \$2.46 | \$4.84 | \$8.13 | \$3.23 | \$6.22 | \$6.86 | \$4.29 |
| 56 | \$2.30 | \$4.54 | \$7.33 | \$2.27 | \$5.50 | \$6.71 | \$4.64 | \$4.69 | \$6.35 | \$3.06 |
| 57 | \$2.27 | \$5.02 | \$8.52 | \$2.61 | \$5.96 | \$8.68 | \$4.01 | \$4.79 | \$8.24 | \$2.93 |

| Draw | 2025 | | 2026 | | | 2027 | | | 2028 | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | min | avg | max | min | avg | max | min | avg | max | min |
| 58 | \$2.24 | \$5.11 | \$7.87 | \$3.43 | \$5.85 | \$7.20 | \$3.92 | \$4.86 | \$7.36 | \$2.60 |
| 59 | \$3.10 | \$4.64 | \$6.70 | \$2.30 | \$4.35 | \$7.10 | \$2.24 | \$5.55 | \$7.85 | \$4.06 |
| 60 | \$2.22 | \$5.30 | \$7.59 | \$3.17 | \$5.58 | \$5.57 | \$2.86 | \$3.91 | \$6.87 | \$2.22 |
| 61 | \$3.09 | \$4.90 | \$7.78 | \$3.68 | \$5.03 | \$7.66 | \$2.82 | \$5.45 | \$6.51 | \$2.74 |
| 62 | \$2.63 | \$4.91 | \$7.02 | \$2.20 | \$5.24 | \$7.24 | \$2.20 | \$5.32 | \$8.16 | \$3.67 |
| 63 | \$2.20 | \$4.77 | \$7.57 | \$2.57 | \$4.59 | \$8.44 | \$3.05 | \$5.31 | \$6.95 | \$3.15 |
| 64 | \$2.99 | \$4.78 | \$6.40 | \$2.20 | \$4.66 | \$8.80 | \$3.14 | \$5.05 | \$6.37 | \$3.44 |
| 65 | \$2.58 | \$5.28 | \$6.49 | \$2.85 | \$4.84 | \$7.44 | \$3.33 | \$5.40 | \$6.46 | \$3.57 |
| 66 | \$2.24 | \$5.02 | \$7.09 | \$2.24 | \$5.44 | \$8.12 | \$3.86 | \$5.40 | \$7.62 | \$3.51 |
| 67 | \$2.53 | \$4.46 | \$7.12 | \$2.27 | \$5.25 | \$8.58 | \$3.59 | \$5.30 | \$6.57 | \$2.78 |
| 68 | \$3.07 | \$5.15 | \$7.54 | \$3.75 | \$5.34 | \$7.71 | \$3.64 | \$5.56 | \$7.83 | \$4.00 |
| 69 | \$2.60 | \$5.07 | \$7.06 | \$2.22 | \$5.38 | \$6.40 | \$3.31 | \$4.91 | \$8.26 | \$3.06 |
| 70 | \$2.47 | \$4.37 | \$7.28 | \$2.20 | \$5.07 | \$7.38 | \$2.20 | \$4.32 | \$6.94 | \$2.36 |
| 71 | \$2.53 | \$4.47 | \$6.93 | \$2.27 | \$4.79 | \$6.95 | \$2.27 | \$5.24 | \$7.43 | \$2.49 |
| 72 | \$2.82 | \$5.43 | \$6.32 | \$3.43 | \$4.24 | \$7.74 | \$2.22 | \$5.87 | \$7.49 | \$2.22 |
| 73 | \$3.58 | \$5.27 | \$7.93 | \$3.32 | \$5.21 | \$6.64 | \$2.64 | \$4.59 | \$7.25 | \$2.22 |
| 74 | \$2.27 | \$4.36 | \$9.24 | \$2.91 | \$5.21 | \$7.68 | \$2.27 | \$4.45 | \$7.11 | \$2.44 |
| 75 | \$3.28 | \$5.02 | \$7.52 | \$3.29 | \$5.65 | \$9.28 | \$2.24 | \$5.55 | \$8.85 | \$4.12 |
| 76 | \$2.20 | \$5.11 | \$8.35 | \$2.63 | \$5.66 | \$7.28 | \$2.92 | \$4.91 | \$6.83 | \$3.08 |
| 77 | \$2.22 | \$5.35 | \$8.12 | \$2.76 | \$5.06 | \$7.80 | \$2.22 | \$5.12 | \$8.51 | \$3.42 |
| 78 | \$3.38 | \$4.82 | \$8.35 | \$2.99 | \$6.05 | \$6.79 | \$3.91 | \$4.95 | \$7.33 | \$2.27 |
| 79 | \$2.27 | \$4.83 | \$7.46 | \$3.46 | \$5.82 | \$6.91 | \$4.22 | \$5.04 | \$8.09 | \$2.47 |
| 80 | \$2.22 | \$5.10 | \$8.17 | \$2.67 | \$5.06 | \$8.16 | \$2.22 | \$6.40 | \$8.02 | \$4.57 |
| 81 | \$2.78 | \$5.04 | \$7.31 | \$2.22 | \$4.91 | \$8.24 | \$3.78 | \$4.77 | \$6.46 | \$2.66 |
| 82 | \$2.24 | \$4.62 | \$7.68 | \$2.24 | \$4.87 | \$7.10 | \$2.65 | \$4.79 | \$6.39 | \$2.65 |
| 83 | \$2.47 | \$4.77 | \$7.41 | \$2.24 | \$4.47 | \$9.58 | \$2.22 | \$5.68 | \$6.90 | \$2.22 |
| 84 | \$3.12 | \$4.74 | \$8.16 | \$2.22 | \$4.88 | \$8.08 | \$2.22 | \$5.30 | \$7.81 | \$2.22 |
| 85 | \$2.22 | \$4.71 | \$7.24 | \$2.64 | \$5.05 | \$6.11 | \$2.22 | \$4.55 | \$6.39 | \$2.73 |
| 86 | \$2.91 | \$5.01 | \$8.09 | \$3.22 | \$4.38 | \$7.29 | \$2.22 | \$5.33 | \$7.33 | \$3.20 |
| 87 | \$2.93 | \$4.09 | \$6.89 | \$2.20 | \$4.81 | \$8.39 | \$2.78 | \$5.70 | \$8.31 | \$4.32 |
| 88 | \$2.51 | \$4.61 | \$8.65 | \$2.92 | \$4.90 | \$7.09 | \$3.33 | \$4.61 | \$8.57 | \$2.24 |
| 89 | \$3.95 | \$4.86 | \$8.07 | \$2.22 | \$5.18 | \$8.48 | \$2.22 | \$6.07 | \$6.92 | \$3.43 |
| 90 | \$3.95 | \$5.09 | \$8.63 | \$2.24 | \$4.96 | \$6.86 | \$2.85 | \$5.25 | \$6.80 | \$2.43 |
| 91 | \$3.09 | \$4.90 | \$8.22 | \$2.89 | \$5.12 | \$7.16 | \$2.27 | \$5.51 | \$7.66 | \$2.27 |
| 92 | \$2.27 | \$5.40 | \$7.17 | \$3.48 | \$4.72 | \$8.10 | \$3.05 | \$5.25 | \$7.26 | \$2.27 |
| 93 | \$2.34 | \$4.40 | \$7.67 | \$2.24 | \$5.51 | \$8.12 | \$2.94 | \$5.23 | \$6.84 | \$2.56 |
| 94 | \$2.65 | \$4.67 | \$7.43 | \$2.27 | \$5.16 | \$7.32 | \$2.42 | \$5.38 | \$7.83 | \$3.97 |
| 95 | \$2.24 | \$5.35 | \$8.16 | \$2.28 | \$5.87 | \$7.62 | \$4.30 | \$5.41 | \$8.32 | \$2.54 |
| 96 | \$3.68 | \$5.64 | \$6.66 | \$3.17 | \$5.33 | \$8.35 | \$3.01 | \$5.14 | \$8.74 | \$2.53 |
| 97 | \$3.70 | \$5.30 | \$7.27 | \$2.24 | \$5.41 | \$7.69 | \$2.72 | \$5.10 | \$6.42 | \$2.24 |
| 98 | \$2.48 | \$5.63 | \$5.64 | \$3.60 | \$4.48 | \$9.41 | \$2.69 | \$4.91 | \$8.86 | \$2.98 |
| 99 | \$2.22 | \$4.81 | \$7.39 | \$2.22 | \$5.07 | \$5.86 | \$2.22 | \$4.50 | \$7.29 | \$2.22 |
| 100 | \$3.02 | \$4.70 | \$7.05 | \$3.26 | \$4.37 | \$9.33 | \$2.44 | \$5.32 | \$8.53 | \$2.75 |
| 101 | \$2.27 | \$4.79 | \$7.27 | \$3.36 | \$5.12 | \$6.90 | \$3.47 | \$5.28 | \$7.42 | \$3.35 |
| 102 | \$2.91 | \$4.89 | \$6.07 | \$2.98 | \$4.13 | \$7.05 | \$2.24 | \$4.35 | \$7.65 | \$2.24 |
| 103 | \$2.20 | \$4.92 | \$7.73 | \$2.20 | \$5.21 | \$8.74 | \$3.44 | \$5.76 | \$7.55 | \$2.20 |
| 104 | \$3.20 | \$4.24 | \$8.66 | \$3.10 | \$5.60 | \$9.25 | \$3.97 | \$5.67 | \$7.10 | \$4.00 |
| 105 | \$3.13 | \$5.00 | \$8.79 | \$2.55 | \$4.90 | \$6.81 | \$2.90 | \$5.01 | \$6.80 | \$3.12 |
| 106 | \$2.65 | \$5.10 | \$6.60 | \$2.99 | \$4.53 | \$7.02 | \$2.80 | \$5.14 | \$7.01 | \$2.67 |
| 107 | \$2.61 | \$4.71 | \$9.00 | \$2.61 | \$4.93 | \$7.52 | \$2.27 | \$5.14 | \$6.42 | \$3.12 |
| 108 | \$2.27 | \$4.87 | \$8.29 | \$3.23 | \$5.22 | \$7.24 | \$2.24 | \$5.11 | \$8.68 | \$3.40 |
| 109 | \$2.22 | \$4.06 | \$6.99 | \$2.22 | \$4.59 | \$6.82 | \$2.22 | \$5.09 | \$8.95 | \$2.22 |
| 110 | \$3.06 | \$4.65 | \$8.64 | \$2.27 | \$5.19 | \$6.96 | \$2.85 | \$4.45 | \$7.67 | \$3.44 |
| 111 | \$3.03 | \$5.63 | \$6.67 | \$2.22 | \$4.87 | \$7.06 | \$2.22 | \$5.31 | \$8.50 | \$3.18 |
| 112 | \$2.27 | \$5.92 | \$7.29 | \$4.54 | \$4.37 | \$7.96 | \$2.27 | \$4.80 | \$7.21 | \$2.27 |
| 113 | \$2.20 | \$4.52 | \$8.38 | \$2.20 | \$4.73 | \$6.92 | \$2.20 | \$4.90 | \$6.42 | \$2.88 |
| 114 | \$2.24 | \$4.93 | \$8.14 | \$2.24 | \$5.74 | \$7.33 | \$3.65 | \$5.12 | \$7.05 | \$2.90 |

| Draw | 2025 | | 2026 | | | 2027 | | | 2028 | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | min | avg | max | min | avg | max | min | avg | max | min |
| 115 | \$2.24 | \$5.02 | \$6.95 | \$3.49 | \$5.24 | \$6.17 | \$3.55 | \$4.51 | \$6.69 | \$2.24 |
| 116 | \$2.20 | \$5.19 | \$7.54 | \$2.33 | \$5.06 | \$7.93 | \$3.19 | \$5.38 | \$7.66 | \$2.20 |
| 117 | \$2.20 | \$4.80 | \$7.28 | \$2.60 | \$4.65 | \$6.89 | \$2.87 | \$4.96 | \$8.59 | \$2.84 |
| 118 | \$2.51 | \$4.64 | \$6.91 | \$3.10 | \$4.50 | \$7.24 | \$2.20 | \$5.32 | \$8.09 | \$3.78 |
| 119 | \$2.27 | \$5.02 | \$8.42 | \$2.27 | \$5.35 | \$7.71 | \$3.33 | \$5.25 | \$7.82 | \$2.27 |
| 120 | \$3.38 | \$4.82 | \$8.56 | \$2.56 | \$4.98 | \$6.60 | \$3.60 | \$4.73 | \$8.45 | \$2.90 |
| 121 | \$3.34 | \$4.58 | \$7.02 | \$2.86 | \$4.61 | \$6.74 | \$2.22 | \$5.17 | \$7.31 | \$2.61 |
| 122 | \$2.47 | \$5.01 | \$7.00 | \$2.20 | \$4.74 | \$8.47 | \$2.44 | \$5.80 | \$6.85 | \$3.88 |
| 123 | \$2.20 | \$4.74 | \$8.37 | \$2.20 | \$5.56 | \$7.65 | \$2.36 | \$4.77 | \$6.79 | \$2.61 |
| 124 | \$2.88 | \$4.39 | \$7.18 | \$2.97 | \$4.81 | \$8.05 | \$2.20 | \$5.50 | \$9.11 | \$2.69 |
| 125 | \$2.53 | \$4.48 | \$6.61 | \$2.31 | \$4.84 | \$6.19 | \$2.27 | \$4.65 | \$7.13 | \$2.50 |
| 126 | \$2.22 | \$4.08 | \$6.81 | \$2.22 | \$5.06 | \$6.34 | \$3.09 | \$3.88 | \$6.30 | \$2.22 |
| 127 | \$2.66 | \$4.90 | \$7.37 | \$2.38 | \$4.76 | \$8.79 | \$2.71 | \$5.72 | \$8.49 | \$3.37 |
| 128 | \$4.21 | \$5.90 | \$7.77 | \$4.27 | \$4.53 | \$7.83 | \$2.76 | \$5.47 | \$7.20 | \$2.43 |
| 129 | \$2.90 | \$5.29 | \$8.70 | \$3.12 | \$5.33 | \$6.85 | \$2.54 | \$5.33 | \$8.29 | \$2.20 |
| 130 | \$3.07 | \$5.09 | \$8.94 | \$3.33 | \$5.58 | \$6.92 | \$3.04 | \$5.17 | \$7.94 | \$3.03 |
| 131 | \$2.27 | \$4.97 | \$7.42 | \$2.52 | \$5.24 | \$7.81 | \$3.25 | \$4.77 | \$5.56 | \$2.27 |
| 132 | \$2.20 | \$4.19 | \$8.41 | \$2.20 | \$4.76 | \$7.71 | \$2.20 | \$5.27 | \$6.72 | \$3.57 |
| 133 | \$2.27 | \$4.28 | \$7.78 | \$2.46 | \$5.58 | \$9.28 | \$3.11 | \$5.33 | \$7.39 | \$2.41 |
| 134 | \$2.49 | \$3.58 | \$7.10 | \$2.24 | \$4.90 | \$6.88 | \$2.24 | \$4.73 | \$7.97 | \$2.24 |
| 135 | \$3.22 | \$5.63 | \$7.82 | \$3.44 | \$4.83 | \$7.88 | \$2.38 | \$4.93 | \$8.94 | \$2.27 |
| 136 | \$2.27 | \$5.49 | \$7.33 | \$4.08 | \$4.85 | \$7.48 | \$2.80 | \$5.25 | \$7.71 | \$3.09 |
| 137 | \$4.29 | \$5.04 | \$7.19 | \$2.22 | \$5.91 | \$8.94 | \$4.40 | \$4.99 | \$7.04 | \$2.22 |
| 138 | \$2.22 | \$5.43 | \$7.25 | \$2.78 | \$4.96 | \$6.81 | \$2.22 | \$4.90 | \$7.34 | \$3.01 |
| 139 | \$2.27 | \$4.30 | \$7.22 | \$2.62 | \$5.43 | \$6.24 | \$3.83 | \$4.47 | \$7.01 | \$2.52 |
| 140 | \$2.42 | \$4.64 | \$6.41 | \$2.22 | \$5.17 | \$7.52 | \$2.82 | \$5.52 | \$6.83 | \$2.22 |
| 141 | \$2.99 | \$5.12 | \$9.07 | \$3.01 | \$6.13 | \$7.97 | \$3.69 | \$5.34 | \$8.20 | \$2.20 |
| 142 | \$2.27 | \$5.33 | \$8.12 | \$3.23 | \$4.45 | \$6.97 | \$2.37 | \$4.99 | \$7.73 | \$2.49 |
| 143 | \$2.90 | \$4.66 | \$6.77 | \$2.27 | \$5.23 | \$6.88 | \$3.71 | \$5.02 | \$7.04 | \$2.27 |
| 144 | \$2.47 | \$4.78 | \$6.59 | \$2.24 | \$5.33 | \$8.35 | \$2.80 | \$5.82 | \$7.87 | \$4.05 |
| 145 | \$2.71 | \$5.07 | \$7.70 | \$3.78 | \$5.44 | \$8.00 | \$3.06 | \$5.50 | \$8.74 | \$2.32 |
| 146 | \$3.15 | \$5.43 | \$6.98 | \$3.20 | \$5.50 | \$6.71 | \$3.05 | \$5.09 | \$7.11 | \$3.01 |
| 147 | \$2.37 | \$5.09 | \$5.65 | \$2.68 | \$4.28 | \$7.24 | \$2.24 | \$4.91 | \$7.57 | \$2.40 |
| 148 | \$3.09 | \$4.94 | \$7.65 | \$3.47 | \$5.23 | \$8.01 | \$3.02 | \$5.23 | \$7.02 | \$2.37 |
| 149 | \$2.27 | \$4.45 | \$8.29 | \$2.27 | \$5.69 | \$6.58 | \$3.09 | \$4.84 | \$6.67 | \$2.27 |
| 150 | \$3.18 | \$4.22 | \$5.96 | \$2.24 | \$4.71 | \$8.28 | \$3.84 | \$5.01 | \$7.86 | \$2.24 |
| 151 | \$2.22 | \$4.86 | \$7.07 | \$3.65 | \$3.91 | \$8.04 | \$2.22 | \$4.89 | \$7.92 | \$2.63 |
| 152 | \$2.82 | \$5.13 | \$6.94 | \$2.20 | \$5.37 | \$6.79 | \$2.85 | \$4.81 | \$6.50 | \$2.20 |
| 153 | \$2.20 | \$4.82 | \$9.96 | \$2.35 | \$4.82 | \$7.63 | \$2.20 | \$4.75 | \$6.88 | \$2.20 |
| 154 | \$4.04 | \$4.56 | \$6.82 | \$2.44 | \$4.35 | \$7.43 | \$2.24 | \$5.38 | \$7.46 | \$3.33 |
| 155 | \$2.27 | \$5.02 | \$8.78 | \$2.27 | \$5.23 | \$7.56 | \$2.29 | \$5.60 | \$7.90 | \$2.90 |
| 156 | \$2.20 | \$5.22 | \$7.19 | \$2.34 | \$5.19 | \$7.83 | \$2.94 | \$5.48 | \$6.34 | \$2.31 |
| 157 | \$2.20 | \$5.46 | \$6.23 | \$3.85 | \$4.74 | \$7.13 | \$2.53 | \$5.23 | \$7.59 | \$2.37 |
| 158 | \$3.24 | \$5.36 | \$8.83 | \$3.55 | \$4.78 | \$7.13 | \$2.20 | \$5.08 | \$6.27 | \$3.17 |
| 159 | \$2.69 | \$4.45 | \$6.78 | \$2.20 | \$5.63 | \$7.81 | \$3.10 | \$5.04 | \$7.11 | \$2.20 |
| 160 | \$2.22 | \$4.91 | \$7.33 | \$2.22 | \$5.46 | \$8.44 | \$2.92 | \$4.79 | \$7.81 | \$2.55 |
| 161 | \$2.60 | \$4.55 | \$7.07 | \$2.20 | \$4.96 | \$8.16 | \$2.20 | \$5.50 | \$6.89 | \$2.20 |
| 162 | \$2.24 | \$4.66 | \$6.41 | \$2.76 | \$4.82 | \$6.89 | \$3.81 | \$5.25 | \$8.52 | \$3.57 |
| 163 | \$2.97 | \$4.74 | \$6.52 | \$2.79 | \$5.33 | \$8.18 | \$2.78 | \$5.80 | \$8.90 | \$2.22 |
| 164 | \$2.20 | \$5.48 | \$8.13 | \$2.77 | \$5.10 | \$7.39 | \$2.36 | \$5.03 | \$7.59 | \$2.44 |
| 165 | \$2.22 | \$4.64 | \$6.62 | \$2.48 | \$5.18 | \$7.28 | \$2.66 | \$4.53 | \$8.61 | \$2.87 |
| 166 | \$2.53 | \$5.55 | \$8.12 | \$3.21 | \$5.44 | \$9.33 | \$2.20 | \$5.45 | \$7.47 | \$3.34 |
| 167 | \$2.52 | \$5.15 | \$7.49 | \$2.21 | \$5.11 | \$7.75 | \$2.54 | \$5.11 | \$7.17 | \$2.61 |
| 168 | \$3.91 | \$5.40 | \$7.10 | \$2.20 | \$4.73 | \$6.63 | \$2.20 | \$4.55 | \$7.50 | \$2.37 |
| 169 | \$2.24 | \$4.82 | \$8.00 | \$2.92 | \$5.05 | \$8.13 | \$2.97 | \$5.46 | \$7.43 | \$2.85 |
| 170 | \$2.85 | \$4.63 | \$7.10 | \$2.22 | \$4.83 | \$8.47 | \$2.22 | \$5.57 | \$6.89 | \$2.64 |
| 171 | \$3.34 | \$4.30 | \$6.65 | \$2.24 | \$4.35 | \$6.57 | \$2.93 | \$4.77 | \$6.54 | \$2.24 |

| Draw | 2025 | | 2026 | | | 2027 | | | 2028 | |
|---------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|
| | min | avg | max | min | avg | max | min | avg | max | min |
| 172 | \$2.95 | \$5.53 | \$8.22 | \$4.23 | \$5.59 | \$6.79 | \$3.13 | \$4.48 | \$6.73 | \$2.20 |
| 173 | \$2.45 | \$5.02 | \$7.72 | \$2.27 | \$5.52 | \$8.79 | \$2.27 | \$4.78 | \$7.18 | \$2.89 |
| 174 | \$2.27 | \$4.38 | \$7.87 | \$2.27 | \$5.35 | \$7.03 | \$2.78 | \$5.53 | \$6.40 | \$4.20 |
| 175 | \$2.24 | \$4.60 | \$5.98 | \$2.58 | \$4.72 | \$6.81 | \$2.58 | \$4.68 | \$6.67 | \$2.95 |
| 176 | \$3.58 | \$4.39 | \$6.02 | \$2.24 | \$4.39 | \$7.72 | \$3.35 | \$4.73 | \$6.51 | \$2.24 |
| 177 | \$3.74 | \$4.87 | \$7.91 | \$2.37 | \$5.67 | \$6.59 | \$2.89 | \$5.25 | \$8.62 | \$3.23 |
| 178 | \$2.43 | \$4.52 | \$6.61 | \$3.27 | \$4.92 | \$8.19 | \$2.87 | \$6.05 | \$8.54 | \$2.99 |
| 179 | \$2.93 | \$4.43 | \$8.57 | \$2.24 | \$4.74 | \$6.82 | \$2.24 | \$4.86 | \$7.35 | \$3.11 |
| 180 | \$2.66 | \$4.58 | \$6.96 | \$2.27 | \$4.88 | \$7.92 | \$3.14 | \$5.12 | \$6.58 | \$3.71 |
| 181 | \$2.59 | \$4.40 | \$8.10 | \$2.50 | \$5.54 | \$6.99 | \$2.27 | \$5.62 | \$6.72 | \$3.67 |
| 182 | \$3.65 | \$4.70 | \$6.94 | \$3.09 | \$4.92 | \$6.52 | \$2.35 | \$5.43 | \$8.49 | \$3.82 |
| 183 | \$2.20 | \$5.19 | \$6.63 | \$3.43 | \$4.43 | \$6.85 | \$2.20 | \$4.72 | \$8.00 | \$3.51 |
| 184 | \$2.22 | \$5.89 | \$7.78 | \$4.08 | \$5.25 | \$9.11 | \$2.37 | \$5.93 | \$7.09 | \$3.19 |
| 185 | \$2.72 | \$4.53 | \$8.41 | \$2.69 | \$5.36 | \$7.38 | \$2.20 | \$4.73 | \$6.86 | \$2.49 |
| 186 | \$2.39 | \$5.10 | \$7.65 | \$2.20 | \$4.64 | \$8.19 | \$2.56 | \$5.45 | \$7.26 | \$2.88 |
| 187 | \$2.20 | \$4.62 | \$6.98 | \$2.61 | \$5.53 | \$8.07 | \$2.46 | \$5.01 | \$6.11 | \$2.20 |
| 188 | \$3.23 | \$5.01 | \$6.97 | \$2.44 | \$5.36 | \$7.62 | \$2.84 | \$4.60 | \$6.74 | \$2.35 |
| 189 | \$4.40 | \$4.79 | \$8.70 | \$3.17 | \$4.62 | \$8.69 | \$2.20 | \$5.13 | \$7.05 | \$2.26 |
| 190 | \$3.28 | \$4.99 | \$6.58 | \$2.27 | \$5.12 | \$7.74 | \$4.46 | \$5.22 | \$6.47 | \$2.99 |
| 191 | \$2.24 | \$4.68 | \$8.69 | \$2.24 | \$5.93 | \$8.11 | \$3.68 | \$6.00 | \$6.10 | \$4.07 |
| 192 | \$2.80 | \$5.62 | \$8.19 | \$3.61 | \$6.15 | \$7.84 | \$3.74 | \$5.93 | \$6.99 | \$3.98 |
| 193 | \$2.20 | \$4.36 | \$7.62 | \$2.20 | \$5.28 | \$6.86 | \$3.12 | \$5.10 | \$8.26 | \$3.18 |
| 194 | \$2.46 | \$4.81 | \$8.94 | \$3.20 | \$4.39 | \$8.56 | \$2.20 | \$6.35 | \$8.68 | \$4.11 |
| 195 | \$2.27 | \$3.91 | \$7.40 | \$2.27 | \$5.12 | \$7.55 | \$2.38 | \$5.12 | \$7.63 | \$3.97 |
| 196 | \$2.25 | \$4.88 | \$7.32 | \$3.46 | \$5.40 | \$8.24 | \$2.42 | \$5.61 | \$9.09 | \$2.24 |
| 197 | \$2.22 | \$4.37 | \$7.61 | \$2.22 | \$5.10 | \$7.42 | \$3.64 | \$5.47 | \$8.01 | \$3.86 |
| 198 | \$2.22 | \$4.03 | \$7.48 | \$2.22 | \$4.42 | \$7.04 | \$2.22 | \$5.70 | \$7.29 | \$3.84 |
| 199 | \$4.12 | \$4.32 | \$7.90 | \$2.39 | \$4.92 | \$6.40 | \$2.24 | \$4.63 | \$7.47 | \$2.24 |
| 200 | \$2.63 | \$4.94 | \$7.99 | \$2.54 | \$5.57 | \$7.52 | \$2.85 | \$5.06 | \$7.37 | \$2.27 |
| average | \$2.72 | \$4.87 | \$7.46 | \$2.71 | \$5.07 | \$7.65 | \$2.79 | \$5.17 | \$7.42 | \$2.88 |
| Max | | | \$9.96 | | | \$10.56 | | | \$9.18 | |
| Avg | | \$4.87 | | | \$5.07 | | | \$5.17 | | |
| Min | | | \$2.20 | | | \$2.20 | | | \$2.20 | |
| Range | | | 7.76 | | | 8.37 | | | 6.99 | |

| Draw | 2029 | | | 2030 | | | 2031 | | | |
|------|--------|---------|--------|--------|--------|--------|--------|---------|--------|--------|
| | avg | max | min | avg | max | min | avg | max | min | avg |
| 1 | \$4.84 | \$5.99 | \$2.62 | \$4.15 | \$8.23 | \$2.20 | \$5.60 | \$7.60 | \$3.44 | \$5.66 |
| 2 | \$4.99 | \$8.11 | \$2.20 | \$5.06 | \$8.07 | \$2.35 | \$6.06 | \$7.64 | \$4.71 | \$5.27 |
| 3 | \$5.03 | \$8.10 | \$2.20 | \$5.13 | \$7.24 | \$2.20 | \$4.64 | \$8.65 | \$2.51 | \$6.40 |
| 4 | \$4.94 | \$7.68 | \$3.16 | \$5.61 | \$7.64 | \$2.20 | \$4.82 | \$7.22 | \$2.59 | \$5.27 |
| 5 | \$4.18 | \$7.30 | \$2.27 | \$4.33 | \$6.66 | \$2.51 | \$5.24 | \$7.86 | \$3.30 | \$4.74 |
| 6 | \$5.75 | \$8.39 | \$3.66 | \$5.22 | \$7.17 | \$3.65 | \$4.92 | \$8.30 | \$2.86 | \$5.62 |
| 7 | \$5.15 | \$6.67 | \$3.21 | \$4.74 | \$8.25 | \$2.32 | \$5.56 | \$7.22 | \$2.99 | \$5.40 |
| 8 | \$4.84 | \$6.95 | \$2.22 | \$4.93 | \$8.09 | \$2.77 | \$5.14 | \$8.51 | \$2.37 | \$5.29 |
| 9 | \$5.42 | \$8.01 | \$3.69 | \$5.06 | \$7.57 | \$2.24 | \$5.91 | \$8.29 | \$2.60 | \$5.08 |
| 10 | \$4.05 | \$7.90 | \$2.27 | \$4.97 | \$8.83 | \$2.87 | \$6.47 | \$7.39 | \$4.88 | \$5.26 |
| 11 | \$4.95 | \$7.48 | \$2.24 | \$5.34 | \$6.41 | \$2.24 | \$4.83 | \$7.01 | \$3.35 | \$5.10 |
| 12 | \$5.27 | \$8.92 | \$2.40 | \$6.45 | \$7.81 | \$2.87 | \$4.96 | \$8.15 | \$2.55 | \$5.89 |
| 13 | \$5.65 | \$7.53 | \$3.90 | \$5.46 | \$8.31 | \$3.35 | \$5.52 | \$8.08 | \$2.90 | \$5.50 |
| 14 | \$4.71 | \$7.12 | \$2.93 | \$4.99 | \$7.33 | \$3.51 | \$5.15 | \$7.20 | \$3.09 | \$5.33 |
| 15 | \$4.59 | \$8.66 | \$3.11 | \$4.92 | \$7.46 | \$2.89 | \$5.25 | \$9.01 | \$2.22 | \$5.59 |
| 16 | \$5.02 | \$7.25 | \$3.10 | \$4.96 | \$8.17 | \$3.15 | \$5.60 | \$8.95 | \$3.90 | \$6.03 |
| 17 | \$4.38 | \$6.19 | \$2.20 | \$4.64 | \$8.66 | \$2.66 | \$5.58 | \$8.19 | \$3.76 | \$6.47 |
| 18 | \$5.11 | \$6.77 | \$2.22 | \$4.71 | \$8.37 | \$2.79 | \$4.98 | \$7.43 | \$3.10 | \$5.58 |
| 19 | \$4.76 | \$8.56 | \$2.24 | \$5.21 | \$6.16 | \$2.24 | \$4.89 | \$8.04 | \$3.45 | \$6.14 |
| 20 | \$5.51 | \$10.17 | \$3.21 | \$5.36 | \$7.93 | \$2.34 | \$5.72 | \$8.07 | \$3.59 | \$6.19 |
| 21 | \$5.29 | \$7.58 | \$2.27 | \$4.93 | \$7.05 | \$3.12 | \$4.74 | \$7.27 | \$3.28 | \$4.88 |
| 22 | \$5.93 | \$7.58 | \$4.03 | \$5.66 | \$7.35 | \$3.63 | \$5.25 | \$7.86 | \$2.24 | \$5.73 |
| 23 | \$4.49 | \$7.93 | \$2.22 | \$5.38 | \$8.24 | \$2.22 | \$5.57 | \$10.03 | \$3.32 | \$5.78 |
| 24 | \$5.33 | \$6.09 | \$2.85 | \$4.22 | \$8.77 | \$2.22 | \$5.62 | \$6.80 | \$3.85 | \$4.94 |
| 25 | \$5.42 | \$7.82 | \$2.20 | \$5.14 | \$7.91 | \$2.87 | \$5.94 | \$6.99 | \$4.10 | \$5.19 |
| 26 | \$5.44 | \$7.84 | \$3.66 | \$5.24 | \$8.53 | \$2.27 | \$6.03 | \$7.07 | \$3.16 | \$5.38 |
| 27 | \$5.97 | \$6.85 | \$3.26 | \$4.74 | \$8.01 | \$2.22 | \$4.63 | \$9.94 | \$2.22 | \$5.63 |
| 28 | \$5.62 | \$6.86 | \$4.35 | \$6.08 | \$7.92 | \$4.18 | \$5.11 | \$8.69 | \$2.27 | \$5.57 |
| 29 | \$5.18 | \$7.21 | \$2.68 | \$4.77 | \$7.35 | \$2.54 | \$5.63 | \$6.09 | \$3.28 | \$5.04 |
| 30 | \$4.76 | \$8.95 | \$2.20 | \$5.93 | \$7.49 | \$2.20 | \$5.48 | \$7.27 | \$3.30 | \$5.30 |
| 31 | \$5.16 | \$7.31 | \$3.62 | \$5.48 | \$7.78 | \$2.27 | \$6.27 | \$7.12 | \$3.98 | \$5.44 |
| 32 | \$5.16 | \$6.63 | \$2.98 | \$4.77 | \$9.68 | \$3.29 | \$5.51 | \$7.72 | \$2.90 | \$5.49 |
| 33 | \$5.93 | \$9.05 | \$3.24 | \$5.79 | \$7.37 | \$4.27 | \$5.19 | \$7.07 | \$2.52 | \$5.24 |
| 34 | \$4.76 | \$6.81 | \$2.20 | \$4.88 | \$7.25 | \$2.20 | \$5.07 | \$8.30 | \$3.17 | \$5.51 |
| 35 | \$4.64 | \$9.34 | \$2.50 | \$6.23 | \$9.64 | \$3.40 | \$5.67 | \$9.13 | \$3.21 | \$5.42 |
| 36 | \$5.31 | \$7.62 | \$3.37 | \$5.01 | \$7.79 | \$2.50 | \$5.52 | \$9.57 | \$3.91 | \$6.04 |
| 37 | \$5.31 | \$7.90 | \$4.00 | \$5.40 | \$6.69 | \$2.73 | \$5.59 | \$7.68 | \$2.97 | \$5.40 |
| 38 | \$5.08 | \$6.91 | \$3.59 | \$5.12 | \$8.15 | \$3.60 | \$5.67 | \$7.94 | \$3.70 | \$6.19 |
| 39 | \$5.56 | \$9.07 | \$3.58 | \$6.23 | \$8.14 | \$3.39 | \$5.56 | \$7.17 | \$2.68 | \$5.22 |
| 40 | \$5.05 | \$7.39 | \$3.26 | \$5.28 | \$6.55 | \$3.63 | \$4.84 | \$9.03 | \$2.30 | \$6.38 |
| 41 | \$5.51 | \$6.85 | \$4.11 | \$4.59 | \$8.44 | \$2.47 | \$5.49 | \$8.79 | \$3.27 | \$5.01 |
| 42 | \$4.82 | \$8.64 | \$2.20 | \$5.36 | \$6.47 | \$2.20 | \$4.44 | \$6.44 | \$2.41 | \$4.94 |
| 43 | \$4.99 | \$7.13 | \$3.67 | \$5.45 | \$7.42 | \$3.64 | \$4.94 | \$7.53 | \$3.12 | \$5.62 |
| 44 | \$5.42 | \$7.50 | \$2.20 | \$5.09 | \$7.13 | \$2.99 | \$4.81 | \$6.56 | \$3.02 | \$4.81 |
| 45 | \$4.60 | \$6.41 | \$2.27 | \$4.73 | \$7.07 | \$2.84 | \$5.29 | \$6.86 | \$2.27 | \$5.25 |
| 46 | \$4.65 | \$7.65 | \$3.40 | \$4.77 | \$7.84 | \$2.22 | \$5.48 | \$9.63 | \$2.32 | \$6.58 |
| 47 | \$5.65 | \$6.65 | \$3.33 | \$5.02 | \$8.69 | \$2.27 | \$5.50 | \$11.29 | \$3.17 | \$6.15 |
| 48 | \$4.97 | \$7.62 | \$2.27 | \$5.03 | \$7.97 | \$3.29 | \$5.76 | \$7.15 | \$3.07 | \$5.17 |
| 49 | \$4.84 | \$6.31 | \$3.78 | \$5.02 | \$7.95 | \$3.88 | \$5.05 | \$9.50 | \$2.31 | \$5.65 |
| 50 | \$4.52 | \$7.87 | \$2.26 | \$4.97 | \$6.97 | \$2.27 | \$4.93 | \$8.62 | \$3.01 | \$5.52 |
| 51 | \$4.84 | \$7.12 | \$4.03 | \$5.10 | \$7.98 | \$3.51 | \$5.30 | \$8.70 | \$3.79 | \$5.23 |
| 52 | \$4.80 | \$8.22 | \$3.14 | \$5.09 | \$7.68 | \$2.22 | \$5.16 | \$7.58 | \$2.75 | \$5.65 |
| 53 | \$5.84 | \$7.02 | \$2.50 | \$4.73 | \$7.43 | \$2.20 | \$5.88 | \$8.21 | \$3.20 | \$5.85 |
| 54 | \$4.42 | \$8.37 | \$2.22 | \$5.76 | \$7.62 | \$3.42 | \$5.51 | \$6.74 | \$3.59 | \$4.78 |
| 55 | \$4.20 | \$7.97 | \$2.27 | \$5.08 | \$7.21 | \$2.27 | \$5.01 | \$6.47 | \$2.33 | \$4.65 |
| 56 | \$4.37 | \$7.31 | \$2.88 | \$4.79 | \$7.68 | \$2.31 | \$5.34 | \$6.76 | \$3.74 | \$5.10 |
| 57 | \$5.25 | \$7.32 | \$2.27 | \$5.37 | \$7.62 | \$2.27 | \$5.55 | \$6.61 | \$2.78 | \$5.26 |

| Draw | 2029 | | | 2030 | | | 2031 | | | |
|------|--------|---------|--------|--------|--------|--------|--------|---------|--------|--------|
| | avg | max | min | avg | max | min | avg | max | min | avg |
| 58 | \$4.78 | \$8.04 | \$2.22 | \$5.50 | \$7.93 | \$2.88 | \$5.48 | \$6.41 | \$3.43 | \$5.58 |
| 59 | \$5.10 | \$8.79 | \$2.88 | \$4.88 | \$7.92 | \$2.70 | \$5.14 | \$8.02 | \$3.43 | \$5.40 |
| 60 | \$5.51 | \$8.01 | \$3.61 | \$4.59 | \$7.68 | \$2.22 | \$5.35 | \$7.26 | \$3.66 | \$5.33 |
| 61 | \$4.91 | \$7.19 | \$2.27 | \$5.65 | \$8.20 | \$3.40 | \$5.37 | \$8.33 | \$3.35 | \$5.59 |
| 62 | \$5.29 | \$7.60 | \$2.20 | \$5.43 | \$7.86 | \$2.69 | \$5.89 | \$6.16 | \$4.22 | \$4.67 |
| 63 | \$4.98 | \$8.74 | \$3.87 | \$5.41 | \$9.54 | \$2.20 | \$6.36 | \$7.80 | \$3.63 | \$5.65 |
| 64 | \$3.91 | \$10.87 | \$2.20 | \$5.27 | \$8.85 | \$2.41 | \$5.43 | \$8.40 | \$3.08 | \$5.62 |
| 65 | \$4.16 | \$7.79 | \$2.90 | \$5.23 | \$7.60 | \$2.93 | \$5.29 | \$7.75 | \$3.77 | \$5.20 |
| 66 | \$5.14 | \$7.23 | \$2.76 | \$5.36 | \$6.47 | \$2.88 | \$5.05 | \$8.63 | \$2.80 | \$5.53 |
| 67 | \$4.75 | \$8.44 | \$2.99 | \$5.46 | \$8.60 | \$2.52 | \$5.52 | \$7.46 | \$3.09 | \$5.84 |
| 68 | \$4.97 | \$6.69 | \$2.24 | \$5.12 | \$7.78 | \$2.67 | \$5.85 | \$7.51 | \$3.58 | \$5.99 |
| 69 | \$5.28 | \$6.88 | \$2.65 | \$5.50 | \$7.40 | \$3.54 | \$4.75 | \$7.36 | \$2.55 | \$5.42 |
| 70 | \$4.83 | \$8.28 | \$2.40 | \$5.93 | \$6.29 | \$4.16 | \$4.12 | \$7.47 | \$2.20 | \$5.00 |
| 71 | \$5.18 | \$7.19 | \$2.75 | \$5.56 | \$8.89 | \$3.34 | \$5.34 | \$6.92 | \$2.67 | \$5.30 |
| 72 | \$5.16 | \$6.10 | \$2.22 | \$4.58 | \$8.13 | \$2.97 | \$5.80 | \$7.51 | \$2.56 | \$5.50 |
| 73 | \$4.73 | \$10.10 | \$2.59 | \$5.04 | \$7.90 | \$2.22 | \$5.11 | \$7.92 | \$3.69 | \$5.53 |
| 74 | \$5.25 | \$6.44 | \$3.21 | \$5.02 | \$8.32 | \$2.90 | \$4.97 | \$8.07 | \$2.27 | \$5.51 |
| 75 | \$5.52 | \$6.86 | \$3.34 | \$4.78 | \$6.97 | \$3.07 | \$5.06 | \$7.71 | \$3.64 | \$6.00 |
| 76 | \$5.07 | \$7.66 | \$2.71 | \$5.16 | \$8.08 | \$2.70 | \$5.69 | \$7.38 | \$2.76 | \$6.00 |
| 77 | \$4.69 | \$7.13 | \$2.60 | \$5.19 | \$7.66 | \$3.26 | \$5.52 | \$8.04 | \$3.52 | \$4.90 |
| 78 | \$4.84 | \$7.23 | \$2.27 | \$5.71 | \$8.13 | \$4.15 | \$5.74 | \$9.15 | \$3.53 | \$6.38 |
| 79 | \$5.88 | \$6.82 | \$4.09 | \$4.75 | \$7.11 | \$2.27 | \$5.73 | \$6.50 | \$4.13 | \$4.69 |
| 80 | \$5.31 | \$6.73 | \$3.33 | \$5.43 | \$8.12 | \$3.47 | \$5.65 | \$9.25 | \$3.82 | \$5.00 |
| 81 | \$4.45 | \$8.25 | \$2.22 | \$5.17 | \$6.97 | \$2.78 | \$5.33 | \$10.23 | \$3.07 | \$6.10 |
| 82 | \$4.91 | \$8.60 | \$2.80 | \$5.27 | \$9.45 | \$2.78 | \$5.06 | \$7.89 | \$2.24 | \$5.78 |
| 83 | \$5.52 | \$7.60 | \$3.65 | \$5.55 | \$9.25 | \$2.66 | \$6.04 | \$7.08 | \$4.05 | \$5.39 |
| 84 | \$4.61 | \$6.75 | \$2.58 | \$4.85 | \$7.23 | \$2.22 | \$5.31 | \$7.21 | \$2.37 | \$4.97 |
| 85 | \$4.84 | \$7.70 | \$2.33 | \$4.98 | \$7.98 | \$2.60 | \$5.62 | \$7.35 | \$2.51 | \$5.43 |
| 86 | \$4.77 | \$8.93 | \$3.22 | \$5.74 | \$8.03 | \$2.54 | \$4.94 | \$9.75 | \$2.22 | \$6.22 |
| 87 | \$5.78 | \$7.83 | \$3.37 | \$5.44 | \$6.95 | \$3.59 | \$5.16 | \$8.70 | \$2.93 | \$5.48 |
| 88 | \$5.81 | \$6.47 | \$4.08 | \$4.72 | \$8.45 | \$2.31 | \$5.25 | \$9.62 | \$2.75 | \$5.37 |
| 89 | \$4.74 | \$7.84 | \$2.65 | \$5.26 | \$7.93 | \$2.22 | \$6.01 | \$6.43 | \$3.20 | \$5.76 |
| 90 | \$4.97 | \$6.96 | \$2.52 | \$4.35 | \$8.28 | \$2.24 | \$5.78 | \$7.19 | \$3.42 | \$5.51 |
| 91 | \$5.33 | \$8.21 | \$3.59 | \$5.64 | \$7.85 | \$3.13 | \$5.67 | \$8.83 | \$2.27 | \$5.47 |
| 92 | \$4.88 | \$9.09 | \$2.83 | \$5.33 | \$9.01 | \$2.85 | \$5.91 | \$6.36 | \$3.17 | \$5.48 |
| 93 | \$5.66 | \$7.02 | \$3.98 | \$5.21 | \$6.19 | \$2.75 | \$5.15 | \$7.84 | \$2.72 | \$5.22 |
| 94 | \$4.53 | \$9.67 | \$2.27 | \$5.26 | \$8.50 | \$2.82 | \$5.02 | \$8.37 | \$2.70 | \$6.36 |
| 95 | \$5.83 | \$5.94 | \$2.24 | \$4.43 | \$7.06 | \$2.57 | \$4.88 | \$7.12 | \$2.99 | \$5.94 |
| 96 | \$5.61 | \$6.92 | \$3.20 | \$5.43 | \$8.18 | \$3.24 | \$5.92 | \$7.39 | \$4.18 | \$5.68 |
| 97 | \$4.27 | \$6.86 | \$3.10 | \$4.71 | \$8.80 | \$2.48 | \$5.95 | \$7.20 | \$3.24 | \$5.79 |
| 98 | \$4.93 | \$8.54 | \$2.48 | \$4.81 | \$8.67 | \$3.08 | \$5.58 | \$8.59 | \$3.19 | \$5.91 |
| 99 | \$4.69 | \$6.32 | \$2.66 | \$4.96 | \$8.31 | \$3.58 | \$5.61 | \$7.06 | \$2.22 | \$5.68 |
| 100 | \$4.86 | \$7.52 | \$2.47 | \$4.72 | \$7.74 | \$2.24 | \$4.45 | \$9.20 | \$2.24 | \$5.32 |
| 101 | \$5.14 | \$6.17 | \$2.44 | \$4.65 | \$6.62 | \$2.62 | \$4.77 | \$7.98 | \$3.55 | \$5.12 |
| 102 | \$4.83 | \$7.24 | \$2.91 | \$4.90 | \$7.44 | \$2.24 | \$5.52 | \$6.94 | \$3.51 | \$4.32 |
| 103 | \$5.52 | \$7.83 | \$2.53 | \$5.19 | \$7.26 | \$2.20 | \$4.64 | \$8.89 | \$2.29 | \$6.48 |
| 104 | \$5.23 | \$7.00 | \$2.99 | \$5.26 | \$7.73 | \$3.60 | \$5.05 | \$8.16 | \$3.03 | \$5.38 |
| 105 | \$4.47 | \$7.67 | \$2.24 | \$5.48 | \$6.74 | \$2.98 | \$4.90 | \$8.07 | \$3.23 | \$5.44 |
| 106 | \$5.48 | \$7.34 | \$4.44 | \$4.63 | \$8.17 | \$2.67 | \$5.66 | \$7.70 | \$3.03 | \$5.18 |
| 107 | \$4.99 | \$7.52 | \$2.53 | \$5.02 | \$8.43 | \$3.33 | \$4.65 | \$8.36 | \$2.32 | \$5.99 |
| 108 | \$5.22 | \$7.29 | \$3.29 | \$5.21 | \$6.81 | \$3.20 | \$4.52 | \$10.73 | \$2.44 | \$6.31 |
| 109 | \$4.72 | \$6.77 | \$2.22 | \$4.83 | \$6.79 | \$2.61 | \$5.03 | \$7.28 | \$3.86 | \$5.88 |
| 110 | \$4.43 | \$7.28 | \$2.99 | \$5.17 | \$8.27 | \$2.93 | \$5.51 | \$8.34 | \$2.70 | \$5.06 |
| 111 | \$5.23 | \$8.24 | \$2.22 | \$5.53 | \$7.66 | \$2.59 | \$5.68 | \$6.77 | \$2.22 | \$5.50 |
| 112 | \$5.43 | \$8.70 | \$3.54 | \$4.54 | \$7.92 | \$2.27 | \$5.27 | \$8.74 | \$2.60 | \$5.55 |
| 113 | \$4.07 | \$6.09 | \$2.20 | \$4.22 | \$8.24 | \$2.46 | \$5.69 | \$7.63 | \$2.65 | \$6.04 |
| 114 | \$4.78 | \$9.27 | \$2.24 | \$5.99 | \$6.98 | \$2.48 | \$5.23 | \$7.67 | \$3.39 | \$5.59 |

| Draw | 2029 | | | 2030 | | | 2031 | | | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | avg | max | min | avg | max | min | avg | max | min | avg |
| 115 | \$5.19 | \$7.15 | \$3.09 | \$4.75 | \$6.70 | \$2.48 | \$4.96 | \$8.22 | \$2.34 | \$5.67 |
| 116 | \$4.84 | \$6.71 | \$2.20 | \$4.55 | \$7.89 | \$2.20 | \$5.47 | \$8.05 | \$3.34 | \$5.37 |
| 117 | \$4.78 | \$7.35 | \$2.48 | \$4.46 | \$8.45 | \$2.20 | \$5.54 | \$8.14 | \$2.20 | \$5.67 |
| 118 | \$4.51 | \$8.76 | \$2.67 | \$5.98 | \$9.39 | \$3.89 | \$5.81 | \$8.19 | \$3.89 | \$5.74 |
| 119 | \$4.85 | \$6.97 | \$3.08 | \$4.63 | \$8.48 | \$2.27 | \$6.42 | \$6.97 | \$4.26 | \$5.23 |
| 120 | \$5.04 | \$8.07 | \$2.35 | \$6.31 | \$9.12 | \$4.18 | \$6.41 | \$6.52 | \$3.96 | \$5.11 |
| 121 | \$5.20 | \$7.26 | \$2.83 | \$5.26 | \$7.52 | \$3.83 | \$4.37 | \$8.56 | \$2.22 | \$5.40 |
| 122 | \$4.62 | \$8.21 | \$2.36 | \$4.63 | \$9.25 | \$2.60 | \$6.30 | \$7.46 | \$2.89 | \$5.63 |
| 123 | \$5.02 | \$8.28 | \$3.79 | \$5.77 | \$7.72 | \$3.57 | \$5.08 | \$6.33 | \$2.20 | \$4.38 |
| 124 | \$4.62 | \$6.99 | \$2.22 | \$5.10 | \$9.01 | \$2.36 | \$6.12 | \$9.87 | \$3.94 | \$6.19 |
| 125 | \$5.30 | \$9.31 | \$2.91 | \$5.33 | \$7.50 | \$3.73 | \$5.72 | \$9.20 | \$3.15 | \$5.81 |
| 126 | \$4.24 | \$6.18 | \$2.22 | \$4.86 | \$7.75 | \$3.00 | \$4.90 | \$8.86 | \$2.30 | \$5.79 |
| 127 | \$4.97 | \$9.76 | \$3.04 | \$4.70 | \$6.84 | \$2.22 | \$4.86 | \$8.90 | \$2.22 | \$5.71 |
| 128 | \$4.79 | \$7.64 | \$2.20 | \$5.17 | \$7.03 | \$2.20 | \$5.47 | \$8.02 | \$3.23 | \$5.76 |
| 129 | \$4.88 | \$7.79 | \$2.58 | \$4.69 | \$7.37 | \$2.77 | \$5.66 | \$7.03 | \$3.12 | \$5.14 |
| 130 | \$4.76 | \$8.19 | \$2.73 | \$6.05 | \$7.05 | \$4.33 | \$5.04 | \$8.35 | \$2.20 | \$5.54 |
| 131 | \$4.31 | \$6.86 | \$3.49 | \$4.95 | \$7.61 | \$2.56 | \$5.16 | \$7.99 | \$3.11 | \$5.40 |
| 132 | \$4.27 | \$7.92 | \$2.20 | \$5.51 | \$7.62 | \$3.42 | \$5.89 | \$7.74 | \$3.77 | \$5.70 |
| 133 | \$4.99 | \$9.37 | \$3.87 | \$5.48 | \$8.32 | \$2.49 | \$5.69 | \$9.05 | \$2.64 | \$5.53 |
| 134 | \$4.85 | \$6.32 | \$2.45 | \$4.62 | \$7.24 | \$2.42 | \$5.16 | \$6.90 | \$2.28 | \$4.85 |
| 135 | \$5.58 | \$7.11 | \$3.82 | \$5.57 | \$7.32 | \$4.25 | \$5.78 | \$7.73 | \$3.47 | \$5.62 |
| 136 | \$5.43 | \$9.19 | \$4.35 | \$5.53 | \$9.50 | \$4.16 | \$5.67 | \$7.56 | \$3.72 | \$5.09 |
| 137 | \$5.03 | \$7.35 | \$2.22 | \$5.16 | \$8.22 | \$3.08 | \$6.15 | \$9.08 | \$4.02 | \$5.61 |
| 138 | \$4.59 | \$8.02 | \$2.97 | \$5.42 | \$8.25 | \$2.79 | \$4.82 | \$7.59 | \$2.22 | \$5.38 |
| 139 | \$4.65 | \$9.01 | \$2.32 | \$5.52 | \$6.42 | \$3.38 | \$4.76 | \$7.33 | \$2.72 | \$5.74 |
| 140 | \$5.06 | \$6.72 | \$2.33 | \$5.22 | \$7.23 | \$3.19 | \$4.82 | \$7.69 | \$2.97 | \$5.36 |
| 141 | \$6.01 | \$6.96 | \$4.67 | \$5.49 | \$8.13 | \$3.13 | \$5.36 | \$8.35 | \$2.55 | \$5.63 |
| 142 | \$4.27 | \$7.44 | \$2.45 | \$4.86 | \$8.40 | \$3.15 | \$5.44 | \$7.79 | \$2.49 | \$4.89 |
| 143 | \$4.57 | \$6.89 | \$2.27 | \$5.11 | \$7.53 | \$3.66 | \$5.32 | \$7.55 | \$2.59 | \$5.30 |
| 144 | \$5.29 | \$7.23 | \$3.38 | \$4.92 | \$7.68 | \$3.12 | \$5.11 | \$7.28 | \$2.24 | \$5.18 |
| 145 | \$5.34 | \$7.04 | \$2.22 | \$5.13 | \$6.71 | \$3.67 | \$5.38 | \$6.75 | \$3.01 | \$5.35 |
| 146 | \$4.73 | \$7.34 | \$2.24 | \$5.06 | \$7.57 | \$3.16 | \$5.10 | \$7.64 | \$3.06 | \$5.51 |
| 147 | \$4.87 | \$8.35 | \$2.24 | \$5.58 | \$8.71 | \$4.23 | \$5.77 | \$7.97 | \$3.22 | \$5.32 |
| 148 | \$5.29 | \$7.88 | \$3.52 | \$5.46 | \$9.63 | \$3.04 | \$5.98 | \$6.89 | \$2.60 | \$5.45 |
| 149 | \$5.25 | \$6.56 | \$3.74 | \$5.29 | \$8.06 | \$3.63 | \$5.46 | \$7.16 | \$2.50 | \$5.42 |
| 150 | \$5.04 | \$7.23 | \$2.74 | \$4.96 | \$7.18 | \$2.68 | \$4.69 | \$7.17 | \$2.89 | \$5.48 |
| 151 | \$4.62 | \$9.06 | \$2.22 | \$5.27 | \$6.86 | \$3.01 | \$4.89 | \$8.20 | \$2.41 | \$6.14 |
| 152 | \$4.18 | \$6.75 | \$2.20 | \$5.01 | \$7.25 | \$2.91 | \$5.67 | \$6.40 | \$3.55 | \$4.82 |
| 153 | \$5.14 | \$8.18 | \$3.13 | \$5.37 | \$9.06 | \$2.20 | \$5.89 | \$6.83 | \$2.97 | \$4.86 |
| 154 | \$5.37 | \$6.32 | \$2.24 | \$4.32 | \$7.96 | \$2.24 | \$4.83 | \$7.34 | \$2.24 | \$5.39 |
| 155 | \$5.71 | \$8.98 | \$2.69 | \$5.83 | \$7.80 | \$2.58 | \$5.02 | \$8.42 | \$2.27 | \$5.80 |
| 156 | \$5.23 | \$7.25 | \$3.95 | \$5.08 | \$6.26 | \$2.66 | \$4.63 | \$8.14 | \$2.20 | \$5.56 |
| 157 | \$5.22 | \$7.05 | \$2.20 | \$5.34 | \$8.37 | \$4.29 | \$5.55 | \$9.13 | \$2.53 | \$6.30 |
| 158 | \$4.79 | \$8.30 | \$3.48 | \$5.21 | \$7.82 | \$2.20 | \$5.60 | \$6.95 | \$3.72 | \$5.60 |
| 159 | \$5.10 | \$7.46 | \$2.20 | \$5.25 | \$6.96 | \$2.53 | \$5.06 | \$8.56 | \$2.60 | \$5.87 |
| 160 | \$4.94 | \$6.72 | \$2.93 | \$5.20 | \$8.83 | \$2.57 | \$5.54 | \$7.12 | \$2.22 | \$5.28 |
| 161 | \$4.78 | \$7.65 | \$2.20 | \$4.56 | \$6.02 | \$2.78 | \$4.99 | \$7.66 | \$2.99 | \$5.64 |
| 162 | \$4.95 | \$7.40 | \$2.90 | \$4.74 | \$7.90 | \$2.34 | \$4.96 | \$7.15 | \$3.45 | \$4.78 |
| 163 | \$5.66 | \$6.91 | \$2.22 | \$5.11 | \$7.81 | \$3.63 | \$5.56 | \$7.10 | \$3.73 | \$4.83 |
| 164 | \$5.15 | \$7.69 | \$2.20 | \$5.37 | \$8.88 | \$3.28 | \$6.36 | \$9.84 | \$4.31 | \$6.11 |
| 165 | \$5.35 | \$6.68 | \$2.62 | \$5.18 | \$6.52 | \$3.66 | \$4.57 | \$9.37 | \$2.98 | \$5.91 |
| 166 | \$5.37 | \$8.06 | \$2.98 | \$5.22 | \$6.96 | \$2.93 | \$5.04 | \$7.60 | \$3.07 | \$5.26 |
| 167 | \$5.49 | \$7.24 | \$2.45 | \$5.14 | \$7.74 | \$3.35 | \$5.42 | \$7.09 | \$3.59 | \$5.12 |
| 168 | \$4.73 | \$8.77 | \$3.16 | \$5.15 | \$6.15 | \$2.74 | \$4.97 | \$7.30 | \$3.14 | \$4.88 |
| 169 | \$4.62 | \$8.58 | \$2.24 | \$5.28 | \$8.85 | \$3.55 | \$5.60 | \$7.22 | \$3.60 | \$5.15 |
| 170 | \$5.17 | \$8.32 | \$3.89 | \$5.75 | \$8.62 | \$3.46 | \$5.82 | \$7.41 | \$2.69 | \$5.93 |
| 171 | \$4.57 | \$8.12 | \$2.24 | \$4.53 | \$8.64 | \$2.24 | \$5.82 | \$7.16 | \$3.48 | \$4.94 |

| Draw | 2029 | | | 2030 | | | 2031 | | | |
|---------|--------|---------|--------|--------|--------|--------|--------|---------|--------|--------|
| | avg | max | min | avg | max | min | avg | max | min | avg |
| 172 | \$4.75 | \$7.89 | \$3.26 | \$5.06 | \$7.77 | \$2.76 | \$5.98 | \$6.45 | \$3.16 | \$4.95 |
| 173 | \$5.46 | \$7.50 | \$3.06 | \$4.87 | \$9.92 | \$2.68 | \$6.54 | \$7.21 | \$4.12 | \$4.96 |
| 174 | \$4.92 | \$7.69 | \$2.27 | \$5.67 | \$6.10 | \$4.67 | \$4.57 | \$8.45 | \$2.27 | \$5.51 |
| 175 | \$4.54 | \$7.11 | \$2.69 | \$4.64 | \$7.90 | \$2.39 | \$5.71 | \$8.30 | \$2.24 | \$5.93 |
| 176 | \$4.64 | \$7.36 | \$2.49 | \$4.86 | \$9.81 | \$2.37 | \$5.14 | \$7.76 | \$3.10 | \$5.53 |
| 177 | \$5.21 | \$7.08 | \$3.22 | \$5.04 | \$8.76 | \$3.05 | \$5.80 | \$7.70 | \$2.84 | \$5.93 |
| 178 | \$4.90 | \$7.11 | \$3.26 | \$5.52 | \$6.55 | \$2.95 | \$4.81 | \$7.06 | \$2.22 | \$5.45 |
| 179 | \$5.09 | \$7.34 | \$3.28 | \$5.47 | \$9.52 | \$3.11 | \$5.17 | \$6.66 | \$3.23 | \$5.05 |
| 180 | \$5.25 | \$8.14 | \$3.63 | \$4.95 | \$7.64 | \$3.16 | \$5.04 | \$7.56 | \$3.18 | \$4.72 |
| 181 | \$5.22 | \$7.35 | \$3.93 | \$5.67 | \$7.16 | \$3.89 | \$5.37 | \$6.97 | \$2.55 | \$5.58 |
| 182 | \$6.04 | \$6.42 | \$3.18 | \$4.82 | \$7.36 | \$3.47 | \$5.41 | \$6.93 | \$2.99 | \$5.59 |
| 183 | \$5.52 | \$7.69 | \$4.09 | \$5.18 | \$7.40 | \$2.65 | \$5.67 | \$7.22 | \$2.69 | \$5.17 |
| 184 | \$4.93 | \$7.70 | \$3.21 | \$5.04 | \$7.10 | \$2.63 | \$4.75 | \$7.54 | \$2.43 | \$5.47 |
| 185 | \$5.24 | \$7.22 | \$2.50 | \$5.13 | \$7.48 | \$3.00 | \$5.08 | \$7.12 | \$3.28 | \$5.75 |
| 186 | \$4.96 | \$8.36 | \$3.39 | \$5.74 | \$7.29 | \$3.96 | \$5.63 | \$7.44 | \$3.60 | \$5.25 |
| 187 | \$4.80 | \$7.36 | \$3.03 | \$4.79 | \$8.52 | \$2.54 | \$5.53 | \$7.40 | \$4.23 | \$5.63 |
| 188 | \$4.93 | \$6.82 | \$2.20 | \$4.47 | \$7.21 | \$3.01 | \$5.10 | \$6.14 | \$2.60 | \$4.83 |
| 189 | \$4.81 | \$7.71 | \$2.72 | \$4.77 | \$7.68 | \$2.20 | \$4.77 | \$6.29 | \$2.20 | \$4.84 |
| 190 | \$4.81 | \$7.46 | \$3.27 | \$4.93 | \$7.70 | \$2.27 | \$4.77 | \$7.52 | \$2.27 | \$5.58 |
| 191 | \$4.68 | \$7.18 | \$3.20 | \$4.74 | \$8.69 | \$2.83 | \$5.05 | \$6.71 | \$2.72 | \$5.00 |
| 192 | \$4.93 | \$7.79 | \$3.31 | \$4.85 | \$7.78 | \$2.74 | \$5.49 | \$8.72 | \$3.80 | \$5.60 |
| 193 | \$5.45 | \$7.90 | \$2.90 | \$5.92 | \$7.47 | \$4.52 | \$5.83 | \$8.24 | \$2.69 | \$5.73 |
| 194 | \$5.50 | \$7.56 | \$2.20 | \$4.56 | \$8.25 | \$2.20 | \$5.19 | \$8.80 | \$2.20 | \$5.43 |
| 195 | \$4.80 | \$9.05 | \$3.13 | \$4.94 | \$8.23 | \$2.88 | \$5.81 | \$7.23 | \$2.38 | \$4.66 |
| 196 | \$5.06 | \$6.80 | \$2.24 | \$4.64 | \$8.95 | \$2.88 | \$5.71 | \$7.96 | \$2.45 | \$5.92 |
| 197 | \$5.35 | \$7.32 | \$2.56 | \$5.11 | \$7.77 | \$3.49 | \$5.46 | \$7.05 | \$2.22 | \$5.36 |
| 198 | \$5.22 | \$7.74 | \$2.22 | \$5.39 | \$6.93 | \$3.71 | \$5.12 | \$7.48 | \$2.22 | \$5.18 |
| 199 | \$5.30 | \$7.46 | \$2.95 | \$5.26 | \$7.14 | \$2.93 | \$5.33 | \$8.50 | \$2.24 | \$5.92 |
| 200 | \$5.16 | \$6.37 | \$2.88 | \$4.37 | \$7.46 | \$2.27 | \$5.85 | \$9.41 | \$4.07 | \$5.26 |
| average | \$5.02 | \$7.60 | \$2.86 | \$5.14 | \$7.81 | \$2.90 | \$5.37 | \$7.81 | \$3.01 | \$5.48 |
| Max | | \$10.87 | | | \$9.92 | | | \$11.29 | | |
| Avg | \$5.02 | | | \$5.14 | | | \$5.37 | | | \$5.48 |
| Min | | \$2.20 | | | \$2.20 | | | \$2.20 | | |
| Range | | 8.67 | | | 7.72 | | | 9.09 | | |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 3.764645722 | 4.165504771 | 4.591988617 | 4.886815104 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 6.597372932 | 5.476815407 | 7.130158392 | 7.3582961 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 5.961820683 | 7.230936007 | 7.118155715 | 7.029784731 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 5.663144916 | 5.625699012 | 5.442851798 | 7.313247175 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 5.874915019 | 6.064039513 | 7.190813322 | 7.189436936 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 4.886756412 | 5.141820776 | 8.659475366 | 9.382453866 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 5.247372444 | 5.726891753 | 7.741884085 | 7.293956551 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 6.249714573 | 5.334719852 | 6.506197944 | 7.908461237 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 4.661331991 | 6.838197196 | 6.918377601 | 7.877849583 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 7.449167463 | 6.352496157 | 7.485583028 | 5.278910404 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 5.036224209 | 6.090946177 | 7.303473635 | 7.837296279 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 8.722863074 | 8.935406028 | 6.860461054 | 6.341132156 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 5.134160774 | 6.307710502 | 5.908020964 | 6.424658065 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 5.805895493 | 7.391920829 | 8.435422609 | 6.985401804 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 5.254516924 | 5.266290867 | 6.151558471 | 6.752242661 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 5.406413718 | 5.95094426 | 7.373958586 | 7.840693245 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 6.794515059 | 5.786060736 | 7.310464488 | 6.61799126 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 6.948611018 | 6.106804458 | 7.236863354 | 6.657980934 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 5.333650592 | 5.257022843 | 6.760382619 | 7.60431391 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 6.518537855 | 6.92027687 | 6.658098588 | 7.054099143 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 5.598122372 | 6.501332121 | 9.058769306 | 7.259045535 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 6.040641286 | 7.995514085 | 5.750767319 | 7.174729942 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 5.737598889 | 6.812912434 | 6.2094848 | 7.319463138 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 5.395698654 | 6.775181714 | 6.357647166 | 7.767911845 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 5.070233862 | 6.673885957 | 7.255177482 | 7.237102583 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 5.729867419 | 5.421649128 | 5.102353159 | 6.684260386 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 6.220168893 | 7.399026035 | 6.510194081 | 6.974113549 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 5.475299241 | 6.899115667 | 8.08128086 | 7.486367678 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 5.851064354 | 7.452749658 | 6.679391883 | 6.210428128 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 6.509813306 | 5.69948857 | 5.109197233 | 5.756493231 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 6.409321149 | 6.599697921 | 8.206868728 | 9.060554764 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 5.809617562 | 6.192965241 | 6.082147879 | 7.227645388 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 4.480928218 | 6.762368036 | 9.024669648 | 7.730198144 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 5.827771201 | 5.70355055 | 6.882873966 | 6.565197603 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 7.39009163 | 5.918565521 | 5.300927219 | 6.220372452 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 5.242721332 | 6.273960205 | 6.893690136 | 7.647952355 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 6.921385578 | 6.19928241 | 6.705587447 | 6.427522358 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 5.853524283 | 5.609350138 | 7.49963777 | 6.570100472 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 6.116523114 | 4.91313896 | 5.236794174 | 8.206331934 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 6.105925362 | 6.119041225 | 7.55802221 | 7.969010882 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 5.914648118 | 6.313359192 | 6.491033723 | 7.486255357 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 5.990038646 | 6.324133967 | 6.696048303 | 6.678963474 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 6.818547336 | 5.825500048 | 6.627187052 | 7.978478088 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 5.633201976 | 5.457412398 | 8.782758229 | 7.330925657 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 5.976123445 | 7.130703813 | 6.111686152 | 6.980951969 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 7.272374162 | 6.914677296 | 7.43598682 | 8.247612722 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 4.963534619 | 7.08112329 | 6.352533231 | 8.732133086 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 8.172730897 | 6.627404415 | 8.684145142 | 6.177469248 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 6.063757577 | 5.676626888 | 7.364792666 | 7.803089162 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 9.930702288 | 6.101546446 | 8.869365123 | 7.25724524 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 6.382557035 | 5.267726428 | 7.850860884 | 6.829084036 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 5.799300562 | 7.283699476 | 6.687373833 | 6.062270468 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 7.065080892 | 6.863470821 | 6.383425801 | 6.823186678 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 6.829300779 | 5.996315775 | 9.33118609 | 6.151891855 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 4.797218517 | 5.948469041 | 7.128672709 | 7.606638328 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 5.448411895 | 5.216308501 | 7.256112526 | 7.272723744 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 7.262547463 | 5.800289585 | 6.163427439 | 6.501647239 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 5.178214962 | 7.518320332 | 5.368592643 | 7.936617999 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 6.989160372 | 6.943534685 | 7.62388888 | 6.381360675 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 4.683505659 | 5.958883874 | 6.801400194 | 8.70454692 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 6.380291935 | 4.813790261 | 7.860878801 | 6.654003284 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 4.938447567 | 6.925712889 | 9.269556647 | 9.679412606 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 6.233880997 | 5.158643422 | 6.035763703 | 6.505105149 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 7.349242829 | 6.519195967 | 7.39673792 | 7.135174836 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 7.57236872 | 6.697211425 | 7.10475731 | 7.855296623 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 7.818222383 | 5.915208154 | 6.000048648 | 7.580146497 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 6.309889889 | 5.638416783 | 7.265085488 | 7.955824065 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 4.974718951 | 6.885938973 | 7.013891101 | 7.34359826 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 5.509896776 | 6.809287761 | 6.868909015 | 7.853776211 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 5.458962976 | 7.05940625 | 6.003768274 | 6.527568638 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 6.646807496 | 6.308997139 | 7.000860038 | 5.78417107 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 6.72476873 | 6.773233272 | 7.103885357 | 7.408989851 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 5.112500629 | 5.49074897 | 7.31749223 | 7.423460396 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 6.909600962 | 5.654729495 | 5.687840809 | 6.206093125 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 5.893864738 | 6.540913692 | 4.940643348 | 7.926518219 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 6.855463083 | 6.976932247 | 6.261371497 | 6.652224642 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 6.42449307 | 6.628499684 | 5.636274994 | 5.468746019 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 5.418435299 | 6.33004791 | 6.397408028 | 7.772464482 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 6.556859911 | 6.884639603 | 6.263133191 | 5.459453819 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 5.466158632 | 5.704145857 | 6.24195035 | 6.259883589 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 4.16256973 | 6.630468916 | 7.539784297 | 7.2439581 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 6.428314309 | 6.672370686 | 6.512703657 | 7.096987617 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 5.078291487 | 6.619030767 | 8.478098234 | 6.533497397 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 5.287054048 | 7.249784847 | 5.943317382 | 7.581382285 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 7.651500998 | 6.751773243 | 7.486780765 | 8.371089784 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 5.190617622 | 6.948244852 | 6.170839235 | 8.209988399 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 5.854263795 | 5.54489543 | 7.905578999 | 6.348296717 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 5.286296616 | 5.3131019 | 7.248169126 | 7.089066376 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 6.800770144 | 5.508394969 | 5.859287152 | 5.513431334 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 5.339486379 | 7.224074551 | 5.469977925 | 6.178425588 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 5.916876981 | 7.787641266 | 9.88283018 | 7.478490277 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 5.576267326 | 6.501926915 | 6.843628288 | 6.335932044 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 5.487940457 | 6.893475311 | 6.784839703 | 5.958971212 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 5.362304374 | 5.508493769 | 6.449807798 | 8.024513091 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 7.290241487 | 5.472993049 | 6.497053927 | 6.403684765 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 5.746525461 | 6.529193457 | 5.767026894 | 6.281155445 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 6.874964254 | 5.203335417 | 5.776356882 | 6.380635586 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 6.527492992 | 5.89634627 | 7.177463434 | 7.662524976 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 5.341666383 | 6.099303341 | 5.388367972 | 6.375186527 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 6.566922673 | 7.36677645 | 6.555906615 | 7.012931866 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 5.915380692 | 6.853119621 | 7.344547934 | 7.7245165 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 6.458868091 | 5.953596088 | 6.811250021 | 8.005439166 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 5.660830008 | 7.022959344 | 7.206600705 | 5.978358601 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 7.474048728 | 5.349805439 | 6.888288261 | 6.823719877 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 7.236582715 | 5.268278918 | 5.793293969 | 9.017538968 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 5.084490917 | 6.30288539 | 5.982018958 | 6.725896539 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 6.845576417 | 5.60237517 | 5.452346338 | 7.553464731 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 5.106939052 | 5.558829938 | 7.026750331 | 7.813577481 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 6.155994488 | 7.095703519 | 6.085372327 | 7.671812799 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 5.651515713 | 5.68246038 | 6.625380191 | 7.343227859 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 4.166283924 | 7.700338393 | 5.797024326 | 7.518563091 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 3.870611339 | 7.411392803 | 6.522051077 | 6.242616661 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 6.00487401 | 6.447224429 | 7.447511267 | 7.165212558 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 6.536125726 | 6.8947066 | 7.022538878 | 7.280783066 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 5.132295596 | 5.805513446 | 6.494755595 | 6.494673718 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 6.839632971 | 5.863634529 | 5.833207505 | 6.061186071 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 4.043954991 | 5.032067262 | 7.556156186 | 6.957014062 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 6.104332505 | 6.086618097 | 9.25611602 | 6.12650936 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 5.223218261 | 5.786156801 | 6.499610502 | 5.871400678 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 7.6209206 | 5.613214939 | 6.574028599 | 6.393315711 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 5.38748541 | 5.849494059 | 8.27996327 | 7.104324845 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 6.087097304 | 5.644053866 | 4.460959761 | 6.967158886 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 6.757815021 | 6.698268629 | 7.296409746 | 7.44821779 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 4.94151344 | 4.867360162 | 6.782775125 | 7.334886259 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 4.832667164 | 5.80807755 | 5.875488695 | 7.218001067 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 6.100668711 | 6.369067235 | 6.290373054 | 6.446720339 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 6.728695973 | 5.856574361 | 9.789839968 | 7.173967437 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 5.70557995 | 6.917154718 | 6.621464627 | 7.125021998 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 6.313814779 | 5.769478877 | 5.30412702 | 5.859235872 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 4.801326497 | 5.492285246 | 6.465890329 | 7.527296431 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 5.786247533 | 4.592178708 | 7.298406057 | 6.625071034 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 5.919013872 | 5.171774047 | 8.359084311 | 8.129842587 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 4.991726808 | 5.989079147 | 6.062986858 | 6.510456403 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 6.148640007 | 6.32739112 | 7.679734967 | 7.994699369 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 5.58251671 | 7.036085445 | 6.341123772 | 6.636227646 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 5.621858848 | 6.007286566 | 6.349364857 | 6.463877277 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 5.585141203 | 6.514988492 | 7.060411521 | 8.601388612 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 6.239064176 | 4.873718002 | 6.607180145 | 7.877524334 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 6.633430194 | 7.059799438 | 7.02641786 | 6.540442513 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 5.973847526 | 7.152069902 | 7.238148964 | 8.089294594 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 6.31676994 | 5.821803846 | 7.401475772 | 6.768416958 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 4.537720649 | 5.496125221 | 6.582674094 | 5.55599524 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 6.82983194 | 5.477645302 | 7.250125988 | 7.131466689 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 6.470310739 | 7.467896197 | 6.45215131 | 6.092938396 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 5.228118192 | 8.200065585 | 8.984374111 | 5.73204662 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 5.861927583 | 6.412169186 | 5.94864364 | 7.943604132 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 5.949232067 | 5.697641983 | 7.181443622 | 7.075366785 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 5.77752886 | 6.375282621 | 7.377778669 | 7.672333644 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 5.488761903 | 5.481084305 | 7.297628209 | 7.235068813 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 7.033690271 | 5.824474344 | 6.445628955 | 7.114134717 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 5.606679085 | 5.706958623 | 6.561314757 | 6.57484427 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 5.653137081 | 8.574613454 | 7.405051129 | 7.410449012 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 5.551949424 | 6.842743081 | 7.588228348 | 7.796659615 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 5.796479853 | 5.778916666 | 6.786197522 | 8.334317264 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 7.638841249 | 6.279088949 | 6.365706032 | 5.797282142 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 5.25469656 | 7.026025406 | 7.223945753 | 6.927736364 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 5.401412246 | 7.07121018 | 5.976885965 | 7.432854751 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 5.577828993 | 6.209754937 | 6.992852436 | 8.088681577 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 6.039052373 | 7.157310033 | 6.642345541 | 7.655159651 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 5.597717349 | 5.346972132 | 6.64047899 | 7.41077769 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 6.026912306 | 4.885921106 | 6.837691958 | 7.189392647 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 6.814385826 | 7.961333869 | 6.718137983 | 7.454780434 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 6.77256562 | 4.749915083 | 8.713667923 | 5.309382665 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 5.705045088 | 7.30058657 | 7.25897217 | 6.936064574 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 5.364201986 | 5.656126036 | 8.609142476 | 7.464011775 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 8.100410453 | 6.983448784 | 6.951713143 | 6.848364836 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 6.06118712 | 6.564008437 | 5.749430817 | 7.552132529 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 5.005467705 | 7.184537005 | 6.070545227 | 7.473711993 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 6.55940269 | 4.818888633 | 7.329611478 | 8.161102757 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 5.267827545 | 5.385612157 | 8.015825887 | 6.750278319 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 5.104968775 | 7.033221437 | 5.868938428 | 5.732695443 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 6.183636088 | 5.06724587 | 6.268144017 | 5.723293139 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 5.409882522 | 6.478158743 | 5.733142267 | 6.834570826 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 5.377660865 | 5.915498289 | 6.815206809 | 5.916575698 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 6.243408612 | 5.696470922 | 7.339364099 | 8.687073132 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 7.878031704 | 7.345834955 | 5.731405976 | 4.609939495 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 4.272942785 | 5.623010381 | 7.079942002 | 6.584766342 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 7.198858469 | 5.834940913 | 7.693750802 | 7.744597293 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 5.679262931 | 5.547853796 | 5.474477645 | 7.122426038 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 5.751349522 | 6.641668221 | 6.319070781 | 7.305844454 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

PAGE 4

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 5.609522156 | 7.2902345 | 7.861473701 | 6.307231502 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 6.386063413 | 6.550116686 | 8.197299269 | 6.889460323 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 5.735406084 | 5.735149658 | 6.684575504 | 5.672925792 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 5.855183303 | 8.933016921 | 4.864355407 | 5.576733532 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 4.348147456 | 8.760345524 | 7.029014661 | 8.50441059 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 6.428543706 | 5.768847605 | 6.487072543 | 6.238620203 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 5.061148879 | 7.082095066 | 7.177130164 | 7.649008176 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 5.797893712 | 6.180482922 | 5.267155169 | 6.534323755 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 5.330057082 | 6.524042248 | 6.714483836 | 7.694861086 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 7.98972725 | 6.191570419 | 7.243910025 | 6.143461876 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 4.792045073 | 6.187906411 | 6.108920256 | 7.81520585 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 6.380598725 | 5.942584437 | 9.546420571 | 8.761313578 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 4.115584469 | 5.938122482 | 5.783423801 | 8.069033549 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 5.468348033 | 6.58766808 | 6.716818821 | 6.712042447 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 5.611682614 | 6.750713144 | 6.27464787 | 6.618866072 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 4.76661657 | 5.274913982 | 6.133813363 | 7.445768487 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 4.928352154 | 6.534847352 | 7.665167736 | 8.008123719 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 7.462067005 | 5.67685287 | 7.248161205 | 8.191607544 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 5.157519088 | 5.740893222 | 6.22392888 | 5.96561033 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 5.48129406 | 8.592657839 | 8.148819113 | 6.742395757 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 7.772540093 | 7.397538312 | 6.521852466 | 7.054106344 |
| | | | | | | |
| | Average Max Price | | 5.827771201 | 6.296521679 | 6.870533969 | 7.091834466 |
| | NYMEX Absolute | Max | 9.930702288 | 8.935406028 | 9.88283018 | 9.679412606 |
| | Minimum Max | | 3.764645722 | 4.165504771 | 4.460959761 | 4.609939495 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 5.045041565 | 5.03775543 | 4.850257958 | 5.015508889 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 7.056235709 | 7.325200115 | 6.575714384 | 8.121866519 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 7.18340484 | 8.53386735 | 7.088912825 | 7.348504708 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 8.021410952 | 8.808496688 | 7.219167426 | 6.828086808 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 6.790331833 | 8.011635067 | 7.507461662 | 5.903328549 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 6.604056995 | 7.022179741 | 9.045142388 | 6.768419867 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 8.468796987 | 7.239538033 | 6.697423134 | 7.381976277 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 7.945319419 | 7.589911367 | 7.169712279 | 7.800846977 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 6.965461309 | 7.359477488 | 7.748738882 | 7.639887886 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 7.698200843 | 7.882858185 | 6.563124791 | 7.936236689 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 6.278160322 | 6.094851261 | 7.194213738 | 6.80077358 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 6.57561742 | 7.920163533 | 6.835924966 | 7.173175329 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 7.155583509 | 8.54652374 | 7.300981305 | 8.617649677 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 8.17907352 | 6.599293233 | 6.583814009 | 8.334241654 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 6.977473554 | 6.020897821 | 6.501207751 | 7.131308282 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 8.054806867 | 6.910259032 | 8.401843432 | 6.459492722 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 7.258544004 | 7.950516016 | 7.266221959 | 6.804450985 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 7.448681219 | 8.030061167 | 7.165430356 | 7.981541541 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 6.501508196 | 8.570458461 | 6.943618316 | 8.437775747 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 6.375186527 | 7.443454634 | 7.668565878 | 7.777825611 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 6.468392191 | 8.345168876 | 7.746227965 | 5.872264981 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 6.427188396 | 6.087464212 | 7.098844586 | 6.583889619 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 8.291731395 | 6.992824573 | 7.571991389 | 9.125562992 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 8.102743998 | 7.9706322 | 6.955535458 | 7.992169452 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 9.34296424 | 5.979275734 | 6.360004282 | 6.434624291 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 8.938907899 | 5.397610749 | 5.926774053 | 6.381551764 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 6.639636718 | 7.491817129 | 7.282615729 | 8.123499965 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 9.904283208 | 6.248338188 | 6.879701578 | 8.308572866 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 7.141808507 | 5.772951735 | 7.810218495 | 7.168176331 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 7.536270077 | 7.87769986 | 7.327629911 | 6.76033465 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 7.944984096 | 8.346744536 | 7.609161095 | 8.378144369 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 5.791764838 | 6.72254377 | 7.909472575 | 7.218905823 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 7.691921019 | 7.369330709 | 6.828247012 | 6.664215841 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 7.291113476 | 6.840519633 | 6.941991722 | 6.099767377 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 6.433370993 | 6.684333665 | 8.885840478 | 7.776698644 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 7.522435692 | 6.724145247 | 8.525503256 | 7.749208201 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 7.829564018 | 7.267527382 | 8.604993287 | 8.392281081 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 7.398524618 | 7.368187108 | 8.289927386 | 9.005456581 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 6.950754229 | 7.137799287 | 5.860637767 | 5.70899419 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 7.798514744 | 6.933376891 | 7.589810931 | 7.077966788 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 6.490943889 | 6.905698174 | 7.114264192 | 6.2844191 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 7.11688204 | 8.377625299 | 6.887321248 | 6.595214135 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 7.2755155 | 6.943662334 | 5.687674138 | 5.60237157 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 7.124071775 | 7.543939975 | 7.12660868 | 7.191598235 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 7.475280637 | 6.578323847 | 6.976257074 | 6.734363357 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 7.354042531 | 6.429535937 | 6.109600007 | 9.182264142 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 8.407150768 | 7.20430566 | 7.319936984 | 7.596227852 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 7.277345332 | 7.117721952 | 6.372309016 | 7.596380384 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 8.974131609 | 6.775495919 | 7.441781113 | 7.35476762 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 7.293526652 | 6.342113871 | 7.844649976 | 6.601596106 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 6.614702337 | 7.432383479 | 7.058874404 | 6.337827549 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 7.458956617 | 7.08106343 | 6.655027805 | 7.235630404 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 8.366599146 | 8.017185781 | 7.33337647 | 6.322017143 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 9.380527768 | 8.366705507 | 7.041978484 | 6.401979715 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 7.370848732 | 7.290908284 | 7.499098182 | 5.602674863 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 7.44195179 | 7.62945304 | 8.002989421 | 7.323646187 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 6.862916745 | 7.378584837 | 7.787622971 | 7.297817587 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 8.205727943 | 6.675148346 | 6.584380726 | 6.518915186 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 8.220101418 | 8.783867486 | 6.789356734 | 8.277441887 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 7.889736189 | 7.021972596 | 7.622393785 | 7.411047192 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 7.491563405 | 6.786650307 | 8.553456836 | 7.617310322 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 8.168426872 | 6.324112863 | 7.282607808 | 6.69703068 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 7.93692044 | 7.507824905 | 6.116768596 | 7.445501153 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 7.633084744 | 6.947698419 | 7.617983364 | 6.536405594 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 6.44332435 | 7.846612963 | 7.204163224 | 7.744752955 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 7.656031134 | 10.03535556 | 6.581827979 | 8.921088314 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 7.571930608 | 7.438895017 | 6.965932581 | 7.447387895 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 7.281053837 | 7.202757806 | 5.931618543 | 6.407026104 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 7.744701343 | 8.622086443 | 7.858187346 | 7.276172143 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 7.836417303 | 7.798172776 | 8.047713147 | 6.810869224 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 8.473529377 | 5.755282953 | 7.129747366 | 7.686663734 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 7.120259599 | 7.500717047 | 7.570392294 | 7.330083263 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 6.905582552 | 8.314459125 | 6.852070638 | 6.803284725 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 8.796053539 | 7.569388876 | 7.829628691 | 5.871279687 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 8.33852116 | 8.043517729 | 7.036184904 | 7.397321128 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 6.309916248 | 6.64193634 | 6.617312457 | 6.979537497 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 8.21629898 | 8.679161345 | 7.564289942 | 7.081969092 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 6.949588455 | 6.164444117 | 7.635417611 | 6.675729465 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 7.821617951 | 8.44466292 | 8.378430911 | 7.728864351 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 5.889310596 | 7.433522959 | 7.156901309 | 7.830377849 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 7.732590152 | 6.532712419 | 7.375984841 | 6.455126505 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 7.466384683 | 8.217833794 | 8.885871142 | 7.391358282 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 6.745936257 | 8.186907757 | 5.609910888 | 8.661186333 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 9.583346634 | 6.699667615 | 8.920958069 | 6.378489323 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 7.509501293 | 6.466120489 | 7.08041368 | 8.416243522 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 6.93933641 | 7.85480198 | 7.043173076 | 7.147901162 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 8.119000315 | 6.5795938 | 5.773884679 | 7.102397805 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 7.283008182 | 7.42267477 | 8.248691864 | 7.548961218 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 8.275874839 | 6.623946505 | 7.144156746 | 7.820789532 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 7.516564862 | 7.625807491 | 6.246443012 | 6.564786071 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 7.528687582 | 6.271302324 | 8.095108665 | 6.72100418 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 6.966185856 | 7.178971469 | 6.829920904 | 6.519186784 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 7.005937976 | 8.153442968 | 8.367635317 | 7.910385353 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 6.991786619 | 8.003789671 | 7.513604575 | 7.155738793 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 7.724908262 | 7.749231714 | 7.94023356 | 7.511047458 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 7.763840569 | 7.87944845 | 6.515337847 | 7.684943349 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 7.262677794 | 7.216655696 | 6.29392867 | 7.75778431 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 7.146293996 | 8.142603442 | 8.680973831 | 7.837627581 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 7.320777317 | 7.473257326 | 6.086678585 | 6.274043737 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 8.318536319 | 7.305419069 | 8.896774929 | 6.748246923 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 6.819148824 | 7.220835115 | 7.034098759 | 7.892352782 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 7.469872545 | 6.388306183 | 8.349491788 | 9.527884523 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 6.516220751 | 6.734826787 | 6.240452489 | 8.648625972 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 6.442713243 | 6.282812326 | 6.412769377 | 6.258129737 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 7.929481108 | 7.879152704 | 7.352286591 | 7.665922413 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 8.054192189 | 7.497691445 | 8.709350808 | 7.847104811 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 7.670539103 | 8.013538841 | 6.169505735 | 7.055084265 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 7.820238479 | 6.856557839 | 7.696489456 | 7.609006417 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 7.026138462 | 6.207076073 | 9.986200233 | 8.171220852 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 8.119026987 | 6.267248308 | 6.848231767 | 6.716859688 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 7.655338364 | 5.689521235 | 8.262907231 | 7.630026288 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 6.529748246 | 8.262981344 | 6.460065749 | 7.013960537 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 6.688024067 | 6.9376241 | 7.299619743 | 7.572074121 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 5.80143966 | 8.114824132 | 8.183399611 | 7.639334594 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 7.310958333 | 6.378659274 | 6.781509557 | 7.787673207 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 6.380217929 | 6.639319433 | 6.827595615 | 6.165023988 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 7.531859656 | 7.758681937 | 8.275573197 | 6.42389921 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 7.472396809 | 7.98554721 | 6.79904911 | 9.436051202 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 7.980676226 | 6.849391838 | 7.283193611 | 7.60621859 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 7.873342996 | 7.4501141 | 6.887989121 | 6.5424055 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 6.831302964 | 7.533833052 | 7.029360372 | 7.432507692 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 7.369002031 | 6.924926927 | 7.451649306 | 7.057312291 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 6.378228605 | 6.450424479 | 9.380378758 | 7.713451947 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 7.857540634 | 6.849231235 | 6.218451573 | 9.580404257 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 7.518178509 | 7.61417041 | 6.895186884 | 7.017883723 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 7.12220131 | 6.031117835 | 7.107489996 | 8.271903664 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 9.175685584 | 7.228408264 | 7.593162801 | 6.775070277 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 6.772800771 | 7.811214176 | 7.34019358 | 7.404007358 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 8.618796807 | 7.417992215 | 6.768259292 | 8.48691979 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 7.057102799 | 7.029362639 | 6.634853956 | 7.135570869 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 7.486255357 | 6.65748756 | 5.942421438 | 7.775128688 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 8.64646674 | 9.259740273 | 7.679514246 | 9.328527624 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 6.091485623 | 7.391459816 | 6.600445112 | 7.009525596 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 6.673067341 | 7.259470863 | 6.263800059 | 8.892120302 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 7.375068235 | 8.359968228 | 8.950923596 | 7.617428675 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 6.527609556 | 7.123010472 | 6.419055119 | 6.334318497 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 7.554246736 | 8.058110035 | 6.744426804 | 6.231955455 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 8.643479838 | 6.609104966 | 6.583481616 | 6.434901194 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 8.773923348 | 5.170513155 | 9.049073473 | 8.260697336 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 8.357800377 | 8.073513649 | 7.793229225 | 8.450599393 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 8.158327371 | 7.612558902 | 6.344383755 | 6.581749488 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 7.687442524 | 7.952021613 | 6.190585111 | 6.693338018 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 7.341206252 | 6.492715615 | 6.84452978 | 6.068564408 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 7.502660363 | 7.059211118 | 6.861931658 | 7.327436782 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 7.933620095 | 5.917010538 | 9.249847112 | 7.294734984 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 7.316162887 | 6.865869489 | 7.050826804 | 8.208090584 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 7.054336362 | 8.498059205 | 7.412138746 | 6.423854293 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 7.064055544 | 7.286257079 | 7.425057017 | 7.598994169 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 8.113867015 | 6.733660371 | 7.641308119 | 6.278438722 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 5.856981773 | 7.643144654 | 7.300491546 | 6.199649204 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 6.038505098 | 7.856208716 | 7.255330492 | 7.439814098 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 7.941544737 | 5.491819824 | 7.050045006 | 7.462175568 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 7.38083659 | 6.886477264 | 6.263568344 | 7.535597748 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 8.2389511 | 6.875024478 | 7.085064792 | 7.4468823 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 6.837606858 | 5.856178307 | 6.394002314 | 7.699845661 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 8.577301337 | 7.759628017 | 6.391117973 | 6.978545752 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 7.634206243 | 7.350192503 | 10.01412052 | 7.751729071 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 7.772944474 | 8.051379423 | 8.279338446 | 8.248549064 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 8.456311794 | 5.924693298 | 5.909249037 | 7.602189136 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 6.522231073 | 7.613273496 | 6.639813791 | 6.755954174 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 6.084909333 | 6.950900958 | 7.39133278 | 8.150797157 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 7.669006663 | 8.547453472 | 7.534492633 | 6.512271107 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 7.997241101 | 6.248998126 | 6.424721262 | 8.409767361 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 5.868719033 | 6.051288162 | 7.576180398 | 8.553387606 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 7.756924499 | 6.757085412 | 7.883086862 | 9.766142145 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 6.813062928 | 7.195984608 | 6.359216595 | 6.441146624 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 7.123173093 | 7.440985419 | 7.64364833 | 6.966902489 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 6.821979515 | 8.101486194 | 6.207246387 | 6.499662585 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 5.467152802 | 8.047086056 | 7.388938183 | 8.923428632 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 8.37010829 | 6.318185738 | 8.552987952 | 7.547240184 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 7.141653365 | 7.8709985 | 6.328514872 | 7.178410341 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 7.018127807 | 7.503760951 | 6.385757186 | 6.668240824 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 6.59433516 | 8.09079274 | 6.066475996 | 7.734432362 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 7.066542164 | 7.402176042 | 5.941001861 | 7.851510113 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 8.407231447 | 7.743043036 | 6.168826184 | 7.716102591 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 7.928804081 | 7.87685927 | 5.714715917 | 6.405816525 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 7.220420211 | 6.074322497 | 6.818305582 | 8.758456557 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 6.51850565 | 8.074693269 | 7.200080276 | 5.634818396 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 7.160823654 | 6.448445529 | 6.246051271 | 8.58027341 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 6.877940183 | 7.213246995 | 8.183319388 | 7.50935624 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

PAGE 8

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 7.326331895 | 7.356458824 | 7.368914007 | 8.427005849 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 7.45440065 | 9.277657863 | 6.83189527 | 6.039145914 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 7.403055018 | 7.639334594 | 7.124912301 | 7.060819738 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 8.435800967 | 7.633134801 | 7.269378091 | 7.912754147 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 6.348210811 | 8.875212981 | 7.623957489 | 6.419647317 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 7.950870839 | 6.753954326 | 6.968539121 | 6.7091844 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 9.296123739 | 9.188618827 | 7.647364071 | 6.144161854 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 7.815463724 | 7.01280237 | 6.883474855 | 6.527531607 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 6.365558911 | 7.335182711 | 7.56696738 | 7.226243592 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 5.972700478 | 7.096891623 | 6.320884978 | 8.677747593 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 6.434390872 | 6.593288537 | 6.588514245 | 7.312105321 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 8.529137518 | 7.135396427 | 7.274973301 | 6.793058437 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 6.784735417 | 5.897922268 | 7.270907515 | 7.906019185 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 8.244503097 | 7.791139572 | 7.23259661 | 7.713552147 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 7.585088436 | 6.621027078 | 6.873678772 | 7.419060955 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 6.962798572 | 7.055200721 | 8.687462847 | 7.526506391 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 7.120530334 | 6.815690572 | 5.748230414 | 8.392684799 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 6.459082972 | 7.036490589 | 10.40239881 | 8.651449818 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 7.390499277 | 8.875361207 | 7.366341953 | 6.343355348 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 6.395838264 | 8.046101226 | 6.543225306 | 8.233733199 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 7.732671873 | 7.824262564 | 8.424700352 | 7.899393258 |
| | | | | | | |
| | Average Max Price | | 7.423181824 | 7.298835782 | 7.240801375 | 7.362961647 |
| | NYMEX Absolute | Max | 9.904283208 | 10.03535556 | 10.40239881 | 9.766142145 |
| | Minimum Max | | 5.045041565 | 5.03775543 | 4.850257958 | 5.015508889 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 5.114708427 | 4.95046713 | 4.937604949 | 5.197660889 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 7.251494174 | 6.758989279 | 7.121134353 | 7.759802723 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 7.411837482 | 6.664073554 | 9.053657431 | 6.966615006 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 7.932833535 | 8.211313728 | 7.986097508 | 8.026686203 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 7.324021287 | 7.386576932 | 7.308360141 | 7.431154165 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 6.910949485 | 7.005658771 | 10.72613247 | 7.248326642 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 6.679459572 | 8.409372348 | 7.636550325 | 7.917439631 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 7.890254132 | 7.776571072 | 7.009482697 | 8.478950288 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 10.06548061 | 8.432121053 | 7.057850582 | 6.870217311 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 9.23407269 | 6.563827777 | 6.963442896 | 7.38889527 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 6.940592208 | 7.090726573 | 7.323445529 | 6.494393942 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 6.606516036 | 6.643776468 | 5.834953957 | 7.86753222 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 6.859504009 | 7.029621682 | 7.76310085 | 8.687147245 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 7.676569766 | 7.159817435 | 8.490693723 | 6.784468567 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 6.185201302 | 7.012655641 | 6.708129678 | 8.338648525 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 9.909456071 | 6.291379095 | 6.28833686 | 6.875794149 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 6.837016521 | 9.174862819 | 7.944535639 | 6.675527081 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 7.602582538 | 6.69301334 | 6.580626022 | 7.094751678 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 8.909162466 | 8.496681095 | 6.877064202 | 7.487309523 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 8.225586083 | 5.634085176 | 9.111292092 | 8.918747276 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 7.816416064 | 6.125292608 | 6.574948784 | 7.305165908 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 7.981017074 | 7.653539595 | 6.916651897 | 8.372298108 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 8.474459836 | 7.817542611 | 6.785246273 | 6.905167776 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 7.015663019 | 7.914308403 | 6.303936383 | 8.177052561 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 8.763218957 | 7.244092466 | 7.204360388 | 6.531869191 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 5.358384885 | 6.577329984 | 7.245469622 | 6.623347647 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 7.284956047 | 6.946402022 | 8.964505177 | 7.139694299 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 7.701374564 | 6.59727723 | 7.082119129 | 7.610857125 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 8.061281346 | 7.374984126 | 6.524986332 | 7.149714461 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 8.616031204 | 7.413110522 | 7.912538338 | 7.62261837 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 8.567960035 | 6.555073241 | 8.981383922 | 9.451774682 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 7.121942146 | 8.20941046 | 7.045469889 | 7.624113465 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 6.498091395 | 7.697976258 | 7.374698647 | 7.440472816 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 7.997087499 | 6.498218674 | 8.218054173 | 8.37952998 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 6.126682725 | 8.019295347 | 7.324512101 | 8.854740091 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 6.309199636 | 6.942875702 | 7.523681461 | 5.886031948 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 6.508632381 | 7.381151857 | 7.32883934 | 6.916796922 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 7.903492198 | 7.903117889 | 7.815200353 | 7.501207726 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 7.440860058 | 6.279134323 | 8.257397769 | 7.070820358 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 7.220427355 | 5.431747389 | 6.375594102 | 6.539921162 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 7.466466924 | 6.804181483 | 8.280956107 | 7.286444589 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 6.59611547 | 8.551703019 | 6.497983908 | 8.934731717 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 7.663438652 | 6.325291029 | 6.810143964 | 7.244905764 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 6.75815403 | 7.121980611 | 7.547119207 | 8.225284362 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 7.824545228 | 7.614544005 | 8.183618122 | 6.5905099 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 7.181256824 | 6.422307152 | 7.524233748 | 7.018160354 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 7.801743791 | 7.118286045 | 8.851973775 | 7.353234738 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 8.519085023 | 6.841922298 | 7.627640554 | 7.828340479 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 5.849277845 | 6.204814773 | 6.944686128 | 8.121492923 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 8.42696578 | 7.822375188 | 5.856704881 | 6.880430973 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 9.021604598 | 7.652222949 | 7.143607825 | 7.872765407 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 8.064417879 | 7.771064969 | 9.482240669 | 8.161859815 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 6.977716434 | 6.600378685 | 6.855410851 | 7.17129618 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 8.948265122 | 6.889146617 | 7.169982658 | 6.740194724 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 7.612781241 | 8.057226589 | 8.184232351 | 7.205297834 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 9.035180625 | 7.785527058 | 7.401879783 | 7.831889121 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 8.374182062 | 7.840007269 | 8.360920568 | 6.74938564 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 7.981318795 | 6.545803642 | 8.686108129 | 8.022923892 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 6.774561931 | 8.626646588 | 8.859449959 | 7.198661091 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 6.483707262 | 7.058852302 | 7.858187346 | 8.239688081 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 8.80031495 | 6.535575699 | 6.407033234 | 6.170611549 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 7.309126133 | 7.07835204 | 6.70695939 | 7.76317666 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 8.032588325 | 8.75172417 | 8.629854802 | 6.914190603 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 7.541279392 | 7.532606846 | 7.842562647 | 8.268097012 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 9.436126092 | 6.878649451 | 7.042002218 | 8.186397635 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 6.360809772 | 6.452347897 | 8.373279601 | 7.962895091 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 6.968280385 | 7.936984592 | 6.635118895 | 8.729217759 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 6.114945842 | 7.960384209 | 6.881363856 | 8.997083482 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 7.908800246 | 7.394756581 | 8.142799265 | 8.176216799 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 8.659988218 | 7.394776017 | 6.9717665 | 8.549284788 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 7.729816692 | 8.709734891 | 7.479763468 | 6.985554821 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 6.767386476 | 6.470348576 | 6.694905914 | 8.311100531 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 9.12775281 | 7.831813511 | 6.056369665 | 8.698566543 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 7.461921039 | 8.321999548 | 8.503442115 | 7.793444841 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 8.912305145 | 8.563100444 | 6.115147613 | 9.433532677 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 7.68153909 | 6.397976663 | 8.38680448 | 8.299395554 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 6.31644094 | 7.008363565 | 7.287206353 | 7.717948031 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 8.049049043 | 7.321441247 | 7.018066884 | 6.905868828 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 6.382935907 | 8.385244719 | 6.63700461 | 7.120421 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 6.72147799 | 6.178610517 | 7.767763619 | 6.971092845 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 8.23355798 | 7.726758785 | 6.778367042 | 7.561464235 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 6.880626932 | 6.210917453 | 6.755982906 | 9.15631247 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 7.337744791 | 6.493949763 | 7.470840271 | 8.107138734 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 7.442911467 | 8.643430216 | 6.555277335 | 6.644330573 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 9.16482705 | 8.886278782 | 7.33051016 | 8.449995231 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 7.660149359 | 7.873009085 | 7.253287796 | 8.984233271 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 8.243183935 | 7.697946485 | 5.934788942 | 7.168893228 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 7.230922781 | 6.720324407 | 7.769746113 | 8.473629564 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 9.376701453 | 7.096489146 | 7.235755358 | 7.981696127 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 6.966481602 | 5.660996889 | 6.91938735 | 7.497395699 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 8.353873683 | 6.855807946 | 6.673200481 | 8.523389048 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 6.632544452 | 7.785526752 | 8.623496138 | 6.333777825 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 8.53956629 | 7.030791257 | 7.814909398 | 7.562230497 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 7.116564049 | 8.379328944 | 6.650817906 | 8.313532088 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 7.839933905 | 7.065691835 | 6.693638456 | 7.743810432 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 7.497765558 | 5.863813238 | 7.274699408 | 8.019850321 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 7.719432324 | 8.205448495 | 6.464119886 | 7.78118464 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 7.705866949 | 8.741908515 | 8.611808429 | 7.273418639 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 8.737302049 | 8.152268596 | 6.601981359 | 8.309777768 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 7.878628515 | 6.821995749 | 7.691670939 | 6.630394982 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 8.485948014 | 6.552994938 | 7.667623776 | 7.776549633 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 7.626073799 | 8.038921294 | 7.472070683 | 5.871986895 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 6.680438719 | 7.840244788 | 6.190295888 | 6.422374171 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 7.603288205 | 5.765606027 | 5.856249176 | 7.858690045 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 6.642203147 | 6.656569078 | 7.161638192 | 8.353868642 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 7.729795153 | 5.842882655 | 9.035820186 | 7.320749725 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 7.41530076 | 6.368397487 | 6.657307892 | 7.961954165 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 6.825887743 | 8.294732784 | 6.536039385 | 5.733677082 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 7.953305547 | 6.583625343 | 6.920963843 | 7.712360071 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 6.980292039 | 8.567468793 | 6.848009428 | 7.104685492 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 6.677181681 | 6.589084562 | 8.145375234 | 7.182901577 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 7.777681356 | 7.748298004 | 5.950503973 | 6.674507527 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 7.022043094 | 7.52144997 | 7.190051016 | 7.287519991 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 7.284922915 | 8.296447908 | 7.763738308 | 7.922869947 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 8.889053062 | 8.041684024 | 6.995235346 | 8.543044662 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 7.174080442 | 7.506139028 | 8.246115019 | 8.050058014 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 7.66067091 | 8.831041028 | 7.794342468 | 7.60818932 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 6.661526974 | 7.05650787 | 6.347867453 | 8.833196766 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 7.083004443 | 7.792970888 | 6.644176857 | 7.106237211 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 7.224059528 | 8.281009137 | 8.452185048 | 7.772313262 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 7.775241151 | 6.645231907 | 8.729663464 | 9.261346662 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 7.922481393 | 6.566594094 | 6.951346677 | 7.055189072 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 7.698724162 | 9.162601904 | 6.559424486 | 7.400356234 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 7.450842119 | 6.3235714 | 7.233932997 | 7.367215075 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 7.4647173 | 7.587854753 | 7.550250671 | 7.557053813 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 6.079568403 | 7.554273779 | 7.286593528 | 7.291817076 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 6.491833673 | 7.563482648 | 8.012716789 | 7.58336947 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 7.684465596 | 7.700803505 | 7.281574703 | 7.093305507 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 7.960235199 | 6.981445343 | 6.954845925 | 7.420377094 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 7.182650299 | 7.792483496 | 8.15248091 | 8.172760357 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 7.581276195 | 7.000591392 | 9.123353004 | 8.349361129 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 8.239404041 | 7.832643784 | 7.027927905 | 7.073632518 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 7.889885912 | 7.513692513 | 7.788511101 | 6.663430863 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 6.720727127 | 6.301531763 | 6.044222248 | 5.98636559 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 8.406491757 | 6.514717985 | 6.622263251 | 6.846432107 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 7.4156116 | 6.678299023 | 6.603154042 | 7.446697435 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 7.847670066 | 6.597458424 | 7.964706857 | 7.680873791 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 7.164302026 | 8.215613226 | 7.855394179 | 7.767245534 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 7.842384548 | 8.978247525 | 7.698466503 | 8.153854251 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 7.428337619 | 6.901603291 | 7.27151614 | 7.961988488 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 7.305281274 | 6.398975424 | 8.303317899 | 7.520043234 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 8.012427745 | 7.479675559 | 7.538375059 | 8.154835745 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 8.462623259 | 7.506739647 | 6.758316237 | 7.247292653 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 7.318255534 | 8.001403766 | 6.986058533 | 7.915702755 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 7.346469383 | 7.565950231 | 6.725810591 | 7.801070749 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 7.125395807 | 6.847809262 | 6.402065856 | 6.443863318 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 6.161976791 | 6.504326302 | 6.986633613 | 7.320900917 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 7.296140957 | 6.578794406 | 8.851001999 | 8.369696408 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 8.536112458 | 7.157909254 | 6.698829735 | 7.91522908 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 6.87439723 | 7.985071803 | 6.570076687 | 7.771284363 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 6.410210962 | 6.691414209 | 7.150543116 | 6.801448789 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 6.873080592 | 6.988413182 | 8.493349337 | 6.999963267 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 7.053775969 | 6.952289221 | 8.017650529 | 8.042695676 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 8.379319782 | 7.561722073 | 7.384603914 | 8.214637714 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 8.071478203 | 6.618066121 | 8.046956375 | 6.783308625 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 7.989775625 | 8.601841554 | 7.108970602 | 8.556386094 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 6.869357472 | 6.24330864 | 5.734588352 | 7.905510611 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 6.775470402 | 7.845550554 | 7.759844111 | 8.814004781 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 6.470268224 | 7.767254909 | 5.692978386 | 8.54122588 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 7.831423232 | 7.330208717 | 9.200281562 | 9.232802181 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 6.232267029 | 6.466326109 | 7.783666183 | 7.205613173 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 7.016626403 | 6.810055927 | 5.160393505 | 8.06046109 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 7.66725018 | 6.86016945 | 7.774530507 | 9.507620056 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 6.475550463 | 5.897446448 | 6.825397477 | 6.234926315 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 6.962747567 | 6.40702599 | 6.656697719 | 7.232347869 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 7.273144167 | 6.554879313 | 7.49365668 | 7.691173116 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 8.516593484 | 7.67211452 | 6.691488087 | 8.250579241 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 7.271516782 | 6.603775886 | 7.423975081 | 7.750740911 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 7.933220577 | 8.13361806 | 7.393966627 | 8.955519795 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 8.77452751 | 7.585205185 | 6.876754153 | 7.839968619 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 7.06963395 | 7.453828094 | 6.467696277 | 8.940299727 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 10.07887872 | 8.387692425 | 7.118244651 | 8.27045688 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 6.692077541 | 7.654940257 | 6.166255113 | 8.79201205 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 8.334032854 | 7.510021753 | 8.872163737 | 6.770690671 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 7.071098166 | 7.568818088 | 8.043164168 | 8.87114241 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 8.105592791 | 7.657064331 | 6.89969608 | 6.197927585 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 6.985093673 | 7.450237429 | 7.608709487 | 8.013059285 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 7.421606993 | 5.926686864 | 8.236484871 | 7.618702521 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 7.271153981 | 5.801790853 | 6.992104953 | 6.851673436 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 7.626430611 | 7.485732038 | 8.037536638 | 8.119324787 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

PAGE 12

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 6.843157259 | 5.950739068 | 7.076139628 | 6.322675762 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 6.980114945 | 7.510104144 | 8.420084724 | 7.727656412 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 8.452208975 | 6.367433653 | 6.562882082 | 7.59002741 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 8.257726376 | 8.272380996 | 10.44043039 | 8.226936994 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 9.408547398 | 6.759453514 | 5.73851737 | 7.759548364 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 8.382733909 | 6.736783392 | 8.170391563 | 6.569308378 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 8.040079083 | 7.700742575 | 7.307122806 | 9.007773727 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 7.192564785 | 7.170776248 | 8.863225154 | 7.702782249 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 9.463094599 | 7.331585758 | 6.824451361 | 9.8551392 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 8.348761901 | 6.108580042 | 6.683184132 | 8.260316804 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 6.411432063 | 8.029989692 | 5.732862898 | 7.235331969 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 7.035572593 | 6.397025371 | 7.648345842 | 7.597500101 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 8.96799445 | 7.7652035 | 7.508776654 | 6.917894651 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 8.210508117 | 6.947193609 | 6.401882794 | 6.866557717 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 6.905324579 | 7.35637465 | 7.605348854 | 7.154454923 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 8.454333749 | 6.084652907 | 6.85487251 | 7.024846713 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 8.305020802 | 7.955268534 | 7.880893223 | 7.057662907 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 8.730430875 | 6.489331404 | 8.252089286 | 6.658423352 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 7.607600386 | 7.229618206 | 7.075346608 | 6.741290877 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 7.909022935 | 7.567535273 | 6.908978427 | 5.89131388 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 8.414204925 | 6.748851085 | 7.788019317 | 7.410623931 |
| | | | | | | |
| | Average Max Price | | 7.606641751 | 7.266356776 | 7.368098485 | 7.629491225 |
| | NYMEX Absolute | Max | 10.07887872 | 9.174862819 | 10.72613247 | 9.8551392 |
| | Minimum Max | | 5.114708427 | 4.95046713 | 4.937604949 | 5.197660889 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 5.424450252 | 5.355480702 | 4.957371073 | 5.081861426 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 9.149743523 | 7.208679007 | 10.72606063 | 7.061640721 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 7.100384818 | 5.321708424 | 7.749778148 | 6.89223233 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 7.445108906 | 6.521253009 | 7.510901427 | 7.013315222 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 6.602561843 | 6.584154986 | 7.472083624 | 6.522843028 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 7.831142051 | 6.249300852 | 5.808443866 | 5.744827823 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 6.666102476 | 6.997747162 | 7.82033659 | 7.253061471 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 10.87636403 | 8.333145223 | 7.51308649 | 8.114586557 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 8.310934994 | 8.279909469 | 6.225769622 | 7.700742575 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 8.235427383 | 7.449189565 | 6.901406819 | 7.702387393 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 8.786150581 | 7.443570349 | 7.783226695 | 7.685930789 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 7.208626248 | 8.398702807 | 8.210830692 | 7.693789709 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 8.656950061 | 6.96719944 | 5.565742567 | 7.711069962 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 9.367338741 | 7.818599714 | 7.330713948 | 8.177639085 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 6.988654293 | 7.948292468 | 6.398065748 | 6.678025108 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 8.047554555 | 6.6061567 | 6.853284316 | 8.429878055 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 7.901622795 | 7.829928138 | 7.768400407 | 7.803986076 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 8.556148291 | 7.805182437 | 6.657674357 | 7.360337328 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 8.130869282 | 7.679703197 | 6.974418799 | 7.470166003 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 7.310538245 | 8.613620915 | 7.063258068 | 6.391420414 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 7.306689792 | 6.32323962 | 6.14826895 | 7.350744084 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 7.167647779 | 8.100847845 | 8.547853654 | 6.290919231 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 7.023578514 | 7.363967348 | 7.191099928 | 7.63217069 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 8.818149465 | 7.794260092 | 6.907870888 | 6.359460466 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 6.967598003 | 6.565387652 | 7.055537499 | 7.134312031 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 8.847986314 | 7.293113879 | 6.471916478 | 6.805418596 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 7.997779513 | 6.958438458 | 8.292033116 | 6.631716361 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 8.027103518 | 5.369727678 | 6.626815867 | 8.354238502 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 8.378413899 | 7.670831306 | 7.210173161 | 7.100755006 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 7.110092615 | 7.031003764 | 7.340032706 | 7.618356959 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 7.394794369 | 5.976526985 | 5.933472617 | 7.009607588 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 7.645494668 | 7.606769087 | 7.703657902 | 7.651400897 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 8.924640921 | 7.733113471 | 8.4458022 | 7.242686878 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 8.060388425 | 7.679044314 | 7.619846207 | 8.302528771 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 7.595330938 | 7.389104882 | 6.18930914 | 8.862963467 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 8.726731012 | 7.409317674 | 8.496206073 | 8.229663997 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 7.311179966 | 7.763470709 | 7.053364679 | 9.195761079 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 7.825293131 | 7.629122066 | 6.875285802 | 6.897676569 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 8.072989639 | 7.314573324 | 6.977019394 | 6.218508055 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 6.595729469 | 7.481956109 | 6.194933782 | 8.747722586 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 8.312430089 | 7.14271804 | 8.094429363 | 7.511823823 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 7.191597772 | 6.757422888 | 8.699990697 | 6.06887117 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 8.817434571 | 6.821478419 | 5.81307421 | 6.777167702 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 8.158837329 | 7.426314144 | 6.52401924 | 8.342774094 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 7.507861146 | 7.896838065 | 6.363919333 | 7.368232025 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 6.945791942 | 8.112222198 | 6.684258803 | 7.337079592 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 7.883381503 | 8.338596022 | 8.035069768 | 6.655214617 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 7.587923555 | 9.45560762 | 6.679799458 | 7.928388 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 10.2448299 | 7.523112249 | 7.154851333 | 8.123436475 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 7.728367848 | 7.542044677 | 7.215338423 | 5.673953396 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 6.52439208 | 7.253908998 | 7.406965449 | 7.099768122 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 7.665197302 | 7.883086862 | 8.761094183 | 7.322793634 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 7.047096127 | 6.81177309 | 8.033172318 | 6.985480658 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 9.181217504 | 6.233066851 | 8.368126452 | 6.740381522 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 7.984768029 | 6.914783871 | 7.449805948 | 6.801736772 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 7.377400055 | 8.164047237 | 6.706250094 | 6.486522303 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 8.565329938 | 6.763518424 | 7.042196352 | 7.326786056 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 7.876589918 | 6.34144922 | 7.480212032 | 8.519085023 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 7.961730293 | 7.18861323 | 7.277128947 | 7.865813254 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 8.65429114 | 7.199632867 | 8.438326016 | 6.695809601 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 6.981220758 | 8.772055029 | 7.07227179 | 7.588153487 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 7.832568893 | 10.28090678 | 6.912468849 | 7.782205247 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 7.568971298 | 6.904404472 | 8.904400766 | 7.017084671 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 8.069908247 | 5.2590988 | 7.087096538 | 7.565875369 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 8.013636069 | 7.607932915 | 6.546248662 | 6.39690972 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 8.734357569 | 6.73623425 | 7.891162539 | 6.485382388 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 8.015706978 | 8.182347612 | 7.081556775 | 7.092217789 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 6.544539848 | 6.622424496 | 5.905781645 | 7.116170669 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 7.284418334 | 7.78611838 | 8.303383948 | 7.543372666 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 7.672083777 | 7.40261553 | 7.643510777 | 7.057456852 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 5.850212332 | 6.516908437 | 8.36348483 | 7.278805021 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 7.82667311 | 8.855679099 | 7.807330753 | 6.933046152 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 7.828566589 | 8.425908676 | 7.032329863 | 6.316834114 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 7.354304191 | 8.795380497 | 7.013442644 | 7.925023125 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 7.766605866 | 7.018653728 | 6.800690077 | 9.243717011 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 8.559771624 | 5.739901519 | 8.115770248 | 7.516343229 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 7.236593552 | 8.571940209 | 7.796249316 | 8.351835086 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 6.395339186 | 9.004449007 | 7.643421499 | 8.117006122 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 7.088990281 | 6.288233608 | 6.718884903 | 8.345315605 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 7.393977649 | 6.360807206 | 5.795751346 | 7.460537517 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 8.867524324 | 6.034204331 | 6.612174865 | 8.165601415 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 7.88551725 | 8.178533411 | 8.228417843 | 7.305688542 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 7.727356966 | 7.095304941 | 7.732066834 | 7.684295111 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 7.80095713 | 7.140803036 | 6.21762838 | 7.407231201 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 7.269779264 | 8.723635311 | 6.604503142 | 8.16223547 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 7.564525178 | 8.108591165 | 6.429046969 | 7.236938458 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 6.790377491 | 7.549658109 | 6.62857888 | 8.09064671 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 7.601590293 | 5.651527748 | 6.613722555 | 6.89188557 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 6.817563547 | 8.631516068 | 6.561562264 | 8.650015383 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 8.109553223 | 7.164790467 | 7.112930392 | 8.065146097 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 7.780619591 | 7.626281729 | 8.582889297 | 8.633026113 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 6.979730191 | 7.25313957 | 6.58618286 | 8.215243367 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 9.140695792 | 7.818758335 | 7.646309277 | 7.170223306 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 8.164840849 | 8.059447157 | 8.00452939 | 7.665256101 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 7.506871275 | 7.072615341 | 6.764580462 | 7.427159076 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 8.686777385 | 6.239478503 | 8.179051496 | 8.163952904 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 8.771232976 | 6.9006746 | 7.526177299 | 6.656186393 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 7.808632839 | 8.080913375 | 9.783839763 | 7.272519956 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 9.205601153 | 8.960578483 | 8.733149244 | 5.640843295 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 7.952097223 | 7.774276249 | 7.35280007 | 7.392259995 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 6.904681482 | 7.270340776 | 6.880317219 | 7.045851327 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 6.792157801 | 7.141191518 | 6.99199482 | 7.274804913 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 6.22574752 | 7.82828332 | 7.295624768 | 6.069064912 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 8.577858486 | 8.204940106 | 7.989980233 | 7.730476273 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 7.764062908 | 7.292432895 | 6.140775455 | 8.660132687 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 7.304992586 | 6.556762804 | 8.35912361 | 8.790098735 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 7.573800011 | 6.638789968 | 7.528644882 | 6.59689453 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 7.621367061 | 7.82305054 | 6.879968385 | 9.002810941 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 7.333605861 | 7.866396212 | 7.904753667 | 8.287880312 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 7.787746614 | 7.218028338 | 6.295632193 | 6.985643707 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 7.03058374 | 5.799118902 | 7.731497635 | 8.637114586 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 8.440093172 | 6.571024978 | 8.014151381 | 6.665221247 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 7.55357127 | 6.869636321 | 7.660963191 | 7.289723887 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 6.246341122 | 6.654177476 | 8.260548247 | 8.383852891 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 7.187963851 | 7.251370738 | 6.315282032 | 8.141822749 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 7.844036723 | 7.052372348 | 6.962169036 | 6.952190076 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 7.951637515 | 6.596946577 | 6.687548439 | 7.535448025 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 7.137233005 | 7.346162928 | 7.776919728 | 7.282668296 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 7.25621786 | 5.927235899 | 7.415144078 | 6.909733033 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 8.262735933 | 8.184283428 | 7.604837214 | 8.4212266 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 7.960381528 | 6.573146814 | 6.57936672 | 8.560860996 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 7.913958571 | 5.936029678 | 6.444151785 | 7.015924486 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 7.09622467 | 6.394847181 | 6.99739159 | 7.000643438 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 7.284557854 | 6.46655664 | 7.105669431 | 8.374296315 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 9.925230492 | 8.261293869 | 6.10149641 | 7.180838312 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 7.878397827 | 6.795879125 | 7.633107002 | 6.605918355 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 7.656783807 | 8.013688565 | 7.401642428 | 6.806117904 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 8.760434602 | 7.088660491 | 6.93230622 | 7.366422412 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 8.162535652 | 8.687127681 | 7.527896978 | 7.765335356 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 7.849917577 | 8.610987973 | 8.200514634 | 8.698175266 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 5.664994099 | 8.744692735 | 7.286758295 | 8.938172344 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 7.946207542 | 7.417653527 | 7.009315535 | 7.418061102 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 8.113418558 | 6.552501564 | 5.763737344 | 8.405805397 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 8.169936975 | 6.498793669 | 7.569987057 | 7.783801233 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 7.237886534 | 7.419026803 | 5.425927672 | 7.101606867 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 6.382707964 | 8.501375484 | 7.637427711 | 7.816315428 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 9.973062047 | 7.723762101 | 6.63560489 | 7.33470041 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 7.934957709 | 6.889138639 | 9.236394086 | 7.189791973 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 7.980186081 | 6.826148554 | 8.480047076 | 7.248735123 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 7.173016109 | 7.635946163 | 6.822795778 | 7.224942368 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 6.932738991 | 7.512124432 | 6.709465324 | 6.405370321 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 8.841276264 | 6.583911942 | 6.886743351 | 9.071801203 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 7.904090378 | 7.153124524 | 7.513169194 | 8.122016242 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 7.699373106 | 6.921016411 | 5.958081343 | 6.765787788 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 8.449165984 | 8.028116902 | 8.234978213 | 6.593971361 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 7.113556186 | 7.46027508 | 5.70723554 | 7.701463087 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 7.093151777 | 7.25452928 | 6.751954422 | 6.980682467 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 7.044273528 | 6.956370964 | 8.442437703 | 5.653570922 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 7.17231549 | 6.475745546 | 6.819425456 | 7.646017987 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 6.940709591 | 7.391112686 | 5.953684125 | 8.290513075 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 8.076543978 | 6.600977942 | 6.721004372 | 5.962101606 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 7.691247977 | 7.857365293 | 7.161392817 | 7.070492221 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 6.742668724 | 6.64838153 | 7.988868002 | 6.936783589 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 8.869743174 | 9.737402089 | 7.463327896 | 9.955166894 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 9.054498812 | 7.321843461 | 6.801408036 | 6.824075435 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 7.127907737 | 7.309080767 | 7.177916375 | 8.784569995 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 8.217110516 | 6.862464495 | 7.806154212 | 7.193450006 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 8.342249129 | 7.395317331 | 6.380687148 | 6.233675804 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 8.16559651 | 8.698745598 | 7.789601016 | 8.833113598 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 8.4024409 | 7.78611838 | 7.288291177 | 6.776729354 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 6.219628784 | 6.823983989 | 7.70182921 | 7.327885125 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 7.739560885 | 7.671937747 | 7.193473805 | 7.065193655 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 7.980644627 | 8.297477719 | 6.708503287 | 6.412498135 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 6.817719366 | 7.510534605 | 6.001746211 | 6.521238336 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 7.893197878 | 6.69528671 | 7.232867709 | 8.131821623 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 7.421236934 | 8.321550378 | 6.86968615 | 6.615845938 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 8.269305386 | 6.192110278 | 8.530260222 | 8.117157342 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 8.000014847 | 7.797294492 | 7.896619384 | 7.48807016 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 7.577050076 | 6.562649612 | 8.741908515 | 7.100513773 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 7.587923555 | 6.441157575 | 7.094910691 | 7.995589696 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 8.516169482 | 6.688824352 | 7.942284969 | 7.097247623 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 7.487847821 | 8.442905938 | 6.322143488 | 6.645282015 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 9.268087106 | 6.40120854 | 7.95803736 | 8.216368887 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 7.218669246 | 8.578444703 | 6.634484368 | 7.72058535 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 8.542378351 | 7.602641871 | 6.753429183 | 7.867606597 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 7.943310674 | 8.077458581 | 8.408323073 | 5.979590852 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 8.085371458 | 8.978104767 | 5.814473724 | 6.024282366 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 8.634968131 | 5.584023785 | 8.100745769 | 7.908239604 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 7.614631244 | 9.233655432 | 6.733312784 | 6.610925324 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 8.320279869 | 7.548157396 | 7.615815228 | 8.566016484 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

PAGE 16

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 6.138553404 | 8.386930005 | 6.840864096 | 6.964864654 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 7.983336082 | 8.329026563 | 6.867174363 | 8.099512826 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 8.062293105 | 7.814071197 | 6.234442809 | 6.938482107 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 7.60871067 | 7.580585828 | 7.428786076 | 6.632115303 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 8.019702095 | 7.573406745 | 7.29785797 | 7.778643414 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 8.541046433 | 6.738093429 | 6.386067755 | 8.412413008 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 6.601215118 | 7.446012579 | 7.151464734 | 7.649830941 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 5.510116499 | 8.058263651 | 7.415144078 | 6.980301928 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 7.974924405 | 6.856869113 | 7.285179698 | 6.973690331 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 7.14711627 | 8.288737392 | 6.672370686 | 8.702689809 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 8.203845486 | 8.461779355 | 8.101337968 | 6.583259277 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 8.286849744 | 7.508117073 | 7.302960783 | 8.687608878 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 7.240986007 | 7.37133154 | 8.876266555 | 8.193290534 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 6.975144059 | 7.041851889 | 7.147660863 | 7.621750888 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 6.483072007 | 6.588244087 | 6.094760286 | 8.936975984 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 7.820811641 | 7.767401638 | 5.799373577 | 7.398805471 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 6.453978198 | 6.919702952 | 7.196083725 | 7.317303565 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 8.724239473 | 7.174246757 | 6.643397069 | 7.613067933 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 8.136716007 | 6.608549472 | 6.631197712 | 7.481853135 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 7.949098778 | 6.136597717 | 6.300703465 | 7.901256786 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 7.311074718 | 7.107377026 | 6.879109594 | 7.994306481 |
| | Average Max Price | | 7.763452233 | 7.378836279 | 7.240138449 | 7.461398578 |
| | NYMEX Absolute | Max | 10.87636403 | 10.28090678 | 10.72606063 | 9.955166894 |
| | Minimum Max | | 5.424450252 | 5.2590988 | 4.957371073 | 5.081861426 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 5.15045018 | 5.108130782 | 5.223362195 | 5.441801638 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 7.306307884 | 6.237552134 | 5.98988694 | 8.234903351 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 6.891536373 | 8.851899134 | 8.105038679 | 8.068698583 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 7.787769001 | 7.64673462 | 8.097240426 | 7.238253357 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 6.346278931 | 6.206150925 | 7.68457349 | 7.639129488 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 7.698825461 | 7.117665991 | 7.295729147 | 6.663841319 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 9.674201978 | 8.100168073 | 8.387852222 | 7.172691345 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 7.884333558 | 7.636909626 | 6.674872177 | 8.251213604 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 7.880391315 | 7.022212153 | 6.945021936 | 8.085458084 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 8.465239853 | 8.619768583 | 8.011221695 | 7.573500564 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 7.446574797 | 6.190308165 | 7.904553294 | 8.825420813 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 7.657082541 | 7.864392308 | 7.478031981 | 6.408064899 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 7.051773719 | 7.338512857 | 8.919694925 | 7.807656201 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 9.01683181 | 7.346932713 | 7.53330845 | 8.314609625 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 7.600284456 | 6.138846861 | 7.11756398 | 7.329204287 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 8.675539809 | 6.916060455 | 8.65931693 | 7.461270812 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 7.738047924 | 7.814602173 | 7.254439446 | 8.171506931 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 10.42373074 | 6.601379813 | 6.187552386 | 8.661111471 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 7.744029827 | 9.184418817 | 6.770925437 | 8.367807741 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 8.257374804 | 8.437008265 | 8.562124554 | 6.163726899 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 7.862865529 | 7.840080634 | 10.1695389 | 7.932980264 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 6.569361644 | 7.814220079 | 7.58392125 | 7.046759905 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 7.430157307 | 7.807575736 | 7.58097677 | 7.345045336 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 7.767837732 | 6.362213942 | 7.927556287 | 8.240999415 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 7.858103829 | 7.058555921 | 6.094697545 | 8.771131136 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 7.293172571 | 7.731868101 | 7.819859301 | 7.911733925 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 7.834909212 | 8.211466403 | 7.839440067 | 8.527315022 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 7.486515904 | 8.790616821 | 6.853286983 | 8.012226559 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 9.498420321 | 7.474253942 | 6.857046514 | 7.922951261 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 8.160741823 | 7.31259555 | 7.213740369 | 7.352315722 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 9.143463699 | 6.347374906 | 8.947517219 | 7.492012575 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 7.864392308 | 7.366915886 | 7.307362364 | 7.775053826 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 7.384649544 | 6.627075188 | 6.630528806 | 9.68323197 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 7.33233741 | 7.282922512 | 9.050050817 | 7.366129653 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 8.911632103 | 6.612616192 | 6.810670919 | 7.254357455 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 6.800286958 | 7.534071033 | 9.344611011 | 9.640978821 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 8.220942307 | 7.193159529 | 7.622698978 | 7.793890232 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 7.938329964 | 7.32850401 | 7.904090378 | 6.689858456 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 6.804311842 | 8.582400793 | 6.914290012 | 8.154679883 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 8.317706046 | 7.359663323 | 9.071726313 | 8.138752358 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 8.452605343 | 8.324241833 | 7.392349601 | 6.547619871 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 7.406132132 | 8.863811371 | 6.849450529 | 8.442244689 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 8.936490367 | 6.750953543 | 8.635664067 | 6.468458568 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 10.56360785 | 6.942445804 | 7.134454147 | 7.416709479 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 8.860870192 | 6.821331933 | 7.498516271 | 7.13360488 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 6.586659872 | 6.582024152 | 6.411302488 | 7.066320644 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 8.300244036 | 6.574765423 | 7.650129675 | 7.840992691 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 7.136379689 | 8.487220691 | 6.645753229 | 8.68625935 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 10.52630191 | 7.66725018 | 7.62448706 | 7.968383713 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 5.790469556 | 6.957403677 | 6.310271862 | 7.951946002 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 8.349660576 | 6.458326306 | 7.871793631 | 6.965140473 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 7.016325959 | 7.505260052 | 7.115702619 | 7.977012895 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 7.043928323 | 6.771976502 | 8.217537342 | 7.680428806 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 6.176517777 | 8.125529749 | 7.021628945 | 7.432473313 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 6.959391454 | 6.343769675 | 8.368153403 | 7.618331955 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 8.130219918 | 6.858080575 | 7.966594954 | 7.206118289 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 6.709163068 | 6.35164493 | 7.309590831 | 7.683806714 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 8.681502383 | 8.241065307 | 7.317900526 | 7.617145127 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 7.203557757 | 7.356741116 | 8.040452678 | 7.931975991 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 7.095536656 | 7.850187842 | 8.79321236 | 7.922630403 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 5.572874684 | 6.868782106 | 8.005390328 | 7.680108562 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 7.659580496 | 6.506795939 | 7.194407337 | 8.196893062 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 7.236261587 | 8.155137466 | 7.599174364 | 7.861261194 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 8.441615651 | 6.951107833 | 8.740955355 | 9.541262174 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 8.795065422 | 6.367529726 | 10.86828199 | 8.845127348 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 7.442434976 | 6.456477658 | 7.791265518 | 7.59509645 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 8.120969605 | 7.62388888 | 7.231241599 | 6.471169716 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 8.58081913 | 6.568275986 | 8.43982111 | 8.599060421 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 7.706200347 | 7.831796827 | 6.689783594 | 7.775652006 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 6.39930386 | 8.264797096 | 6.882955016 | 7.400344028 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 7.384006119 | 6.937844885 | 8.281355098 | 6.285398946 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 6.945845101 | 7.430382918 | 7.19226434 | 8.890992543 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 7.739618657 | 7.485753905 | 6.095037481 | 8.13067286 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 6.643021435 | 7.24522148 | 10.09807609 | 7.896838065 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 7.677118373 | 7.109127969 | 6.442395031 | 8.321774963 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 9.275695175 | 8.846421827 | 6.859444718 | 6.965815291 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 7.280070903 | 6.833397059 | 7.661090541 | 8.083858575 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 7.804177594 | 8.506399779 | 7.130663552 | 7.658674613 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 6.793205166 | 7.333965988 | 7.231175436 | 8.134019062 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 6.909965817 | 8.087571999 | 6.821898343 | 7.113041209 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 8.160293366 | 8.017725391 | 6.728150552 | 8.124706984 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 8.241591613 | 6.45849667 | 8.250324953 | 6.972076784 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 7.095334886 | 6.388657191 | 8.595695924 | 9.449456822 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 9.580709009 | 6.895021718 | 7.596401032 | 9.245741698 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 8.078497447 | 7.80885895 | 6.746125515 | 7.231685365 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 6.109031778 | 6.390434778 | 7.700190167 | 7.979957739 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 7.290249173 | 7.333673229 | 8.933266524 | 8.033646741 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 8.392231858 | 8.309399717 | 7.833700887 | 6.948138898 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 7.08754913 | 8.565295865 | 6.474252554 | 8.45278921 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 8.483094972 | 6.921941073 | 7.836003382 | 7.926964794 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 6.863283282 | 6.796021098 | 6.959276652 | 8.282820904 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 7.158899538 | 7.659631274 | 8.208434142 | 7.847845235 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 8.102522365 | 7.263182946 | 9.089257103 | 9.005474776 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 8.118878761 | 6.835753248 | 7.01737256 | 6.185471974 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 7.320815589 | 7.832607244 | 9.666135947 | 8.504666638 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 7.616703586 | 8.315826063 | 5.94442741 | 7.063216067 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 8.349361129 | 8.74073077 | 6.915992723 | 8.175843203 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 7.688197907 | 6.42405453 | 6.864038665 | 8.802616368 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 9.410906823 | 8.860606572 | 8.544984064 | 8.66927008 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 5.862971893 | 7.291737209 | 6.323025516 | 8.312193697 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 9.328345625 | 8.531327728 | 7.520795102 | 7.736403106 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 6.899299912 | 7.422177282 | 6.168159794 | 6.620570978 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 7.054014813 | 7.645794115 | 7.24043675 | 7.439896738 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 8.739334294 | 7.549804837 | 7.828871248 | 7.259404671 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 9.246016077 | 7.097076553 | 7.000742299 | 7.731275296 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 6.806103795 | 6.802706594 | 7.671399014 | 6.740669034 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 7.022159393 | 7.006444861 | 7.335658646 | 8.165451691 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 7.519895714 | 6.422016111 | 7.519525149 | 8.431211605 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 7.244423897 | 8.675763203 | 7.291072559 | 6.80567113 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 6.817094406 | 8.951667999 | 6.772354125 | 6.787586121 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 6.961789188 | 7.671769579 | 7.279199128 | 8.273935252 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 7.060803511 | 8.500191793 | 8.2384831 | 7.658372764 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 7.961898154 | 7.207229714 | 8.696472784 | 7.923559829 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 6.918100071 | 6.419143698 | 6.089737411 | 8.239740698 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 7.331326715 | 7.054911877 | 9.272808296 | 6.975066716 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 6.168628627 | 6.685593522 | 7.154327943 | 6.701792388 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 7.931526821 | 7.659549411 | 6.710925953 | 7.886371692 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 6.893343049 | 8.594592328 | 7.351463569 | 8.451807717 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 7.238993289 | 8.086031039 | 8.76358508 | 9.389926557 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 7.713719616 | 7.818372883 | 6.970194776 | 8.479368024 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 6.601288011 | 8.448692374 | 8.072403422 | 9.118260173 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 6.740882026 | 7.312572735 | 7.259949265 | 7.521467431 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 8.466809809 | 6.85403935 | 8.212027053 | 9.253435481 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 7.650675594 | 6.787718818 | 8.282298733 | 7.718397272 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 8.052937465 | 9.11400813 | 6.987268868 | 9.00672709 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 6.186476446 | 7.130165194 | 9.305232564 | 7.501083869 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 6.339233522 | 6.298473842 | 6.183418597 | 7.750009392 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 8.794648977 | 8.490599533 | 9.763504519 | 6.837589248 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 7.828731777 | 7.200447789 | 7.638691526 | 7.028873415 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 6.849697088 | 8.292142357 | 7.794778177 | 7.371996426 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 6.916277197 | 7.941171142 | 8.194458803 | 7.048176316 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 7.809311892 | 5.556365371 | 6.862037513 | 7.612916712 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 7.712405309 | 6.72340361 | 7.921060447 | 7.621197425 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 9.284461005 | 7.391863356 | 9.371855936 | 8.316616638 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 6.882163379 | 7.965436687 | 6.317811351 | 7.244597633 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 7.883444908 | 8.935163376 | 7.1052184 | 7.318959013 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 7.477606717 | 7.70616867 | 9.189140435 | 9.502724346 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 8.935533236 | 7.04446829 | 7.351953435 | 8.215835565 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 6.806916899 | 7.339253589 | 8.018468646 | 8.252240506 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 6.24192233 | 7.008952605 | 9.007997649 | 6.417130789 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 7.522263802 | 6.826909091 | 6.719212954 | 7.234259095 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 7.972937576 | 8.20482206 | 6.960250224 | 8.134523943 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 6.966119379 | 7.725039819 | 7.435829967 | 8.396684394 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 6.88158673 | 7.038929561 | 6.892437165 | 7.527124969 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 8.347492439 | 7.874933543 | 7.231002042 | 7.683846654 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 7.995768337 | 8.735817692 | 7.037236218 | 6.713829744 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 6.710566617 | 7.106429384 | 7.342708476 | 7.567295602 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 7.242141457 | 7.573874872 | 8.354370444 | 8.711275201 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 8.013015523 | 7.024626976 | 7.88382996 | 9.628357658 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 6.579352047 | 6.672691864 | 6.562794045 | 8.055405932 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 8.27615582 | 7.856578576 | 7.225140367 | 7.18316062 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 8.041872911 | 7.91567825 | 9.063694676 | 6.857672636 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 6.78807054 | 6.500057049 | 6.747707983 | 7.246537619 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 7.626734671 | 6.882326271 | 8.178092026 | 9.064099756 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 7.428473561 | 7.464149064 | 6.323989548 | 7.963225388 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 7.559683475 | 7.895315344 | 8.977114811 | 7.804206373 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 7.832021412 | 6.34081845 | 7.245371203 | 6.257131667 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 7.134312359 | 7.591835483 | 7.051907122 | 8.370521491 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 7.133088592 | 6.269749265 | 8.301576431 | 7.821544587 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 7.807350573 | 7.105270811 | 7.456972326 | 6.961581336 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 8.440926225 | 7.806378412 | 6.720233411 | 8.828643957 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 8.158196484 | 6.885130795 | 7.648053083 | 6.024868583 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 6.887090417 | 8.517347848 | 7.400416123 | 7.897810554 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 8.183839798 | 8.901396318 | 6.914150969 | 7.807258087 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 7.394849381 | 7.585118281 | 7.690913282 | 8.88000325 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 7.283909987 | 8.606910201 | 6.678008924 | 6.519913926 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 9.330641832 | 7.470765787 | 8.061508177 | 6.960906954 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 7.751184884 | 7.170586107 | 7.242185661 | 7.738528493 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 6.629609355 | 7.500583601 | 8.766523622 | 6.147658635 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 8.131956794 | 7.42731076 | 8.5810012 | 8.847845717 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 8.465689864 | 6.888925483 | 8.316449147 | 8.624308651 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 6.571158381 | 6.535425306 | 8.123541531 | 8.635042245 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 6.785878505 | 6.729853234 | 7.885651124 | 7.77267689 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 8.790473493 | 7.183758259 | 7.499764707 | 9.916042442 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 7.029184768 | 6.402868829 | 7.686794058 | 6.098914289 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 6.812510491 | 6.665628616 | 7.10675705 | 7.895688775 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 7.724468075 | 6.510402759 | 7.358583597 | 9.811273845 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 6.592096375 | 8.621350389 | 7.081519166 | 8.755682755 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 8.190449377 | 8.536827636 | 7.11306309 | 6.549354323 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 6.820023636 | 7.354715573 | 7.337968663 | 9.521077331 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

PAGE 20

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 7.91561665 | 6.584495243 | 8.142152033 | 7.635671264 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 6.992315257 | 6.719074467 | 7.352689318 | 7.16279879 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 6.518219914 | 8.493017764 | 6.422674972 | 7.355066297 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 6.851991769 | 7.995500304 | 7.690050091 | 7.403103436 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 9.105022007 | 7.085641969 | 7.701670311 | 7.100955136 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 7.381787818 | 6.861302485 | 7.221632349 | 7.475710222 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 8.194234218 | 7.262072484 | 8.360126949 | 7.291071753 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 8.07269688 | 6.113093851 | 7.358363504 | 8.522982592 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 7.619516352 | 6.740950663 | 6.818626782 | 7.211973655 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 8.688331642 | 7.045793149 | 7.70773911 | 7.678800437 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 7.737344096 | 6.470701324 | 7.456985032 | 7.695823144 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 8.109695609 | 6.101415631 | 7.184183772 | 8.693909834 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 7.842937654 | 6.98748186 | 7.78872204 | 7.777511955 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 6.861641601 | 8.26487046 | 7.901403515 | 7.470605491 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 8.561306616 | 8.679128178 | 7.559819417 | 8.254565588 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 7.547460669 | 7.631788539 | 9.052761808 | 8.233806564 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 8.236459561 | 9.088337531 | 6.804742204 | 8.950535997 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 7.422048284 | 8.014693173 | 7.318360668 | 7.771180548 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 7.044520522 | 7.290464311 | 7.744301546 | 6.929978457 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 6.397040043 | 7.469579786 | 7.463498923 | 7.13781396 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 7.523469752 | 7.373927022 | 6.373487096 | 7.457099049 |
| | | | | | | |
| | Average Max Price | | 7.650733858 | 7.418938887 | 7.600626712 | 7.808463037 |
| | NYMEX Absolute | Max | 10.56360785 | 9.184418817 | 10.86828199 | 9.916042442 |
| | Minimum Max | | 5.15045018 | 5.108130782 | 5.223362195 | 5.441801638 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 5.497640353 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 7.597274489 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 7.644014596 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 8.653101744 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 7.221683876 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 7.856418543 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 8.302528543 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 7.216829118 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 8.511291896 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 8.288432292 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 7.389720858 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 7.0100261 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 8.146633744 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 8.075250525 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 7.204191999 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 9.008073174 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 8.9469939 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 8.191467902 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 7.430309554 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 8.03666624 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 8.06698214 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 7.271191376 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 7.864055174 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 10.0315106 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 6.799916264 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 6.986309426 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 7.074931575 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 9.94402827 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 8.688524058 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 6.088615213 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 7.268853525 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 7.118907041 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 7.717115177 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 7.072278563 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 8.296431082 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 9.126167154 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 9.573225174 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 7.68481843 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 7.940086831 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 7.169678455 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 9.027884422 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 8.786956193 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 6.4364053 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 7.526233488 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 6.557458119 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 6.864229091 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 9.62716201 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 11.28576378 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 7.150201355 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 9.501968963 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 8.618721946 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 8.701236495 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 7.580585828 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 8.21479337 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 6.741084067 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 6.469465344 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 6.755451831 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 6.612703616 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 6.413253169 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 8.023258024 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 7.261952705 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 8.33031568 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 6.155330558 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 7.795538116 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 8.399178642 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 7.753134174 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 8.625525089 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 7.460104396 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 7.506739647 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 7.355872607 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 7.466502672 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 6.921074475 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 7.506805247 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 7.921583766 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 8.068038845 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 7.708109676 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 7.384029996 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 8.038629227 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 9.15460002 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 6.495702831 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 9.245885147 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 10.22557173 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 7.892277921 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 7.0821618 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 7.211524784 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 7.353537336 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 9.748558438 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 8.695244731 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 9.616288104 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 6.429868565 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 7.191840188 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 8.834432454 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 6.356388656 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 7.836521468 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 8.369566392 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 7.124357918 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 7.386099721 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 7.196989608 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 8.588400926 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 7.058228904 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 9.195496832 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 7.980309404 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 6.935206503 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 8.892384371 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 8.159141909 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 8.066700354 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 7.697752386 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 8.358235665 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 10.73410471 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 7.282004131 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 8.342396649 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 6.772546819 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 8.743471042 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 7.625340854 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 7.673323835 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 8.218274266 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 8.05144237 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 8.143433714 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 8.192264829 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 6.969349381 |

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 6.522857245 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 8.559586936 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 7.458295595 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 6.331091403 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 9.872000998 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 9.199438263 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 8.856085462 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 8.900297248 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 8.018024837 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 7.033744485 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 8.348240343 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 7.993098157 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 7.736178521 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 9.054424663 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 6.900575056 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 7.728684869 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 7.562477455 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 9.077489363 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 7.588150385 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 7.327361172 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 7.694121368 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 8.353194631 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 7.789333153 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 7.546522966 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 7.284493195 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 6.754755917 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 7.636000071 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 7.974364803 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 6.885931844 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 7.163640335 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 7.166078622 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 8.198570491 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 6.396275257 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 6.82626953 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 7.340136799 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 8.42137782 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 8.139285758 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 9.132036565 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 6.948841863 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 8.556671609 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 7.116003064 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 7.656332085 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 7.154514812 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 7.099804198 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 9.840799185 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 9.373052297 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 7.600457579 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 7.089201512 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 7.301681041 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 7.222783515 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 7.410015555 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 7.161105284 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 6.446969778 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 7.205386092 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 8.454008072 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 8.304140692 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 7.76425116 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 7.703964992 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 7.05985557 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 6.658907792 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MAX
DRAWS 1 - 200

PAGE 24

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 7.559988519 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 6.974343467 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 6.930525909 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 7.217302736 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 7.537436507 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 7.11947281 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 7.437168208 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 7.396095179 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 6.142943791 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 6.285470236 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 7.515825143 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 6.709053371 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 8.723142415 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 8.240106821 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 8.804351776 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 7.232633641 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 7.960327942 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 7.054393663 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 7.478522283 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 8.495801421 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 9.407659902 |
| | | | |
| | Average Max Price | | 7.811584246 |
| | NYMEX Absolute | Max | 11.28576378 |
| | Minimum Max | | 5.497640353 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 2.95091838 | 3.673866966 | 4.122302066 | 4.464702573 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 2.197947989 | 2.197947989 | 2.197947989 | 2.813769007 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 2.758527339 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 2.197947989 | 2.197947989 | 2.197947989 | 3.065719924 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 2.265232111 | 2.265232111 | 3.03942052 | 2.274950012 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 2.22037603 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 2.22037603 | 2.22037603 | 2.22037603 | 2.813645667 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 2.242804071 | 2.436634639 | 2.242804071 | 2.770864869 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 2.242804071 | 2.479375123 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 2.242804071 | 2.242804071 | 2.659374999 | 4.172878894 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 2.265232111 | 2.265232111 | 2.265232111 | 2.306889774 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 2.197947989 | 2.197947989 | 2.678485349 | 2.388737253 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 2.22037603 | 2.580409971 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 2.265232111 | 2.265232111 | 2.576829812 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 2.197947989 | 2.197947989 | 3.30630739 | 2.597329792 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 2.22037603 | 2.780739651 | 2.582704476 | 2.401780767 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 2.197947989 | 2.197947989 | 2.197947989 | 3.03719793 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 2.22037603 | 2.22037603 | 2.22037603 | 3.047636434 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 2.22037603 | 2.391655866 | 2.22037603 | 3.29284721 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 2.265232111 | 2.265232111 | 2.481267241 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 2.22037603 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 2.265232111 | 2.416134386 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 2.265232111 | 2.388468225 | 2.862551155 | 3.097833421 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 2.197947989 | 2.529530405 | 3.103319544 | 2.84005653 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 2.265232111 | 2.265232111 | 2.265232111 | 3.72638239 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 2.22037603 | 2.22037603 | 2.22037603 | 3.148596754 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 2.242804071 | 2.242804071 | 2.778998767 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 2.197947989 | 2.197947989 | 2.197947989 | 2.283506809 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 2.389004338 | 2.265232111 | 3.235483734 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 2.265232111 | 2.265232111 | 2.466218635 | 2.936729879 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 2.22037603 | 2.22037603 | 2.840275367 | 2.263902798 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 2.22037603 | 2.22037603 | 2.22037603 | 2.545935053 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 2.197947989 | 2.197947989 | 2.280209777 | 2.306980806 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 2.197947989 | 2.893261462 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 2.197947989 | 2.197947989 | 2.197947989 | 2.38669318 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 2.197947989 | 2.197947989 | 2.197947989 | 2.934919881 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 2.22037603 | 2.22037603 | 2.326746779 | 3.392371854 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 2.265232111 | 2.928929959 | 3.546628673 | 2.633740049 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 2.265232111 | 2.265232111 | 2.265232111 | 2.64243109 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 2.242804071 | 2.46837028 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 2.22037603 | 2.22037603 | 2.22037603 | 2.599497786 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 2.242804071 | 2.242804071 | 2.242804071 | 3.466761949 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 2.22037603 | 2.22037603 | 2.492764413 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 2.197947989 | 2.197947989 | 2.53141325 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 2.22037603 | 2.22037603 | 2.22037603 | 2.545735124 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 2.265232111 | 2.265232111 | 2.793136958 | 2.580008684 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 2.265232111 | 2.265232111 | 2.265232111 | 2.865775393 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 2.265232111 | 2.265232111 | 2.785654061 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 2.22037603 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 2.304339109 | 2.242804071 | 2.698212873 | 2.806831976 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 2.22037603 | 2.22037603 | 3.700826469 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 2.265232111 | 2.265232111 | 2.879525302 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 2.197947989 | 2.197947989 | 2.197947989 | 2.486589855 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 2.197947989 | 2.197947989 | 2.734379262 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 2.197947989 | 2.283675373 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 2.22037603 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 2.242804071 | 2.611760308 | 2.242804071 | 2.642568912 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 2.265232111 | 2.265232111 | 2.265232111 | 2.45742948 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 2.22037603 | 2.22037603 | 3.218649817 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 2.338799292 | 2.265232111 | 2.842035746 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 2.22037603 | 2.22037603 | 3.322585599 | 2.590719978 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 2.22037603 | 2.22037603 | 2.341793668 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 2.427739844 | 2.89944429 | 2.265232111 | 3.244665702 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 2.242804071 | 2.354450793 | 2.458868375 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 2.22037603 | 2.22037603 | 2.22037603 | 2.656487542 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 2.22037603 | 2.22037603 | 2.645696506 | 2.284537458 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 2.22037603 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 2.22037603 | 2.22037603 | 2.22037603 | 2.463040846 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 2.22037603 | 2.22037603 | 2.366987516 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 2.22037603 | 2.22037603 | 3.075324362 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 2.287201999 | 2.22037603 | 2.22037603 | 3.447459376 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 2.197947989 | 2.197947989 | 2.534241274 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 2.242804071 | 2.242804071 | 2.487957478 | 3.305437205 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 2.22037603 | 2.22037603 | 2.816243506 | 2.755893782 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 2.242804071 | 2.242804071 | 2.242804071 | 3.835082754 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 2.265232111 | 2.265232111 | 2.265232111 | 3.612758143 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 2.242804071 | 2.242804071 | 2.242804071 | 3.657004327 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 2.242804071 | 2.242804071 | 2.242804071 | 2.41923055 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 2.197947989 | 2.197947989 | 2.693783055 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 2.197947989 | 2.197947989 | 2.197947989 | 2.216777145 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 2.22037603 | 2.22037603 | 3.373113756 | 2.706142577 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 2.242804071 | 2.242804071 | 2.242804071 | 2.752167277 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 2.265232111 | 2.265232111 | 2.265232111 | 2.598379822 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 2.242804071 | 2.242804071 | 3.919711368 | 2.797860697 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 2.197947989 | 2.197947989 | 2.197947989 | 3.32786186 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 2.242804071 | 2.243768538 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 2.265232111 | 2.265232111 | 2.775890974 | 2.766346796 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 2.265232111 | 2.265232111 | 2.265232111 | 2.850583128 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 2.242804071 | 2.242804071 | 2.242804071 | 3.49044604 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 2.22037603 | 2.22037603 | 2.502497044 | 2.636844585 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 2.265232111 | 2.265232111 | 2.404060685 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 2.22037603 | 2.236333098 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 3.021751838 | 2.265232111 | 2.265232111 | 2.938564869 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 2.197947989 | 2.871582448 | 2.197947989 | 2.363285036 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 2.242804071 | 2.242804071 | 2.416419495 | 2.544655562 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 2.197947989 | 2.197947989 | 2.197947989 | 2.764293259 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 2.265232111 | 2.265232111 | 3.188034683 | 2.517903661 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 2.22037603 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 2.197947989 | 2.197947989 | 2.532468301 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 2.197947989 | 2.197947989 | 2.927300461 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 2.265232111 | 2.265232111 | 2.265232111 | 2.536773106 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 2.22037603 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 2.22037603 | 2.22037603 | 2.387977389 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 2.197947989 | 2.467416411 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 2.197947989 | 2.206182972 | 2.197947989 | 2.96742766 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 2.197947989 | 2.197947989 | 2.502993792 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 2.265232111 | 2.299316325 | 3.353872509 | 2.525937613 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 2.197947989 | 2.378172426 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 2.265232111 | 2.265232111 | 2.265232111 | 2.270547874 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 2.265232111 | 2.403448961 | 2.265232111 | 2.674771047 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 2.265232111 | 2.265232111 | 2.265232111 | 2.859968884 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 2.22037603 | 2.22037603 | 2.22037603 | 2.930644756 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 2.22037603 | 2.255139636 | 2.22037603 | 3.065650845 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 2.6859593 | 2.22037603 | 2.22037603 | 2.610910489 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 2.197947989 | 2.197947989 | 2.197947989 | 3.80551984 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 2.265232111 | 2.265232111 | 2.265232111 | 3.284926376 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 2.242804071 | 2.242804071 | 2.845961454 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 2.22037603 | 2.473691244 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 2.242804071 | 2.242804071 | 2.712439797 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 2.242804071 | 2.242804071 | 2.242804071 | 2.921656042 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 2.294227033 | 2.265232111 | 2.265232111 | 2.654897425 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 2.22037603 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 2.197947989 | 2.197947989 | 2.705014625 | 4.069156314 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 2.197947989 | 2.197947989 | 2.498195059 | 3.516467833 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 2.242804071 | 2.242804071 | 2.242804071 | 2.881255698 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 2.197947989 | 2.197947989 | 2.197947989 | 3.443114932 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 2.197947989 | 2.197947989 | 3.305061592 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 2.197947989 | 2.197947989 | 2.430805988 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 2.273638071 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 2.22037603 | 2.22037603 | 2.22037603 | 2.806710804 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 2.197947989 | 2.197947989 | 2.197947989 | 2.596465315 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 2.22037603 | 4.004729483 | 2.22037603 | 2.400322681 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 2.197947989 | 2.197947989 | 2.197947989 | 2.383073868 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 2.22037603 | 2.258729355 | 2.22037603 | 3.341954514 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 2.197947989 | 2.617426406 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 2.197947989 | 2.197947989 | 3.940649782 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 2.22037603 | 2.22037603 | 2.717325706 | 2.952012077 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 2.242804071 | 2.242804071 | 3.741714932 | 2.607977477 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 2.265232111 | 2.265232111 | 2.265232111 | 2.302110125 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 2.265232111 | 2.265232111 | 4.163292787 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 2.242804071 | 2.242804071 | 2.306768905 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 2.242804071 | 2.242804071 | 2.242804071 | 2.840615975 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 2.197947989 | 2.197947989 | 2.204336633 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 2.22037603 | 2.22037603 | 2.22037603 | 2.251261406 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 2.242804071 | 2.242804071 | 2.301139486 | 4.299657119 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

PAGE

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 2.265232111 | 2.265232111 | 2.265232111 | 2.335386389 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 2.265232111 | 2.265232111 | 2.717176172 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 2.197947989 | 2.197947989 | 2.197947989 | 2.279103546 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 2.197947989 | 2.767656145 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 2.22037603 | 2.22037603 | 2.536513167 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 2.197947989 | 2.197947989 | 2.197947989 | 3.036699751 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 2.197947989 | 2.235357036 | 3.30465145 | 2.371307436 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 2.242804071 | 2.242804071 | 2.242804071 | 3.215366149 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 2.197947989 | 2.197947989 | 2.197947989 | 2.897694071 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 2.265232111 | 2.265232111 | 3.155324957 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 2.242804071 | 2.242804071 | 2.359930845 | 3.465760229 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 2.22037603 | 2.22037603 | 2.515079145 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 2.22037603 | 2.22037603 | 2.519216417 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 2.242804071 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 2.265232111 | 2.265232111 | 3.367992548 | 2.265232111 |
| | | | | | | |
| | average min | | 2.241785825 | 2.276763377 | 2.434266758 | 2.534380557 |
| | Median Min Price | | 2.22037603 | 2.242804071 | 2.265232111 | 2.265232111 |
| | Highest Minimum | | 3.021751838 | 4.004729483 | 4.163292787 | 4.299657119 |
| | Absolute Min | | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 4.759179467 | 4.619868822 | 4.629182714 | 4.78974051 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 2.725448191 | 3.618855579 | 2.988821077 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 4.391478042 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 2.651421211 | 3.295346745 | 2.197947989 | 4.170298612 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 2.707373641 | 2.737815338 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 2.265232111 | 2.284373393 | 3.459137859 | 2.534598411 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 3.268641743 | 2.197947989 | 2.412006179 | 3.427597307 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 2.610436872 | 2.375957841 | 2.22037603 | 3.571178753 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 2.22037603 | 2.91291868 | 2.22037603 | 2.896110547 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 2.761729072 | 3.490266729 | 3.18324907 | 3.37933743 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 2.242804071 | 2.242804071 | 3.323566561 | 2.546928326 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 2.358884208 | 2.242804071 | 2.959551906 | 2.562672803 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 3.895262989 | 2.265232111 | 2.994161107 | 2.975525873 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 2.265232111 | 2.651408911 | 2.791120864 | 2.577758558 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 2.680031242 | 3.33272662 | 2.197947989 | 2.437473068 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 2.22037603 | 3.189222349 | 2.22037603 | 2.504206761 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 2.265232111 | 2.474969984 | 2.265232111 | 3.976728384 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 2.46483014 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 3.408558497 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 2.242804071 | 3.257747831 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 2.257988565 | 2.880352292 | 2.197947989 | 3.305889562 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 3.809818333 | 2.521414678 | 2.265232111 | 3.108072133 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 3.058130634 | 3.141660208 | 3.463779246 | 3.951162891 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 2.588233133 | 2.22037603 | 2.22037603 | 2.88943455 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 2.801433602 | 3.301987819 | 2.22037603 | 2.657042508 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 3.662851179 | 2.197947989 | 2.197947989 | 2.41637276 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 2.85126272 | 3.02625209 | 2.478564173 | 3.629770096 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 3.301765833 | 2.708052046 | 3.40222289 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 2.265232111 | 2.430699806 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 2.265232111 | 2.265232111 | 2.277683324 | 3.432498557 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 2.197947989 | 2.878227519 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 2.690567114 | 2.695966048 | 2.425912595 | 4.065200691 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 3.737240679 | 3.484665536 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 3.279891554 | 2.755337134 | 2.511462079 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 2.897994341 | 2.197947989 | 2.733595311 | 3.525911581 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 3.017432691 | 2.41380865 | 2.265232111 | 3.867430845 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 2.473920442 | 2.265232111 | 3.017032496 | 2.471707941 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 2.22037603 | 2.22037603 | 2.654873995 | 2.518876027 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 3.096685585 | 2.716262547 | 3.441506622 | 2.435622935 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 2.22037603 | 2.22037603 | 3.148382179 | 3.667505949 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 3.358344794 | 3.164073077 | 2.929819884 | 2.873420712 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 3.455482079 | 3.430652412 | 2.344353345 | 2.262230601 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 3.549905942 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 2.280180606 | 2.996865312 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 3.331334443 | 2.736503861 | 2.789848011 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 3.012071562 | 3.300088397 | 3.073648213 | 4.267191391 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 2.471611491 | 3.335700432 | 2.22037603 | 2.405903217 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 3.177539257 | 2.668594407 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 2.265232111 | 2.595653891 | 2.802394177 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 3.080738143 | 2.242804071 | 2.402043204 | 2.332605982 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 2.22037603 | 2.22037603 | 3.06427446 | 2.631345397 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 2.242804071 | 2.661348673 | 2.242804071 | 2.794197466 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 2.22037603 | 2.452323923 | 3.124335672 | 2.532634937 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 3.271345048 | 2.282576304 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 2.525973763 | 3.147834448 | 2.294477429 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 4.307655852 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 2.359065548 | 2.565964255 | 2.265232111 | 2.936918725 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 2.602591476 | 2.22037603 | 2.449030304 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 2.650852355 | 2.242804071 | 2.242804071 | 3.679828578 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 2.305061125 | 2.22037603 | 2.351807576 | 3.664493783 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 2.265232111 | 2.743037587 | 2.265232111 | 3.096474236 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 2.197947989 | 2.197947989 | 2.956335307 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 2.197947989 | 2.197947989 | 2.348785779 | 2.567869956 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 3.161586971 | 2.197947989 | 2.743757158 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 2.484830258 | 2.22037603 | 2.22037603 | 2.417456559 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 2.366726502 | 2.771373215 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 2.361542144 | 2.491498571 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 4.522435088 | 3.193775332 | 2.791640584 | 3.225249314 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 3.019837336 | 2.583614831 | 3.055244667 | 2.56448996 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 2.197947989 | 2.318322248 | 2.486326092 | 2.465841172 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 2.265232111 | 2.265232111 | 2.265232111 | 3.326221469 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 2.22037603 | 2.22037603 | 2.409633397 | 3.069795529 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 2.22037603 | 2.268861667 | 2.22037603 | 2.929926742 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 2.265232111 | 2.761393423 | 2.265232111 | 3.532388017 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 2.242804071 | 3.034147453 | 2.242804071 | 2.600703241 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 2.197947989 | 2.23557678 | 2.197947989 | 3.575782974 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 3.021724396 | 2.761215275 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 3.955548144 | 2.265232111 | 2.265232111 | 2.884659781 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 2.265232111 | 2.460608352 | 3.167103958 | 3.550819283 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 2.687195224 | 2.770296594 | 3.09257682 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 2.22037603 | 2.22037603 | 4.191736814 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 2.277096594 | 2.604815107 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 2.639997566 | 3.028926066 | 2.227081496 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 2.82992848 | 2.22037603 | 2.22037603 | 3.181976564 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 2.233942599 | 3.013886765 | 3.271531592 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 3.506810161 | 3.319017938 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 2.197947989 | 2.197947989 | 2.824392526 | 2.923856875 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 2.242804071 | 3.823278139 | 2.329705271 | 2.55397067 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 2.22037603 | 2.22037603 | 3.071786699 | 2.761548255 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 2.242804071 | 2.71932511 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 2.265232111 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 2.573001592 | 2.486915328 | 3.285092358 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 3.436110376 | 3.110425427 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 3.017175976 | 2.265232111 | 2.265232111 | 3.329255115 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 3.390506979 | 2.242804071 | 2.242804071 | 3.186718016 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 2.912874569 | 2.197947989 | 2.483476059 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 2.796328172 | 2.242804071 | 2.297199624 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 2.700289083 | 2.979120552 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 2.22037603 | 2.22037603 | 2.800871225 | 3.868672048 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 3.539750287 | 3.249389348 | 2.671045041 | 3.280153214 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 3.046578653 | 2.691760136 | 2.770560089 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 2.562597942 | 3.093073563 | 3.807399267 | 3.719810053 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 3.079816026 | 2.197947989 | 2.834715425 | 2.388260908 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 2.492465576 | 2.242804071 | 2.414744911 | 4.4132629 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 3.053787232 | 2.355646976 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 3.314359297 | 2.602933001 | 2.265232111 | 2.625494568 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 2.785978825 | 3.723067419 | 3.582366412 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 2.967738207 | 3.100280246 | 2.420979818 | 3.348730774 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 2.22037603 | 3.386717382 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 2.416821359 | 2.265232111 | 2.265232111 | 3.515685707 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 2.22037603 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 2.579706783 | 2.625826893 | 2.892422076 | 3.306174304 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 2.455803146 | 2.553215636 | 3.772463825 | 3.214850316 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 2.242804071 | 3.475823062 | 2.242804071 | 2.87576816 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 2.197947989 | 2.197947989 | 2.197947989 | 3.103737022 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 2.197947989 | 2.222601582 | 3.095575404 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 3.71467127 | 3.056488583 | 4.18084143 | 3.812751128 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 3.1404877 | 3.840066765 | 2.265232111 | 2.619280303 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 3.038189872 | 2.620692415 | 3.243027119 | 4.116364727 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 2.332319903 | 3.37180372 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 2.635881752 | 2.507565619 | 2.368398886 | 2.876791497 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 2.541728988 | 2.516687088 | 2.521324768 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 2.197947989 | 2.197947989 | 2.197947989 | 2.666946173 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 2.281617219 | 2.265232111 | 2.265232111 | 3.16314738 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 3.392660542 | 2.22037603 | 3.0071513 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 2.808679387 | 3.266387794 | 2.24455594 | 4.017237648 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 2.822934495 | 3.273726247 | 2.824158109 | 3.261395783 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 3.07670223 | 2.506466549 | 2.197947989 | 2.860248342 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 2.515009313 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 3.072017191 | 3.188653968 | 2.265232111 | 2.627540906 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 2.967618058 | 2.743390685 | 3.236873897 | 2.939916697 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 2.281292635 | 3.236050091 | 2.731771836 | 3.309390981 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 2.976911256 | 2.242804071 | 2.899310192 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 2.265232111 | 2.265232111 | 3.104606302 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 2.265232111 | 2.526088654 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 3.032915113 | 2.22037603 | 3.164405772 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 2.955342752 | 2.678913267 | 2.22037603 | 3.32107581 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 2.627442793 | 3.284035254 | 2.265232111 | 3.089980393 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 2.22037603 | 2.524471385 | 2.688831005 | 2.907049456 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 2.197947989 | 2.197947989 | 2.781635038 | 3.038553076 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 2.732723085 | 2.265232111 | 2.611487944 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 3.454592241 | 2.265232111 | 3.188759822 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 3.223888971 | 2.242804071 | 3.422152597 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 2.490544021 | 2.22037603 | 2.883062063 | 3.948161466 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 2.242804071 | 2.958475324 | 2.731234531 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 2.242804071 | 2.978182122 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 3.325753406 | 2.265232111 | 3.529405372 | 2.336201899 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 3.235566905 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 3.393990709 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 2.669706133 | 2.389812922 | 2.22037603 | 2.287275935 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 2.209494502 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 2.808215494 | 3.608092668 | 2.872212509 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 2.242804071 | 2.795259076 | 2.482417715 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 3.73277794 | 2.265232111 | 2.265232111 | 2.462382853 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 2.197947989 | 2.733060449 | 3.387213683 | 2.200219142 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 2.197947989 | 2.879033479 | 3.381616326 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 2.197947989 | 3.616063888 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 2.197947989 | 2.197947989 | 2.197947989 | 2.412841311 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 2.22037603 | 2.764834462 | 2.22037603 | 2.93645469 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 2.197947989 | 2.197947989 | 2.197947989 | 2.673649935 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 3.060687338 | 2.242804071 | 2.242804071 | 3.123134442 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 2.22037603 | 2.22037603 | 2.565037514 | 2.88795423 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 2.263263642 | 2.198226425 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 2.22037603 | 2.839735047 | 3.049420088 | 2.951915906 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 2.894316513 | 2.197947989 | 2.197947989 | 3.186372619 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 2.197947989 | 2.197947989 | 2.197947989 | 2.942070467 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 2.266882953 | 3.820070103 | 2.400576874 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 2.242804071 | 2.647271294 | 2.584809219 | 3.083167939 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 2.22037603 | 2.22037603 | 3.05155172 | 2.887058698 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 4.183308193 | 2.498244539 | 3.118312638 | 2.285761297 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 3.003114913 | 2.197947989 | 2.197947989 | 3.014185256 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 3.194437794 | 3.518585181 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 2.265232111 | 2.265232111 | 2.265232111 | 3.82848399 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 3.817813238 | 3.294581908 | 2.936794852 | 3.931919522 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 2.242804071 | 3.154974889 | 2.242804071 | 3.182815585 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 2.197947989 | 2.518701815 | 2.197947989 | 2.262362482 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 2.22037603 | 3.96672396 | 2.22037603 | 2.404526656 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 2.242804071 | 3.634747954 | 2.271272713 | 2.242804071 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

PAGE

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 2.265232111 | 2.265232111 | 2.265232111 | 2.896952572 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 2.727007308 | 2.265232111 | 3.465903179 | 3.51394883 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 2.197947989 | 2.197947989 | 2.197947989 | 3.26746931 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 3.13866967 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 3.69361774 | 2.22037603 | 2.22037603 | 2.395845018 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 3.470127715 | 2.197947989 | 2.35380443 | 3.715770339 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 2.197947989 | 2.197947989 | 3.526065297 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 2.391140287 | 2.197947989 | 2.197947989 | 2.849610326 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 2.197947989 | 3.243233545 | 2.612752043 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 3.617317022 | 2.197947989 | 2.197947989 | 2.912310362 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 2.265232111 | 2.452808432 | 2.265232111 | 3.754584304 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 3.293954139 | 2.701876104 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 2.197947989 | 3.175697745 | 2.264413891 | 3.404050121 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 3.325715077 | 2.617441079 | 2.197947989 | 2.321450717 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 3.652703831 | 2.197947989 | 2.197947989 | 2.475028669 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 2.265232111 | 2.265232111 | 4.527458894 | 3.197359951 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 2.242804071 | 2.242804071 | 2.242804071 | 2.279989819 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 3.15251204 | 3.430776882 | 2.22037603 | 3.733984292 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 2.244526295 | 2.22037603 | 2.934027134 | 2.803098851 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 2.242804071 | 2.242804071 | 2.682176792 | 3.156499928 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 2.814218724 | 2.906330587 | 2.880582406 | 2.964705502 |
| | | | | | | |
| | average min | | 2.700176034 | 2.621256181 | 2.56517675 | 2.742948885 |
| | Median Min Price | | 2.520491538 | 2.467789168 | 2.265232111 | 2.533616674 |
| | Highest Minimum | | 4.522435088 | 3.96672396 | 4.527458894 | 4.4132629 |
| | Absolute Min | | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 4.884487334 | 4.745117751 | 4.742430624 | 4.924488262 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 4.421589948 | 2.533625886 | 2.197947989 | 3.482853649 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 2.197947989 | 3.24165097 | 3.49694975 | 3.15722726 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 3.052854598 | 2.656000374 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 2.90683755 | 3.220132833 | 3.254450268 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 2.265232111 | 3.534902239 | 2.265232111 | 3.056175758 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 2.197947989 | 3.112894999 | 3.270898223 | 2.367614935 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 2.22037603 | 2.979130217 | 3.771871234 | 3.142498309 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 2.854633887 | 2.34086849 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 3.695057223 | 2.242804071 | 2.768756622 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 3.476144611 | 2.778595048 | 2.395912747 | 3.651427133 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 2.242804071 | 3.218513547 | 2.574305414 | 3.282112094 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 2.348592624 | 2.265232111 | 2.526269939 | 2.875032612 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 2.781387841 | 2.265232111 | 3.084875979 | 2.351492098 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 2.197947989 | 2.197947989 | 2.580368984 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 2.22037603 | 2.425797806 | 2.689519197 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 2.265232111 | 2.265232111 | 3.468961435 | 3.189159836 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 4.127987948 | 2.197947989 | 3.648534984 | 3.600920072 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 3.586632735 | 3.225088829 | 2.22037603 | 3.815701337 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 2.667090206 | 2.309116353 | 2.242804071 | 2.565229507 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 3.387191673 | 2.871172131 | 2.876908706 | 3.567877782 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 2.420158833 | 2.265232111 | 2.787526676 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 3.134415738 | 2.774699925 | 4.127380114 | 3.669952542 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 2.304868784 | 2.561455383 | 2.428351176 | 2.447261473 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 2.368223439 | 3.473223188 | 2.697660692 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 2.741749593 | 2.197947989 | 3.255593355 | 3.872542439 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 2.884969423 | 2.265232111 | 3.699176732 | 2.906202229 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 2.742697248 | 3.322111981 | 2.243912039 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 3.018225518 | 2.694440701 | 2.265232111 | 3.03316827 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 4.694565172 | 2.931021663 | 3.320165806 | 3.16969415 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 3.308073028 | 2.984761928 | 3.653949279 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 3.170743693 | 2.265232111 | 3.245594268 | 2.815811941 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 3.123810175 | 2.22037603 | 3.377369609 | 2.815836413 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 2.242804071 | 2.738852596 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 2.197947989 | 2.197947989 | 4.077054169 | 2.380707341 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 2.265232111 | 2.265232111 | 3.421950203 | 2.715892417 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 2.801835381 | 2.265232111 | 2.397083656 | 2.635189786 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 3.127925214 | 3.438141248 | 2.22037603 | 2.572165071 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 2.659133401 | 2.301687247 | 2.265232111 | 3.980216538 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 2.22037603 | 2.22037603 | 2.731972914 | 2.979951813 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 3.354554655 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 2.550960329 | 2.197947989 | 2.833543341 | 3.317341051 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 2.197947989 | 2.490802545 | 2.197947989 | 2.564302 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 2.197947989 | 2.839602195 | 2.197947989 | 2.28681834 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 3.700684866 | 3.160151124 | 2.670514129 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 2.342287807 | 3.321781706 | 2.265232111 | 2.316078944 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 2.910972154 | 2.692205971 | 2.99624186 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 2.902479683 | 2.812232874 | 2.816083778 | 2.952601737 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 3.107815418 | 2.99286241 | 2.265232111 | 4.687097396 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 3.224718509 | 2.242804071 | 2.473723245 | 2.422624635 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 3.370034888 | 2.930489295 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 3.36037105 | 2.817694582 | 2.250975399 | 2.317848253 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 2.22037603 | 2.22037603 | 4.499814158 | 3.577255317 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 4.190812704 | 2.743947556 | 2.396576591 | 2.941337871 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 3.639359226 | 3.239980257 | 3.63115103 | 2.80417949 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 4.405581965 | 3.745561117 | 2.605039647 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 3.3614609 | 3.732438053 | 2.83213674 | 2.332154589 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 2.265232111 | 3.280660156 | 2.265232111 | 2.661708111 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 2.368793404 | 4.093426212 | 3.458731617 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 2.738897335 | 2.770588237 | 2.565715573 | 2.791715446 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 3.427609431 | 2.584872988 | 3.749534268 | 2.294736472 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 2.460631035 | 2.265232111 | 2.392168088 | 2.62550969 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 2.525859912 | 2.570778507 | 3.552499549 | 3.263249458 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 2.197947989 | 2.197947989 | 2.197947989 | 3.846980525 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 2.777854674 | 2.197947989 | 3.077032021 | 3.120184978 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 2.22037603 | 2.22037603 | 2.22037603 | 2.452146229 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 3.266083499 | 3.11324379 | 3.119299386 | 3.09608621 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 2.372958936 | 2.583565248 | 3.330351951 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 2.242804071 | 2.775701823 | 2.704193785 | 3.893074162 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 2.274989933 | 2.434886535 | 3.165804744 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 2.299036697 | 3.397082596 | 3.013137542 | 4.655730078 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 2.956037324 | 2.265232111 | 3.113312285 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 3.05501527 | 3.358681476 | 2.605344776 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 2.22037603 | 3.309885093 | 3.161719351 | 2.311936875 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 2.511470307 | 3.002776538 | 2.5230457 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 3.568959169 | 2.242804071 | 3.661504582 | 2.872546078 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 3.41692977 | 3.238932643 | 3.112199085 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 3.106483604 | 2.775655143 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 2.449621998 | 3.607049927 | 2.299769266 | 2.997657182 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 4.080098437 | 2.265232111 | 3.49783556 | 2.395211041 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 2.743133986 | 3.208184349 | 2.62296727 | 2.738323167 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 3.147323774 | 2.22037603 | 2.28209508 | 3.586484509 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 2.242804071 | 2.495650405 | 2.242804071 | 3.941892522 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 3.068581839 | 3.303490196 | 2.659773573 | 2.711205027 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 3.164220843 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 2.783293199 | 2.809375168 | 2.940762246 | 3.154421686 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 3.126015568 | 3.687149083 | 2.22037603 | 2.908544599 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 2.197947989 | 2.197947989 | 2.564257981 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 2.938028465 | 2.242804071 | 3.230049016 | 4.061822687 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 3.219078966 | 2.22037603 | 2.897390938 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 2.925536015 | 2.364035047 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 3.230847744 | 4.977069657 | 2.534409565 | 2.292361979 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 2.265232111 | 3.316609243 | 3.142012867 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 2.242804071 | 3.27175017 | 3.145585098 | 3.350741701 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 2.371728289 | 2.265232111 | 3.592522312 | 2.840283928 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 2.242804071 | 2.242804071 | 2.242804071 | 2.692254598 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 2.197947989 | 3.896324392 | 3.149190478 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 2.242804071 | 2.495717602 | 2.67000589 | 3.152223901 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 2.864468369 | 2.239394001 | 3.415611306 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 3.187290469 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 3.29017113 | 2.242804071 | 3.645618224 | 2.248755038 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 2.265232111 | 4.035654355 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 3.60255637 | 3.203785763 | 2.489676979 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 3.038838848 | 3.030684567 | 2.831096288 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 3.224950224 | 2.242804071 | 2.915675129 | 3.481026304 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 3.616835698 | 2.646127515 | 2.242804071 | 2.893718204 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 2.265232111 | 2.74644293 | 3.354574604 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 2.992620817 | 3.544083847 | 2.903808624 | 3.021834649 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 3.096916105 | 2.402147832 | 3.21021531 | 3.729342082 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 2.22037603 | 2.22037603 | 3.989275501 | 2.306881836 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 3.18374614 | 2.900493833 | 2.524676722 | 3.604444973 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 3.768496267 | 2.302330059 | 3.384075075 | 3.324887338 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 3.423294266 | 2.780504461 | 2.763938069 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 2.738899559 | 2.487439659 | 2.197947989 | 4.066035181 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 4.189423321 | 2.242804071 | 2.430534305 | 3.327424076 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 2.460759701 | 3.50900888 | 3.75965749 | 2.978301723 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 2.717711388 | 2.197947989 | 2.358105158 | 2.290349789 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 3.62036479 | 2.442608928 | 2.197947989 | 2.602040662 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 3.793328419 | 3.398774869 | 2.918867569 | 3.427978453 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 2.265232111 | 2.737714264 | 2.615686114 | 2.265232111 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 2.265232111 | 2.807211632 | 3.228846592 | 3.723029614 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 2.28621753 | 3.272160847 | 3.549167532 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 2.197947989 | 3.998433703 | 2.546300814 | 3.526168008 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 2.693739037 | 2.987487591 | 3.44831647 | 2.408159787 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 3.495543249 | 3.391624282 | 2.525632657 | 3.055675286 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 3.639956241 | 2.823861015 | 3.172012145 | 2.84692107 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 3.305362786 | 2.22037603 | 2.552477647 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 2.46936163 | 2.22037603 | 2.22037603 | 2.791552921 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 2.197947989 | 2.805519352 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 2.775685881 | 3.080519277 | 3.682258866 | 2.937740569 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 2.638255615 | 2.197947989 | 2.197947989 | 3.339327672 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 2.265232111 | 2.265232111 | 2.411075338 | 2.659457985 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 3.200593091 | 2.197947989 | 3.142464707 | 3.873319054 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 2.265941948 | 2.489799681 | 2.265232111 | 2.451071736 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 3.592299253 | 2.952045955 | 2.851889785 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 3.132936753 | 2.663354255 | 2.265232111 | 3.51306527 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 2.265232111 | 3.661083193 | 2.615195368 | 4.276629714 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 3.18075511 | 2.22037603 | 2.719427693 | 3.073096736 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 2.504791372 | 2.22037603 | 2.22037603 | 2.514183612 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 2.265232111 | 2.265232111 | 3.725340408 | 4.02414719 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 4.454770013 | 2.22037603 | 2.305919778 | 3.23637554 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 2.36578327 | 2.802808536 | 2.197947989 | 2.821623019 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 3.682701252 | 2.265232111 | 2.885399861 | 3.190058519 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 2.39902432 | 2.265232111 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 2.242804071 | 2.92356234 | 3.055708325 | 4.134721548 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 2.22037603 | 3.372795423 | 2.22037603 | 2.738404515 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 2.242804071 | 2.253405017 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 2.242804071 | 2.569356345 | 2.758731219 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 2.265232111 | 3.719480972 | 2.385923759 | 3.617938167 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 3.822254424 | 3.05634174 | 3.432136348 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 3.619654061 | 4.122027149 | 2.314835427 | 3.71663271 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 2.609963254 | 2.792256113 | 2.22037603 | 2.909380841 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 2.261842293 | 3.038963568 | 3.154194631 | 2.652784043 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 2.56169372 | 2.787049333 | 2.946312678 | 3.721162625 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 2.81222968 | 2.826075166 | 2.242804071 | 3.075489984 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 2.865541361 | 2.513063523 | 3.750114296 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 3.423655541 | 2.197947989 | 2.197947989 | 2.751552478 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 3.737998713 | 2.204637078 | 2.197947989 | 2.260208537 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 2.197947989 | 2.651384704 | 2.550601367 | 2.725125737 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 3.057125806 | 2.197947989 | 2.598912368 | 3.516357786 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 2.30336623 | 2.22037603 | 2.643009732 | 2.356344529 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 2.287162628 | 2.197947989 | 2.879429123 | 2.429047513 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 2.86036769 | 2.72346692 | 2.859119104 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 2.240063278 | 3.023434289 | 2.22037603 | 2.782123801 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 3.013335277 | 2.320336975 | 2.197947989 | 3.380378214 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 2.652357504 | 2.22037603 | 2.975614788 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 4.099129177 | 3.201772861 | 2.412526368 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 2.383088541 | 4.330741378 | 2.197947989 | 3.031248774 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 2.197947989 | 3.602854448 | 2.654608372 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 4.736555484 | 2.242804071 | 2.394477363 | 3.362112831 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 2.22037603 | 2.22037603 | 2.36404911 | 4.46796637 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 2.242804071 | 3.67984355 | 3.193513673 | 2.59341421 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 2.197947989 | 2.349796811 | 2.809212028 | 2.707007343 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 2.407201752 | 4.346210254 | 3.295723883 | 2.985492928 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 2.490577386 | 2.265232111 | 3.814107236 | 3.98074509 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 3.758468615 | 2.242804071 | 2.587964103 | 3.219238636 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 4.115568014 | 2.450345731 | 2.242804071 | 3.05683731 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 3.398628489 | 2.197947989 | 2.197947989 | 2.709168799 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 2.885726427 | 3.09373863 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 2.255625378 | 2.242804071 | 2.242804071 | 2.242804071 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

PAGE

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 2.530604028 | 2.265232111 | 2.386127547 | 2.467879721 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 2.663369377 | 2.265232111 | 2.265232111 | 2.890239819 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 2.197947989 | 2.197947989 | 2.197947989 | 2.462712877 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 3.153645097 | 2.829806821 | 4.08868872 | 2.77279934 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 2.959095166 | 2.22037603 | 2.504369457 | 2.494429662 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 2.197947989 | 2.324601021 | 2.845456152 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 2.197947989 | 2.263952394 | 2.865061922 | 3.268092209 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 3.676229358 | 2.197947989 | 3.631896631 | 3.020874345 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 2.197947989 | 2.197947989 | 3.295705881 | 4.27073766 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 3.360794453 | 2.235239827 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 2.265232111 | 2.66950047 | 2.265232111 | 3.084717558 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 3.833281083 | 2.242804071 | 2.682857142 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 3.369205161 | 2.197947989 | 2.197947989 | 3.243365252 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 2.971391086 | 3.535384676 | 2.687277203 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 2.328051944 | 2.904009526 | 2.197947989 | 3.610928029 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 3.618217565 | 2.265232111 | 3.097229259 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 3.651187932 | 2.548034675 | 2.242804071 | 2.736834005 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 2.335746749 | 3.278029895 | 2.431237703 | 3.397678701 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 2.22037603 | 2.22037603 | 3.374253685 | 2.883506212 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 2.767246377 | 2.558792652 | 2.969569823 | 2.708985823 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 3.030820031 | 3.761991951 | 2.265232111 | 3.511389242 |
| | | | | | | |
| | average min | | 2.856246571 | 2.726627091 | 2.762025193 | 2.829484609 |
| | Median Min Price | | 2.771466129 | 2.570067426 | 2.619326692 | 2.720509077 |
| | Highest Minimum | | 4.736555484 | 4.977069657 | 4.499814158 | 4.687097396 |
| | Absolute Min | | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 5.165226492 | 4.742463798 | 4.683863672 | 4.842889446 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 2.967258921 | 2.725836498 | 2.57583384 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 3.100205748 | 3.036318605 | 3.169733916 | 2.415427581 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 2.197947989 | 2.347701558 | 2.391675149 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 3.48434085 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 2.265232111 | 2.584803456 | 2.675269355 | 2.29964847 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 2.934978573 | 2.30454109 | 2.197947989 | 3.220975476 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 2.22037603 | 2.938541854 | 2.22037603 | 3.40149023 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 2.224957451 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 2.242804071 | 3.642119333 | 2.814337749 | 2.557738707 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 3.565467764 | 2.242804071 | 3.429576379 | 3.159042016 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 2.696358799 | 2.242804071 | 3.652219597 | 2.419148202 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 4.417768902 | 2.265232111 | 2.991186202 | 3.056447595 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 2.265232111 | 2.472395094 | 2.919212238 | 3.054884622 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 3.049916528 | 2.483659295 | 2.231005128 | 3.413405832 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 2.46148659 | 2.504635911 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 3.045053486 | 3.561956677 | 4.777767083 | 4.706578565 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 2.916464535 | 2.666162221 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 3.456377998 | 2.75685584 | 2.277624652 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 2.363414586 | 2.242804071 | 2.528156051 | 2.692860086 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 2.998601952 | 2.672990528 | 3.827850925 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 2.791045254 | 4.45350664 | 2.265232111 | 3.107943595 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 2.44245852 | 4.062592693 | 3.159228814 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 2.979589365 | 2.782715823 | 2.22037603 | 3.187068483 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 3.042951431 | 2.69937782 | 2.782671531 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 3.34856635 | 2.197947989 | 2.323883097 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 3.110858191 | 2.595208511 | 2.862709756 | 2.747016848 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 2.36956312 | 2.866497974 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 4.066446461 | 3.366014079 | 2.329549635 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 3.043535519 | 2.265232111 | 2.730767479 | 4.09226269 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 2.999265521 | 3.196302847 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 3.806464734 | 2.867164109 | 3.547968312 | 2.404482188 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 3.409144492 | 2.859919055 | 2.885516931 | 3.092789445 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 3.086285371 | 3.42974409 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 4.035775331 | 3.329581446 | 2.882696614 | 3.365115397 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 2.50936366 | 2.265232111 | 3.188722017 | 2.515812137 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 3.623024711 | 2.906161335 | 2.808464812 | 2.458585417 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 2.810194097 | 3.307412512 | 2.467721299 | 3.361800786 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 2.98835235 | 2.837403663 | 2.554431584 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 2.242804071 | 3.787423324 | 3.148919294 | 3.251280853 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 3.030874965 | 2.815454118 | 3.537055289 | 3.088673907 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 3.314285947 | 2.197947989 | 2.306680536 | 3.072753128 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 4.114536755 | 3.910156731 | 2.463020484 | 4.004756319 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 2.197947989 | 2.197947989 | 3.009071406 | 3.09562641 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 3.970966881 | 2.759377329 | 3.635939175 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 3.671717335 | 2.22037603 | 2.714343009 | 2.554698038 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 2.265232111 | 2.265232111 | 2.782618668 | 2.862989154 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 3.424140021 | 2.724560776 | 2.397529217 | 2.938745973 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 2.242804071 | 3.378559938 | 2.576211891 | 2.813425684 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 3.296281467 | 3.112589813 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 3.941818016 | 2.69111064 | 2.242804071 | 2.33351056 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 3.924662689 | 3.079964897 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 3.832407904 | 2.197947989 | 2.834532363 | 2.989231219 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 3.184604048 | 3.403103776 | 3.049153634 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 3.43891679 | 2.979293606 | 2.464263029 | 3.228514627 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 3.091687025 | 2.304828314 | 2.265232111 | 4.642849901 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 3.549784862 | 2.265232111 | 2.608392063 | 4.007550374 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 3.337232454 | 2.239722888 | 3.429348618 | 3.920480949 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 2.242804071 | 3.103487533 | 2.296197725 | 2.242804071 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 3.983021419 | 2.22037603 | 3.172798898 | 2.855174206 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 3.484787746 | 3.091052619 | 3.682127334 | 2.822396156 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 2.862519496 | 2.627097409 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 3.058590998 | 2.197947989 | 2.566148163 | 3.049469703 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 2.197947989 | 2.986996748 | 2.197947989 | 3.137724666 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 4.296138803 | 2.584043981 | 2.848253989 | 3.330008903 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 2.943014965 | 2.242804071 | 2.242804071 | 3.855955968 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 3.19558563 | 2.533624298 | 2.265232111 | 3.587455703 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 3.883616995 | 3.072506925 | 3.74975151 | 3.642410937 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 4.317950625 | 2.596937004 | 2.22037603 | 3.310247541 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 2.197947989 | 2.466757004 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 3.7488156 | 2.53474189 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 2.22037603 | 2.820373367 | 3.431361669 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 3.308811866 | 3.578639114 | 3.323503189 | 2.636378202 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 2.265232111 | 2.265232111 | 2.91459101 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 2.810315717 | 3.277402226 | 3.287367739 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 2.721206155 | 2.197947989 | 2.626965528 | 2.917006733 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 2.54910268 | 2.22037603 | 2.761111693 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 3.481034956 | 3.383214698 | 2.991586397 | 3.913165703 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 2.479492919 | 2.265232111 | 3.461629398 | 4.21561978 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 2.254481089 | 2.22037603 | 2.67072007 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 4.289240996 | 2.778623018 | 2.22037603 | 3.783565214 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 2.952913281 | 2.242804071 | 2.242804071 | 2.650134753 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 2.333666996 | 2.472766242 | 2.236836361 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 2.22037603 | 3.122892232 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 3.037222845 | 2.22037603 | 2.64054512 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 3.429955639 | 2.911453183 | 3.224615211 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 3.302534013 | 2.928274811 | 2.197947989 | 2.778726488 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 3.093634313 | 2.50721564 | 2.92001871 | 3.326302577 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 4.225020277 | 3.948450154 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 2.971349035 | 3.949338762 | 2.242804071 | 2.853572033 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 2.869241224 | 3.093702939 | 2.892580677 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 3.046533287 | 2.265232111 | 3.476701047 | 3.048556762 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 4.152432035 | 2.336919618 | 2.242804071 | 2.941205808 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 2.265232111 | 2.646787863 | 2.265232111 | 2.421857724 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 2.242804071 | 2.242804071 | 2.283832361 | 4.29939546 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 3.857669722 | 3.67686658 | 3.170613241 | 3.010815034 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 3.171280116 | 3.698952168 | 2.242804071 | 2.71785996 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 3.843815374 | 2.480208547 | 3.598809972 | 2.689123366 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 2.777645961 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 2.65666875 | 3.02181952 | 3.256790671 | 2.440469873 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 2.325683609 | 2.265232111 | 3.363696084 | 3.472721786 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 3.65011135 | 2.910890578 | 2.98218936 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 3.070503984 | 2.197947989 | 2.197947989 | 3.440675041 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 4.764261429 | 3.197976854 | 3.103173471 | 3.971774089 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 3.274299745 | 3.125938189 | 2.554531419 | 2.904962069 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 4.237290406 | 2.654308385 | 2.986942666 | 2.79535684 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 2.872790047 | 2.614704621 | 2.607259529 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 3.390514276 | 2.267332851 | 3.230722058 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 2.368090212 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 3.109619983 | 3.064519172 | 2.265232111 | 2.846453006 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 3.349414874 | 3.026002483 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 3.491153051 | 2.265232111 | 4.539593264 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 4.437928206 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 2.818823388 | 2.242804071 | 2.242804071 | 3.649393747 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 3.48602029 | 2.242804071 | 3.487702538 | 3.547181555 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 2.197947989 | 2.197947989 | 2.334469934 | 3.187464002 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 2.967625394 | 2.197947989 | 2.596721741 | 2.873113668 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 3.22024288 | 2.507712173 | 3.103685667 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 3.622536713 | 2.265232111 | 2.265232111 | 3.334278285 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 3.770501348 | 3.379303486 | 2.556299281 | 3.597203669 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 2.22037603 | 3.344981856 | 2.857061442 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 3.004690152 | 2.468852432 | 2.197947989 | 2.44312178 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 3.303127566 | 2.197947989 | 2.197947989 | 2.355885185 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 3.685819486 | 2.883641813 | 2.970834564 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 2.265232111 | 2.533631859 | 2.308935933 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 3.348896789 | 2.22037603 | 2.22037603 | 3.089120329 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 2.927654648 | 2.655828818 | 2.376705324 | 2.714920385 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 2.197947989 | 4.208733538 | 4.272546966 | 2.757919113 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 2.662865189 | 2.904954529 | 3.121137318 | 2.536234167 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 3.483373837 | 3.067580935 | 3.330264719 | 3.041410446 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 2.752830919 | 2.265232111 | 2.524110365 | 3.249407547 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 3.639274297 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 3.46811568 | 2.265232111 | 2.45684062 | 3.10930278 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 2.294134395 | 2.489639548 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 2.265232111 | 3.216312568 | 3.436477818 | 2.381325214 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 2.962176159 | 2.265232111 | 4.084281485 | 2.800083563 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 2.22037603 | 4.293037701 | 2.22037603 | 4.396973484 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 3.218146554 | 2.22037603 | 2.783344901 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 3.308507421 | 2.265232111 | 2.621386949 | 3.83039441 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 2.726629187 | 2.421142448 | 2.22037603 | 2.816221272 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 3.088937321 | 2.99312163 | 3.01009711 | 3.692794347 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 2.265232111 | 2.265232111 | 3.230039794 | 2.365106269 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 3.903410176 | 2.896778848 | 2.265232111 | 3.705798752 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 3.39061124 | 2.468609659 | 2.242804071 | 2.795729992 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 2.699570161 | 2.707126869 | 3.781625923 | 3.061039955 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 2.242804071 | 3.147005331 | 3.195352774 | 3.051790921 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 2.403942016 | 2.373312902 | 2.684494473 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 2.265232111 | 3.091422749 | 3.470569773 | 3.024900466 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 3.204593695 | 2.265232111 | 2.265232111 | 3.089965271 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 2.978055036 | 3.176916842 | 2.242804071 | 3.843762429 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 2.22037603 | 2.22037603 | 3.654072783 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 2.197947989 | 2.824678123 | 2.197947989 | 2.846826145 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 3.59875163 | 2.197947989 | 2.352156002 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 3.402976604 | 4.044366373 | 2.440499818 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 2.801050114 | 2.265232111 | 2.265232111 | 2.29184079 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 2.715132454 | 2.197947989 | 2.343635247 | 2.941162146 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 2.80972488 | 2.197947989 | 3.848863196 | 2.530475583 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 2.197947989 | 3.240390848 | 3.554103785 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 2.721843552 | 2.685577419 | 2.197947989 | 3.098132329 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 2.22037603 | 2.22037603 | 2.22037603 | 2.917048541 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 4.262810109 | 2.595373582 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 3.03389328 | 2.242804071 | 2.763306514 | 3.812931544 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 2.397932183 | 2.967628931 | 2.78609079 | 2.782146035 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 2.197947989 | 2.197947989 | 2.769502308 | 2.364852764 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 4.005454732 | 2.22037603 | 2.482025079 | 2.659721871 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 2.757230535 | 2.534761463 | 3.209502327 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 2.734613679 | 2.521940156 | 2.211824347 | 2.542022096 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 2.197947989 | 3.906405712 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 3.365207826 | 2.242804071 | 2.920826147 | 2.974803009 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 2.22037603 | 2.851029346 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 4.409367598 | 3.3373297 | 2.242804071 | 2.933722316 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 3.503382413 | 2.951638936 | 4.22556229 | 3.129064869 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 2.812761426 | 2.452257197 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 3.633273732 | 2.265232111 | 2.265232111 | 2.780897094 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 3.896191616 | 2.242804071 | 2.579650894 | 2.580398441 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 2.768995822 | 3.584800966 | 2.242804071 | 3.350405537 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 4.138303686 | 3.737573898 | 2.371761772 | 2.887326979 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 2.794195228 | 2.430830611 | 3.265070346 | 2.874128794 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 3.124659837 | 2.932967282 | 2.242804071 | 2.242804071 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

PAGE

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 4.74111554 | 2.655969471 | 2.265232111 | 3.137482371 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 2.638927454 | 2.591319802 | 2.50178283 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 2.492319093 | 3.652132287 | 3.086563807 | 2.350815354 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 2.877604794 | 2.197947989 | 3.434037307 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 4.030604112 | 2.22037603 | 4.080362905 | 2.366632126 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 2.197947989 | 2.718605211 | 2.692288517 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 2.197947989 | 2.389902175 | 2.197947989 | 2.556499169 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 2.530028584 | 2.197947989 | 2.608085018 | 2.459547726 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 3.161140146 | 3.228595245 | 2.439231369 | 2.83940446 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 2.208959641 | 4.401830462 | 3.170569222 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 2.388105836 | 3.28260838 | 2.265232111 | 4.459079118 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 2.90452092 | 2.242804071 | 2.242804071 | 3.678557356 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 4.592692915 | 2.801204126 | 3.611866045 | 3.744145954 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 2.815996316 | 2.197947989 | 2.197947989 | 3.116257885 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 2.465672783 | 2.45500542 | 3.199281964 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 3.577752744 | 2.265232111 | 2.265232111 | 2.380947702 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 2.990689545 | 2.247207362 | 3.457596386 | 2.424650713 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 2.62797043 | 2.22037603 | 2.22037603 | 3.639432986 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 2.700147537 | 2.22037603 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 2.780807923 | 4.119276161 | 2.386575358 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 3.502418983 | 2.628552644 | 2.543825385 | 2.854162194 |
| | | | | | | |
| | average min | | 3.046185064 | 2.722198545 | 2.712058794 | 2.786283301 |
| | Median Min Price | | 2.994645749 | 2.588061629 | 2.549128485 | 2.690991726 |
| | Highest Minimum | | 4.764261429 | 4.45350664 | 4.777767083 | 4.706578565 |
| | Absolute Min | | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 4.933161959 | 4.850114409 | 4.980411143 | 5.127937396 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 3.153110235 | 2.622217976 | 2.197947989 | 3.43974471 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 2.536710337 | 2.197947989 | 2.350427047 | 4.706231706 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 2.761794851 | 2.197947989 | 2.197947989 | 2.505609408 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 3.784844347 | 3.155498771 | 2.197947989 | 2.588999611 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 3.947574861 | 2.265232111 | 2.50531653 | 3.301062329 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 2.197947989 | 3.662448024 | 3.648857439 | 2.861530473 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 2.22037603 | 3.206082361 | 2.320389115 | 2.991083239 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 2.22037603 | 2.22037603 | 2.770947906 | 2.369215319 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 3.773143997 | 3.68533091 | 2.242804071 | 2.604456305 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 2.242804071 | 2.266936619 | 2.874078603 | 4.878338126 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 3.870885522 | 2.242804071 | 2.242804071 | 3.354464821 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 2.265232111 | 2.398193687 | 2.867595081 | 2.55025874 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 5.138716873 | 3.900797661 | 3.35035375 | 2.898930861 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 2.614210074 | 2.93411392 | 3.514716519 | 3.086285371 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 2.697631046 | 3.113263183 | 2.885615434 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 3.1428435 | 3.097033032 | 3.145946762 | 3.897777211 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 2.9578005 | 2.197947989 | 2.663509922 | 3.756344362 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 3.539516248 | 2.22037603 | 2.785602349 | 3.095344766 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 2.242804071 | 2.242804071 | 2.242804071 | 3.454800481 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 3.385037554 | 3.209333589 | 2.344682961 | 3.586150066 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 3.67283231 | 2.265232111 | 3.122418643 | 3.279890011 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 2.952741277 | 4.030311275 | 3.634920136 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 3.519495844 | 2.22037603 | 2.22037603 | 3.318255632 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 2.22037603 | 2.852457963 | 2.22037603 | 3.854121187 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 3.943961313 | 2.197947989 | 2.874344444 | 4.099795745 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 3.105059243 | 3.659255944 | 2.265232111 | 3.157574902 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 3.182331601 | 3.260044776 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 2.534009371 | 4.351118081 | 4.178167849 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 2.265232111 | 2.683054153 | 2.538660663 | 3.27583514 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 3.713162059 | 2.197947989 | 2.197947989 | 3.301500972 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 2.270781906 | 3.621713641 | 2.265232111 | 3.976071295 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 2.22037603 | 2.981099153 | 3.287370256 | 2.898242003 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 3.220935856 | 3.238130511 | 4.268728914 | 2.517428019 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 3.362750489 | 2.197947989 | 2.197947989 | 3.167631501 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 3.533331705 | 2.501216473 | 3.395469684 | 3.212808931 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 4.16817037 | 3.373927235 | 2.501012505 | 3.912131282 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 2.22037603 | 4.003315689 | 2.72649596 | 2.974526738 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 2.756032474 | 3.591216055 | 3.603410552 | 3.703699666 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 2.902934418 | 3.581103902 | 3.392016818 | 2.680386176 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 4.015725727 | 3.264147077 | 3.629657005 | 2.296377215 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 3.901606631 | 4.105019642 | 2.467672837 | 3.26922796 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 2.299324704 | 2.197947989 | 2.197947989 | 2.409691007 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 2.197947989 | 3.67473447 | 3.644783966 | 3.120566124 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 2.197947989 | 2.197947989 | 2.989165191 | 3.022537621 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 2.265232111 | 2.265232111 | 2.839309815 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 2.22037603 | 3.396457248 | 2.22037603 | 2.319649043 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 2.993496637 | 3.327580654 | 2.265232111 | 3.170962602 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 2.471315308 | 2.273205755 | 3.286882161 | 3.06538761 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 2.509316401 | 3.782586191 | 3.875528014 | 2.310320021 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 2.856247258 | 2.263059145 | 2.272784364 | 3.009297755 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 2.789113825 | 4.032890794 | 3.514272012 | 3.790817409 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 2.22037603 | 3.139759656 | 2.22037603 | 2.752918496 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 2.197947989 | 2.495278998 | 2.197947989 | 3.204117378 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 3.073104147 | 2.22037603 | 3.424049182 | 3.586477098 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 4.291738809 | 2.265232111 | 2.265232111 | 2.334721918 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 3.05641735 | 2.879336457 | 2.306980327 | 3.73513374 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 2.931353808 | 2.265232111 | 2.265232111 | 2.78138028 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 2.598594842 | 2.22037603 | 2.879420642 | 3.431450605 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 4.05791277 | 2.880837007 | 2.699850205 | 3.427864186 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 2.22037603 | 3.608799241 | 2.22037603 | 3.660874596 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 2.737125224 | 2.265232111 | 3.402605134 | 3.345113598 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 3.672309601 | 2.197947989 | 2.690024526 | 4.219269019 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 3.151161536 | 3.866923073 | 2.197947989 | 3.634599935 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 3.440938804 | 2.197947989 | 2.414079597 | 3.07539809 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 3.573406733 | 2.897117073 | 2.929467947 | 3.773751235 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 3.51022277 | 2.760772269 | 2.881083694 | 2.797748583 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 2.776804598 | 2.988294289 | 2.522200125 | 3.086982986 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 3.999143869 | 2.242804071 | 2.668907028 | 3.582565454 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 3.056932327 | 2.647761437 | 3.540648766 | 2.554853499 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 2.360522865 | 2.396254137 | 4.157513987 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 2.490735988 | 2.749372649 | 3.336113094 | 2.666903077 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 2.22037603 | 2.22037603 | 2.971418225 | 2.556207827 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 2.22037603 | 2.594635264 | 2.22037603 | 3.694224761 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 2.443883358 | 3.205122246 | 2.898402309 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 4.123783903 | 3.336141182 | 3.068275459 | 3.637327473 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 3.080402243 | 2.71163035 | 2.699343904 | 2.755391533 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 3.423449925 | 2.596071116 | 3.255426474 | 3.518977759 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 2.265232111 | 2.265232111 | 4.153839342 | 3.529035241 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 2.473421954 | 4.094792034 | 2.265232111 | 4.125833294 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 4.571532293 | 3.330963549 | 3.470795456 | 3.820948893 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 2.655747294 | 2.22037603 | 2.775299754 | 3.068781592 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 2.649461889 | 2.804133035 | 2.775275647 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 2.22037603 | 3.65223725 | 2.656287613 | 4.052659802 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 2.22037603 | 2.576983302 | 2.22037603 | 2.369540887 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 2.732254191 | 2.325192522 | 2.599897467 | 2.512681058 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 3.204646686 | 3.219737514 | 2.538607743 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 4.321055876 | 3.373491041 | 3.593432359 | 2.933608405 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 2.242804071 | 4.075975106 | 2.314005711 | 2.747898558 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 3.429296738 | 2.645674272 | 2.22037603 | 3.202263422 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 2.425944037 | 2.517809278 | 2.242804071 | 3.421599334 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 2.265232111 | 3.59493104 | 3.129697393 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 2.265232111 | 2.831555261 | 2.851957435 | 3.166832121 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 2.562897032 | 3.975527154 | 2.747644385 | 2.722479994 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 3.972228132 | 2.265232111 | 2.823845893 | 2.697249623 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 2.538652369 | 2.242804071 | 2.568937655 | 2.987011342 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 2.529610931 | 3.199838485 | 3.241504241 | 4.183618099 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 2.242804071 | 3.097103259 | 2.48454842 | 3.235401981 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 2.978109521 | 2.482890017 | 3.076028325 | 3.193911338 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 2.22037603 | 2.661172545 | 3.582428761 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 2.753670036 | 2.465611628 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 3.345634589 | 2.43639308 | 2.624769789 | 3.549173139 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 2.242804071 | 2.909215994 | 2.242804071 | 3.512051829 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 2.197947989 | 2.53176505 | 2.197947989 | 2.285521536 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 4.001192227 | 2.993029507 | 3.595117616 | 3.028989128 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 3.120854369 | 2.242804071 | 2.98064917 | 3.232979672 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 2.669961153 | 4.442007037 | 2.67184889 | 3.034595504 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 3.117382278 | 2.532423715 | 3.331869557 | 2.324430099 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 3.399530116 | 3.286178865 | 3.200870079 | 2.435984234 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 2.22037603 | 2.22037603 | 2.606906444 | 3.864557009 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 3.438758368 | 2.985341888 | 2.93055342 | 2.699409196 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 3.182494649 | 2.22037603 | 2.585664939 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 2.265232111 | 3.542974176 | 2.265232111 | 2.601890839 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 2.881964039 | 2.197947989 | 2.464236761 | 2.653458122 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 2.904932124 | 2.242804071 | 2.480974845 | 3.387815335 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 2.242804071 | 3.08537315 | 2.484496195 | 2.340149185 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 2.197947989 | 2.197947989 | 2.197947989 | 3.337562035 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 2.844357083 | 2.483139107 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 3.779151617 | 2.666550529 | 3.891972484 | 3.88879266 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 2.265232111 | 3.081002573 | 2.265232111 | 4.258711879 |

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 2.896189808 | 2.352473771 | 4.178990921 | 3.958508107 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 2.606854741 | 2.830631495 | 3.828890283 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 3.879561318 | 2.356134275 | 2.595454283 | 2.886543202 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 2.609052205 | 3.793394447 | 3.566426913 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 2.686947412 | 2.220293746 | 2.357130634 | 3.94274521 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 2.495138126 | 2.914122946 | 3.728345377 | 3.150552868 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 2.22037603 | 2.22037603 | 3.00113438 | 2.301227363 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 3.366445346 | 3.037555648 | 2.22037603 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 2.429472503 | 2.197947989 | 2.197947989 | 3.231672359 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 2.197947989 | 2.577489605 | 2.770799112 | 3.118096886 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 3.030032322 | 2.732225143 | 4.328550926 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 2.265232111 | 3.493154203 | 2.559621633 | 3.114897941 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 3.570661787 | 2.197947989 | 3.41620451 | 3.769239034 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 2.409157357 | 3.866841805 | 2.492865317 | 2.639659794 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 2.242804071 | 2.44950835 | 2.415193546 | 2.277358253 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 2.265232111 | 3.817240742 | 4.246102244 | 3.473182288 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 3.086537245 | 4.347811031 | 4.1629529 | 3.722297275 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 2.22037603 | 2.22037603 | 3.080719792 | 4.021574673 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 3.013901587 | 2.969478933 | 2.786386889 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 2.52076533 | 2.317589169 | 3.380639987 | 2.717002448 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 2.22037603 | 2.32799029 | 3.188881782 | 2.971433047 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 2.197947989 | 4.672024318 | 3.131790182 | 2.548615986 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 2.486952954 | 2.451260581 | 3.148831114 | 2.485367298 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 2.265232111 | 2.265232111 | 3.661166364 | 2.588661921 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 4.047491313 | 3.376444205 | 3.124981029 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 2.323142414 | 2.22037603 | 3.671199249 | 3.013871942 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 3.006725626 | 2.242804071 | 3.162219003 | 3.063438683 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 2.401512399 | 2.242804071 | 4.231042484 | 3.218722803 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 2.372830579 | 3.523251415 | 3.041738515 | 2.598855446 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 2.265232111 | 3.743990584 | 3.632382611 | 2.504418028 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 2.242804071 | 2.735996623 | 2.679313512 | 2.892581733 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 2.628910431 | 2.22037603 | 3.009645734 | 2.410114603 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 2.197947989 | 2.197947989 | 2.913475284 | 3.546704109 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 2.197947989 | 3.12674236 | 2.197947989 | 2.969969912 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 3.327685735 | 2.242804071 | 2.242804071 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 2.897594359 | 2.685787464 | 2.576097472 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 2.309471878 | 3.948650348 | 2.664418419 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 2.374267342 | 2.197947989 | 4.289793546 | 2.525830567 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 3.169770598 | 3.481696237 | 2.197947989 | 3.721646132 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 2.197947989 | 2.197947989 | 2.528468018 | 2.600494769 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 2.549235907 | 2.932680042 | 2.572779327 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 2.197947989 | 2.197947989 | 2.77595698 | 2.986483895 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 3.572488005 | 2.904386347 | 2.335028113 | 3.4512417 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 2.22037603 | 2.22037603 | 3.627924289 | 3.730557446 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 2.438293527 | 2.197947989 | 3.279851129 | 4.310300651 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 2.868451912 | 2.615188577 | 3.65593055 | 2.981446779 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 3.341467118 | 2.980439365 | 2.934289995 | 3.07477554 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 2.612861915 | 2.452067349 | 3.351137947 | 3.587893694 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 2.373322338 | 3.156648846 | 2.738262162 | 3.137057748 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 2.847000605 | 2.242804071 | 3.545723892 | 3.599864915 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 2.644608456 | 3.891578979 | 3.457562042 | 2.690666538 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 2.242804071 | 2.242804071 | 2.242804071 | 3.48123556 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 2.197947989 | 3.264428878 | 2.755413543 | 3.159205771 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 2.8921578 | 3.055246831 | 2.683091958 | 4.116946206 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 4.197467553 | 2.265232111 | 4.666951938 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 2.946461453 | 2.688987599 | 2.390328245 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 2.242804071 | 2.490880647 | 2.37205683 | 3.099069269 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 3.226492481 | 3.224045253 | 3.046942124 | 2.838312727 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 2.992149055 | 3.264951765 | 2.946549945 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 3.114776315 | 3.284482 | 3.106081668 | 3.23230663 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

PAGE

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 3.712458577 | 3.625284966 | 3.159107631 | 3.18072569 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 3.66775814 | 3.926885728 | 3.89490042 | 2.548136971 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 3.824011869 | 3.179361076 | 3.466075902 | 2.994198689 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 3.507456235 | 4.087230864 | 2.649589721 | 2.689856137 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 3.187867845 | 3.207377575 | 2.631885716 | 2.429357879 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 2.491095654 | 2.4969421 | 3.004433726 | 3.277338223 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 2.883605131 | 3.391074748 | 3.960570321 | 3.599176445 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 2.197947989 | 3.032391512 | 2.537428435 | 4.227532998 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 2.354485846 | 2.197947989 | 3.01117417 | 2.601352085 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 2.259307377 | 2.715220316 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 2.988090322 | 3.274657419 | 2.265232111 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 4.069067157 | 3.196825767 | 2.826254656 | 2.724236926 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 3.977296712 | 3.31251996 | 2.736511198 | 3.802501418 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 3.177954225 | 2.900903066 | 4.523567553 | 2.689790109 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 4.108499561 | 2.197947989 | 2.197947989 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 3.968505586 | 3.128995297 | 2.879547986 | 2.375201501 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 2.242804071 | 2.242804071 | 2.88273582 | 2.454569711 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 3.86049385 | 2.558850133 | 3.493450755 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 3.840562381 | 2.22037603 | 3.71386013 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 2.242804071 | 2.95131338 | 2.932832709 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 2.265232111 | 2.878755158 | 2.265232111 | 4.074948657 |
| | | | | | | |
| | average min | | 2.879278595 | 2.860014572 | 2.900571055 | 3.009905079 |
| | Median Min Price | | 2.734689707 | 2.734110883 | 2.780779665 | 3.001748222 |
| | Highest Minimum | | 5.138716873 | 4.672024318 | 4.666951938 | 4.878338126 |
| | Absolute Min | | 2.197947989 | 2.197947989 | 2.197947989 | 2.197947989 |

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | 5.219465243 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | 4.367278611 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | 2.670499456 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | 3.754688772 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | 3.213268019 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | 3.166515278 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | 2.866424579 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | 3.548049836 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | 2.389620405 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | 2.884141437 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | 2.472153502 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | 4.141183981 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | 3.326249938 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | 2.421260852 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | 3.196484312 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | 4.504437952 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | 2.684960186 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | 4.589367831 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | 4.319737063 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | 2.820621655 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | 3.267989976 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | 2.965067795 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | 2.693951619 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | 2.548340759 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | 3.719204034 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | 3.569288354 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | 2.981553107 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | 3.16939963 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | 2.997344733 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | 3.135896216 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | 3.310453878 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | 3.205544944 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | 3.214519955 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | 4.299259511 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | 2.491276682 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | 3.413487895 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | 3.006595182 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | 3.837733648 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | 3.621677618 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | 3.713470675 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | 2.473474881 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | 4.425179451 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | 3.204593199 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | 3.714030237 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | 3.98084266 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | 2.267714503 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | 3.202947551 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | 3.030797347 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | 3.638619739 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | 3.517127403 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | 2.583672925 |

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | 2.557880664 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | 4.061598762 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | 2.515925146 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | 3.082878467 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | 3.297478855 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | 3.56297091 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | 2.562829834 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | 3.308454494 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | 4.323049606 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | 2.829025536 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | 3.155022601 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | 2.824427372 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | 3.802497568 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | 2.327968056 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | 3.26576241 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | 4.568771249 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | 3.797152802 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | 4.309906158 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | 2.692257674 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | 4.262478069 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | 3.642986659 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | 2.827382344 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | 3.365871621 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | 2.347946741 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | 3.52842929 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | 3.088954389 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | 4.561815125 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | 3.289610381 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | 4.02591395 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | 4.076894479 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | 3.148626271 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | 4.962779585 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | 3.96131759 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | 3.090711642 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | 2.504464474 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | 2.979361655 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | 2.422497549 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | 3.846731435 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | 2.604702992 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | 3.830881232 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | 2.584735587 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | 3.983478582 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | 4.776477426 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | 3.897677777 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | 2.673661016 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | 2.853975163 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | 2.764647905 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | 4.057792863 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | 3.356416215 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | 3.39550002 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | 3.730906819 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | 2.265232111 |

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | 3.100196782 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | 3.63145454 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | 3.718759416 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | 2.219356079 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | 4.039887051 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | 3.523606423 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | 4.235374575 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | 3.637568161 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | 2.332000871 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | 2.869582219 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | 3.067382851 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | 2.892187864 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | 2.999964435 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | 2.519413886 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | 2.301617888 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | 4.243549857 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | 3.660788673 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | 2.731639759 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | 4.326525298 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | 3.016225561 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | 3.965141973 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | 2.774192083 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | 2.435184936 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | 2.760607751 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | 2.842577283 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | 2.242804071 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | 2.681556331 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | 3.605615132 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | 2.772432704 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | 3.202440035 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | 2.975113108 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | 3.211729462 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | 3.969262302 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | 3.426223984 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | 3.631361769 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | 2.953859083 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | 2.22037603 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | 2.911709647 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | 3.015622044 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | 2.66374815 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | 4.154487879 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | 3.432368195 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | 3.550792254 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | 3.221569029 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | 2.332652941 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | 4.056297897 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | 2.919831486 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | 3.019008643 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | 2.639420537 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | 2.369191204 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | 2.715054403 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | 3.60135288 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | 3.000176657 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | 2.738159626 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | 4.26090899 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | 2.621576276 |

2012 CNGC IRP

APPENDIX G
FOM INDEX MIN
DRAWS 1 -200

PAGE

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|-------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | 2.279608866 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | 3.733306491 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | 4.230515087 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | 3.59702409 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | 3.404328207 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | 3.805351452 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | 3.571027911 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | 3.666726568 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | 3.280994217 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | 4.044096062 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | 2.610758588 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | 2.197947989 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | 2.936817574 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | 2.633236964 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | 2.265232111 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | 3.110851425 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | 4.329563081 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | 3.39337838 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | 3.95132723 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | 2.265232111 |
| | | | |
| | average min | | 3.151507575 |
| | Median Min Price | | 3.089833016 |
| | Highest Minimum | | 4.962779585 |
| | Absolute Min | | 2.197947989 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | \$ 3.4497791 | \$ 3.8400822 | \$ 4.3164623 | \$ 4.6855174 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | \$ 3.8385474 | \$ 3.7092497 | \$ 4.5117219 | \$ 5.0818706 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | \$ 4.2469114 | \$ 4.2250018 | \$ 5.2674771 | \$ 5.6218657 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | \$ 3.3504266 | \$ 3.8609933 | \$ 4.0662998 | \$ 4.5400905 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | \$ 3.8256924 | \$ 3.6074690 | \$ 4.4797079 | \$ 4.4835720 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | \$ 3.4777207 | \$ 4.0759658 | \$ 4.3138311 | \$ 4.4973390 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | \$ 3.5213930 | \$ 3.9701993 | \$ 4.5139310 | \$ 5.0902843 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | \$ 4.2281759 | \$ 3.6943431 | \$ 4.6796849 | \$ 5.1638346 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | \$ 3.1344018 | \$ 4.0799434 | \$ 3.7204559 | \$ 4.9721800 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | \$ 3.6250101 | \$ 4.2640647 | \$ 4.6878608 | \$ 4.6000126 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | \$ 3.1679611 | \$ 4.3823005 | \$ 4.6196401 | \$ 4.6031335 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | \$ 3.7503989 | \$ 3.8824156 | \$ 4.0401691 | \$ 5.2166066 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | \$ 3.5832832 | \$ 3.4698434 | \$ 4.3351795 | \$ 3.9285766 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | \$ 3.8297989 | \$ 4.0893215 | \$ 4.9290016 | \$ 4.1044446 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | \$ 3.0799900 | \$ 3.1442763 | \$ 3.7910635 | \$ 4.2825362 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | \$ 3.3334598 | \$ 3.7974155 | \$ 4.2143913 | \$ 4.6745194 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | \$ 3.8483690 | \$ 3.8148615 | \$ 4.5933051 | \$ 4.1623210 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | \$ 3.9410546 | \$ 4.2953699 | \$ 5.1301085 | \$ 4.6691745 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | \$ 3.8661357 | \$ 4.0727702 | \$ 4.6331305 | \$ 4.7211362 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | \$ 3.5228647 | \$ 4.5496072 | \$ 4.3392772 | \$ 4.6274734 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | \$ 3.0031495 | \$ 4.0456778 | \$ 5.0077734 | \$ 5.1497765 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | \$ 3.6290991 | \$ 4.0260863 | \$ 3.7911666 | \$ 4.7135263 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | \$ 3.6386659 | \$ 4.1940732 | \$ 4.0220465 | \$ 4.3985353 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | \$ 3.5442086 | \$ 3.9476131 | \$ 4.5584228 | \$ 5.0681492 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | \$ 3.7792305 | \$ 4.2903872 | \$ 3.6631905 | \$ 5.0354525 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | \$ 4.2422857 | \$ 3.3370514 | \$ 3.4282301 | \$ 4.4933103 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | \$ 3.7520766 | \$ 4.0513906 | \$ 4.0501830 | \$ 4.6398347 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | \$ 3.9090450 | \$ 4.0930926 | \$ 4.8772744 | \$ 5.0688154 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | \$ 3.7383723 | \$ 4.5468155 | \$ 4.3146606 | \$ 4.6150832 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | \$ 4.2331204 | \$ 3.9933129 | \$ 4.0634557 | \$ 4.7235885 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | \$ 3.7792654 | \$ 4.7541892 | \$ 5.2770369 | \$ 6.0243250 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | \$ 3.3899795 | \$ 3.5204888 | \$ 4.2857451 | \$ 5.0174928 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | \$ 3.3746601 | \$ 3.6300937 | \$ 4.5589652 | \$ 4.9846632 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | \$ 3.8450854 | \$ 4.3686646 | \$ 3.9849768 | \$ 4.1289199 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | \$ 4.7611089 | \$ 3.7260201 | \$ 3.8700742 | \$ 4.8751873 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | \$ 4.0721448 | \$ 4.1561894 | \$ 4.9085818 | \$ 5.0549932 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | \$ 4.0694115 | \$ 3.5813871 | \$ 4.4181038 | \$ 4.5272136 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | \$ 3.6142936 | \$ 3.6763783 | \$ 4.8344007 | \$ 4.3169051 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | \$ 3.8486206 | \$ 3.8893393 | \$ 4.0519408 | \$ 4.4961988 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | \$ 3.4847389 | \$ 3.9888562 | \$ 4.4272843 | \$ 4.9585320 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | \$ 3.8320265 | \$ 3.9044470 | \$ 4.1285681 | \$ 4.3152996 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | \$ 3.2671850 | \$ 3.6293640 | \$ 4.2004062 | \$ 4.6339063 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | \$ 4.2944103 | \$ 4.2962544 | \$ 4.4085286 | \$ 5.6078613 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | \$ 3.3512119 | \$ 3.3655395 | \$ 4.4204233 | \$ 4.8298112 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | \$ 3.7338764 | \$ 4.1977583 | \$ 3.7314728 | \$ 4.5786797 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | \$ 4.0479283 | \$ 4.1010826 | \$ 4.4837236 | \$ 4.8288582 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | \$ 3.4160541 | \$ 3.9743455 | \$ 4.2531698 | \$ 5.2223293 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | \$ 4.2523133 | \$ 4.4817000 | \$ 5.4512427 | \$ 4.4027592 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | \$ 3.7102650 | \$ 4.2072506 | \$ 4.6140295 | \$ 4.9027994 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | \$ 4.0452513 | \$ 3.7931893 | \$ 4.9444111 | \$ 4.7279072 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | \$ 3.7603368 | \$ 3.9061212 | \$ 4.1059555 | \$ 4.4449700 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | \$ 4.0912060 | \$ 4.0241675 | \$ 4.4888570 | \$ 4.7203632 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | \$ 3.4377194 | \$ 4.2155158 | \$ 4.5314679 | \$ 5.5711786 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | \$ 4.3737265 | \$ 3.6119554 | \$ 4.8333503 | \$ 4.6205444 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | \$ 3.6742361 | \$ 4.2447801 | \$ 3.7100916 | \$ 4.9284416 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | \$ 3.5837570 | \$ 3.9077016 | \$ 5.2412287 | \$ 5.4704625 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | \$ 4.0634429 | \$ 3.3489780 | \$ 4.0075497 | \$ 4.6338324 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | \$ 3.4840564 | \$ 4.1535191 | \$ 3.8448869 | \$ 5.1255524 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | \$ 3.4976153 | \$ 4.1312643 | \$ 4.6930097 | \$ 4.5427928 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | \$ 3.1904502 | \$ 3.2832528 | \$ 4.8913194 | \$ 4.9158706 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | \$ 3.5492798 | \$ 3.1070599 | \$ 5.0693054 | \$ 4.4736148 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | \$ 3.4270789 | \$ 4.4118829 | \$ 5.0846395 | \$ 5.0963735 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | \$ 4.0257149 | \$ 3.8167828 | \$ 4.1019803 | \$ 4.9097137 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | \$ 3.5816613 | \$ 3.6670827 | \$ 4.6481765 | \$ 5.1635983 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | \$ 4.3132843 | \$ 3.8099761 | \$ 4.0769548 | \$ 4.6700339 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | \$ 4.1704643 | \$ 3.7794052 | \$ 3.9503368 | \$ 4.9535555 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | \$ 4.0840033 | \$ 4.2507992 | \$ 4.1592248 | \$ 4.9670971 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | \$ 3.2605217 | \$ 4.0878510 | \$ 4.5718295 | \$ 4.4213164 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | \$ 3.2529188 | \$ 4.0068654 | \$ 4.4514103 | \$ 4.7536836 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | \$ 3.4987162 | \$ 4.4098358 | \$ 4.2699040 | \$ 4.5419143 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | \$ 3.7380598 | \$ 3.8684409 | \$ 4.7716251 | \$ 4.4582289 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | \$ 4.0637460 | \$ 4.7224993 | \$ 5.1573604 | \$ 5.1962742 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | \$ 3.5450320 | \$ 3.5387878 | \$ 4.8203870 | \$ 4.7848722 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | \$ 3.6438974 | \$ 3.7146353 | \$ 4.1216068 | \$ 4.5947712 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | \$ 3.8623379 | \$ 4.0709632 | \$ 3.6829932 | \$ 4.9761569 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | \$ 3.5317326 | \$ 4.2104004 | \$ 3.7625265 | \$ 4.2455964 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | \$ 3.3542605 | \$ 4.1048641 | \$ 3.6544243 | \$ 4.3731565 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | \$ 3.1691295 | \$ 3.5660816 | \$ 4.6163430 | \$ 4.5209466 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | \$ 4.0948853 | \$ 4.4720482 | \$ 4.3762360 | \$ 4.1842228 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | \$ 4.0466396 | \$ 4.0744132 | \$ 3.7767057 | \$ 4.6002497 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | \$ 3.1249245 | \$ 3.9943107 | \$ 4.5392567 | \$ 4.5115897 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | \$ 3.6301063 | \$ 4.2116759 | \$ 4.6892078 | \$ 4.7486781 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | \$ 3.1951820 | \$ 4.0037919 | \$ 3.9504354 | \$ 4.1081400 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | \$ 3.3415283 | \$ 3.4446468 | \$ 4.0413679 | \$ 4.5298655 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | \$ 3.7685251 | \$ 3.8983335 | \$ 5.2346091 | \$ 5.4653381 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | \$ 3.5193627 | \$ 4.1362067 | \$ 4.6852120 | \$ 4.6353970 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | \$ 4.1364001 | \$ 3.7814533 | \$ 4.7032234 | \$ 4.6125695 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | \$ 3.6879681 | \$ 3.6457925 | \$ 4.8232907 | \$ 5.4945769 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | \$ 3.6073746 | \$ 3.4034473 | \$ 4.0310809 | \$ 4.2448489 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | \$ 3.7452114 | \$ 4.6177259 | \$ 4.1874439 | \$ 4.7665737 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | \$ 3.3933390 | \$ 4.4223759 | \$ 4.5436338 | \$ 5.3991453 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | \$ 3.5127011 | \$ 4.1206504 | \$ 4.0056351 | \$ 4.4973403 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | \$ 3.9240607 | \$ 3.9209688 | \$ 4.2313083 | \$ 4.7113418 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | \$ 3.6786275 | \$ 3.7588072 | \$ 4.3390131 | \$ 5.7554426 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | \$ 4.2433513 | \$ 3.3987753 | \$ 4.3105270 | \$ 4.6748074 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | \$ 3.8707248 | \$ 3.8962886 | \$ 4.6248212 | \$ 4.7500319 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | \$ 3.8037677 | \$ 3.3647430 | \$ 4.4455904 | \$ 4.6321543 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | \$ 3.8809718 | \$ 3.9676023 | \$ 4.2280407 | \$ 4.4071386 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | \$ 3.1393363 | \$ 3.9530804 | \$ 3.6794334 | \$ 4.0937367 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | \$ 3.6470797 | \$ 3.9012979 | \$ 4.6447181 | \$ 4.7333397 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | \$ 3.3508840 | \$ 3.5829696 | \$ 4.0259008 | \$ 4.8709330 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | \$ 3.7120625 | \$ 4.4920544 | \$ 3.6829945 | \$ 4.8469448 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | \$ 3.3748722 | \$ 4.1253706 | \$ 5.1413698 | \$ 4.6270896 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | \$ 4.0090632 | \$ 3.9601624 | \$ 4.8725105 | \$ 4.9498153 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | \$ 3.8808404 | \$ 3.8094041 | \$ 4.0912793 | \$ 4.5577913 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | \$ 3.3842825 | \$ 4.1891448 | \$ 3.7204812 | \$ 4.4478115 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | \$ 3.7221595 | \$ 3.9497804 | \$ 4.2677409 | \$ 4.8055130 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | \$ 3.5228260 | \$ 3.4806133 | \$ 4.1125993 | \$ 4.8758100 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | \$ 3.5820537 | \$ 3.3129700 | \$ 4.1565433 | \$ 4.8178465 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | \$ 3.6676789 | \$ 3.8257392 | \$ 4.5832750 | \$ 5.3138112 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | \$ 2.9005259 | \$ 4.0531855 | \$ 4.2060392 | \$ 4.8212918 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | \$ 3.1755345 | \$ 4.1536227 | \$ 4.7348272 | \$ 4.3381296 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | \$ 4.5647356 | \$ 3.8879831 | \$ 4.1015236 | \$ 5.2035721 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | \$ 3.2869997 | \$ 4.6416833 | \$ 4.3533413 | \$ 4.7736967 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | \$ 3.3452149 | \$ 3.5070450 | \$ 4.7663913 | \$ 4.8220833 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | \$ 3.2866716 | \$ 3.7377803 | \$ 4.2816997 | \$ 4.1775805 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | \$ 2.9963590 | \$ 3.1702351 | \$ 4.6581874 | \$ 4.9663100 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | \$ 4.0183209 | \$ 3.6427435 | \$ 4.5326053 | \$ 4.4403080 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | \$ 2.9534877 | \$ 3.6945216 | \$ 4.2472652 | \$ 4.2067846 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | \$ 4.4001997 | \$ 3.4989531 | \$ 4.4283494 | \$ 4.2560030 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | \$ 3.9184532 | \$ 4.0328362 | \$ 5.5671962 | \$ 5.4520235 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | \$ 4.0544942 | \$ 3.9853883 | \$ 3.4380479 | \$ 4.9701172 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | \$ 3.7392866 | \$ 4.1860317 | \$ 4.1537265 | \$ 4.6084077 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | \$ 3.4393224 | \$ 3.3876301 | \$ 4.8425069 | \$ 5.4343518 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | \$ 3.0336751 | \$ 3.6741901 | \$ 4.0188689 | \$ 4.7333396 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | \$ 3.5257678 | \$ 4.1037835 | \$ 4.3443920 | \$ 4.7109614 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | \$ 4.2848715 | \$ 3.7313641 | \$ 4.7360028 | \$ 3.9926488 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | \$ 3.7033793 | \$ 3.9227260 | \$ 4.4469109 | \$ 4.7241333 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | \$ 3.1680860 | \$ 4.0079700 | \$ 3.8256250 | \$ 4.5899166 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | \$ 3.4200612 | \$ 3.5071265 | \$ 4.0613805 | \$ 5.2016730 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | \$ 3.3010344 | \$ 3.2415714 | \$ 4.6697405 | \$ 4.7804466 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | \$ 3.6378462 | \$ 3.5262927 | \$ 5.3593661 | \$ 4.7695058 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | \$ 3.4473444 | \$ 3.8199981 | \$ 4.1309510 | \$ 4.3603151 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | \$ 3.7251238 | \$ 4.0809683 | \$ 4.4630567 | \$ 4.7650740 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | \$ 3.8014414 | \$ 4.2547254 | \$ 4.0474077 | \$ 4.3945107 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | \$ 3.4591970 | \$ 4.3484819 | \$ 3.8564082 | \$ 4.4716810 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | \$ 3.4966235 | \$ 3.9616405 | \$ 4.1378502 | \$ 5.3064144 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | \$ 3.6178148 | \$ 3.1606035 | \$ 4.4975321 | \$ 5.7238666 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | \$ 3.3449478 | \$ 4.8643276 | \$ 3.8696146 | \$ 4.9361334 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | \$ 3.5793491 | \$ 3.9627463 | \$ 3.9825419 | \$ 4.6655396 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | \$ 4.0638201 | \$ 4.0045729 | \$ 4.6701114 | \$ 4.2440489 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | \$ 2.9430273 | \$ 3.9390593 | \$ 4.2857890 | \$ 4.6113179 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | \$ 3.6589478 | \$ 3.3219633 | \$ 4.2691721 | \$ 4.5452728 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | \$ 3.1571428 | \$ 3.7447715 | \$ 3.5676897 | \$ 4.5864341 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | \$ 3.6021415 | \$ 4.4868273 | \$ 4.2039774 | \$ 4.2289068 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | \$ 4.2970862 | \$ 4.1035284 | \$ 4.2458929 | \$ 5.0984095 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | \$ 3.7613237 | \$ 4.0272860 | \$ 4.5088454 | \$ 4.5923840 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | \$ 3.0549617 | \$ 4.1081231 | \$ 4.2147480 | \$ 5.1928544 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | \$ 3.5119811 | \$ 3.4633161 | \$ 4.9411027 | \$ 4.9562185 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | \$ 3.7862047 | \$ 3.8450932 | \$ 3.9458511 | \$ 4.7931146 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | \$ 3.7823883 | \$ 3.6998059 | \$ 3.9746849 | \$ 4.2676012 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | \$ 3.9976371 | \$ 4.1153985 | \$ 3.7298585 | \$ 4.9454244 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | \$ 3.4886959 | \$ 3.7583454 | \$ 5.4628589 | \$ 5.4681520 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | \$ 3.2188023 | \$ 4.5127193 | \$ 4.9972996 | \$ 5.1523806 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | \$ 4.2657848 | \$ 3.7801055 | \$ 3.9289944 | \$ 4.0244281 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | \$ 3.4498699 | \$ 3.9109182 | \$ 5.1121646 | \$ 4.8446261 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | \$ 3.5753241 | \$ 4.2305903 | \$ 4.1484404 | \$ 5.9824302 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | \$ 3.2972067 | \$ 3.2154272 | \$ 5.3977802 | \$ 4.7603466 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | \$ 3.8855815 | \$ 4.2088044 | \$ 4.8361989 | \$ 4.6872443 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | \$ 3.8509158 | \$ 3.6718559 | \$ 4.6441643 | \$ 4.3126973 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | \$ 3.3017417 | \$ 3.1873880 | \$ 3.9125228 | \$ 5.2641569 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | \$ 3.6419508 | \$ 4.6970044 | \$ 4.3516323 | \$ 5.4073428 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | \$ 3.8265578 | \$ 3.5524042 | \$ 4.1183055 | \$ 3.6831656 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | \$ 3.7266938 | \$ 5.1500001 | \$ 4.9940672 | \$ 4.8149686 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | \$ 3.6759725 | \$ 3.6654886 | \$ 4.3739310 | \$ 4.4600391 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | \$ 3.8806494 | \$ 4.6604141 | \$ 4.2468727 | \$ 4.7417737 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | \$ 3.8650647 | \$ 4.6206371 | \$ 4.4642510 | \$ 4.2978603 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | \$ 3.0723399 | \$ 3.5969596 | \$ 4.0642812 | \$ 4.3683429 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | \$ 3.5279208 | \$ 3.2782886 | \$ 5.3880845 | \$ 5.3397701 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | \$ 3.1734596 | \$ 3.4148737 | \$ 4.7135013 | \$ 4.3795499 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | \$ 3.7907802 | \$ 3.4983707 | \$ 3.9751428 | \$ 4.5730359 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | \$ 3.8270345 | \$ 3.6291534 | \$ 5.0521209 | \$ 4.3297006 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | \$ 3.0994303 | \$ 4.1666164 | \$ 4.1404120 | \$ 4.6561689 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | \$ 3.4582894 | \$ 3.9884010 | \$ 3.9906017 | \$ 4.4153368 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | \$ 3.4380426 | \$ 3.4057676 | \$ 4.9298319 | \$ 4.9384283 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | \$ 4.1450318 | \$ 4.2635857 | \$ 4.0581240 | \$ 3.8158778 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | \$ 3.0436891 | \$ 4.0726615 | \$ 4.4882067 | \$ 5.0395858 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | \$ 3.9086328 | \$ 3.5867811 | \$ 4.9469385 | \$ 4.7166989 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | \$ 3.9848467 | \$ 3.9332378 | \$ 4.0596966 | \$ 5.4819627 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | \$ 3.5235313 | \$ 3.5865265 | \$ 4.1672240 | \$ 5.6487741 |

2012 CNGC IRP

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

PAGE 4

| Data Item | Scenario | Draw | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | \$ 3.4577509 | \$ 4.6538274 | \$ 4.9784618 | \$ 4.2101494 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | \$ 3.5236720 | \$ 3.9701358 | \$ 5.1436936 | \$ 4.1295779 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | \$ 3.8246560 | \$ 3.7264383 | \$ 4.2889927 | \$ 4.0712561 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | \$ 4.2755400 | \$ 4.6185012 | \$ 3.3180649 | \$ 4.0767074 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | \$ 3.2104681 | \$ 5.0312203 | \$ 4.5046443 | \$ 5.2978399 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | \$ 3.7841918 | \$ 4.1601529 | \$ 4.3915331 | \$ 4.6645771 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | \$ 3.5772594 | \$ 4.6788687 | \$ 4.4342118 | \$ 5.0885032 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | \$ 3.8605666 | \$ 3.7897267 | \$ 4.0512284 | \$ 4.8009753 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | \$ 3.7222872 | \$ 4.2348584 | \$ 4.2681885 | \$ 4.6659902 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | \$ 4.1235084 | \$ 4.0274858 | \$ 5.1899230 | \$ 4.2701343 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | \$ 3.2834498 | \$ 4.0480762 | \$ 4.0128144 | \$ 5.0466968 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | \$ 4.0226157 | \$ 3.9079574 | \$ 5.1932380 | \$ 5.2103140 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | \$ 3.3037672 | \$ 3.6703321 | \$ 4.2921423 | \$ 5.1634919 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | \$ 3.4480193 | \$ 3.3160985 | \$ 4.3576144 | \$ 4.6694904 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | \$ 3.6490079 | \$ 4.2945206 | \$ 4.3760713 | \$ 4.4795094 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | \$ 3.2165662 | \$ 3.5705342 | \$ 4.6499006 | \$ 4.8241411 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | \$ 3.4710849 | \$ 3.7699942 | \$ 4.8561976 | \$ 5.1962072 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | \$ 3.7358919 | \$ 4.0401771 | \$ 4.6075103 | \$ 4.9900490 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | \$ 3.1870652 | \$ 3.5324495 | \$ 4.8732114 | \$ 3.9304709 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | \$ 3.7923671 | \$ 4.4107301 | \$ 4.3766924 | \$ 4.7172597 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | \$ 3.9498353 | \$ 3.9919096 | \$ 4.8964624 | \$ 5.1509516 |
| | NYMEX | Max | \$ 4.7611089 | \$ 5.1500001 | \$ 5.5671962 | \$ 6.0243250 |
| | | Min | \$ 2.9005259 | \$ 3.1070599 | \$ 3.3180649 | \$ 3.6831656 |
| | | avg | \$ 3.6543205 | \$ 3.9356839 | \$ 4.4065074 | \$ 4.7502222 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | \$ 4.9148317 | \$ 4.7949362 | \$ 4.7485080 | \$ 4.9151507 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | \$ 4.8037867 | \$ 4.9628345 | \$ 4.5213708 | \$ 4.6768421 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | \$ 5.7066174 | \$ 5.1466922 | \$ 4.2990748 | \$ 4.8382703 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | \$ 5.0394733 | \$ 5.4387408 | \$ 4.6702600 | \$ 5.3401092 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | \$ 4.3933402 | \$ 5.1918363 | \$ 4.3208950 | \$ 4.4939332 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | \$ 4.7030284 | \$ 4.6847596 | \$ 5.2784759 | \$ 4.7818031 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | \$ 5.6852622 | \$ 4.7261046 | \$ 4.6195478 | \$ 5.3300900 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | \$ 5.2032201 | \$ 5.2125695 | \$ 4.3312365 | \$ 5.7406121 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | \$ 4.5169393 | \$ 4.8163533 | \$ 4.8980805 | \$ 5.4150845 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | \$ 5.0405064 | \$ 5.6166059 | \$ 4.5798544 | \$ 5.6918380 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | \$ 4.5966052 | \$ 4.4626420 | \$ 5.4447364 | \$ 5.2533488 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | \$ 4.7785935 | \$ 4.9866970 | \$ 4.3949716 | \$ 4.8947948 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | \$ 4.8955622 | \$ 4.8601621 | \$ 5.0124211 | \$ 5.4920851 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | \$ 5.0307485 | \$ 4.3097393 | \$ 4.5715815 | \$ 5.2893940 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | \$ 4.7347237 | \$ 4.8452201 | \$ 4.5180255 | \$ 4.9713670 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | \$ 5.1177454 | \$ 4.7783561 | \$ 4.5289109 | \$ 4.7714826 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | \$ 5.3641064 | \$ 5.8376197 | \$ 5.2034283 | \$ 5.3446968 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | \$ 4.3624943 | \$ 4.5918968 | \$ 4.4077913 | \$ 5.2806241 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | \$ 5.0596639 | \$ 5.4080180 | \$ 5.0020649 | \$ 4.9202249 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | \$ 4.6377229 | \$ 4.8250270 | \$ 4.8878821 | \$ 5.0935254 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | \$ 4.7011434 | \$ 5.2703920 | \$ 4.3366623 | \$ 4.9834452 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | \$ 5.0800744 | \$ 4.1853966 | \$ 4.7409158 | \$ 4.5811378 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | \$ 5.5215238 | \$ 5.0161835 | \$ 5.1840531 | \$ 5.2375679 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | \$ 4.7821070 | \$ 5.0395104 | \$ 4.7171691 | \$ 5.2207515 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | \$ 5.2862736 | \$ 4.8622773 | \$ 4.2822993 | \$ 5.1158955 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | \$ 5.6587473 | \$ 4.4485801 | \$ 4.4861476 | \$ 4.4152963 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | \$ 4.8648450 | \$ 5.4490828 | \$ 5.2408554 | \$ 5.1396358 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | \$ 5.6596276 | \$ 4.9963017 | \$ 5.1102970 | \$ 4.9969690 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | \$ 4.9473198 | \$ 4.5827414 | \$ 5.1760346 | \$ 4.7634397 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | \$ 5.3703425 | \$ 5.1653704 | \$ 5.2665520 | \$ 5.2560671 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | \$ 4.7846969 | \$ 5.7002722 | \$ 4.9548322 | \$ 5.2181567 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | \$ 4.5893446 | \$ 4.4481787 | \$ 4.8322363 | \$ 5.2839572 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | \$ 5.5075145 | \$ 4.9366285 | \$ 4.2658619 | \$ 4.5126184 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | \$ 5.0373213 | \$ 4.5748059 | \$ 4.9925808 | \$ 3.8477607 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | \$ 4.5100024 | \$ 4.5199592 | \$ 4.6410166 | \$ 4.6813276 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | \$ 5.3815453 | \$ 4.7241717 | \$ 4.6877922 | \$ 5.3404068 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | \$ 5.2701958 | \$ 4.4481241 | \$ 5.3544193 | \$ 5.6549019 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | \$ 4.8998272 | \$ 4.5660350 | \$ 4.7770293 | \$ 4.6362778 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | \$ 5.1088830 | \$ 4.9047215 | \$ 4.8046410 | \$ 4.7225754 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | \$ 4.0580437 | \$ 4.3857299 | \$ 5.1145363 | \$ 5.1394816 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | \$ 5.0213366 | \$ 4.8244164 | \$ 4.5469664 | \$ 4.3851468 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | \$ 5.1653377 | \$ 5.4312241 | \$ 4.7406936 | \$ 5.0429859 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | \$ 5.4715972 | \$ 4.7691510 | \$ 4.1930711 | \$ 4.2070880 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | \$ 5.0429089 | \$ 5.5492740 | \$ 4.8943722 | \$ 4.5020452 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | \$ 5.2657858 | \$ 4.3587457 | \$ 4.7540291 | \$ 4.8855427 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | \$ 5.1813045 | \$ 4.8759134 | \$ 4.4636965 | \$ 6.0167157 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | \$ 4.6321608 | \$ 5.2035450 | \$ 4.5948573 | \$ 5.2225687 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | \$ 5.1275026 | \$ 4.6482034 | \$ 4.8076279 | \$ 4.5410693 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | \$ 4.9779942 | \$ 4.6075905 | \$ 4.7062338 | \$ 4.7781790 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | \$ 5.3575571 | \$ 4.1380963 | \$ 5.2391198 | \$ 4.7701738 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | \$ 4.2971123 | \$ 4.8132375 | \$ 4.7927941 | \$ 4.8955304 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | \$ 5.0095643 | \$ 4.6684422 | \$ 4.4344315 | \$ 5.3489055 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | \$ 5.5175845 | \$ 5.6488496 | \$ 4.9220523 | \$ 5.0967049 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | \$ 5.8776883 | \$ 4.6497922 | \$ 5.1391208 | \$ 4.5658308 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | \$ 5.0649299 | \$ 4.9320830 | \$ 4.8748601 | \$ 4.1855839 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | \$ 5.7832578 | \$ 4.5624442 | \$ 4.7900869 | \$ 4.8562606 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | \$ 4.7229928 | \$ 4.3099013 | \$ 5.0082333 | \$ 5.0572958 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | \$ 5.0496646 | \$ 4.1367225 | \$ 4.2182407 | \$ 3.9535467 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | \$ 4.7565948 | \$ 5.3213701 | \$ 4.7459501 | \$ 4.9466201 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | \$ 4.7648258 | \$ 4.9458413 | \$ 4.6029739 | \$ 5.3049304 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | \$ 5.0327146 | \$ 4.2115400 | \$ 4.8608984 | \$ 5.2631204 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | \$ 4.8990105 | \$ 4.5416163 | \$ 4.4708203 | \$ 4.7723275 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | \$ 5.2770308 | \$ 4.7045120 | \$ 4.6486880 | \$ 4.5318024 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | \$ 4.8350276 | \$ 4.6473131 | \$ 5.0375631 | \$ 4.7184742 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | \$ 4.9734446 | \$ 4.5897116 | \$ 4.5072685 | \$ 4.8694780 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | \$ 4.3540216 | \$ 5.3252473 | \$ 4.3545704 | \$ 5.4561772 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | \$ 5.0537410 | \$ 5.0023272 | \$ 4.7256228 | \$ 5.0183090 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | \$ 4.9004088 | \$ 4.4658158 | \$ 4.0717619 | \$ 4.7154200 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | \$ 6.0209477 | \$ 5.1031125 | \$ 5.1993182 | \$ 5.5155978 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | \$ 4.8228417 | \$ 4.7609661 | \$ 4.9403262 | \$ 4.4568387 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | \$ 4.7288033 | \$ 4.2013431 | \$ 5.5339424 | \$ 5.3435052 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | \$ 4.2871349 | \$ 4.5918404 | \$ 5.1928690 | \$ 5.3218688 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | \$ 4.4357828 | \$ 4.5809090 | \$ 4.4755269 | \$ 4.7207883 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | \$ 4.5259492 | \$ 4.2593912 | \$ 4.3894175 | \$ 4.5942254 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | \$ 5.2403551 | \$ 4.6917618 | \$ 4.8368449 | \$ 4.6729423 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | \$ 4.8857061 | \$ 5.1108966 | \$ 4.5673702 | \$ 4.2726449 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | \$ 5.3711115 | \$ 4.4596134 | \$ 4.3684291 | \$ 5.2157318 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | \$ 5.0453890 | \$ 4.5847575 | \$ 5.5457704 | \$ 4.6086683 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | \$ 5.6707855 | \$ 5.1456728 | \$ 4.4363921 | \$ 5.2875628 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | \$ 4.4602716 | \$ 5.4104389 | \$ 5.1839523 | \$ 4.9730371 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | \$ 4.9277900 | \$ 4.8546721 | \$ 5.1516418 | \$ 4.7850343 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | \$ 4.9665939 | \$ 4.6385888 | \$ 5.8459103 | \$ 4.8318916 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | \$ 4.6697780 | \$ 4.5575386 | \$ 3.9948150 | \$ 4.8559210 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | \$ 5.3648746 | \$ 4.6978079 | \$ 5.2894005 | \$ 4.9154285 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | \$ 5.2192118 | \$ 4.9126555 | \$ 4.8777288 | \$ 5.5201480 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | \$ 4.2487007 | \$ 4.8697039 | \$ 5.1100409 | \$ 4.8924534 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | \$ 5.2463103 | \$ 4.8831696 | \$ 4.0954704 | \$ 4.5056983 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | \$ 4.3594955 | \$ 4.5406565 | \$ 4.5682554 | \$ 5.2550200 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | \$ 4.9130933 | \$ 4.9727628 | \$ 4.8551858 | \$ 5.2362641 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | \$ 4.9866782 | \$ 4.9769043 | \$ 4.6862958 | \$ 4.8475628 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | \$ 4.8878809 | \$ 3.8252749 | \$ 5.2348738 | \$ 5.2520596 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | \$ 5.0799284 | \$ 4.7633093 | \$ 4.8241402 | \$ 4.7477597 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | \$ 4.4329666 | \$ 4.6472551 | \$ 5.9486427 | \$ 4.5254131 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | \$ 5.1061811 | \$ 5.2921139 | \$ 5.6128569 | \$ 5.0334011 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | \$ 5.1172914 | \$ 5.1573130 | \$ 5.2287227 | \$ 4.5090983 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | \$ 5.0747252 | \$ 5.1543130 | \$ 4.8569968 | \$ 5.0370368 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | \$ 4.8789462 | \$ 4.7118652 | \$ 4.8237281 | \$ 4.9836969 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | \$ 4.9153099 | \$ 3.8230509 | \$ 5.5331314 | \$ 4.7076918 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | \$ 4.6697524 | \$ 4.9347620 | \$ 4.5684343 | \$ 4.4725501 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | \$ 5.6706738 | \$ 4.5807304 | \$ 4.9264275 | \$ 5.6230700 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | \$ 5.0135579 | \$ 5.0061599 | \$ 4.7370926 | \$ 4.7589933 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | \$ 5.1603349 | \$ 4.3792532 | \$ 4.6895797 | \$ 5.0942963 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | \$ 4.7828417 | \$ 4.5399616 | \$ 4.9561321 | \$ 5.7349328 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | \$ 4.9149025 | \$ 4.4942274 | \$ 4.9039349 | \$ 4.3585212 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | \$ 4.6409739 | \$ 5.5432846 | \$ 4.7559271 | \$ 5.4761765 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | \$ 4.9591006 | \$ 4.7931519 | \$ 4.8813598 | \$ 5.3756508 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | \$ 5.2686539 | \$ 4.6600422 | \$ 4.3211739 | \$ 5.0789469 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | \$ 5.2799085 | \$ 4.8865572 | \$ 5.4054350 | \$ 5.1784651 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | \$ 4.6596404 | \$ 4.4496817 | \$ 5.2744249 | \$ 5.6786444 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | \$ 5.1115000 | \$ 4.6663486 | \$ 5.1331532 | \$ 5.4084832 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | \$ 4.9439756 | \$ 3.7245100 | \$ 4.7187523 | \$ 5.2453300 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | \$ 4.8136937 | \$ 5.7088411 | \$ 4.2911991 | \$ 4.7135680 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | \$ 4.7409495 | \$ 4.6981306 | \$ 4.8752698 | \$ 4.9354630 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | \$ 4.1247083 | \$ 3.9428190 | \$ 4.8557875 | \$ 4.9928226 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | \$ 5.2557261 | \$ 5.0696317 | \$ 5.1138855 | \$ 5.1418020 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | \$ 4.6137609 | \$ 4.8960879 | \$ 4.7313761 | \$ 4.4743224 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | \$ 5.1198657 | \$ 4.8810989 | \$ 5.0862137 | \$ 4.8169387 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | \$ 4.4580637 | \$ 4.8375058 | \$ 5.0169738 | \$ 4.7682492 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | \$ 5.8169909 | \$ 5.0983528 | \$ 5.6266955 | \$ 5.1232031 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | \$ 5.2535113 | \$ 5.2274561 | \$ 4.8473257 | \$ 3.9686549 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | \$ 5.1397148 | \$ 4.6920388 | \$ 5.2732949 | \$ 5.3790064 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | \$ 4.8212856 | \$ 4.8449966 | \$ 4.7223175 | \$ 4.5830024 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | \$ 4.7699876 | \$ 4.4526595 | \$ 6.1627105 | \$ 5.7093362 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | \$ 5.2991075 | \$ 4.3893312 | \$ 4.6894576 | \$ 5.1281934 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | \$ 4.8464684 | \$ 4.8248265 | \$ 4.3155679 | \$ 4.3707843 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | \$ 4.8230391 | \$ 4.6931983 | \$ 4.0651853 | \$ 4.7308084 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | \$ 6.1168215 | \$ 4.2517448 | \$ 5.2776839 | \$ 4.6684031 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | \$ 4.4330285 | \$ 4.7458691 | \$ 4.2950052 | \$ 5.5959035 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | \$ 5.5726989 | \$ 5.3951020 | \$ 5.1869510 | \$ 5.4166042 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | \$ 5.1139467 | \$ 4.8109708 | \$ 4.7488823 | \$ 4.9167032 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | \$ 4.9472532 | \$ 4.4150876 | \$ 3.9497430 | \$ 4.6611450 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | \$ 4.8374056 | \$ 5.4224457 | \$ 4.5968642 | \$ 5.2191875 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | \$ 4.4275593 | \$ 4.6169960 | \$ 4.3637821 | \$ 5.0857203 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | \$ 4.7468618 | \$ 5.1599085 | \$ 4.5255512 | \$ 5.1837233 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | \$ 5.0548696 | \$ 4.3728462 | \$ 5.5154092 | \$ 5.1317409 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | \$ 4.5095974 | \$ 4.7355905 | \$ 5.0110019 | \$ 4.3264694 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | \$ 4.9496091 | \$ 4.8516197 | \$ 4.6541204 | \$ 4.4443824 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | \$ 5.1959196 | \$ 4.6429978 | \$ 5.0212784 | \$ 4.3009062 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | \$ 5.2027228 | \$ 3.9700354 | \$ 5.5491483 | \$ 5.3799502 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | \$ 4.9311280 | \$ 4.8940670 | \$ 4.9950793 | \$ 4.6356616 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | \$ 4.5742335 | \$ 5.5129992 | \$ 5.1670480 | \$ 4.7997770 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | \$ 4.9507881 | \$ 4.5811375 | \$ 4.7266793 | \$ 5.0755357 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | \$ 5.2094707 | \$ 3.9189620 | \$ 5.0800159 | \$ 4.7742397 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | \$ 5.1802132 | \$ 4.3566387 | \$ 4.8600546 | \$ 4.2704899 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | \$ 4.7863115 | \$ 4.4344865 | \$ 5.8178381 | \$ 5.0838636 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | \$ 5.0295361 | \$ 5.0295417 | \$ 4.7656528 | \$ 5.4446417 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | \$ 4.5120872 | \$ 4.9277792 | \$ 4.8706490 | \$ 4.5223484 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | \$ 5.1256685 | \$ 4.6035883 | \$ 4.5665105 | \$ 4.8192028 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | \$ 5.2576320 | \$ 4.5058837 | \$ 5.0478936 | \$ 4.0537923 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | \$ 4.8694086 | \$ 4.8280999 | \$ 4.6480569 | \$ 4.6820909 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | \$ 4.7938863 | \$ 5.2060108 | \$ 4.6345113 | \$ 5.4224525 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | \$ 5.1982722 | \$ 4.2898029 | \$ 5.0052648 | \$ 4.9669768 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | \$ 4.8390279 | \$ 4.6858460 | \$ 4.7015981 | \$ 4.5275830 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | \$ 5.4515157 | \$ 5.1860903 | \$ 5.0379121 | \$ 4.6930486 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | \$ 4.5860929 | \$ 4.2465882 | \$ 4.5024385 | \$ 5.0276595 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | \$ 4.8244328 | \$ 4.3544582 | \$ 5.1273352 | \$ 4.9060643 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | \$ 4.4825898 | \$ 5.2748730 | \$ 5.9662080 | \$ 5.0540733 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | \$ 5.0339320 | \$ 4.9775274 | \$ 5.1505379 | \$ 4.6588623 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | \$ 4.9248084 | \$ 4.9703005 | \$ 4.4564984 | \$ 4.3405286 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | \$ 4.5965784 | \$ 5.0784492 | \$ 4.2885336 | \$ 4.5423816 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | \$ 4.4254395 | \$ 4.3457126 | \$ 4.8809367 | \$ 5.7969380 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | \$ 4.8654526 | \$ 4.7207927 | \$ 5.3602339 | \$ 4.8643326 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | \$ 5.1440316 | \$ 4.4514925 | \$ 4.4722722 | \$ 5.4866020 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | \$ 4.2815209 | \$ 4.3554914 | \$ 4.9233411 | \$ 5.2681835 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | \$ 4.9984198 | \$ 4.7384668 | \$ 5.4539262 | \$ 5.8294640 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | \$ 4.7166535 | \$ 5.1391938 | \$ 5.0421153 | \$ 4.6271910 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | \$ 5.1274028 | \$ 4.6674142 | \$ 4.6691165 | \$ 5.0527469 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | \$ 4.9757947 | \$ 5.0114808 | \$ 4.4842718 | \$ 4.5752657 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | \$ 4.2110939 | \$ 5.4679919 | \$ 4.7792784 | \$ 4.7805088 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | \$ 5.0654276 | \$ 4.2359830 | \$ 5.0130858 | \$ 4.6655042 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | \$ 4.5842315 | \$ 4.7626804 | \$ 4.4995750 | \$ 5.8149119 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | \$ 5.3851872 | \$ 4.9529786 | \$ 4.7314048 | \$ 4.3183884 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | \$ 4.6900354 | \$ 5.1731590 | \$ 4.4361947 | \$ 5.8605865 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | \$ 5.2227629 | \$ 5.2544354 | \$ 4.2798975 | \$ 4.7912952 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | \$ 4.9825694 | \$ 4.8883163 | \$ 4.5674782 | \$ 5.1217815 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | \$ 5.1414521 | \$ 5.5618544 | \$ 4.6017953 | \$ 5.3430702 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | \$ 4.6317748 | \$ 4.4539298 | \$ 4.5433783 | \$ 5.5581965 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | \$ 4.3877363 | \$ 5.3964045 | \$ 4.8521656 | \$ 4.2658493 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | \$ 5.0264977 | \$ 5.0743977 | \$ 4.1826751 | \$ 4.9810474 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | \$ 5.2960514 | \$ 5.2398845 | \$ 4.8625286 | \$ 5.5818903 |

2012 CNGC IRP

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

PAGE 8

| Data Item | Scenario | Draw | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | \$ 5.2776464 | \$ 4.8176122 | \$ 4.3401987 | \$ 5.2985789 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | \$ 4.9880206 | \$ 5.6875118 | \$ 4.8501386 | \$ 4.5645736 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | \$ 4.3442704 | \$ 4.0464021 | \$ 4.5510625 | \$ 4.9074677 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | \$ 5.1161809 | \$ 4.4714009 | \$ 4.5567994 | \$ 4.9381028 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | \$ 5.3544488 | \$ 5.1024756 | \$ 4.5640828 | \$ 5.0379002 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | \$ 5.4561448 | \$ 4.5068170 | \$ 4.8051504 | \$ 5.0608855 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | \$ 5.1231551 | \$ 5.4739958 | \$ 5.0947226 | \$ 4.6521071 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | \$ 4.8062537 | \$ 4.6015128 | \$ 4.7993674 | \$ 4.8332775 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | \$ 4.4515523 | \$ 4.9683290 | \$ 4.4445652 | \$ 5.0537906 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | \$ 4.7547449 | \$ 4.7009185 | \$ 4.8345546 | \$ 5.6087298 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | \$ 4.5694106 | \$ 4.4422032 | \$ 4.0988042 | \$ 5.2444302 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | \$ 4.7020201 | \$ 5.0647122 | \$ 5.1517122 | \$ 4.8726158 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | \$ 4.3413254 | \$ 4.3363167 | \$ 5.2472537 | \$ 5.4155083 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | \$ 5.4751535 | \$ 5.2901494 | \$ 4.7863856 | \$ 5.8645035 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | \$ 5.4608489 | \$ 4.3961744 | \$ 4.9545070 | \$ 4.3228858 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | \$ 4.3575210 | \$ 5.0882942 | \$ 5.5489059 | \$ 5.2370854 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | \$ 4.5466740 | \$ 4.9958270 | \$ 4.0790252 | \$ 4.7441608 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | \$ 5.0663517 | \$ 4.6457297 | \$ 5.3493904 | \$ 5.3667803 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | \$ 5.5687202 | \$ 4.7325701 | \$ 4.7761035 | \$ 4.6526206 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | \$ 4.8704726 | \$ 5.4231624 | \$ 4.8621696 | \$ 5.5133219 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | \$ 4.9546682 | \$ 5.3469962 | \$ 5.3586944 | \$ 5.5905524 |
| | NYMEX | Max | \$ 6.1168215 | \$ 5.8376197 | \$ 6.1627105 | \$ 6.0167157 |
| | | Min | \$ 4.0580437 | \$ 3.7245100 | \$ 3.9497430 | \$ 3.8477607 |
| | | avg | \$ 4.9598859 | \$ 4.8059504 | \$ 4.8277862 | \$ 4.9699465 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | \$ 5.0309268 | \$ 4.8655239 | \$ 4.8663712 | \$ 5.0547962 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | \$ 5.6472866 | \$ 4.7499849 | \$ 5.1125902 | \$ 5.5290789 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | \$ 5.1331122 | \$ 4.9757930 | \$ 5.0352596 | \$ 5.3367023 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | \$ 5.0280908 | \$ 4.5967266 | \$ 5.2271488 | \$ 4.6770697 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | \$ 4.9250852 | \$ 5.0907375 | \$ 5.2248229 | \$ 4.9481085 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | \$ 4.9630370 | \$ 5.3428816 | \$ 4.9585696 | \$ 5.3428087 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | \$ 5.3441373 | \$ 5.8915023 | \$ 5.4086958 | \$ 4.8665970 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | \$ 5.5485372 | \$ 5.4234678 | \$ 5.2983399 | \$ 5.2789596 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | \$ 5.4847847 | \$ 5.0306689 | \$ 4.5747197 | \$ 4.5822560 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | \$ 5.2320607 | \$ 4.3758955 | \$ 5.3054788 | \$ 4.5222024 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | \$ 5.4562161 | \$ 5.0099478 | \$ 5.5612423 | \$ 4.9842003 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | \$ 5.0548445 | \$ 4.7677845 | \$ 4.5551239 | \$ 5.4139360 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | \$ 4.8349062 | \$ 4.1943009 | \$ 4.9931703 | \$ 5.5582617 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | \$ 5.4800102 | \$ 4.3175810 | \$ 5.3144718 | \$ 4.7885117 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | \$ 4.5164150 | \$ 4.2306274 | \$ 4.7571513 | \$ 5.0335103 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | \$ 5.2279780 | \$ 4.7940292 | \$ 4.7932880 | \$ 5.3114682 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | \$ 5.0278590 | \$ 4.9896098 | \$ 5.5185054 | \$ 4.9883532 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | \$ 5.1651436 | \$ 4.3602714 | \$ 4.7729079 | \$ 5.1618346 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | \$ 5.3542786 | \$ 5.3051213 | \$ 4.9187466 | \$ 5.3186802 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | \$ 5.4539374 | \$ 4.4249455 | \$ 5.0637705 | \$ 5.4498808 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | \$ 5.1115879 | \$ 4.9068758 | \$ 4.5642097 | \$ 5.2124598 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | \$ 5.5426308 | \$ 4.7980008 | \$ 4.6401765 | \$ 5.3780496 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | \$ 5.1829343 | \$ 4.7312729 | \$ 5.3461542 | \$ 5.1382104 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | \$ 5.2377371 | \$ 5.1616239 | \$ 4.8877656 | \$ 5.8989400 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | \$ 5.4970978 | \$ 5.0524151 | \$ 5.3131125 | \$ 4.5434998 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | \$ 4.3795397 | \$ 4.4452663 | \$ 4.8825165 | \$ 5.0485058 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | \$ 4.8819371 | \$ 4.3211805 | \$ 5.2714496 | \$ 5.0274204 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | \$ 5.6992591 | \$ 4.9973669 | \$ 5.0634564 | \$ 4.8270530 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | \$ 5.3932546 | \$ 5.0940112 | \$ 4.6531499 | \$ 4.9007095 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | \$ 6.4172485 | \$ 4.9293609 | \$ 5.0589618 | \$ 5.2832135 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | \$ 5.8393575 | \$ 5.0370003 | \$ 5.5992202 | \$ 4.9513550 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | \$ 5.3076708 | \$ 4.5150749 | \$ 5.0051279 | \$ 5.3064119 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | \$ 4.8026173 | \$ 4.7386706 | \$ 5.6317034 | \$ 5.0541453 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | \$ 5.4418108 | \$ 4.4668910 | \$ 4.3571395 | \$ 4.7640669 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | \$ 4.2000399 | \$ 4.3960364 | \$ 5.5761702 | \$ 4.9391096 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | \$ 4.4556933 | \$ 4.8963174 | \$ 5.3359418 | \$ 4.8855519 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | \$ 4.2366809 | \$ 4.6138958 | \$ 4.3171704 | \$ 4.9442950 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | \$ 4.6595498 | \$ 4.7229988 | \$ 4.9276077 | \$ 5.4617623 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | \$ 5.3054146 | \$ 5.4265359 | \$ 5.2883586 | \$ 5.1839276 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | \$ 4.9486242 | \$ 4.1631570 | \$ 4.5926351 | \$ 5.1528834 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | \$ 4.9473178 | \$ 4.5012113 | \$ 4.8088850 | \$ 5.1108940 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | \$ 4.8266822 | \$ 4.6382894 | \$ 4.9540697 | \$ 5.2124324 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | \$ 4.7641432 | \$ 4.5025476 | \$ 4.9880518 | \$ 5.5483901 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | \$ 4.8212350 | \$ 4.9858460 | \$ 5.1149889 | \$ 4.6048659 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | \$ 5.5215255 | \$ 5.5089741 | \$ 5.1823572 | \$ 4.7807793 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | \$ 4.7102727 | \$ 4.5455916 | \$ 4.6287608 | \$ 4.3785238 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | \$ 4.8308962 | \$ 5.2348214 | \$ 5.3396873 | \$ 5.0259994 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | \$ 5.5686824 | \$ 5.1158518 | \$ 4.5108731 | \$ 5.5749300 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | \$ 4.8988304 | \$ 4.6640343 | \$ 5.1321575 | \$ 5.7244717 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | \$ 5.1244508 | \$ 4.8828314 | \$ 4.1924018 | \$ 4.3802635 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | \$ 5.2158868 | \$ 5.8808387 | \$ 4.9658911 | \$ 4.8390395 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | \$ 5.0990501 | \$ 4.8066064 | \$ 5.1824518 | \$ 5.1184726 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | \$ 5.4540100 | \$ 4.3768714 | \$ 5.7858050 | \$ 5.2093374 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | \$ 6.1322111 | \$ 5.1962965 | \$ 4.9957315 | \$ 4.3326742 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | \$ 4.8822718 | \$ 5.4038289 | \$ 5.4191959 | \$ 4.9257610 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | \$ 6.1015789 | \$ 5.2366227 | \$ 4.9724443 | \$ 5.2659687 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | \$ 5.2544535 | \$ 5.3151408 | \$ 5.2604180 | \$ 5.3374921 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | \$ 5.2108377 | \$ 4.9324597 | \$ 4.7616712 | \$ 5.3949050 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | \$ 4.9553752 | \$ 6.0828939 | \$ 5.5800665 | \$ 4.8366991 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | \$ 4.6313380 | \$ 4.5964751 | \$ 4.8622991 | \$ 5.0466699 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | \$ 5.9120471 | \$ 4.8270613 | \$ 5.2172221 | \$ 5.1957895 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | \$ 5.2552204 | \$ 5.0457481 | \$ 4.2995636 | \$ 4.7374448 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | \$ 5.5993616 | \$ 5.3986437 | \$ 5.3232219 | \$ 4.7278353 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | \$ 4.9738195 | \$ 4.3201913 | \$ 4.8123156 | \$ 5.6274905 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | \$ 5.2020386 | \$ 4.5433283 | \$ 5.1840545 | \$ 6.2200457 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | \$ 4.3820592 | \$ 4.2705631 | \$ 5.1281796 | \$ 5.5900259 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | \$ 5.9147017 | \$ 4.9016112 | \$ 5.1714047 | \$ 5.4205507 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | \$ 4.4970725 | \$ 4.4893758 | \$ 5.3577643 | \$ 4.6640540 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | \$ 5.2924569 | \$ 4.8024198 | \$ 5.0900657 | \$ 5.6031955 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | \$ 5.3127652 | \$ 5.2734720 | \$ 4.7952764 | \$ 4.4376873 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | \$ 5.6228167 | \$ 5.1071924 | \$ 5.4290180 | \$ 5.5532345 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | \$ 4.2096947 | \$ 4.4668857 | \$ 5.2674416 | \$ 4.8767394 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | \$ 5.8576759 | \$ 4.9622802 | \$ 4.4394753 | \$ 5.4121104 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | \$ 5.1481351 | \$ 4.9467641 | \$ 5.4637855 | \$ 5.3410887 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | \$ 5.0981671 | \$ 4.9355332 | \$ 4.8348534 | \$ 5.7772229 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | \$ 5.3462479 | \$ 4.7180653 | \$ 5.5947203 | \$ 5.6361297 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | \$ 4.9112493 | \$ 5.3495487 | \$ 4.9874180 | \$ 5.1382336 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | \$ 5.7978384 | \$ 4.6540022 | \$ 5.0111476 | \$ 4.3517856 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | \$ 4.4760233 | \$ 5.5708927 | \$ 4.7065354 | \$ 5.1367011 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | \$ 5.4493419 | \$ 4.2689149 | \$ 5.5232079 | \$ 5.4548708 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | \$ 5.6003253 | \$ 5.3224332 | \$ 4.4846276 | \$ 5.3371491 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | \$ 5.1748182 | \$ 4.4979619 | \$ 4.7332323 | \$ 5.8298100 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | \$ 5.2586914 | \$ 4.5262679 | \$ 4.9742762 | \$ 5.3054405 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | \$ 5.2315411 | \$ 5.3016473 | \$ 5.0986089 | \$ 4.7359088 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | \$ 5.6167148 | \$ 4.7264263 | \$ 5.2890188 | \$ 5.1093532 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | \$ 5.4318192 | \$ 5.6694735 | \$ 4.4183433 | \$ 5.3876926 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | \$ 5.5636139 | \$ 6.1036604 | \$ 4.2906692 | \$ 5.1245220 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | \$ 4.2359873 | \$ 4.3159584 | \$ 4.9363085 | \$ 5.4095865 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | \$ 5.4973347 | \$ 4.5911382 | \$ 4.9742473 | \$ 5.4723067 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | \$ 5.4103817 | \$ 4.3024038 | \$ 5.4091402 | \$ 5.2903131 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | \$ 5.2389704 | \$ 4.5367315 | \$ 5.0633493 | \$ 5.3174990 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | \$ 4.9414383 | \$ 6.1976812 | \$ 5.0240036 | \$ 4.8251790 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | \$ 5.5909476 | \$ 5.1205430 | \$ 5.1399423 | \$ 5.5522939 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | \$ 4.6726176 | \$ 5.7031327 | \$ 4.8521455 | \$ 4.8040306 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | \$ 5.1943237 | \$ 4.9099613 | \$ 4.9795301 | \$ 5.1926775 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | \$ 4.8653096 | \$ 4.7400995 | \$ 5.6088910 | \$ 5.1304751 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | \$ 4.5639670 | \$ 5.8872407 | \$ 4.6233318 | \$ 4.9560378 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | \$ 5.3667377 | \$ 4.5949516 | \$ 5.7870511 | \$ 4.9001682 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | \$ 4.9359950 | \$ 5.1386697 | \$ 5.1234242 | \$ 5.1458890 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | \$ 5.0032389 | \$ 4.6904047 | \$ 4.9638207 | \$ 4.7502409 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | \$ 5.5871509 | \$ 4.2235408 | \$ 5.9276050 | \$ 5.5104974 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | \$ 4.8787028 | \$ 5.1055401 | \$ 4.8846610 | \$ 3.9275279 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | \$ 5.0581597 | \$ 5.4248025 | \$ 4.6746349 | \$ 4.9465375 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | \$ 5.2234748 | \$ 4.3727531 | \$ 4.7361548 | \$ 4.9175446 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | \$ 4.9549946 | \$ 4.2554941 | \$ 4.9532389 | \$ 5.3194200 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | \$ 5.7098836 | \$ 4.5835030 | \$ 4.8958687 | \$ 4.9424982 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | \$ 4.7010475 | \$ 4.7538282 | \$ 4.9616795 | \$ 4.7694001 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | \$ 5.1382667 | \$ 5.6042079 | \$ 4.9143450 | \$ 4.4265364 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | \$ 5.6311949 | \$ 4.3759806 | \$ 4.8339782 | \$ 5.7270103 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | \$ 4.8438452 | \$ 5.0841335 | \$ 5.2598940 | \$ 5.0964797 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | \$ 4.9828144 | \$ 4.6057759 | \$ 5.0835965 | \$ 5.2467122 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | \$ 5.0914326 | \$ 5.5918305 | \$ 5.2366120 | \$ 5.2794601 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | \$ 5.8377679 | \$ 5.0442203 | \$ 4.5899129 | \$ 5.0843745 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | \$ 5.1358500 | \$ 5.5402946 | \$ 5.0870267 | \$ 5.3388224 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | \$ 5.5095522 | \$ 5.2364591 | \$ 4.9892222 | \$ 5.1787660 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | \$ 4.8530649 | \$ 5.4155058 | \$ 5.6684712 | \$ 4.9886649 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | \$ 4.9760020 | \$ 5.3316296 | \$ 5.2929452 | \$ 4.7567118 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | \$ 5.1251538 | \$ 5.0913438 | \$ 4.2422149 | \$ 4.9255288 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | \$ 5.1237092 | \$ 5.4006983 | \$ 4.7009674 | \$ 5.0412624 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | \$ 4.9792076 | \$ 4.9805065 | \$ 4.9427651 | \$ 4.1255060 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | \$ 4.9865127 | \$ 5.0391938 | \$ 4.8826890 | \$ 6.5106049 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | \$ 5.0145622 | \$ 5.0631240 | \$ 4.9622491 | \$ 4.7972401 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | \$ 4.6054916 | \$ 5.5921822 | \$ 5.0157838 | \$ 5.5502721 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | \$ 4.5618773 | \$ 4.7238562 | \$ 5.1231722 | \$ 4.8488042 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | \$ 5.5651659 | \$ 4.9983280 | \$ 4.8605610 | \$ 4.6483782 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | \$ 5.1532659 | \$ 4.6941864 | \$ 5.2889604 | \$ 5.3611694 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | \$ 5.1643267 | \$ 4.7387465 | \$ 5.6918177 | \$ 4.2911387 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | \$ 5.4870086 | \$ 4.9790818 | \$ 4.6663224 | \$ 5.0749514 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | \$ 5.7940483 | \$ 4.7625988 | \$ 4.7612812 | \$ 4.8049748 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | \$ 5.2746204 | \$ 5.2902118 | \$ 5.2334954 | \$ 5.8169757 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | \$ 4.9318171 | \$ 4.3592685 | \$ 4.9012713 | \$ 5.5071966 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | \$ 5.6119301 | \$ 5.3532803 | \$ 4.8901302 | \$ 5.0443545 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | \$ 5.4922178 | \$ 4.5885161 | \$ 5.2052361 | \$ 5.0553540 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | \$ 4.8593005 | \$ 4.3464328 | \$ 4.2433410 | \$ 4.3020103 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | \$ 5.5611924 | \$ 5.2016137 | \$ 4.8679487 | \$ 4.7755017 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | \$ 5.5998861 | \$ 4.9294267 | \$ 4.6963632 | \$ 5.3477296 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | \$ 5.0126685 | \$ 5.0500115 | \$ 5.3195368 | \$ 5.5172761 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | \$ 5.0325088 | \$ 5.7031057 | \$ 5.1559231 | \$ 5.2012631 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | \$ 4.4827030 | \$ 4.7469388 | \$ 4.6628446 | \$ 5.3515177 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | \$ 5.3367019 | \$ 4.4458517 | \$ 5.5325629 | \$ 5.6157003 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | \$ 5.7920292 | \$ 4.9514928 | \$ 5.0847533 | \$ 5.1968043 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | \$ 4.9795471 | \$ 5.3854414 | \$ 4.9546415 | \$ 5.6285569 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | \$ 5.5191342 | \$ 4.9790299 | \$ 4.1854241 | \$ 5.2993601 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | \$ 5.1706044 | \$ 4.8546857 | \$ 4.4141229 | \$ 5.2430517 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | \$ 4.4793987 | \$ 4.9786962 | \$ 4.7061711 | \$ 5.7303875 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | \$ 4.6811644 | \$ 4.8852135 | \$ 4.5858995 | \$ 4.7180287 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | \$ 4.9928850 | \$ 4.7293942 | \$ 4.6955384 | \$ 5.2373039 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | \$ 4.8300865 | \$ 4.7576096 | \$ 5.1103743 | \$ 5.1445212 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | \$ 4.7114702 | \$ 5.2986912 | \$ 4.9198198 | \$ 5.4287571 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | \$ 5.2816466 | \$ 5.2410363 | \$ 5.2497621 | \$ 5.1815215 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | \$ 5.3350236 | \$ 5.3538387 | \$ 4.9115389 | \$ 4.5963110 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | \$ 4.9542325 | \$ 4.9937410 | \$ 5.2277199 | \$ 4.6813217 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | \$ 5.2324294 | \$ 5.2217993 | \$ 5.7081187 | \$ 5.7424068 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | \$ 5.1051202 | \$ 5.5706821 | \$ 4.9334087 | \$ 5.1580795 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | \$ 5.1176758 | \$ 4.8040555 | \$ 4.5039422 | \$ 4.8840266 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | \$ 5.7850787 | \$ 4.7139909 | \$ 5.7923213 | \$ 5.0632066 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | \$ 5.6524626 | \$ 4.6216795 | \$ 4.6329842 | \$ 5.5918231 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | \$ 5.0731767 | \$ 4.5377122 | \$ 5.2028581 | \$ 5.6362800 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | \$ 4.6818554 | \$ 4.9574785 | \$ 4.0075631 | \$ 5.7548925 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | \$ 5.7382447 | \$ 4.7179732 | \$ 5.9536268 | \$ 6.0087002 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | \$ 4.4740867 | \$ 4.6032719 | \$ 4.5487147 | \$ 5.3995838 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | \$ 4.4132428 | \$ 4.3263503 | \$ 4.0399519 | \$ 5.7154015 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | \$ 4.5727483 | \$ 4.7862717 | \$ 4.9130341 | \$ 5.5836841 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | \$ 4.6750842 | \$ 5.0161765 | \$ 4.9521598 | \$ 4.7770114 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | \$ 4.9118135 | \$ 4.8254649 | \$ 5.1872073 | \$ 5.2128971 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | \$ 5.0986806 | \$ 4.0032429 | \$ 4.9456833 | \$ 5.6614664 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | \$ 6.2281141 | \$ 4.7212411 | \$ 4.4069129 | \$ 5.3400253 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | \$ 4.6855953 | \$ 5.1179330 | \$ 4.4191380 | \$ 5.4144959 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | \$ 4.9580735 | \$ 5.8423638 | \$ 4.7887941 | \$ 4.9313368 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | \$ 6.3164269 | \$ 4.5468309 | \$ 4.7273881 | \$ 5.0743671 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | \$ 4.2285278 | \$ 4.8107855 | \$ 4.7148859 | \$ 6.2406160 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | \$ 5.4900665 | \$ 5.2551201 | \$ 5.1488306 | \$ 5.6782459 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | \$ 4.8966837 | \$ 4.8216901 | \$ 4.6998419 | \$ 5.1701457 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | \$ 5.1798629 | \$ 5.6756685 | \$ 5.0521332 | \$ 5.1885093 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | \$ 5.1179772 | \$ 4.6970976 | \$ 4.9430801 | \$ 6.1471135 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | \$ 5.5921441 | \$ 4.6115255 | \$ 4.9343639 | \$ 4.8471666 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | \$ 5.6780031 | \$ 5.0098720 | \$ 5.5691881 | \$ 5.6175576 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | \$ 4.8425900 | \$ 4.5507758 | \$ 5.0796212 | \$ 5.0463369 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | \$ 4.9466127 | \$ 4.6285514 | \$ 4.9644874 | \$ 4.6627348 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | \$ 5.3453215 | \$ 4.7829354 | \$ 4.5696294 | \$ 4.7535254 |

2012 CNGC IRP

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

PAGE 12

| Data Item | Scenario | Draw | 2020 | 2021 | 2022 | 2023 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | \$ 4.8119169 | \$ 3.9905899 | \$ 5.0539835 | \$ 4.5284076 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | \$ 4.9107341 | \$ 4.9165536 | \$ 4.8235607 | \$ 5.2274056 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | \$ 4.5190018 | \$ 4.5106167 | \$ 4.1988389 | \$ 4.8707584 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | \$ 5.5133503 | \$ 5.0317777 | \$ 6.5892639 | \$ 5.5300978 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | \$ 5.9059371 | \$ 4.7017032 | \$ 4.6797354 | \$ 4.9305332 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | \$ 4.7652135 | \$ 4.8116370 | \$ 5.0392655 | \$ 4.7785763 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | \$ 5.0759784 | \$ 4.5643106 | \$ 5.1573174 | \$ 5.2591189 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | \$ 5.1358106 | \$ 5.1518794 | \$ 5.0079958 | \$ 5.1760839 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | \$ 4.7969440 | \$ 4.5264376 | \$ 5.3953225 | \$ 5.7336948 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | \$ 5.5648390 | \$ 4.4030726 | \$ 4.6555724 | \$ 6.0528649 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | \$ 4.2487507 | \$ 4.8686141 | \$ 4.0789489 | \$ 5.0903730 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | \$ 5.0056940 | \$ 4.4240135 | \$ 4.9783070 | \$ 4.5644246 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | \$ 6.2307100 | \$ 4.5158859 | \$ 4.7005262 | \$ 4.8903517 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | \$ 4.9693863 | \$ 4.9991332 | \$ 4.4618755 | \$ 4.6445438 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | \$ 4.4493702 | \$ 5.0013723 | \$ 4.8851104 | \$ 5.0091072 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | \$ 5.1325321 | \$ 4.3595993 | \$ 5.3145803 | \$ 4.5488316 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | \$ 5.6566329 | \$ 5.3948719 | \$ 4.4530347 | \$ 4.3650942 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | \$ 5.1568017 | \$ 4.8130968 | \$ 4.6913295 | \$ 5.2476472 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | \$ 5.5817666 | \$ 4.5438065 | \$ 5.4147844 | \$ 4.6803773 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | \$ 4.5880092 | \$ 4.8915285 | \$ 5.2749967 | \$ 4.2779844 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | \$ 5.2548170 | \$ 5.1283198 | \$ 5.1108322 | \$ 4.9953402 |
| | NYMEX | Max | \$ 6.4172485 | \$ 6.1976812 | \$ 6.5892639 | \$ 6.5106049 |
| | | Min | \$ 4.2000399 | \$ 3.9905899 | \$ 4.0075631 | \$ 3.9275279 |
| | | avg | \$ 5.1546558 | \$ 4.8989369 | \$ 4.9897149 | \$ 5.1394111 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | \$ 5.3030761 | \$ 4.9724207 | \$ 4.8521971 | \$ 5.0069026 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | \$ 5.9062868 | \$ 5.2657812 | \$ 5.6078163 | \$ 4.6397361 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | \$ 5.5348596 | \$ 4.1880171 | \$ 5.3923904 | \$ 4.6838647 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | \$ 5.0817271 | \$ 4.4921661 | \$ 4.6418312 | \$ 5.0551665 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | \$ 4.9431318 | \$ 3.9080332 | \$ 4.9000708 | \$ 4.6549493 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | \$ 5.1908981 | \$ 4.4083450 | \$ 4.7969843 | \$ 4.6971019 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | \$ 5.2878716 | \$ 4.8738356 | \$ 4.7805911 | \$ 5.3058776 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | \$ 4.8364544 | \$ 5.5782219 | \$ 4.5218874 | \$ 5.7991618 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | \$ 5.2739753 | \$ 5.1021126 | \$ 4.2369573 | \$ 5.1868262 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | \$ 5.0325109 | \$ 5.4747746 | \$ 4.3194207 | \$ 5.4001988 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | \$ 5.6466252 | \$ 5.2506167 | \$ 5.6249035 | \$ 5.6697721 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | \$ 5.2001002 | \$ 4.7695581 | \$ 5.0600810 | \$ 4.7243151 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | \$ 6.3873727 | \$ 5.0693365 | \$ 4.3849816 | \$ 5.2118119 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | \$ 5.8150255 | \$ 5.0873293 | \$ 4.3724286 | \$ 5.2593288 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | \$ 4.8689884 | \$ 5.2035937 | \$ 4.5570520 | \$ 4.8863644 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | \$ 5.6141269 | \$ 4.5939078 | \$ 4.8932666 | \$ 5.3582065 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | \$ 5.2944667 | \$ 5.1233999 | \$ 6.0971176 | \$ 5.6363697 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | \$ 5.6717699 | \$ 5.3222950 | \$ 4.7575337 | \$ 4.6780849 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | \$ 5.3490977 | \$ 4.5897565 | \$ 5.0122267 | \$ 5.3347973 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | \$ 4.8609465 | \$ 5.4035238 | \$ 4.7848018 | \$ 4.6151484 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | \$ 5.0441841 | \$ 5.3291622 | \$ 4.8820699 | \$ 4.6201764 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | \$ 4.5710658 | \$ 5.7299375 | \$ 5.4532567 | \$ 4.4875815 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | \$ 4.6833435 | \$ 5.5606437 | \$ 4.8888060 | \$ 5.5982687 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | \$ 5.7773832 | \$ 5.3922781 | \$ 4.9866278 | \$ 5.0962890 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | \$ 5.2070659 | \$ 4.7808519 | \$ 4.1583711 | \$ 5.2381680 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | \$ 5.8765354 | \$ 4.9966192 | \$ 4.6991069 | \$ 4.4884360 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | \$ 5.3921253 | \$ 5.0660229 | \$ 5.2847595 | \$ 4.6705450 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | \$ 5.0241457 | \$ 4.3392238 | \$ 3.9728754 | \$ 5.5907457 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | \$ 5.9103580 | \$ 4.7647314 | \$ 4.8383288 | \$ 4.8000337 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | \$ 5.3247496 | \$ 4.9474796 | \$ 5.1072785 | \$ 5.5991202 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | \$ 5.2833563 | \$ 4.4170195 | \$ 4.6673805 | \$ 4.5914260 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | \$ 5.5882122 | \$ 5.5020234 | \$ 4.9986962 | \$ 4.8423250 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | \$ 5.7290032 | \$ 5.2099479 | \$ 5.2647165 | \$ 4.6829587 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | \$ 6.2463851 | \$ 5.0577836 | \$ 4.5127756 | \$ 5.6578014 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | \$ 5.1950375 | \$ 4.9797467 | \$ 4.3447033 | \$ 5.6678203 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | \$ 5.8954226 | \$ 5.5856301 | \$ 5.5094592 | \$ 5.9075529 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | \$ 5.3629015 | \$ 5.1326524 | \$ 5.3239013 | \$ 4.8384546 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | \$ 5.9051906 | \$ 5.1840216 | \$ 4.4591330 | \$ 5.2726271 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | \$ 5.3163046 | \$ 4.6973898 | \$ 4.9217251 | \$ 5.1067248 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | \$ 4.8953395 | \$ 4.7529412 | \$ 4.7918324 | \$ 5.1681299 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | \$ 5.8995421 | \$ 5.4375212 | \$ 5.1486865 | \$ 5.0463415 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | \$ 4.9730332 | \$ 4.8209389 | \$ 5.4779903 | \$ 4.5729022 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | \$ 5.5689093 | \$ 5.1298474 | \$ 4.3204300 | \$ 4.9773629 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | \$ 5.4705374 | \$ 5.3060668 | \$ 4.5061762 | \$ 5.7750918 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | \$ 5.0156996 | \$ 4.5063556 | \$ 4.8488051 | \$ 4.9376261 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | \$ 5.5482104 | \$ 5.3642395 | \$ 5.3411977 | \$ 4.6148139 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | \$ 5.5070988 | \$ 5.0258588 | \$ 5.0968244 | \$ 4.5061341 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | \$ 5.5804987 | \$ 5.1291223 | \$ 4.6016938 | \$ 5.1857077 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | \$ 6.1751581 | \$ 5.5541109 | \$ 5.0992150 | \$ 5.3112481 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | \$ 4.6166028 | \$ 5.3663422 | \$ 4.7279577 | \$ 4.2523075 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | \$ 4.8914197 | \$ 5.1316383 | \$ 4.4244931 | \$ 5.0051183 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | \$ 5.7068670 | \$ 5.2047549 | \$ 4.8041159 | \$ 4.8560553 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | \$ 5.5723823 | \$ 5.2941967 | \$ 5.0489903 | \$ 4.7785726 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | \$ 6.1576472 | \$ 4.4757828 | \$ 5.0750135 | \$ 5.1951224 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | \$ 5.3521753 | \$ 5.2553014 | \$ 5.1155152 | \$ 4.6354489 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | \$ 5.6179266 | \$ 5.8069520 | \$ 4.7982304 | \$ 4.8389240 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | \$ 4.9567872 | \$ 4.7002617 | \$ 4.5418654 | \$ 5.5017544 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | \$ 5.5646317 | \$ 4.3691873 | \$ 5.0212818 | \$ 5.9577694 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | \$ 5.5012842 | \$ 5.4461019 | \$ 5.1138955 | \$ 5.8534316 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | \$ 5.0739736 | \$ 4.5422769 | \$ 4.6395836 | \$ 4.3475111 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | \$ 5.0362147 | \$ 5.0418958 | \$ 5.3011820 | \$ 5.5834514 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | \$ 5.8599040 | \$ 5.8913566 | \$ 4.9037226 | \$ 5.0266241 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | \$ 5.4670498 | \$ 4.7168362 | \$ 4.9131676 | \$ 5.2439687 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | \$ 5.3444925 | \$ 3.9081481 | \$ 4.7658741 | \$ 4.5949935 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | \$ 4.8454209 | \$ 4.7814570 | \$ 4.7795856 | \$ 4.6554480 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | \$ 6.0516311 | \$ 4.8904462 | \$ 5.2808149 | \$ 4.8395731 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | \$ 5.5556780 | \$ 5.0303809 | \$ 5.0247391 | \$ 5.4398492 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | \$ 4.9190969 | \$ 4.9224201 | \$ 4.4556526 | \$ 5.2501513 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | \$ 5.7529457 | \$ 5.4599825 | \$ 5.1460211 | \$ 5.3423530 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | \$ 5.9875986 | \$ 4.8650104 | \$ 5.0705753 | \$ 5.3793401 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | \$ 4.6416493 | \$ 5.3560509 | \$ 4.3724576 | \$ 5.0661894 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | \$ 6.1024026 | \$ 4.9239156 | \$ 4.4682407 | \$ 4.7858599 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | \$ 5.1057566 | \$ 5.2112404 | \$ 5.4300320 | \$ 4.2424188 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | \$ 5.5572642 | \$ 5.2385294 | \$ 5.2683036 | \$ 5.2144997 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | \$ 5.3936368 | \$ 4.8887074 | \$ 4.3581325 | \$ 5.2056334 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | \$ 5.2445572 | \$ 4.3029592 | \$ 5.0199039 | \$ 5.6503512 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | \$ 5.0034349 | \$ 4.9093990 | \$ 5.1088186 | \$ 5.6561519 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | \$ 4.5525876 | \$ 5.4366380 | \$ 5.3544019 | \$ 5.0611814 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | \$ 5.4904496 | \$ 5.1303392 | \$ 4.8240112 | \$ 6.0485269 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | \$ 5.2737353 | \$ 4.8927264 | \$ 4.8315991 | \$ 5.8243170 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | \$ 5.2327435 | \$ 4.3499491 | \$ 5.0951630 | \$ 5.0633053 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | \$ 5.3851569 | \$ 4.8651295 | \$ 5.0431092 | \$ 4.9074820 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | \$ 5.0050090 | \$ 4.7972175 | \$ 4.6167470 | \$ 4.8687735 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | \$ 5.5308657 | \$ 4.7116061 | \$ 4.7697876 | \$ 4.4731463 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | \$ 5.0928817 | \$ 5.0395431 | \$ 4.7381760 | \$ 4.8816061 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | \$ 5.6649368 | \$ 5.1791199 | \$ 4.7070433 | \$ 5.0460550 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | \$ 5.4300225 | \$ 5.7283164 | \$ 5.0068003 | \$ 4.3802724 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | \$ 5.0056446 | \$ 4.3401841 | \$ 4.0874134 | \$ 4.8117569 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | \$ 5.1008710 | \$ 5.1870661 | \$ 4.6056471 | \$ 4.8953907 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | \$ 5.6917675 | \$ 5.4799803 | \$ 4.8622006 | \$ 5.1759893 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | \$ 5.7062338 | \$ 5.8060946 | \$ 5.0922227 | \$ 4.9596910 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | \$ 5.0341676 | \$ 5.0398596 | \$ 4.8999028 | \$ 5.1238248 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | \$ 5.4002986 | \$ 4.1445330 | \$ 5.3952609 | \$ 4.7183127 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | \$ 6.0177987 | \$ 5.3286269 | \$ 4.3972950 | \$ 5.5073078 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | \$ 5.7845877 | \$ 5.0851119 | \$ 4.6651007 | \$ 5.1601977 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | \$ 5.8868531 | \$ 3.7722696 | \$ 5.3486988 | \$ 5.8736544 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | \$ 5.9448795 | \$ 4.9346854 | \$ 5.6411233 | \$ 5.3323004 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | \$ 5.5475812 | \$ 4.9014345 | \$ 5.2988763 | \$ 5.4094497 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | \$ 5.5050754 | \$ 5.1095413 | \$ 5.6257175 | \$ 4.4760974 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | \$ 5.0089184 | \$ 4.9391385 | \$ 4.8089274 | \$ 5.0731736 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | \$ 4.7436150 | \$ 4.8053376 | \$ 4.7012178 | \$ 4.3694278 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | \$ 4.6721140 | \$ 4.3159676 | \$ 4.7871271 | \$ 5.1183096 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | \$ 5.3367869 | \$ 4.7338109 | \$ 4.8885526 | \$ 4.1299729 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | \$ 5.5841602 | \$ 4.7916864 | \$ 4.9174741 | \$ 5.2088188 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | \$ 5.6511044 | \$ 5.0348645 | \$ 4.2351997 | \$ 5.6032777 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | \$ 5.4272019 | \$ 4.9005827 | \$ 4.9995514 | \$ 4.8974030 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | \$ 5.2680391 | \$ 4.9856545 | \$ 5.1039181 | \$ 4.5302032 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | \$ 5.1160859 | \$ 5.0585780 | \$ 4.7097658 | \$ 4.9264669 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | \$ 5.5396137 | \$ 4.9999118 | \$ 4.8734564 | \$ 5.2234618 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | \$ 4.6778195 | \$ 4.4612557 | \$ 4.0636547 | \$ 4.5871769 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | \$ 5.2818188 | \$ 4.3692091 | \$ 4.6477985 | \$ 5.1880480 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | \$ 5.8512204 | \$ 4.9076593 | \$ 5.6337814 | \$ 4.8712452 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | \$ 5.4554857 | \$ 4.9097734 | \$ 5.9164643 | \$ 4.3724830 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | \$ 5.6702391 | \$ 4.5780693 | \$ 4.5193571 | \$ 4.7270637 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | \$ 4.9770013 | \$ 5.1692899 | \$ 4.9286687 | \$ 5.7394456 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | \$ 5.8791378 | \$ 4.8728464 | \$ 5.0161410 | \$ 5.2444284 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | \$ 5.0087699 | \$ 4.4273326 | \$ 5.1932856 | \$ 5.0643184 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | \$ 5.0754912 | \$ 5.2648296 | \$ 4.7992201 | \$ 4.6468345 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | \$ 5.5940377 | \$ 4.4751662 | \$ 4.6391801 | \$ 4.4999505 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | \$ 6.3800000 | \$ 5.4886785 | \$ 5.0208970 | \$ 5.3531122 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | \$ 5.6758373 | \$ 5.1795382 | \$ 4.8177226 | \$ 4.9797057 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | \$ 4.6170914 | \$ 4.3987582 | \$ 4.5774043 | \$ 4.6106422 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | \$ 5.2567582 | \$ 4.7390731 | \$ 5.0130885 | \$ 4.7376867 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | \$ 5.3955878 | \$ 4.8467768 | \$ 4.7350074 | \$ 5.5567278 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | \$ 6.0211201 | \$ 5.6931946 | \$ 4.3889877 | \$ 4.8110935 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | \$ 4.5886914 | \$ 5.1156033 | \$ 4.4816069 | \$ 4.8413320 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | \$ 5.1843085 | \$ 5.4625572 | \$ 4.0764328 | \$ 5.0608705 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | \$ 5.8366729 | \$ 4.9775976 | \$ 4.8984073 | \$ 4.7561598 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | \$ 5.3177981 | \$ 6.0054356 | \$ 5.9028547 | \$ 4.5322840 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | \$ 5.0573684 | \$ 4.8242314 | \$ 5.2926838 | \$ 5.3312252 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | \$ 4.9571770 | \$ 5.3085640 | \$ 5.0940167 | \$ 5.5750739 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | \$ 5.3035094 | \$ 5.3831623 | \$ 4.9733956 | \$ 5.2399585 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | \$ 5.6300600 | \$ 4.2040272 | \$ 4.1878566 | \$ 4.7610837 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | \$ 5.3526568 | \$ 4.6640201 | \$ 4.2775121 | \$ 5.5768800 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | \$ 4.9000118 | \$ 4.4798570 | \$ 3.5758172 | \$ 4.8979061 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | \$ 4.5395557 | \$ 5.1641467 | \$ 5.6275363 | \$ 4.8320958 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | \$ 5.5416811 | \$ 4.7335327 | \$ 5.4865924 | \$ 4.8532856 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | \$ 5.3223390 | \$ 5.5520750 | \$ 5.0435217 | \$ 5.9082614 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | \$ 5.5046212 | \$ 4.3844612 | \$ 5.4290630 | \$ 4.9604563 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | \$ 5.4779250 | \$ 4.6732049 | \$ 4.2999024 | \$ 5.4272159 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | \$ 4.8838291 | \$ 5.2018489 | \$ 4.6409918 | \$ 5.1677948 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | \$ 5.6577954 | \$ 4.8879827 | \$ 5.1182171 | \$ 6.1271169 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | \$ 5.3302919 | \$ 4.5901256 | \$ 5.3337963 | \$ 4.4486028 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | \$ 5.0400513 | \$ 4.9502335 | \$ 4.6617535 | \$ 5.2271876 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | \$ 5.3683222 | \$ 5.8611877 | \$ 4.7771578 | \$ 5.3307628 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | \$ 5.1751838 | \$ 5.7177405 | \$ 5.0694268 | \$ 5.4392988 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | \$ 4.5567057 | \$ 4.9229610 | \$ 5.4330646 | \$ 5.5008188 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | \$ 4.7270270 | \$ 4.8354467 | \$ 5.0861044 | \$ 4.2781145 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | \$ 4.6994542 | \$ 4.5924556 | \$ 4.9353624 | \$ 5.2317240 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | \$ 5.3669255 | \$ 4.7598968 | \$ 4.4529423 | \$ 5.6901029 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | \$ 4.9806295 | \$ 4.4648187 | \$ 4.2173128 | \$ 4.7140837 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | \$ 4.6140604 | \$ 5.0083893 | \$ 4.8593626 | \$ 3.9070841 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | \$ 4.9865618 | \$ 4.6018907 | \$ 5.1317978 | \$ 5.3696572 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | \$ 5.7665058 | \$ 5.4412681 | \$ 4.8245391 | \$ 4.8229397 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | \$ 5.4818428 | \$ 5.5800326 | \$ 4.5587957 | \$ 4.3476541 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | \$ 5.0215816 | \$ 4.9766080 | \$ 5.0160393 | \$ 5.2334639 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | \$ 5.4791510 | \$ 5.2127780 | \$ 5.2242746 | \$ 5.1924318 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | \$ 5.3862435 | \$ 5.3032821 | \$ 5.4577815 | \$ 4.7382338 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | \$ 5.3995850 | \$ 6.1416741 | \$ 5.3627501 | \$ 4.7767578 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | \$ 5.5256680 | \$ 4.5863524 | \$ 4.4452451 | \$ 5.6259643 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | \$ 4.5108000 | \$ 5.1232365 | \$ 4.9073178 | \$ 5.4633191 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | \$ 5.5657075 | \$ 4.6728777 | \$ 4.5471038 | \$ 4.9554377 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | \$ 5.3858975 | \$ 4.3424663 | \$ 4.6574682 | \$ 4.8169013 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | \$ 4.2395449 | \$ 5.4175601 | \$ 4.7384389 | \$ 5.3343158 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | \$ 5.1187587 | \$ 4.7354465 | \$ 5.4791300 | \$ 5.0965241 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | \$ 6.2444764 | \$ 5.8895927 | \$ 4.6368765 | \$ 5.1762426 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | \$ 5.4865579 | \$ 4.2927276 | \$ 5.5506372 | \$ 5.4440499 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | \$ 5.4256212 | \$ 5.1279318 | \$ 5.1482713 | \$ 5.1101540 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | \$ 4.8809491 | \$ 5.4927549 | \$ 5.4005794 | \$ 4.7254736 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | \$ 5.6332082 | \$ 4.5421829 | \$ 4.8219889 | \$ 5.0499912 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | \$ 5.2733125 | \$ 5.0719053 | \$ 4.6251737 | \$ 4.8334818 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | \$ 5.5338888 | \$ 4.9735678 | \$ 4.3004311 | \$ 4.3485152 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | \$ 5.6418406 | \$ 4.9501607 | \$ 5.5301496 | \$ 5.5859812 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | \$ 4.8219900 | \$ 5.1384806 | \$ 5.0176101 | \$ 5.5157144 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | \$ 5.8892667 | \$ 5.2566256 | \$ 4.3833923 | \$ 5.3459346 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | \$ 5.7057163 | \$ 5.0916268 | \$ 4.6049286 | \$ 4.7161515 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | \$ 5.0528181 | \$ 5.5427254 | \$ 4.3909543 | \$ 4.3947391 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | \$ 5.8568545 | \$ 4.9653164 | \$ 4.8663333 | \$ 5.6709489 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | \$ 5.4043821 | \$ 5.4895987 | \$ 4.5243333 | \$ 4.9175075 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | \$ 5.6889932 | \$ 5.5498836 | \$ 4.4255802 | \$ 4.7429175 |

2012 CNGC IRP

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

PAGE 16

| Data Item | Scenario | Draw | 2024 | 2025 | 2026 | 2027 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | \$ 5.3422068 | \$ 4.7485073 | \$ 4.5752983 | \$ 4.8830873 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | \$ 5.3486697 | \$ 5.1403399 | \$ 4.4043370 | \$ 5.5385872 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | \$ 4.7355765 | \$ 5.2209831 | \$ 4.7036991 | \$ 4.9219986 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | \$ 5.4229015 | \$ 4.3809847 | \$ 5.1936184 | \$ 4.4302925 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | \$ 5.6767987 | \$ 5.3165596 | \$ 5.8878844 | \$ 5.2535810 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | \$ 5.1658804 | \$ 4.7509761 | \$ 4.5336029 | \$ 5.3637601 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | \$ 4.5188676 | \$ 4.9030420 | \$ 5.0991528 | \$ 4.6368267 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | \$ 3.8858924 | \$ 4.6492663 | \$ 4.6210991 | \$ 5.5330605 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | \$ 4.9497007 | \$ 4.8323291 | \$ 5.0113226 | \$ 5.3628417 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | \$ 5.6154481 | \$ 5.7233367 | \$ 4.7928845 | \$ 4.6180702 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | \$ 4.5899828 | \$ 5.3971340 | \$ 4.9852195 | \$ 5.1156592 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | \$ 5.4065718 | \$ 3.8137024 | \$ 4.6765764 | \$ 5.9299921 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | \$ 5.6330848 | \$ 4.8505317 | \$ 5.6234483 | \$ 6.1461686 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | \$ 5.6523223 | \$ 4.5423051 | \$ 4.3554234 | \$ 5.2838212 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | \$ 4.7727618 | \$ 5.1416970 | \$ 4.8115000 | \$ 4.3914659 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | \$ 6.0001917 | \$ 4.7412406 | \$ 3.9142608 | \$ 5.1216388 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | \$ 4.7489352 | \$ 4.8651079 | \$ 4.8789121 | \$ 5.3952602 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | \$ 5.5601997 | \$ 4.8605111 | \$ 4.3719629 | \$ 5.1048567 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | \$ 5.7085845 | \$ 4.5932426 | \$ 4.0275638 | \$ 4.4205728 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | \$ 5.2562246 | \$ 5.1021004 | \$ 4.3187565 | \$ 4.9233033 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | \$ 5.1303627 | \$ 4.7698630 | \$ 4.9358791 | \$ 5.5673986 |
| | NYMEX | Max | \$ 6.3873727 | \$ 6.1416741 | \$ 6.0971176 | \$ 6.1461686 |
| | | Min | \$ 3.8858924 | \$ 3.7722696 | \$ 3.5758172 | \$ 3.9070841 |
| | | avg | \$ 5.3376810 | \$ 4.9876157 | \$ 4.8680125 | \$ 5.0651396 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | \$ 5.0992219 | \$ 5.0245657 | \$ 5.1443024 | \$ 5.3158669 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | \$ 5.3471040 | \$ 4.8411556 | \$ 4.1515581 | \$ 5.5959756 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | \$ 4.1647266 | \$ 4.9850945 | \$ 5.0644365 | \$ 6.0637113 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | \$ 5.3849663 | \$ 5.0315701 | \$ 5.1256992 | \$ 4.6362180 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | \$ 4.8886346 | \$ 4.9429969 | \$ 5.6058087 | \$ 4.8242795 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | \$ 5.6067578 | \$ 4.1799115 | \$ 4.3285565 | \$ 5.2409596 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | \$ 5.7424624 | \$ 5.7546670 | \$ 5.2208641 | \$ 4.9153207 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | \$ 5.4286101 | \$ 5.1486932 | \$ 4.7407520 | \$ 5.5625204 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | \$ 4.4898211 | \$ 4.8369979 | \$ 4.9343176 | \$ 5.1436904 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | \$ 5.3497346 | \$ 5.4235275 | \$ 5.0601736 | \$ 5.9093833 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | \$ 5.3718728 | \$ 4.0549058 | \$ 4.9745862 | \$ 6.4667268 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | \$ 5.4262317 | \$ 4.9542432 | \$ 5.3438355 | \$ 4.8302056 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | \$ 5.4624397 | \$ 5.2712156 | \$ 6.4505389 | \$ 4.9629105 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | \$ 6.2057147 | \$ 5.6527578 | \$ 5.4604622 | \$ 5.5235468 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | \$ 5.4482082 | \$ 4.7148731 | \$ 4.9850150 | \$ 5.1488098 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | \$ 4.9734673 | \$ 4.5931643 | \$ 4.9209241 | \$ 5.2537416 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | \$ 4.8606928 | \$ 5.0175521 | \$ 4.9562388 | \$ 5.6045181 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | \$ 5.5400738 | \$ 4.3773258 | \$ 4.6366466 | \$ 5.5803385 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | \$ 5.8289755 | \$ 5.1090230 | \$ 4.7120890 | \$ 4.9829082 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | \$ 4.8311336 | \$ 4.7580783 | \$ 5.2135138 | \$ 4.8918221 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | \$ 6.4248929 | \$ 5.5060416 | \$ 5.3647705 | \$ 5.7210113 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | \$ 4.8678509 | \$ 5.2898320 | \$ 4.9347596 | \$ 4.7401704 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | \$ 4.8730425 | \$ 5.9318863 | \$ 5.6598977 | \$ 5.2524087 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | \$ 5.5948881 | \$ 4.4855025 | \$ 5.3834607 | \$ 5.5656375 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | \$ 4.8161241 | \$ 5.3280055 | \$ 4.2196511 | \$ 5.6173421 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | \$ 5.1771550 | \$ 5.4170036 | \$ 5.1383937 | \$ 5.9369503 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | \$ 4.9745903 | \$ 5.4369182 | \$ 5.2381940 | \$ 6.0327795 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | \$ 4.8540483 | \$ 5.9650238 | \$ 4.7428461 | \$ 4.6304225 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | \$ 5.4677480 | \$ 5.6163441 | \$ 6.0758439 | \$ 5.1136206 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | \$ 4.6363487 | \$ 5.1803360 | \$ 4.7741013 | \$ 5.6343137 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | \$ 5.7547039 | \$ 4.7643532 | \$ 5.9278745 | \$ 5.4843390 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | \$ 5.2194342 | \$ 5.1618352 | \$ 5.4804593 | \$ 6.2744392 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | \$ 4.8858291 | \$ 5.1578245 | \$ 4.7692388 | \$ 5.5083138 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | \$ 5.0061123 | \$ 5.9343173 | \$ 5.7852086 | \$ 5.1868538 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | \$ 5.8236647 | \$ 4.7570677 | \$ 4.8796790 | \$ 5.0669533 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | \$ 5.3336922 | \$ 4.6447496 | \$ 6.2322262 | \$ 5.6744240 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | \$ 5.9255189 | \$ 5.3126003 | \$ 5.0114381 | \$ 5.5213663 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | \$ 4.6476146 | \$ 5.3064211 | \$ 5.3991589 | \$ 5.5879155 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | \$ 5.0230635 | \$ 5.0837490 | \$ 5.1234051 | \$ 5.6726118 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | \$ 5.6988369 | \$ 5.5648440 | \$ 6.2301981 | \$ 5.5591086 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | \$ 5.6697357 | \$ 5.0495748 | \$ 5.2804382 | \$ 4.8416001 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | \$ 5.6759992 | \$ 5.5141503 | \$ 4.5932406 | \$ 5.4906120 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | \$ 5.0295741 | \$ 4.8228157 | \$ 5.3560666 | \$ 4.4410013 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | \$ 4.4640031 | \$ 4.9936999 | \$ 5.4518024 | \$ 4.9373129 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | \$ 4.9970799 | \$ 5.4177294 | \$ 5.0933201 | \$ 4.8139091 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | \$ 4.9070579 | \$ 4.6032430 | \$ 4.7260689 | \$ 5.2901381 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | \$ 5.0930997 | \$ 4.6463559 | \$ 4.7697810 | \$ 5.4813430 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | \$ 4.6244419 | \$ 5.6497312 | \$ 5.0204365 | \$ 5.5043291 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | \$ 5.8366863 | \$ 4.9689858 | \$ 5.0324114 | \$ 5.7588284 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | \$ 4.3145422 | \$ 4.8367611 | \$ 5.0187726 | \$ 5.0488686 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | \$ 5.3350639 | \$ 4.5195391 | \$ 4.9689548 | \$ 4.9290388 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | \$ 4.8526125 | \$ 4.8415550 | \$ 5.1023006 | \$ 5.3002076 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | \$ 5.0053695 | \$ 4.8005000 | \$ 5.0912891 | \$ 5.1564681 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | \$ 4.7234067 | \$ 5.8364762 | \$ 4.7281277 | \$ 5.8823303 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | \$ 4.9605601 | \$ 4.4222202 | \$ 5.7606527 | \$ 5.5126613 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | \$ 6.2206281 | \$ 4.1997214 | \$ 5.0770364 | \$ 5.0084219 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | \$ 4.6940097 | \$ 4.3659929 | \$ 4.7908617 | \$ 5.3390575 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | \$ 4.7913209 | \$ 5.2529522 | \$ 5.3730212 | \$ 5.5505422 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | \$ 4.8581005 | \$ 4.7799626 | \$ 5.5027862 | \$ 5.4815364 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | \$ 5.5515982 | \$ 5.1003795 | \$ 4.8821838 | \$ 5.1439611 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | \$ 3.9082506 | \$ 5.5144627 | \$ 4.5898618 | \$ 5.3541770 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | \$ 5.4517927 | \$ 4.9063169 | \$ 5.6541394 | \$ 5.3746501 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | \$ 5.3216583 | \$ 5.2907356 | \$ 5.4332932 | \$ 5.8929147 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | \$ 5.3053208 | \$ 4.9769052 | \$ 5.4119151 | \$ 6.3620740 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | \$ 5.0468354 | \$ 3.9089436 | \$ 5.2676889 | \$ 5.4257567 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | \$ 5.4011562 | \$ 4.1556449 | \$ 5.2337228 | \$ 5.2945053 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | \$ 5.4015655 | \$ 5.1420202 | \$ 5.3580542 | \$ 5.0537045 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | \$ 5.2976507 | \$ 4.7499814 | \$ 5.4575880 | \$ 5.5220826 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | \$ 5.5562612 | \$ 4.9652904 | \$ 5.1178876 | \$ 5.8513182 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | \$ 4.9065271 | \$ 5.2843692 | \$ 5.5038964 | \$ 4.7455317 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | \$ 4.3238621 | \$ 4.8251646 | \$ 5.9290306 | \$ 4.1207373 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | \$ 5.2448603 | \$ 5.1760168 | \$ 5.5629383 | \$ 5.3401438 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | \$ 5.8742811 | \$ 5.1630380 | \$ 4.5847502 | \$ 5.7982677 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | \$ 4.5890871 | \$ 4.7316204 | \$ 5.0428815 | \$ 5.1117616 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | \$ 4.4534483 | \$ 5.2487308 | \$ 5.0199668 | \$ 4.9673309 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | \$ 5.5498867 | \$ 5.5199023 | \$ 4.7821614 | \$ 5.0648720 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | \$ 4.9109983 | \$ 5.0672301 | \$ 5.1599776 | \$ 5.6906923 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | \$ 5.1232093 | \$ 4.6944923 | \$ 5.1896710 | \$ 5.5150378 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | \$ 4.9465395 | \$ 4.8368177 | \$ 5.7110859 | \$ 5.7393698 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | \$ 5.0415661 | \$ 5.8800505 | \$ 4.7495003 | \$ 5.7286412 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | \$ 6.4008987 | \$ 5.3072981 | \$ 5.4277067 | \$ 5.6486022 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | \$ 4.7724812 | \$ 4.4484130 | \$ 5.1713192 | \$ 5.3312665 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | \$ 4.7891980 | \$ 4.9108886 | \$ 5.2709968 | \$ 5.0591109 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | \$ 5.6775214 | \$ 5.5210055 | \$ 5.5465324 | \$ 6.0420251 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | \$ 5.2977802 | \$ 4.6115557 | \$ 4.8542307 | \$ 5.3088741 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | \$ 4.5467445 | \$ 4.8358469 | \$ 4.9835025 | \$ 5.6226071 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | \$ 5.3346619 | \$ 4.7716944 | \$ 5.7395369 | \$ 4.9442384 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | \$ 5.7041715 | \$ 5.7792527 | \$ 5.4424916 | \$ 5.1588495 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | \$ 4.6080550 | \$ 5.8141207 | \$ 4.7159634 | \$ 5.2474196 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | \$ 6.0689714 | \$ 4.7366243 | \$ 5.2593297 | \$ 6.0069231 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | \$ 5.2545840 | \$ 4.9741906 | \$ 4.3470886 | \$ 5.7793817 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | \$ 5.5102992 | \$ 5.3280625 | \$ 5.6377700 | \$ 5.6687352 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | \$ 5.2507397 | \$ 4.8750237 | \$ 5.3347852 | \$ 5.9083238 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | \$ 5.2277687 | \$ 5.6553018 | \$ 5.2110356 | \$ 5.1496554 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | \$ 5.3803814 | \$ 4.5315789 | \$ 5.2642853 | \$ 5.0186320 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | \$ 5.4063646 | \$ 5.8292118 | \$ 4.4336432 | \$ 4.8764885 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | \$ 5.1429993 | \$ 5.6106206 | \$ 5.4271280 | \$ 5.9237047 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | \$ 5.0995857 | \$ 4.2696375 | \$ 4.7085054 | \$ 5.9491787 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | \$ 4.9137408 | \$ 4.9295943 | \$ 4.8112128 | \$ 5.5842725 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | \$ 4.5010408 | \$ 4.6948075 | \$ 4.9594835 | \$ 5.6058623 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | \$ 5.3189279 | \$ 4.8611448 | \$ 4.7225355 | \$ 4.4462095 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | \$ 5.2802733 | \$ 5.1397786 | \$ 4.6450297 | \$ 4.7702602 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | \$ 4.3464067 | \$ 4.8261407 | \$ 4.8956941 | \$ 5.5206354 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | \$ 5.7552274 | \$ 5.5185830 | \$ 5.1858298 | \$ 6.6436849 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | \$ 5.6722096 | \$ 5.2270207 | \$ 5.2632636 | \$ 5.0454128 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | \$ 5.0139796 | \$ 4.4651179 | \$ 5.4752520 | \$ 4.8970506 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | \$ 5.1408395 | \$ 5.4825352 | \$ 4.6313742 | \$ 5.6628796 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | \$ 5.1389824 | \$ 4.9853044 | \$ 5.0230500 | \$ 4.6533580 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | \$ 5.1070468 | \$ 5.2181766 | \$ 5.2148066 | \$ 4.5248242 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | \$ 5.0933335 | \$ 4.7210287 | \$ 4.8334705 | \$ 5.0334446 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | \$ 4.4500998 | \$ 4.4276328 | \$ 5.1686857 | \$ 5.5096676 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | \$ 5.3124394 | \$ 5.2254720 | \$ 5.5272519 | \$ 5.6797562 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | \$ 4.7980619 | \$ 5.4278245 | \$ 4.5415119 | \$ 5.2667208 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | \$ 4.8967429 | \$ 4.0722826 | \$ 4.2216942 | \$ 5.6859491 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | \$ 5.1173110 | \$ 4.7841230 | \$ 5.9888257 | \$ 5.2251983 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | \$ 4.5131223 | \$ 5.1901825 | \$ 4.7467624 | \$ 4.9561584 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | \$ 5.3766958 | \$ 4.8449741 | \$ 4.5519770 | \$ 5.4688522 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | \$ 4.9637303 | \$ 4.7784024 | \$ 4.4627478 | \$ 5.5358385 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | \$ 5.3196258 | \$ 4.5145003 | \$ 5.9834671 | \$ 5.8089671 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | \$ 5.2458521 | \$ 4.8534548 | \$ 4.6262656 | \$ 6.4199818 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | \$ 4.7268215 | \$ 5.0394802 | \$ 6.3096480 | \$ 6.4087060 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | \$ 5.1724572 | \$ 5.2019182 | \$ 5.2642155 | \$ 4.3745795 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | \$ 5.7986279 | \$ 4.6154198 | \$ 4.6277379 | \$ 6.2980898 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | \$ 4.7677808 | \$ 5.0228045 | \$ 5.7673016 | \$ 5.0773388 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | \$ 5.4990764 | \$ 4.6219897 | \$ 5.0987827 | \$ 6.1224439 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | \$ 4.6464496 | \$ 5.2982126 | \$ 5.3330670 | \$ 5.7231321 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | \$ 3.8801090 | \$ 4.2437314 | \$ 4.8610502 | \$ 4.8962955 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | \$ 5.7190876 | \$ 4.9694791 | \$ 4.7047589 | \$ 4.8631309 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | \$ 5.4737621 | \$ 4.7887904 | \$ 5.1737297 | \$ 5.4708739 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | \$ 5.3339593 | \$ 4.8833606 | \$ 4.6940291 | \$ 5.6571833 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | \$ 5.1709150 | \$ 4.7573325 | \$ 6.0514462 | \$ 5.0428296 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | \$ 4.7700924 | \$ 4.3056015 | \$ 4.9536436 | \$ 5.1553683 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | \$ 5.2746067 | \$ 4.2739828 | \$ 5.5073100 | \$ 5.8864591 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | \$ 5.3334591 | \$ 4.9946324 | \$ 5.4804917 | \$ 5.6866540 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | \$ 4.7254948 | \$ 4.8523432 | \$ 4.6158233 | \$ 5.1586272 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | \$ 4.9280555 | \$ 5.5804517 | \$ 5.5683405 | \$ 5.7775816 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | \$ 5.2457870 | \$ 5.4323856 | \$ 5.5300136 | \$ 5.6732224 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | \$ 4.9943800 | \$ 5.0301537 | \$ 5.1647795 | \$ 6.1469571 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | \$ 4.9005345 | \$ 4.5864174 | \$ 5.4234067 | \$ 4.8230989 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | \$ 4.4674666 | \$ 4.6520692 | \$ 5.5230520 | \$ 4.7645944 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | \$ 5.5235697 | \$ 5.0625591 | \$ 5.2155616 | \$ 4.8240704 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | \$ 5.3390590 | \$ 6.0124382 | \$ 5.4892521 | \$ 5.3628294 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | \$ 4.9930009 | \$ 4.2656920 | \$ 4.8627908 | \$ 5.4392368 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | \$ 5.0189657 | \$ 4.5653799 | \$ 5.1133663 | \$ 5.3163697 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | \$ 5.8176219 | \$ 5.2875520 | \$ 4.9210055 | \$ 5.1119966 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | \$ 5.4987064 | \$ 5.3435598 | \$ 5.1258858 | \$ 5.3765109 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | \$ 5.0900893 | \$ 4.7339638 | \$ 5.0580783 | \$ 5.0955157 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | \$ 4.9093137 | \$ 4.8666449 | \$ 5.5801263 | \$ 5.7706469 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | \$ 5.2287413 | \$ 5.2918968 | \$ 5.4587445 | \$ 5.9822814 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | \$ 4.8414920 | \$ 5.2531898 | \$ 5.2860606 | \$ 5.4636924 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | \$ 5.0133088 | \$ 5.0416176 | \$ 4.9639635 | \$ 4.6914968 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | \$ 4.8941559 | \$ 4.6230641 | \$ 5.2706886 | \$ 4.8929816 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | \$ 4.8121899 | \$ 4.1802493 | \$ 5.0144393 | \$ 5.6682941 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | \$ 4.7490472 | \$ 5.1406649 | \$ 5.3669401 | \$ 5.8893059 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | \$ 5.3775374 | \$ 5.3714845 | \$ 4.3150108 | \$ 4.8341161 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | \$ 5.6043624 | \$ 5.7050003 | \$ 5.8345690 | \$ 5.0162841 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | \$ 5.4788943 | \$ 5.2308287 | \$ 5.0799661 | \$ 4.6260180 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | \$ 5.2301960 | \$ 5.2169262 | \$ 5.3442701 | \$ 5.5469373 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | \$ 5.0816713 | \$ 4.7883082 | \$ 5.2068672 | \$ 5.6029732 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | \$ 5.0427200 | \$ 5.1011507 | \$ 5.2514965 | \$ 5.0613241 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | \$ 4.7933275 | \$ 4.9418632 | \$ 5.1959921 | \$ 5.5446921 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | \$ 5.5044818 | \$ 4.7788820 | \$ 4.5628647 | \$ 4.9874802 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | \$ 5.2532544 | \$ 4.9524500 | \$ 4.7384395 | \$ 4.9638146 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | \$ 5.7997914 | \$ 5.6589532 | \$ 5.1073736 | \$ 5.5628406 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | \$ 5.0261579 | \$ 5.1482100 | \$ 5.3671053 | \$ 6.3621230 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | \$ 4.5342586 | \$ 5.3517292 | \$ 5.1788001 | \$ 4.5743504 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | \$ 5.4509645 | \$ 5.3738663 | \$ 5.2196840 | \$ 5.0384156 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | \$ 5.1148142 | \$ 5.4922342 | \$ 5.1378537 | \$ 5.4193338 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | \$ 4.5454511 | \$ 4.7286552 | \$ 5.1473836 | \$ 4.9692824 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | \$ 5.4643613 | \$ 4.6214585 | \$ 5.2782964 | \$ 5.6004527 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | \$ 5.5727225 | \$ 5.1688483 | \$ 5.7545679 | \$ 5.8193311 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | \$ 4.7686386 | \$ 4.5740061 | \$ 4.5255556 | \$ 5.8228189 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | \$ 4.4784356 | \$ 4.7453933 | \$ 5.0600031 | \$ 5.9815630 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | \$ 4.7821862 | \$ 5.4626338 | \$ 4.8678130 | \$ 6.5435654 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | \$ 5.5318874 | \$ 4.9222228 | \$ 5.6742443 | \$ 4.5669182 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | \$ 4.6823037 | \$ 4.5413752 | \$ 4.6391846 | \$ 5.7109170 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | \$ 4.7251430 | \$ 4.6411791 | \$ 4.8629843 | \$ 5.1395327 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | \$ 5.2536956 | \$ 5.2076163 | \$ 5.0408858 | \$ 5.7979214 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | \$ 6.0517389 | \$ 4.9044568 | \$ 5.5195084 | \$ 4.8114620 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | \$ 4.8564238 | \$ 5.0876193 | \$ 5.4740281 | \$ 5.1726948 |

2012 CNGC IRP

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

PAGE 20

| Data Item | Scenario | Draw | 2028 | 2029 | 2030 | 2031 |
|-------------------------------|-------------------|------|--------------|--------------|--------------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | \$ 5.1156662 | \$ 5.2486544 | \$ 4.9470453 | \$ 5.0370093 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | \$ 5.6199100 | \$ 5.2243018 | \$ 5.6673796 | \$ 5.3694836 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | \$ 5.4309286 | \$ 6.0418556 | \$ 4.8200590 | \$ 5.4060026 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | \$ 4.7203058 | \$ 5.5227082 | \$ 5.1816449 | \$ 5.6701389 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | \$ 5.9315493 | \$ 4.9321383 | \$ 5.0429056 | \$ 4.7491258 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | \$ 4.7342697 | \$ 5.2414231 | \$ 5.1314167 | \$ 5.0821100 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | \$ 5.4473250 | \$ 4.9575558 | \$ 5.7374903 | \$ 5.6270534 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | \$ 5.0107788 | \$ 4.7957377 | \$ 4.7852281 | \$ 5.5250850 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | \$ 4.5962286 | \$ 4.9281688 | \$ 4.4697738 | \$ 5.1044375 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | \$ 5.1339013 | \$ 4.8077198 | \$ 4.7709758 | \$ 4.7735890 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | \$ 5.2172374 | \$ 4.8056020 | \$ 4.9337308 | \$ 4.7690233 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | \$ 6.0038462 | \$ 4.6787487 | \$ 4.7392736 | \$ 5.0454135 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | \$ 5.9250149 | \$ 4.9301038 | \$ 4.8450554 | \$ 5.4866978 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | \$ 5.0952387 | \$ 5.4513321 | \$ 5.9188911 | \$ 5.8327701 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | \$ 6.3510304 | \$ 5.5042813 | \$ 4.5625988 | \$ 5.1893722 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | \$ 5.1212756 | \$ 4.8014559 | \$ 4.9429091 | \$ 5.8077675 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | \$ 5.6054450 | \$ 5.0639720 | \$ 4.6447165 | \$ 5.7070459 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | \$ 5.4749106 | \$ 5.3510013 | \$ 5.1130018 | \$ 5.4635954 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | \$ 5.6991302 | \$ 5.2159059 | \$ 5.3892087 | \$ 5.1222517 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | \$ 4.6326111 | \$ 5.3009553 | \$ 5.2639041 | \$ 5.3323619 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | \$ 5.0629470 | \$ 5.1576800 | \$ 4.3652169 | \$ 5.8525804 |
| | NYMEX | Max | \$ 6.4248929 | \$ 6.0418556 | \$ 6.4505389 | \$ 6.5435654 |
| | | Min | \$ 3.8801090 | \$ 3.9089436 | \$ 4.1515581 | \$ 4.1207373 |
| | | avg | \$ 5.1692924 | \$ 5.0232429 | \$ 5.1396457 | \$ 5.3664789 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 0 | \$ 5.4254707 |
| First of Month Value by Index | 2012 IRP Basecase | 1 | \$ 5.6579355 |
| First of Month Value by Index | 2012 IRP Basecase | 2 | \$ 5.2674998 |
| First of Month Value by Index | 2012 IRP Basecase | 3 | \$ 6.3961830 |
| First of Month Value by Index | 2012 IRP Basecase | 4 | \$ 5.2731069 |
| First of Month Value by Index | 2012 IRP Basecase | 5 | \$ 4.7389239 |
| First of Month Value by Index | 2012 IRP Basecase | 6 | \$ 5.6202894 |
| First of Month Value by Index | 2012 IRP Basecase | 7 | \$ 5.3976930 |
| First of Month Value by Index | 2012 IRP Basecase | 8 | \$ 5.2916284 |
| First of Month Value by Index | 2012 IRP Basecase | 9 | \$ 5.0837000 |
| First of Month Value by Index | 2012 IRP Basecase | 10 | \$ 5.2565215 |
| First of Month Value by Index | 2012 IRP Basecase | 11 | \$ 5.1045437 |
| First of Month Value by Index | 2012 IRP Basecase | 12 | \$ 5.8865999 |
| First of Month Value by Index | 2012 IRP Basecase | 13 | \$ 5.4974704 |
| First of Month Value by Index | 2012 IRP Basecase | 14 | \$ 5.3268851 |
| First of Month Value by Index | 2012 IRP Basecase | 15 | \$ 5.5908964 |
| First of Month Value by Index | 2012 IRP Basecase | 16 | \$ 6.0252190 |
| First of Month Value by Index | 2012 IRP Basecase | 17 | \$ 6.4665707 |
| First of Month Value by Index | 2012 IRP Basecase | 18 | \$ 5.5837815 |
| First of Month Value by Index | 2012 IRP Basecase | 19 | \$ 6.1353616 |
| First of Month Value by Index | 2012 IRP Basecase | 20 | \$ 6.1895069 |
| First of Month Value by Index | 2012 IRP Basecase | 21 | \$ 4.8841665 |
| First of Month Value by Index | 2012 IRP Basecase | 22 | \$ 5.7260421 |
| First of Month Value by Index | 2012 IRP Basecase | 23 | \$ 5.7823654 |
| First of Month Value by Index | 2012 IRP Basecase | 24 | \$ 4.9378574 |
| First of Month Value by Index | 2012 IRP Basecase | 25 | \$ 5.1867884 |
| First of Month Value by Index | 2012 IRP Basecase | 26 | \$ 5.3784754 |
| First of Month Value by Index | 2012 IRP Basecase | 27 | \$ 5.6340217 |
| First of Month Value by Index | 2012 IRP Basecase | 28 | \$ 5.5707072 |
| First of Month Value by Index | 2012 IRP Basecase | 29 | \$ 5.0423079 |
| First of Month Value by Index | 2012 IRP Basecase | 30 | \$ 5.2965740 |
| First of Month Value by Index | 2012 IRP Basecase | 31 | \$ 5.4414516 |
| First of Month Value by Index | 2012 IRP Basecase | 32 | \$ 5.4883117 |
| First of Month Value by Index | 2012 IRP Basecase | 33 | \$ 5.2398249 |
| First of Month Value by Index | 2012 IRP Basecase | 34 | \$ 5.5141545 |
| First of Month Value by Index | 2012 IRP Basecase | 35 | \$ 5.4153722 |
| First of Month Value by Index | 2012 IRP Basecase | 36 | \$ 6.0353972 |
| First of Month Value by Index | 2012 IRP Basecase | 37 | \$ 5.3994149 |
| First of Month Value by Index | 2012 IRP Basecase | 38 | \$ 6.1853943 |
| First of Month Value by Index | 2012 IRP Basecase | 39 | \$ 5.2166828 |
| First of Month Value by Index | 2012 IRP Basecase | 40 | \$ 6.3804446 |
| First of Month Value by Index | 2012 IRP Basecase | 41 | \$ 5.0129350 |
| First of Month Value by Index | 2012 IRP Basecase | 42 | \$ 4.9394421 |
| First of Month Value by Index | 2012 IRP Basecase | 43 | \$ 5.6186358 |
| First of Month Value by Index | 2012 IRP Basecase | 44 | \$ 4.8050879 |
| First of Month Value by Index | 2012 IRP Basecase | 45 | \$ 5.2471397 |
| First of Month Value by Index | 2012 IRP Basecase | 46 | \$ 6.5826593 |
| First of Month Value by Index | 2012 IRP Basecase | 47 | \$ 6.1545904 |
| First of Month Value by Index | 2012 IRP Basecase | 48 | \$ 5.1657030 |
| First of Month Value by Index | 2012 IRP Basecase | 49 | \$ 5.6509495 |
| First of Month Value by Index | 2012 IRP Basecase | 50 | \$ 5.5214016 |
| First of Month Value by Index | 2012 IRP Basecase | 51 | \$ 5.2329625 |
| First of Month Value by Index | 2012 IRP Basecase | 52 | \$ 5.6533241 |
| First of Month Value by Index | 2012 IRP Basecase | 53 | \$ 5.8514155 |
| First of Month Value by Index | 2012 IRP Basecase | 54 | \$ 4.7843559 |
| First of Month Value by Index | 2012 IRP Basecase | 55 | \$ 4.6454820 |
| First of Month Value by Index | 2012 IRP Basecase | 56 | \$ 5.0958197 |
| First of Month Value by Index | 2012 IRP Basecase | 57 | \$ 5.2597835 |
| First of Month Value by Index | 2012 IRP Basecase | 58 | \$ 5.5848303 |
| First of Month Value by Index | 2012 IRP Basecase | 59 | \$ 5.4046538 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 60 | \$ 5.3261295 |
| First of Month Value by Index | 2012 IRP Basecase | 61 | \$ 5.5855500 |
| First of Month Value by Index | 2012 IRP Basecase | 62 | \$ 4.6698645 |
| First of Month Value by Index | 2012 IRP Basecase | 63 | \$ 5.6501831 |
| First of Month Value by Index | 2012 IRP Basecase | 64 | \$ 5.6187439 |
| First of Month Value by Index | 2012 IRP Basecase | 65 | \$ 5.1974262 |
| First of Month Value by Index | 2012 IRP Basecase | 66 | \$ 5.5344427 |
| First of Month Value by Index | 2012 IRP Basecase | 67 | \$ 5.8426345 |
| First of Month Value by Index | 2012 IRP Basecase | 68 | \$ 5.9854820 |
| First of Month Value by Index | 2012 IRP Basecase | 69 | \$ 5.4209889 |
| First of Month Value by Index | 2012 IRP Basecase | 70 | \$ 5.0027070 |
| First of Month Value by Index | 2012 IRP Basecase | 71 | \$ 5.3035799 |
| First of Month Value by Index | 2012 IRP Basecase | 72 | \$ 5.5010852 |
| First of Month Value by Index | 2012 IRP Basecase | 73 | \$ 5.5299926 |
| First of Month Value by Index | 2012 IRP Basecase | 74 | \$ 5.5125868 |
| First of Month Value by Index | 2012 IRP Basecase | 75 | \$ 6.0044229 |
| First of Month Value by Index | 2012 IRP Basecase | 76 | \$ 5.9999799 |
| First of Month Value by Index | 2012 IRP Basecase | 77 | \$ 4.9021641 |
| First of Month Value by Index | 2012 IRP Basecase | 78 | \$ 6.3808426 |
| First of Month Value by Index | 2012 IRP Basecase | 79 | \$ 4.6915468 |
| First of Month Value by Index | 2012 IRP Basecase | 80 | \$ 5.0030810 |
| First of Month Value by Index | 2012 IRP Basecase | 81 | \$ 6.1006237 |
| First of Month Value by Index | 2012 IRP Basecase | 82 | \$ 5.7818920 |
| First of Month Value by Index | 2012 IRP Basecase | 83 | \$ 5.3908537 |
| First of Month Value by Index | 2012 IRP Basecase | 84 | \$ 4.9678937 |
| First of Month Value by Index | 2012 IRP Basecase | 85 | \$ 5.4274351 |
| First of Month Value by Index | 2012 IRP Basecase | 86 | \$ 6.2217098 |
| First of Month Value by Index | 2012 IRP Basecase | 87 | \$ 5.4771460 |
| First of Month Value by Index | 2012 IRP Basecase | 88 | \$ 5.3717070 |
| First of Month Value by Index | 2012 IRP Basecase | 89 | \$ 5.7636252 |
| First of Month Value by Index | 2012 IRP Basecase | 90 | \$ 5.5149742 |
| First of Month Value by Index | 2012 IRP Basecase | 91 | \$ 5.4710535 |
| First of Month Value by Index | 2012 IRP Basecase | 92 | \$ 5.4781494 |
| First of Month Value by Index | 2012 IRP Basecase | 93 | \$ 5.2179528 |
| First of Month Value by Index | 2012 IRP Basecase | 94 | \$ 6.3623611 |
| First of Month Value by Index | 2012 IRP Basecase | 95 | \$ 5.9419329 |
| First of Month Value by Index | 2012 IRP Basecase | 96 | \$ 5.6825751 |
| First of Month Value by Index | 2012 IRP Basecase | 97 | \$ 5.7928648 |
| First of Month Value by Index | 2012 IRP Basecase | 98 | \$ 5.9138799 |
| First of Month Value by Index | 2012 IRP Basecase | 99 | \$ 5.6839544 |
| First of Month Value by Index | 2012 IRP Basecase | 100 | \$ 5.3193534 |
| First of Month Value by Index | 2012 IRP Basecase | 101 | \$ 5.1169072 |
| First of Month Value by Index | 2012 IRP Basecase | 102 | \$ 4.3159823 |
| First of Month Value by Index | 2012 IRP Basecase | 103 | \$ 6.4807743 |
| First of Month Value by Index | 2012 IRP Basecase | 104 | \$ 5.3767309 |
| First of Month Value by Index | 2012 IRP Basecase | 105 | \$ 5.4413348 |
| First of Month Value by Index | 2012 IRP Basecase | 106 | \$ 5.1766690 |
| First of Month Value by Index | 2012 IRP Basecase | 107 | \$ 5.9869736 |
| First of Month Value by Index | 2012 IRP Basecase | 108 | \$ 6.3108626 |
| First of Month Value by Index | 2012 IRP Basecase | 109 | \$ 5.8848150 |
| First of Month Value by Index | 2012 IRP Basecase | 110 | \$ 5.0556346 |
| First of Month Value by Index | 2012 IRP Basecase | 111 | \$ 5.4994816 |
| First of Month Value by Index | 2012 IRP Basecase | 112 | \$ 5.5494505 |
| First of Month Value by Index | 2012 IRP Basecase | 113 | \$ 6.0386167 |
| First of Month Value by Index | 2012 IRP Basecase | 114 | \$ 5.5941569 |
| First of Month Value by Index | 2012 IRP Basecase | 115 | \$ 5.6685104 |
| First of Month Value by Index | 2012 IRP Basecase | 116 | \$ 5.3677129 |
| First of Month Value by Index | 2012 IRP Basecase | 117 | \$ 5.6725795 |
| First of Month Value by Index | 2012 IRP Basecase | 118 | \$ 5.7429780 |
| First of Month Value by Index | 2012 IRP Basecase | 119 | \$ 5.2328837 |

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 120 | \$ 5.1094411 |
| First of Month Value by Index | 2012 IRP Basecase | 121 | \$ 5.4007239 |
| First of Month Value by Index | 2012 IRP Basecase | 122 | \$ 5.6282117 |
| First of Month Value by Index | 2012 IRP Basecase | 123 | \$ 4.3756327 |
| First of Month Value by Index | 2012 IRP Basecase | 124 | \$ 6.1914975 |
| First of Month Value by Index | 2012 IRP Basecase | 125 | \$ 5.8078148 |
| First of Month Value by Index | 2012 IRP Basecase | 126 | \$ 5.7875591 |
| First of Month Value by Index | 2012 IRP Basecase | 127 | \$ 5.7107378 |
| First of Month Value by Index | 2012 IRP Basecase | 128 | \$ 5.7556789 |
| First of Month Value by Index | 2012 IRP Basecase | 129 | \$ 5.1444016 |
| First of Month Value by Index | 2012 IRP Basecase | 130 | \$ 5.5357724 |
| First of Month Value by Index | 2012 IRP Basecase | 131 | \$ 5.4010820 |
| First of Month Value by Index | 2012 IRP Basecase | 132 | \$ 5.6954788 |
| First of Month Value by Index | 2012 IRP Basecase | 133 | \$ 5.5323853 |
| First of Month Value by Index | 2012 IRP Basecase | 134 | \$ 4.8458508 |
| First of Month Value by Index | 2012 IRP Basecase | 135 | \$ 5.6210389 |
| First of Month Value by Index | 2012 IRP Basecase | 136 | \$ 5.0888299 |
| First of Month Value by Index | 2012 IRP Basecase | 137 | \$ 5.6067773 |
| First of Month Value by Index | 2012 IRP Basecase | 138 | \$ 5.3838476 |
| First of Month Value by Index | 2012 IRP Basecase | 139 | \$ 5.7379515 |
| First of Month Value by Index | 2012 IRP Basecase | 140 | \$ 5.3606328 |
| First of Month Value by Index | 2012 IRP Basecase | 141 | \$ 5.6332346 |
| First of Month Value by Index | 2012 IRP Basecase | 142 | \$ 4.8915515 |
| First of Month Value by Index | 2012 IRP Basecase | 143 | \$ 5.3049890 |
| First of Month Value by Index | 2012 IRP Basecase | 144 | \$ 5.1787225 |
| First of Month Value by Index | 2012 IRP Basecase | 145 | \$ 5.3477083 |
| First of Month Value by Index | 2012 IRP Basecase | 146 | \$ 5.5109690 |
| First of Month Value by Index | 2012 IRP Basecase | 147 | \$ 5.3212686 |
| First of Month Value by Index | 2012 IRP Basecase | 148 | \$ 5.4515918 |
| First of Month Value by Index | 2012 IRP Basecase | 149 | \$ 5.4242341 |
| First of Month Value by Index | 2012 IRP Basecase | 150 | \$ 5.4832172 |
| First of Month Value by Index | 2012 IRP Basecase | 151 | \$ 6.1359678 |
| First of Month Value by Index | 2012 IRP Basecase | 152 | \$ 4.8154739 |
| First of Month Value by Index | 2012 IRP Basecase | 153 | \$ 4.8634792 |
| First of Month Value by Index | 2012 IRP Basecase | 154 | \$ 5.3925426 |
| First of Month Value by Index | 2012 IRP Basecase | 155 | \$ 5.8035586 |
| First of Month Value by Index | 2012 IRP Basecase | 156 | \$ 5.5571466 |
| First of Month Value by Index | 2012 IRP Basecase | 157 | \$ 6.3000073 |
| First of Month Value by Index | 2012 IRP Basecase | 158 | \$ 5.6039650 |
| First of Month Value by Index | 2012 IRP Basecase | 159 | \$ 5.8745113 |
| First of Month Value by Index | 2012 IRP Basecase | 160 | \$ 5.2769704 |
| First of Month Value by Index | 2012 IRP Basecase | 161 | \$ 5.6430252 |
| First of Month Value by Index | 2012 IRP Basecase | 162 | \$ 4.7789647 |
| First of Month Value by Index | 2012 IRP Basecase | 163 | \$ 4.8250489 |
| First of Month Value by Index | 2012 IRP Basecase | 164 | \$ 6.1100862 |
| First of Month Value by Index | 2012 IRP Basecase | 165 | \$ 5.9058362 |
| First of Month Value by Index | 2012 IRP Basecase | 166 | \$ 5.2595804 |
| First of Month Value by Index | 2012 IRP Basecase | 167 | \$ 5.1212225 |
| First of Month Value by Index | 2012 IRP Basecase | 168 | \$ 4.8799018 |
| First of Month Value by Index | 2012 IRP Basecase | 169 | \$ 5.1546429 |
| First of Month Value by Index | 2012 IRP Basecase | 170 | \$ 5.9300777 |
| First of Month Value by Index | 2012 IRP Basecase | 171 | \$ 4.9386436 |
| First of Month Value by Index | 2012 IRP Basecase | 172 | \$ 4.9495429 |
| First of Month Value by Index | 2012 IRP Basecase | 173 | \$ 4.9595423 |
| First of Month Value by Index | 2012 IRP Basecase | 174 | \$ 5.5115426 |
| First of Month Value by Index | 2012 IRP Basecase | 175 | \$ 5.9291719 |
| First of Month Value by Index | 2012 IRP Basecase | 176 | \$ 5.5333890 |
| First of Month Value by Index | 2012 IRP Basecase | 177 | \$ 5.9286826 |
| First of Month Value by Index | 2012 IRP Basecase | 178 | \$ 5.4456697 |
| First of Month Value by Index | 2012 IRP Basecase | 179 | \$ 5.0504131 |

2012 CNGC IRP

APPENDIX G
FOM INDEX AVG
DRAWS 1 - 200

PAGE 24

| Data Item | Scenario | Draw | 2032 |
|-------------------------------|-------------------|------|--------------|
| First of Month Value by Index | 2012 IRP Basecase | 180 | \$ 4.7198009 |
| First of Month Value by Index | 2012 IRP Basecase | 181 | \$ 5.5813537 |
| First of Month Value by Index | 2012 IRP Basecase | 182 | \$ 5.5943223 |
| First of Month Value by Index | 2012 IRP Basecase | 183 | \$ 5.1705515 |
| First of Month Value by Index | 2012 IRP Basecase | 184 | \$ 5.4676883 |
| First of Month Value by Index | 2012 IRP Basecase | 185 | \$ 5.7459064 |
| First of Month Value by Index | 2012 IRP Basecase | 186 | \$ 5.2460813 |
| First of Month Value by Index | 2012 IRP Basecase | 187 | \$ 5.6253208 |
| First of Month Value by Index | 2012 IRP Basecase | 188 | \$ 4.8256052 |
| First of Month Value by Index | 2012 IRP Basecase | 189 | \$ 4.8418009 |
| First of Month Value by Index | 2012 IRP Basecase | 190 | \$ 5.5825266 |
| First of Month Value by Index | 2012 IRP Basecase | 191 | \$ 5.0043125 |
| First of Month Value by Index | 2012 IRP Basecase | 192 | \$ 5.6033674 |
| First of Month Value by Index | 2012 IRP Basecase | 193 | \$ 5.7343269 |
| First of Month Value by Index | 2012 IRP Basecase | 194 | \$ 5.4296262 |
| First of Month Value by Index | 2012 IRP Basecase | 195 | \$ 4.6643881 |
| First of Month Value by Index | 2012 IRP Basecase | 196 | \$ 5.9183162 |
| First of Month Value by Index | 2012 IRP Basecase | 197 | \$ 5.3646740 |
| First of Month Value by Index | 2012 IRP Basecase | 198 | \$ 5.1802460 |
| First of Month Value by Index | 2012 IRP Basecase | 199 | \$ 5.9229363 |
| First of Month Value by Index | 2012 IRP Basecase | 200 | \$ 5.2647296 |
| | NYMEX | Max | \$ 6.5826593 |
| | | Min | \$ 4.3159823 |
| | | avg | \$ 5.4752550 |

Appendix H

Avoided Cost Calculations

Cascade's Long Term Real Discount Rate: 4.170%
 IRP Discount Rate = 8.700%
 Years 21-45 Escalation = 2.60% (EIA Inflation Rate)

| Category | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.27 | \$ 0.34 | \$ 0.36 | \$ 0.36 | \$ 0.34 | \$ 0.31 | \$ 0.29 | \$ 0.28 | \$ 0.27 | \$ 0.25 |
| Nominal Cost Per Therm | \$ 0.30 | \$ 0.41 | \$ 0.46 | \$ 0.51 | \$ 0.51 | \$ 0.51 | \$ 0.52 | \$ 0.55 | \$ 0.56 | \$ 0.57 |
| Verification | \$0.2737 | \$ 0.34 | \$0.3594 | \$0.3647 | \$0.3353 | \$0.3099 | \$0.2902 | \$0.2820 | \$0.2653 | \$0.2476 |
| Resource Portfolio Cost - % Change | | 36.54% | 13.64% | 10.31% | -0.06% | 0.45% | 1.80% | 5.63% | 2.24% | 1.48% |
| PV of Resource Portfolio Cost/Therm | \$ 0.28 | \$ 0.63 | \$ 1.00 | \$ 1.38 | \$ 1.73 | \$ 2.06 | \$ 2.37 | \$ 2.67 | \$ 2.96 | \$ 3.24 |
| Portfolio Costs with 10% Conservation Credit | \$0.30 | \$0.69 | \$1.10 | \$1.51 | \$1.90 | \$2.26 | \$2.61 | \$2.94 | \$3.26 | \$3.56 |
| Cost-Effectiveness Limit | \$0.3167 | \$0.3666 | \$0.3966 | \$0.4189 | \$0.4293 | \$0.4342 | \$0.4369 | \$0.4400 | \$0.4419 | \$0.4428 |

* 2012 IRP Basecase- Draft Medium Forecast Average Weather. 8.7% discount rate (CNGC weighted average cost of capital) utilized in Sendout Model.

PRELIMINARY AVOIDED COST ESTIMATES
BASECASE - MEDIUM FORECAST - AVERAGE WEATHER
45 YEAR RESOURCE SUMMARY COSTS - MELED COST PER THERM

| YEAR | IRP ANNUAL PORTFOLIO COST PER THERM (PV)* | NOMINAL COST PER THERM | RESOURCE PORTFOLIO COST - % CHANGE | PV OF RESOURCE PORTFOLIO COST/THERM | Non-Energy Benefits % | PORTFOLIO COSTS INCLUDING CONSERVATION CREDIT | COST-EFFECTIVENESS LIMIT |
|------|---|------------------------|------------------------------------|-------------------------------------|-----------------------|---|--------------------------|
| 2012 | 1 | \$ 0.27 | \$ 0.30 | | 5% | \$ 0.2902 | |
| 2013 | 2 | \$ 0.34 | \$ 0.41 | 36.54% | 5% | \$ 0.6584 | |
| 2014 | 3 | \$ 0.36 | \$ 0.46 | 13.64% | 5% | \$ 1.0471 | |
| 2015 | 4 | \$ 0.36 | \$ 0.51 | 10.31% | 5% | \$ 1.4455 | |
| 2016 | 5 | \$ 0.34 | \$ 0.51 | -0.06% | 7.5% | \$ 1.8587 | \$0.4195 |
| 2017 | 6 | \$ 0.31 | \$ 0.51 | 0.45% | 7.5% | \$ 2.2122 | |
| 2018 | 7 | \$ 0.29 | \$ 0.52 | 1.80% | 7.5% | \$ 2.5465 | |
| 2019 | 8 | \$ 0.28 | \$ 0.55 | 5.63% | 7.5% | \$ 2.8747 | |
| 2020 | 9 | \$ 0.27 | \$ 0.56 | 2.24% | 7.5% | \$ 3.1863 | |
| 2021 | 10 | \$ 0.25 | \$ 0.57 | 1.48% | 10.0% | \$ 3.5611 | \$0.4428 |
| 2022 | 11 | \$ 0.25 | \$ 0.62 | 7.98% | 10% | \$ 3.8628 | |
| 2023 | 12 | \$ 0.23 | \$ 0.63 | 2.45% | 10% | \$ 4.1499 | |
| 2024 | 13 | \$ 0.22 | \$ 0.65 | 2.36% | 10% | \$ 4.4230 | |
| 2025 | 14 | \$ 0.20 | \$ 0.65 | 0.71% | 10% | \$ 4.6786 | |
| 2026 | 15 | \$ 0.20 | \$ 0.69 | 6.00% | 12.5% | \$ 5.0423 | |
| 2027 | 16 | \$ 0.19 | \$ 0.72 | 4.05% | 12.5% | \$ 5.2911 | |
| 2028 | 17 | \$ 0.18 | \$ 0.73 | 1.25% | 12.5% | \$ 5.5251 | |
| 2029 | 18 | \$ 0.16 | \$ 0.72 | -0.36% | 12.5% | \$ 5.7418 | |
| 2030 | 19 | \$ 0.15 | \$ 0.75 | 3.69% | 12.5% | \$ 5.9506 | |
| 2031 | 20 | \$ 0.15 | \$ 0.80 | 5.97% | 12.5% | \$ 6.1561 | \$0.4598 |
| 2032 | 21 | \$ 0.14 | \$ 0.82 | 2.60% | 15% | \$ 6.4932 | |
| 2033 | 22 | \$ 0.13 | \$ 0.84 | 2.60% | 15% | \$ 6.6841 | |
| 2034 | 23 | \$ 0.13 | \$ 0.86 | 2.60% | 15% | \$ 6.8661 | |
| 2035 | 24 | \$ 0.12 | \$ 0.88 | 2.60% | 15% | \$ 7.0396 | |
| 2036 | 25 | \$ 0.11 | \$ 0.90 | 2.60% | 15% | \$ 7.2050 | |
| 2037 | 26 | \$ 0.11 | \$ 0.93 | 2.60% | 17.5% | \$ 7.5227 | |
| 2038 | 27 | \$ 0.10 | \$ 0.95 | 2.60% | 17.5% | \$ 7.6762 | |
| 2039 | 28 | \$ 0.09 | \$ 0.98 | 2.60% | 17.5% | \$ 7.8226 | |
| 2040 | 29 | \$ 0.09 | \$ 1.00 | 2.60% | 17.5% | \$ 7.9621 | |
| 2041 | 30 | \$ 0.08 | \$ 1.03 | 2.60% | 17.5% | \$ 8.0951 | \$0.4779 |
| 2042 | 31 | \$ 0.08 | \$ 1.05 | 2.60% | 20% | \$ 8.3968 | |
| 2043 | 32 | \$ 0.08 | \$ 1.08 | 2.60% | 20% | \$ 8.5203 | |
| 2044 | 33 | \$ 0.07 | \$ 1.11 | 2.60% | 20% | \$ 8.6379 | |
| 2045 | 34 | \$ 0.07 | \$ 1.14 | 2.60% | 20% | \$ 8.7501 | |
| 2046 | 35 | \$ 0.06 | \$ 1.17 | 2.60% | 20% | \$ 8.8570 | |
| 2047 | 36 | \$ 0.06 | \$ 1.20 | 2.60% | 20% | \$ 8.9589 | |
| 2048 | 37 | \$ 0.06 | \$ 1.23 | 2.60% | 20% | \$ 9.0561 | |
| 2049 | 38 | \$ 0.05 | \$ 1.26 | 2.60% | 20% | \$ 9.1487 | |
| 2050 | 39 | \$ 0.05 | \$ 1.30 | 2.60% | 20% | \$ 9.2370 | |
| 2051 | 40 | \$ 0.05 | \$ 1.33 | 2.60% | 20% | \$ 9.3212 | \$0.4829 |
| 2052 | 41 | \$ 0.04 | \$ 1.36 | 2.60% | 20% | \$ 9.4014 | |
| 2053 | 42 | \$ 0.04 | \$ 1.40 | 2.60% | 20% | \$ 9.4779 | |
| 2054 | 43 | \$ 0.04 | \$ 1.44 | 2.60% | 20% | \$ 9.5508 | |
| 2055 | 44 | \$ 0.04 | \$ 1.47 | 2.60% | 20% | \$ 9.6203 | |
| 2056 | 45 | \$ 0.04 | \$ 1.51 | 2.60% | 20% | \$ 9.6865 | |

Cascade's Long Term Real Discount Rate: 4.170%
 IRP Discount Rate = 8.700%
 Revised Discount Rate = 7.631%
 Years 21-45 Escalation = 2.60% (EIA Inflation Rate)

Conservation Credit % attempts to recognize non-quantifiable benefits associated with conservation, including benefits of price certainty & hedge against future carbon costs

Cascade's Long Term Real Discount Rate:
 IRP Discount Rate =
 Years 21-45 Escalation =

| Category | 2022 11 | 2023 12 | 2024 13 | 2025 14 | 2026 15 | 2027 16 | 2028 17 | 2029 18 | 2030 19 | 2031 20 | 2032 21 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.25 | \$ 0.23 | \$ 0.22 | \$ 0.20 | \$ 0.20 | \$ 0.19 | \$ 0.18 | \$ 0.16 | \$ 0.15 | \$ 0.15 | \$ 0.14 |
| Nominal Cost Per Therm | \$ 0.62 | \$ 0.63 | \$ 0.65 | \$ 0.65 | \$ 0.69 | \$ 0.72 | \$ 0.73 | \$ 0.72 | \$ 0.75 | \$ 0.80 | \$ 0.82 |
| Verification | \$0.2460 | \$0.2318 | \$0.2183 | \$0.2023 | \$0.1973 | \$0.1888 | \$0.1759 | \$0.1612 | \$0.1538 | \$0.1499 | \$0.1415 |
| Resource Portfolio Cost - % Change | 7.98% | 2.45% | 2.36% | 0.71% | 6.00% | 4.05% | 1.25% | -0.36% | 3.69% | 5.97% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 3.51 | \$ 3.77 | \$ 4.02 | \$ 4.25 | \$ 4.48 | \$ 4.70 | \$ 4.91 | \$ 5.10 | \$ 5.29 | \$ 5.47 | \$ 5.65 |
| Portfolio Costs with 10% Conservation Credit | \$3.86 | \$4.15 | \$4.42 | \$4.68 | \$4.93 | \$5.17 | \$5.40 | \$5.61 | \$5.82 | \$6.02 | \$6.21 |
| Cost-Effectiveness Limit | \$0.4450 | \$0.4466 | \$0.4476 | \$0.4479 | \$0.4487 | \$0.4496 | \$0.4499 | \$0.4496 | \$0.4494 | \$0.4496 | \$0.4497 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

Cascade's Long Term Real Discount Rate:
 IRP Discount Rate =
 Years 21-45 Escalation =

| Category | 2033 22 | 2034 23 | 2035 24 | 2036 25 | 2037 26 | 2038 27 | 2039 28 | 2040 29 | 2041 30 | 2042 31 | 2043 32 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.13 | \$ 0.13 | \$ 0.12 | \$ 0.11 | \$ 0.11 | \$ 0.10 | \$ 0.09 | \$ 0.09 | \$ 0.08 | \$ 0.08 | \$ 0.08 |
| Nominal Cost Per Therm | \$ 0.84 | \$ 0.86 | \$ 0.88 | \$ 0.90 | \$ 0.93 | \$ 0.95 | \$ 0.98 | \$ 1.00 | \$ 1.03 | \$ 1.05 | \$ 1.08 |
| Verification | \$0.1336 | \$0.1261 | \$0.1190 | \$0.1123 | \$0.1060 | \$0.1001 | \$0.0945 | \$0.0892 | \$0.0842 | \$0.0794 | \$0.0750 |
| Resource Portfolio Cost - % Change | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 5.81 | \$ 5.97 | \$ 6.12 | \$ 6.27 | \$ 6.40 | \$ 6.53 | \$ 6.66 | \$ 6.78 | \$ 6.89 | \$ 7.00 | \$ 7.10 |
| Portfolio Costs with 10% Conservation Credit | \$6.39 | \$6.57 | \$6.73 | \$6.89 | \$7.04 | \$7.19 | \$7.32 | \$7.45 | \$7.58 | \$7.70 | \$7.81 |
| Cost-Effectiveness Limit | \$0.4496 | \$0.4495 | \$0.4494 | \$0.4491 | \$0.4488 | \$0.4485 | \$0.4481 | \$0.4478 | \$0.4474 | \$0.4469 | \$0.4465 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

Cascade's Long Term Real Discount Rate:
 IRP Discount Rate =
 Years 21-45 Escalation =

| Category | 2044 33 | 2045 34 | 2046 35 | 2047 36 | 2048 37 | 2049 38 | 2050 39 | 2051 40 | 2052 41 | 2053 42 | 2054 43 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.07 | \$ 0.07 | \$ 0.06 | \$ 0.06 | \$ 0.06 | \$ 0.05 | \$ 0.05 | \$ 0.05 | \$ 0.04 | \$ 0.04 | \$ 0.04 |
| Nominal Cost Per Therm | \$ 1.11 | \$ 1.14 | \$ 1.17 | \$ 1.20 | \$ 1.23 | \$ 1.26 | \$ 1.30 | \$ 1.33 | \$ 1.36 | \$ 1.40 | \$ 1.44 |
| Verification | \$ 0.0708 | \$ 0.0668 | \$ 0.0630 | \$ 0.0595 | \$ 0.0562 | \$ 0.0530 | \$ 0.0500 | \$ 0.0472 | \$ 0.0446 | \$ 0.0421 | \$ 0.0397 |
| Resource Portfolio Cost - % Change | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 7.20 | \$ 7.29 | \$ 7.38 | \$ 7.47 | \$ 7.55 | \$ 7.62 | \$ 7.70 | \$ 7.77 | \$ 7.83 | \$ 7.90 | \$ 7.96 |
| Portfolio Costs with 10% Conservation Credit | \$ 7.92 | \$ 8.02 | \$ 8.12 | \$ 8.21 | \$ 8.30 | \$ 8.39 | \$ 8.47 | \$ 8.54 | \$ 8.62 | \$ 8.69 | \$ 8.75 |
| Cost-Effectiveness Limit | \$0.4460 | \$0.4456 | \$0.4451 | \$0.4446 | \$0.4441 | \$0.4436 | \$0.4432 | \$0.4427 | \$0.4422 | \$0.4417 | \$0.4412 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

Cascade's Long Term Real Discount Rate:

IRP Discount Rate =
 Years 21-45 Escalation =

| | 2055 | 2056 |
|--|----------|----------|
| Category | 44 | 45 |
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.04 | \$ 0.04 |
| Nominal Cost Per Therm | \$ 1.47 | \$ 1.51 |
| Verification | \$0.0375 | \$0.0354 |
| Resource Portfolio Cost - % Change | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 8.02 | \$ 8.07 |
| Portfolio Costs with 10% Conservation Credit | \$8.82 | \$8.88 |
| Cost-Effectiveness Limit | \$0.4408 | \$0.4403 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

Cascade's Long Term Real Discount Rate: 4.170%
 IRP Discount Rate = 8.700%
 Years 21-45 Escalation = 2.60% (EIA Inflation Rate)

| Category | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.27 | \$ 0.34 | \$ 0.36 | \$ 0.36 | \$ 0.34 | \$ 0.31 | \$ 0.29 | \$ 0.32 | \$ 0.29 | \$ 0.28 |
| Nominal Cost Per Therm | \$ 0.30 | \$ 0.41 | \$ 0.46 | \$ 0.51 | \$ 0.51 | \$ 0.51 | \$ 0.52 | \$ 0.62 | \$ 0.62 | \$ 0.64 |
| Verification | \$0.2737 | \$ 0.34 | \$0.3594 | \$0.3647 | \$0.3353 | \$0.3099 | \$0.2902 | \$0.3173 | \$0.2941 | \$0.2758 |
| Resource Portfolio Cost - % Change | | 36.54% | 13.64% | 10.31% | -0.06% | 0.45% | 1.80% | 18.85% | 0.74% | 1.93% |
| PV of Resource Portfolio Cost/Therm | \$ 0.28 | \$ 0.63 | \$ 1.00 | \$ 1.38 | \$ 1.73 | \$ 2.06 | \$ 2.37 | \$ 2.71 | \$ 3.03 | \$ 3.34 |
| Portfolio Costs with 10% Conservation Credit | \$0.30 | \$0.69 | \$1.10 | \$1.51 | \$1.90 | \$2.26 | \$2.61 | \$2.98 | \$3.34 | \$3.67 |
| Cost-Effectiveness Limit | \$0.3167 | \$0.3666 | \$0.3966 | \$0.4189 | \$0.4293 | \$0.4342 | \$0.4369 | \$0.4463 | \$0.4523 | \$0.4566 |

* 2012 IRP Basecase- Draft Medium Forecast Average Weather. 8.7% discount rate (CNGC weighted average cost of capital) utilized in Sendout Model.

PRELIMINARY AVOIDED COST ESTIMATES
 BASECASE - MEDIUM FORECAST - AVERAGE WEATHER - with Carbon 1 Scenario
 45 YEAR RESOURCE SUMMARY COSTS - MELDED COST PER THERM

| YEAR | IRP ANNUAL PORTFOLIO COST PER THERM (PV)* | NOMINAL COST PER THERM | RESOURCE PORTFOLIO COST - % CHANGE | PV OF RESOURCE COST/ THERM | Non-Energy Benefits % | PORTFOLIO COSTS INCLUDING CONSERVATION CREDIT | COST-EFFECTIVENESS LIMIT |
|------|---|------------------------|------------------------------------|----------------------------|-----------------------|---|--------------------------|
| 2012 | \$ 0.27 | \$ 0.30 | | \$ 0.28 | 5% | \$ 0.2902 | |
| 2013 | \$ 0.34 | \$ 0.41 | 36.54% | \$ 0.63 | 5% | \$ 0.6584 | |
| 2014 | \$ 0.36 | \$ 0.46 | 13.64% | \$ 1.00 | 5% | \$ 1.0471 | |
| 2015 | \$ 0.36 | \$ 0.51 | 10.31% | \$ 1.38 | 5% | \$ 1.4455 | |
| 2016 | \$ 0.34 | \$ 0.51 | -0.06% | \$ 1.73 | 7.5% | \$ 1.8587 | \$0.4195 |
| 2017 | \$ 0.31 | \$ 0.51 | 0.45% | \$ 2.06 | 7.5% | \$ 2.2122 | |
| 2018 | \$ 0.29 | \$ 0.52 | 1.80% | \$ 2.37 | 7.5% | \$ 2.5465 | |
| 2019 | \$ 0.32 | \$ 0.62 | 18.85% | \$ 2.71 | 7.5% | \$ 2.9157 | |
| 2020 | \$ 0.29 | \$ 0.62 | 0.74% | \$ 3.03 | 7.5% | \$ 3.2613 | |
| 2021 | \$ 0.28 | \$ 0.64 | 1.93% | \$ 3.34 | 10.0% | \$ 3.6720 | \$0.4566 |
| 2022 | \$ 0.28 | \$ 0.71 | 11.87% | \$ 3.65 | 10% | \$ 4.0200 | |
| 2023 | \$ 0.26 | \$ 0.72 | 0.80% | \$ 3.95 | 10% | \$ 4.3460 | |
| 2024 | \$ 0.25 | \$ 0.74 | 3.06% | \$ 4.23 | 10% | \$ 4.6581 | |
| 2025 | \$ 0.23 | \$ 0.75 | 1.07% | \$ 4.50 | 10% | \$ 4.9512 | |
| 2026 | \$ 0.23 | \$ 0.80 | 7.82% | \$ 4.77 | 12.5% | \$ 5.3640 | |
| 2027 | \$ 0.22 | \$ 0.85 | 5.71% | \$ 5.03 | 12.5% | \$ 5.6589 | |
| 2028 | \$ 0.20 | \$ 0.84 | -1.42% | \$ 5.27 | 12.5% | \$ 5.9290 | |
| 2029 | \$ 0.19 | \$ 0.87 | 4.34% | \$ 5.50 | 12.5% | \$ 6.1909 | |
| 2030 | \$ 0.19 | \$ 0.91 | 4.47% | \$ 5.73 | 12.5% | \$ 6.4450 | |
| 2031 | \$ 0.18 | \$ 0.94 | 2.86% | \$ 5.94 | 12.5% | \$ 6.6879 | \$0.4995 |
| 2032 | \$ 0.17 | \$ 0.96 | 2.60% | \$ 6.15 | 15% | \$ 7.0732 | |
| 2033 | \$ 0.16 | \$ 0.99 | 2.60% | \$ 6.35 | 15% | \$ 7.2988 | |
| 2034 | \$ 0.15 | \$ 1.01 | 2.60% | \$ 6.53 | 15% | \$ 7.5139 | |
| 2035 | \$ 0.14 | \$ 1.04 | 2.60% | \$ 6.71 | 15% | \$ 7.7189 | |
| 2036 | \$ 0.13 | \$ 1.07 | 2.60% | \$ 6.88 | 15% | \$ 7.9143 | |
| 2037 | \$ 0.13 | \$ 1.10 | 2.60% | \$ 7.04 | 17.5% | \$ 8.2767 | |
| 2038 | \$ 0.12 | \$ 1.12 | 2.60% | \$ 7.20 | 17.5% | \$ 8.4581 | |
| 2039 | \$ 0.11 | \$ 1.15 | 2.60% | \$ 7.35 | 17.5% | \$ 8.6311 | |
| 2040 | \$ 0.11 | \$ 1.18 | 2.60% | \$ 7.49 | 17.5% | \$ 8.7960 | |
| 2041 | \$ 0.10 | \$ 1.21 | 2.60% | \$ 7.62 | 17.5% | \$ 8.9532 | \$0.5285 |
| 2042 | \$ 0.09 | \$ 1.25 | 2.60% | \$ 7.75 | 20% | \$ 9.2967 | |
| 2043 | \$ 0.09 | \$ 1.28 | 2.60% | \$ 7.87 | 20% | \$ 9.4425 | |
| 2044 | \$ 0.08 | \$ 1.31 | 2.60% | \$ 7.98 | 20% | \$ 9.5816 | |
| 2045 | \$ 0.08 | \$ 1.35 | 2.60% | \$ 8.10 | 20% | \$ 9.7141 | |
| 2046 | \$ 0.07 | \$ 1.38 | 2.60% | \$ 8.20 | 20% | \$ 9.8405 | |
| 2047 | \$ 0.07 | \$ 1.42 | 2.60% | \$ 8.30 | 20% | \$ 9.9609 | |
| 2048 | \$ 0.07 | \$ 1.45 | 2.60% | \$ 8.40 | 20% | \$ 10.0757 | |
| 2049 | \$ 0.06 | \$ 1.49 | 2.60% | \$ 8.49 | 20% | \$ 10.1852 | |
| 2050 | \$ 0.06 | \$ 1.53 | 2.60% | \$ 8.57 | 20% | \$ 10.2895 | |
| 2051 | \$ 0.06 | \$ 1.57 | 2.60% | \$ 8.66 | 20% | \$ 10.3890 | \$0.5382 |
| 2052 | \$ 0.05 | \$ 1.61 | 2.60% | \$ 8.74 | 20% | \$ 10.4838 | |
| 2053 | \$ 0.05 | \$ 1.65 | 2.60% | \$ 8.81 | 20% | \$ 10.5741 | |
| 2054 | \$ 0.05 | \$ 1.70 | 2.60% | \$ 8.88 | 20% | \$ 10.6603 | |
| 2055 | \$ 0.04 | \$ 1.74 | 2.60% | \$ 8.95 | 20% | \$ 10.7424 | |
| 2056 | \$ 0.04 | \$ 1.79 | 2.60% | \$ 9.02 | 20% | \$ 10.8207 | |

Cascade's Long Term Real Discount Rate: 4.170%
 IRP Discount Rate = 8.700%
 Revised Discount Rate = 7.631%
 Years 21-45 Escalation = 2.60% (EIA Inflation Rate)

Conservation Credit % attempts to recognize non-quantifiable benefits associated with conservation, including benefits of price certainty & hedge against future carbon costs Carbon estimated at \$15/ton, applies to Natural Gas 2017

Cascade's Long Term Real Discount Rate:

IRP Discount Rate =
Years 21-45 Escalation =

| Category | 2022 11 | 2023 12 | 2024 13 | 2025 14 | 2026 15 | 2027 16 | 2028 17 | 2029 18 | 2030 19 | 2031 20 | 2032 21 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.28 | \$ 0.26 | \$ 0.25 | \$ 0.23 | \$ 0.23 | \$ 0.22 | \$ 0.20 | \$ 0.19 | \$ 0.19 | \$ 0.18 | \$ 0.17 |
| Nominal Cost Per Therm | \$ 0.71 | \$ 0.72 | \$ 0.74 | \$ 0.75 | \$ 0.80 | \$ 0.85 | \$ 0.84 | \$ 0.87 | \$ 0.91 | \$ 0.94 | \$ 0.96 |
| Verification | \$0.2838 | \$0.2632 | \$0.2495 | \$0.2320 | \$0.2301 | \$0.2238 | \$0.2030 | \$0.1948 | \$0.1872 | \$0.1772 | \$0.1672 |
| Resource Portfolio Cost - % Change | 11.87% | 0.80% | 3.06% | 1.07% | 7.82% | 5.71% | -1.42% | 4.34% | 4.47% | 2.86% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 3.65 | \$ 3.95 | \$ 4.23 | \$ 4.50 | \$ 4.77 | \$ 5.03 | \$ 5.27 | \$ 5.50 | \$ 5.73 | \$ 5.94 | \$ 6.15 |
| Portfolio Costs with 10% Conservation Credit | \$4.02 | \$4.35 | \$4.66 | \$4.95 | \$5.24 | \$5.53 | \$5.80 | \$6.05 | \$6.30 | \$6.54 | \$6.77 |
| Cost-Effectiveness Limit | \$0.4631 | \$0.4677 | \$0.4714 | \$0.4740 | \$0.4773 | \$0.4808 | \$0.4828 | \$0.4848 | \$0.4868 | \$0.4884 | \$0.4898 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

Cascade's Long Term Real Discount Rate:
 IRP Discount Rate =
 Years 21-45 Escalation =

| Category | 2033 22 | 2034 23 | 2035 24 | 2036 25 | 2037 26 | 2038 27 | 2039 28 | 2040 29 | 2041 30 | 2042 31 | 2043 32 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.16 | \$ 0.15 | \$ 0.14 | \$ 0.13 | \$ 0.13 | \$ 0.12 | \$ 0.11 | \$ 0.11 | \$ 0.10 | \$ 0.09 | \$ 0.09 |
| Nominal Cost Per Therm | \$ 0.99 | \$ 1.01 | \$ 1.04 | \$ 1.07 | \$ 1.10 | \$ 1.12 | \$ 1.15 | \$ 1.18 | \$ 1.21 | \$ 1.25 | \$ 1.28 |
| Verification | \$0.1578 | \$0.1490 | \$0.1406 | \$0.1327 | \$0.1253 | \$0.1183 | \$0.1116 | \$0.1054 | \$0.0994 | \$0.0939 | \$0.0886 |
| Resource Portfolio Cost - % Change | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 6.35 | \$ 6.53 | \$ 6.71 | \$ 6.88 | \$ 7.04 | \$ 7.20 | \$ 7.35 | \$ 7.49 | \$ 7.62 | \$ 7.75 | \$ 7.87 |
| Portfolio Costs with 10% Conservation Credit | \$6.98 | \$7.19 | \$7.38 | \$7.57 | \$7.75 | \$7.92 | \$8.08 | \$8.23 | \$8.38 | \$8.52 | \$8.66 |
| Cost-Effectiveness Limit | \$0.4910 | \$0.4919 | \$0.4927 | \$0.4933 | \$0.4938 | \$0.4942 | \$0.4945 | \$0.4947 | \$0.4948 | \$0.4948 | \$0.4948 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

Cascade's Long Term Real Discount Rate:

IRP Discount Rate =
Years 21-45 Escalation =

| Category | 2044 33 | 2045 34 | 2046 35 | 2047 36 | 2048 37 | 2049 38 | 2050 39 | 2051 40 | 2052 41 | 2053 42 | 2054 43 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.08 | \$ 0.08 | \$ 0.07 | \$ 0.07 | \$ 0.07 | \$ 0.06 | \$ 0.06 | \$ 0.06 | \$ 0.05 | \$ 0.05 | \$ 0.05 |
| Nominal Cost Per Therm | \$ 1.31 | \$ 1.35 | \$ 1.38 | \$ 1.42 | \$ 1.45 | \$ 1.49 | \$ 1.53 | \$ 1.57 | \$ 1.61 | \$ 1.65 | \$ 1.70 |
| Verification | \$ 0.0836 | \$ 0.0789 | \$ 0.0745 | \$ 0.0703 | \$ 0.0664 | \$ 0.0626 | \$ 0.0591 | \$ 0.0558 | \$ 0.0527 | \$ 0.0497 | \$ 0.0469 |
| Resource Portfolio Cost - % Change | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 7.98 | \$ 8.10 | \$ 8.20 | \$ 8.30 | \$ 8.40 | \$ 8.49 | \$ 8.57 | \$ 8.66 | \$ 8.74 | \$ 8.81 | \$ 8.88 |
| Portfolio Costs with 10% Conservation Credit | \$8.78 | \$8.90 | \$9.02 | \$9.13 | \$9.24 | \$9.34 | \$9.43 | \$9.52 | \$9.61 | \$9.69 | \$9.77 |
| Cost-Effectiveness Limit | \$0.4947 | \$0.4946 | \$0.4945 | \$0.4943 | \$0.4941 | \$0.4939 | \$0.4937 | \$0.4934 | \$0.4931 | \$0.4928 | \$0.4925 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

Cascade's Long Term Real Discount Rate:

IRP Discount Rate =
 Years 21-45 Escalation =

| Category | 2055 | 2056 |
|--|----------|----------|
| | 44 | 45 |
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.04 | \$ 0.04 |
| Nominal Cost Per Therm | \$ 1.74 | \$ 1.79 |
| Verification | \$0.0443 | \$0.0418 |
| Resource Portfolio Cost - % Change | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 8.95 | \$ 9.02 |
| Portfolio Costs with 10% Conservation Credit | \$9.85 | \$9.92 |
| Cost-Effectiveness Limit | \$0.4922 | \$0.4919 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

2012 CNGC IRP

APPENDIX H (CARBON 2 SCENARIO)

PAGE 1

Cascade's Long Term Real Discount Rate:
 IRP Discount Rate = 4.1700%
 Years 21-45 Escalation = 8.7000% (EIA Inflation Rate)

| Category | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.27 | \$ 0.34 | \$ 0.36 | \$ 0.36 | \$ 0.34 | \$ 0.31 | \$ 0.29 | \$ 0.32 | \$ 0.31 | \$ 0.28 |
| Nominal Cost Per Therm | \$ 0.30 | \$ 0.41 | \$ 0.46 | \$ 0.51 | \$ 0.51 | \$ 0.51 | \$ 0.52 | \$ 0.63 | \$ 0.63 | \$ 0.65 |
| Verification | \$0.2737 | \$ 0.34 | \$0.3594 | \$0.3647 | \$0.3353 | \$0.3098 | \$0.2902 | \$0.3232 | \$0.3056 | \$0.2814 |
| Resource Portfolio Cost - % Change | | 36.54% | 13.64% | 10.31% | -0.06% | 0.45% | 1.80% | 21.04% | 2.79% | 0.09% |
| PV of Resource Portfolio Cost/Therm | \$ 0.28 | \$ 0.63 | \$ 1.00 | \$ 1.38 | \$ 1.73 | \$ 2.06 | \$ 2.37 | \$ 2.72 | \$ 3.05 | \$ 3.36 |
| Portfolio Costs with 10% Conservation Credit | \$0.30 | \$0.69 | \$1.10 | \$1.51 | \$1.90 | \$2.26 | \$2.61 | \$2.99 | \$3.36 | \$3.70 |
| Cost-Effectiveness Limit | \$0.3167 | \$0.3866 | \$0.3986 | \$0.4189 | \$0.4293 | \$0.4342 | \$0.4369 | \$0.4473 | \$0.4551 | \$0.4600 |

* 2012 IRP Basecase- Draft Medium Forecast Average Weather. 8.7% discount rate (CNGC weighted average cost of capital) utilized in Sendout Model.

PRELIMINARY AVOIDED COST ESTIMATES
BASECASE - MEDIUM FORECAST - AVERAGE WEATHER - Carbon 2 scenario
45 YEAR RESOURCE SUMMARY COSTS - MELDED COST PER THERM

| YEAR | IRP ANNUAL PORTFOLIO COST PER THERM (PV)* | NOMINAL COST PER THERM | RESOURCE PORTFOLIO COST - % CHANGE | PV OF RESOURCE COST/THERM | Non-Energy Benefits % | PORTFOLIO COSTS INCLUDING CONSERVATION CREDIT | COST-EFFECTIVENESS LIMIT |
|------|---|------------------------|------------------------------------|---------------------------|-----------------------|---|--------------------------|
| 2012 | 1 | \$ 0.27 | \$ 0.30 | \$ 0.28 | 10% | \$ 0.3040 | |
| 2013 | 2 | \$ 0.34 | \$ 0.41 | \$ 0.63 | 10% | \$ 0.6898 | |
| 2014 | 3 | \$ 0.36 | \$ 0.46 | \$ 1.00 | 10% | \$ 1.0970 | |
| 2015 | 4 | \$ 0.36 | \$ 0.51 | \$ 1.38 | 10% | \$ 1.5144 | |
| 2016 | 5 | \$ 0.34 | \$ 0.51 | \$ 1.73 | 10% | \$ 1.9019 | \$0.4293 |
| 2017 | 6 | \$ 0.31 | \$ 0.51 | \$ 2.06 | 10% | \$ 2.2636 | |
| 2018 | 7 | \$ 0.29 | \$ 0.52 | \$ 2.37 | 10% | \$ 2.6058 | |
| 2019 | 8 | \$ 0.32 | \$ 0.63 | \$ 2.72 | 10% | \$ 2.9905 | |
| 2020 | 9 | \$ 0.31 | \$ 0.65 | \$ 3.05 | 10% | \$ 3.3579 | |
| 2021 | 10 | \$ 0.28 | \$ 0.65 | \$ 3.36 | 10% | \$ 3.6997 | \$0.4600 |
| 2022 | 11 | \$ 0.29 | \$ 0.73 | \$ 3.69 | 10% | \$ 4.0554 | |
| 2023 | 12 | \$ 0.27 | \$ 0.73 | \$ 3.99 | 10% | \$ 4.3892 | |
| 2024 | 13 | \$ 0.26 | \$ 0.78 | \$ 4.29 | 10% | \$ 4.7169 | |
| 2025 | 14 | \$ 0.24 | \$ 0.77 | \$ 4.56 | 10% | \$ 5.0175 | |
| 2026 | 15 | \$ 0.24 | \$ 0.83 | \$ 4.84 | 10% | \$ 5.3195 | |
| 2027 | 16 | \$ 0.23 | \$ 0.88 | \$ 5.11 | 10% | \$ 5.6168 | |
| 2028 | 17 | \$ 0.22 | \$ 0.89 | \$ 5.36 | 10% | \$ 5.8985 | |
| 2029 | 18 | \$ 0.20 | \$ 0.90 | \$ 5.60 | 10% | \$ 6.1633 | |
| 2030 | 19 | \$ 0.19 | \$ 0.95 | \$ 5.84 | 10% | \$ 6.4207 | |
| 2031 | 20 | \$ 0.19 | \$ 1.01 | \$ 6.07 | 10% | \$ 6.6765 | \$0.4987 |
| 2032 | 21 | \$ 0.17 | \$ 1.04 | \$ 6.29 | 10% | \$ 6.9203 | |
| 2033 | 22 | \$ 0.16 | \$ 1.07 | \$ 6.50 | 10% | \$ 7.1527 | |
| 2034 | 23 | \$ 0.16 | \$ 1.09 | \$ 6.70 | 10% | \$ 7.3742 | |
| 2035 | 24 | \$ 0.15 | \$ 1.12 | \$ 6.90 | 10% | \$ 7.5854 | |
| 2036 | 25 | \$ 0.14 | \$ 1.15 | \$ 7.08 | 10% | \$ 7.7867 | |
| 2037 | 26 | \$ 0.13 | \$ 1.18 | \$ 7.25 | 10% | \$ 7.9786 | |
| 2038 | 27 | \$ 0.13 | \$ 1.21 | \$ 7.42 | 10% | \$ 8.1616 | |
| 2039 | 28 | \$ 0.12 | \$ 1.24 | \$ 7.58 | 10% | \$ 8.3359 | |
| 2040 | 29 | \$ 0.11 | \$ 1.27 | \$ 7.73 | 10% | \$ 8.5022 | |
| 2041 | 30 | \$ 0.11 | \$ 1.31 | \$ 7.87 | 10% | \$ 8.6606 | \$0.5112 |
| 2042 | 31 | \$ 0.10 | \$ 1.34 | \$ 8.01 | 10% | \$ 8.8117 | |
| 2043 | 32 | \$ 0.10 | \$ 1.38 | \$ 8.14 | 10% | \$ 8.9557 | |
| 2044 | 33 | \$ 0.09 | \$ 1.41 | \$ 8.27 | 10% | \$ 9.0930 | |
| 2045 | 34 | \$ 0.09 | \$ 1.45 | \$ 8.39 | 10% | \$ 9.2238 | |
| 2046 | 35 | \$ 0.08 | \$ 1.49 | \$ 8.50 | 10% | \$ 9.3485 | |
| 2047 | 36 | \$ 0.08 | \$ 1.53 | \$ 8.61 | 10% | \$ 9.4674 | |
| 2048 | 37 | \$ 0.07 | \$ 1.57 | \$ 8.71 | 10% | \$ 9.5808 | |
| 2049 | 38 | \$ 0.07 | \$ 1.61 | \$ 8.81 | 10% | \$ 9.6888 | |
| 2050 | 39 | \$ 0.06 | \$ 1.65 | \$ 8.90 | 10% | \$ 9.7918 | |
| 2051 | 40 | \$ 0.06 | \$ 1.69 | \$ 8.99 | 10% | \$ 9.8900 | \$0.5124 |
| 2052 | 41 | \$ 0.06 | \$ 1.73 | \$ 9.08 | 10% | \$ 9.9836 | |
| 2053 | 42 | \$ 0.05 | \$ 1.78 | \$ 9.16 | 10% | \$ 10.0728 | |
| 2054 | 43 | \$ 0.05 | \$ 1.83 | \$ 9.23 | 10% | \$ 10.1578 | |
| 2055 | 44 | \$ 0.05 | \$ 1.87 | \$ 9.31 | 10% | \$ 10.2389 | |
| 2056 | 45 | \$ 0.05 | \$ 1.92 | \$ 9.38 | 10% | \$ 10.3162 | |

Cascade's Long Term Real Discount Rate: 4.1700%
 IRP Discount Rate = 8.7000%
 Revised Discount Rate = 7.631%
 Years 21-45 Escalation = 2.60% (EIA Inflation Rate)

Conservation Credit % attempts to recognize non-quantifiable benefits associated with conservation, including benefits of price certainty & hedge against future carbon costs. Carbon estimated at \$20/ton, applies to Natural Gas 2017.

Cascade's Long Term Real Discount Rate:
 IRP Discount Rate =
 Years 21-45 Escalation =

| Category | 2022 11 | 2023 12 | 2024 13 | 2025 14 | 2026 15 | 2027 16 | 2028 17 | 2029 18 | 2030 19 | 2031 20 | 2032 21 | 2033 22 | 2034 23 | 2035 24 | 2036 25 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.29 | \$ 0.27 | \$ 0.26 | \$ 0.24 | \$ 0.24 | \$ 0.23 | \$ 0.22 | \$ 0.20 | \$ 0.19 | \$ 0.19 | \$ 0.17 | \$ 0.16 | \$ 0.16 | \$ 0.15 | \$ 0.14 |
| Nominal Cost Per Therm | \$ 0.73 | \$ 0.73 | \$ 0.78 | \$ 0.77 | \$ 0.83 | \$ 0.88 | \$ 0.89 | \$ 0.90 | \$ 0.95 | \$ 1.01 | \$ 1.04 | \$ 1.07 | \$ 1.09 | \$ 1.12 | \$ 1.15 |
| Verification | \$0.2901 | \$0.2694 | \$0.2620 | \$0.2380 | \$0.2367 | \$0.2308 | \$0.2165 | \$0.2015 | \$0.1939 | \$0.1908 | \$0.1801 | \$0.1700 | \$0.1605 | \$0.1514 | \$0.1429 |
| Resource Portfolio Cost - % Change | 12.07% | 0.95% | 5.70% | -1.28% | 8.13% | 5.97% | 1.96% | 1.21% | 4.59% | 6.95% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 3.69 | \$ 3.99 | \$ 4.29 | \$ 4.56 | \$ 4.84 | \$ 5.11 | \$ 5.36 | \$ 5.60 | \$ 5.84 | \$ 6.07 | \$ 6.29 | \$ 6.50 | \$ 6.70 | \$ 6.90 | \$ 7.08 |
| Portfolio Costs with 10% Conservation Credit | \$4.06 | \$4.39 | \$4.72 | \$5.02 | \$5.32 | \$5.62 | \$5.90 | \$6.16 | \$6.42 | \$6.68 | \$6.92 | \$7.15 | \$7.37 | \$7.59 | \$7.79 |
| Cost-Effectiveness Limit | \$0.4672 | \$0.4723 | \$0.4774 | \$0.4803 | \$0.4841 | \$0.4881 | \$0.4913 | \$0.4936 | \$0.4959 | \$0.4987 | \$0.5010 | \$0.5030 | \$0.5047 | \$0.5062 | \$0.5074 |

* 2012 IRP Basecase- Draft Medium Forecast Average Weat

Cascade's Long Term Real Discount Rate:
 IRP Discount Rate =
 Years 21-45 Escalation =

| Category | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.13 | \$ 0.13 | \$ 0.12 | \$ 0.11 | \$ 0.11 | \$ 0.10 | \$ 0.10 | \$ 0.09 | \$ 0.09 | \$ 0.08 | \$ 0.08 | \$ 0.07 | \$ 0.07 | \$ 0.06 | \$ 0.06 |
| Nominal Cost Per Therm | \$ 1.18 | \$ 1.21 | \$ 1.24 | \$ 1.27 | \$ 1.31 | \$ 1.34 | \$ 1.38 | \$ 1.41 | \$ 1.45 | \$ 1.49 | \$ 1.53 | \$ 1.57 | \$ 1.61 | \$ 1.65 | \$ 1.69 |
| Verification | \$0.1349 | \$0.1274 | \$0.1202 | \$0.1135 | \$0.1071 | \$0.1011 | \$0.0954 | \$0.0901 | \$0.0850 | \$0.0802 | \$0.0757 | \$0.0715 | \$0.0675 | \$0.0637 | \$0.0601 |
| Resource Portfolio Cost - % Change | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 7.25 | \$ 7.42 | \$ 7.58 | \$ 7.73 | \$ 7.87 | \$ 8.01 | \$ 8.14 | \$ 8.27 | \$ 8.39 | \$ 8.50 | \$ 8.61 | \$ 8.71 | \$ 8.81 | \$ 8.90 | \$ 8.99 |
| Portfolio Costs with 10% Conservation Credit | \$7.98 | \$8.16 | \$8.34 | \$8.50 | \$8.65 | \$8.81 | \$8.96 | \$9.09 | \$9.22 | \$9.35 | \$9.47 | \$9.58 | \$9.69 | \$9.79 | \$9.89 |
| Cost-Effectiveness Limit | \$0.5085 | \$0.5094 | \$0.5101 | \$0.5107 | \$0.5112 | \$0.5116 | \$0.5120 | \$0.5122 | \$0.5124 | \$0.5125 | \$0.5126 | \$0.5126 | \$0.5126 | \$0.5125 | \$0.5124 |

* 2012 IRP Basecase- Draft Medium Forecast Average Weight

2012 CNGC IRP

APPENDIX H (CARBON 2 SCENARIO)

PAGE 4

Cascade's Long Term Real Discount Rate:
 IRP Discount Rate =
 Years 21-45 Escalation =

| Category | 2052 41 | 2053 42 | 2054 43 | 2055 44 | 2056 45 |
|--|------------|------------|------------|------------|------------|
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.06 | \$ 0.05 | \$ 0.05 | \$ 0.05 | \$ 0.05 |
| Nominal Cost Per Therm | \$ 1.73 | \$ 1.78 | \$ 1.83 | \$ 1.87 | \$ 1.92 |
| Verification | \$0.0567 | \$0.0536 | \$0.0505 | \$0.0477 | \$0.0450 |
| Resource Portfolio Cost - % Change | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 9.08 | \$ 9.16 | \$ 9.23 | \$ 9.31 | \$ 9.38 |
| Portfolio Costs with 10% Conservation Credit | \$9.98 | \$10.07 | \$10.16 | \$10.24 | \$10.32 |
| Cost-Effectiveness Limit | \$0.5123 | \$0.5121 | \$0.5119 | \$0.5118 | \$0.5116 |

* 2012 IRP Basecase- Draft Medium Forecast Average Weath

Cascade's Long Term Real Discount Rate: 4.170%
 IRP Discount Rate = 8.700%
 Years 21-45 Escalation = 2.60% (EIA Inflation Rate)

| Category | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.27 | \$ 0.34 | \$ 0.36 | \$ 0.36 | \$ 0.34 | \$ 0.31 | \$ 0.29 | \$ 0.35 | \$ 0.32 | \$ 0.30 |
| Nominal Cost Per Therm | \$ 0.30 | \$ 0.41 | \$ 0.46 | \$ 0.51 | \$ 0.51 | \$ 0.51 | \$ 0.52 | \$ 0.68 | \$ 0.68 | \$ 0.70 |
| Verification | \$0.2737 | \$ 0.34 | \$0.3594 | \$0.3647 | \$0.3353 | \$0.3099 | \$0.2902 | \$0.3467 | \$0.3229 | \$0.3039 |
| Resource Portfolio Cost - % Change | | 36.54% | 13.64% | 10.31% | -0.06% | 0.45% | 1.80% | 29.84% | 1.24% | 2.31% |
| PV of Resource Portfolio Cost/Therm | \$ 0.28 | \$ 0.63 | \$ 1.00 | \$ 1.38 | \$ 1.73 | \$ 2.06 | \$ 2.37 | \$ 2.74 | \$ 3.10 | \$ 3.43 |
| Portfolio Costs with 10% Conservation Credit | \$0.30 | \$0.69 | \$1.10 | \$1.51 | \$1.90 | \$2.26 | \$2.61 | \$3.02 | \$3.41 | \$3.78 |
| Cost-Effectiveness Limit | \$0.3167 | \$0.3666 | \$0.3966 | \$0.4189 | \$0.4293 | \$0.4342 | \$0.4369 | \$0.4515 | \$0.4617 | \$0.4695 |

* 2012 IRP Basecase- Draft Medium Forecast Average Weather. 8.7% discount rate (CNGC weighted average cost of capital) utilized in Sendout Model.

PRELIMINARY AVOIDED COST ESTIMATES
BASECASE - MEDIUM FORECAST - AVERAGE WEATHER - Carbon 3 scenario
45 YEAR RESOURCE SUMMARY COSTS - MELDED COST PER THERM

| YEAR | IRP ANNUAL PORTFOLIO COST PER THERM (PV)* | NOMINAL COST PER THERM | RESOURCE PORTFOLIO COST - % CHANGE | PV OF RESOURCE COST/ THERM | Non-Energy Benefits % | PORTFOLIO COSTS INCLUDING CONSERVATION CREDIT | COST-EFFECTIVENESS LIMIT |
|------|---|------------------------|------------------------------------|----------------------------|-----------------------|---|--------------------------|
| 2012 | \$ 0.27 | \$ 0.30 | | \$ 0.28 | 10% | \$ 0.3040 | |
| 2013 | \$ 0.34 | \$ 0.41 | 36.54% | \$ 0.63 | 10% | \$ 0.6898 | |
| 2014 | \$ 0.36 | \$ 0.46 | 13.64% | \$ 1.00 | 10% | \$ 1.0970 | |
| 2015 | \$ 0.36 | \$ 0.51 | 10.31% | \$ 1.38 | 10% | \$ 1.5144 | |
| 2016 | \$ 0.34 | \$ 0.51 | -0.06% | \$ 1.73 | 10% | \$ 1.9019 | \$0.4293 |
| 2017 | \$ 0.31 | \$ 0.51 | 0.45% | \$ 2.06 | 10% | \$ 2.2636 | |
| 2018 | \$ 0.29 | \$ 0.52 | 1.80% | \$ 2.37 | 10% | \$ 2.6058 | |
| 2019 | \$ 0.35 | \$ 0.68 | 29.84% | \$ 2.74 | 10% | \$ 3.0185 | |
| 2020 | \$ 0.32 | \$ 0.68 | 1.24% | \$ 3.10 | 10% | \$ 3.4067 | |
| 2021 | \$ 0.30 | \$ 0.70 | 2.31% | \$ 3.43 | 10% | \$ 3.7757 | \$0.4695 |
| 2022 | \$ 0.31 | \$ 0.77 | 10.54% | \$ 3.78 | 10% | \$ 4.1547 | |
| 2023 | \$ 0.29 | \$ 0.78 | 1.38% | \$ 4.10 | 10% | \$ 4.5117 | |
| 2024 | \$ 0.28 | \$ 0.83 | 5.85% | \$ 4.42 | 10% | \$ 4.8628 | |
| 2025 | \$ 0.26 | \$ 0.82 | -0.94% | \$ 4.71 | 10% | \$ 5.1860 | |
| 2026 | \$ 0.26 | \$ 0.90 | 8.97% | \$ 5.01 | 10% | \$ 5.5132 | |
| 2027 | \$ 0.25 | \$ 0.96 | 6.71% | \$ 5.31 | 10% | \$ 5.8375 | |
| 2028 | \$ 0.24 | \$ 0.98 | 2.23% | \$ 5.59 | 10% | \$ 6.1456 | |
| 2029 | \$ 0.22 | \$ 1.00 | 1.79% | \$ 5.85 | 10% | \$ 6.4370 | |
| 2030 | \$ 0.21 | \$ 1.04 | 4.91% | \$ 6.11 | 10% | \$ 6.7210 | |
| 2031 | \$ 0.21 | \$ 1.12 | 7.31% | \$ 6.37 | 10% | \$ 7.0041 | \$0.5232 |
| 2032 | \$ 0.19 | \$ 1.15 | 2.60% | \$ 6.61 | 10% | \$ 7.2740 | |
| 2033 | \$ 0.18 | \$ 1.18 | 2.60% | \$ 6.85 | 10% | \$ 7.5313 | |
| 2034 | \$ 0.18 | \$ 1.21 | 2.60% | \$ 7.07 | 10% | \$ 7.7766 | |
| 2035 | \$ 0.17 | \$ 1.24 | 2.60% | \$ 7.28 | 10% | \$ 8.0104 | |
| 2036 | \$ 0.16 | \$ 1.27 | 2.60% | \$ 7.48 | 10% | \$ 8.2333 | |
| 2037 | \$ 0.15 | \$ 1.31 | 2.60% | \$ 7.68 | 10% | \$ 8.4458 | |
| 2038 | \$ 0.14 | \$ 1.34 | 2.60% | \$ 7.86 | 10% | \$ 8.6483 | |
| 2039 | \$ 0.13 | \$ 1.38 | 2.60% | \$ 8.04 | 10% | \$ 8.8414 | |
| 2040 | \$ 0.13 | \$ 1.41 | 2.60% | \$ 8.20 | 10% | \$ 9.0254 | |
| 2041 | \$ 0.12 | \$ 1.45 | 2.60% | \$ 8.36 | 10% | \$ 9.2008 | \$0.5431 |
| 2042 | \$ 0.11 | \$ 1.49 | 2.60% | \$ 8.52 | 10% | \$ 9.3681 | |
| 2043 | \$ 0.11 | \$ 1.52 | 2.60% | \$ 8.66 | 10% | \$ 9.5275 | |
| 2044 | \$ 0.10 | \$ 1.56 | 2.60% | \$ 8.80 | 10% | \$ 9.6794 | |
| 2045 | \$ 0.09 | \$ 1.60 | 2.60% | \$ 8.93 | 10% | \$ 9.8243 | |
| 2046 | \$ 0.09 | \$ 1.65 | 2.60% | \$ 9.06 | 10% | \$ 9.9624 | |
| 2047 | \$ 0.08 | \$ 1.69 | 2.60% | \$ 9.18 | 10% | \$ 10.0940 | |
| 2048 | \$ 0.08 | \$ 1.73 | 2.60% | \$ 9.29 | 10% | \$ 10.2195 | |
| 2049 | \$ 0.07 | \$ 1.78 | 2.60% | \$ 9.40 | 10% | \$ 10.3391 | |
| 2050 | \$ 0.07 | \$ 1.82 | 2.60% | \$ 9.50 | 10% | \$ 10.4532 | |
| 2051 | \$ 0.07 | \$ 1.87 | 2.60% | \$ 9.60 | 10% | \$ 10.5619 | \$0.5472 |
| 2052 | \$ 0.06 | \$ 1.92 | 2.60% | \$ 9.70 | 10% | \$ 10.6655 | |
| 2053 | \$ 0.06 | \$ 1.97 | 2.60% | \$ 9.79 | 10% | \$ 10.7643 | |
| 2054 | \$ 0.06 | \$ 2.02 | 2.60% | \$ 9.87 | 10% | \$ 10.8584 | |
| 2055 | \$ 0.05 | \$ 2.07 | 2.60% | \$ 9.95 | 10% | \$ 10.9482 | |
| 2056 | \$ 0.05 | \$ 2.13 | 2.60% | \$ 10.03 | 10% | \$ 11.0337 | |

Cascade's Long Term Real Discount Rate: 4.170%
 IRP Discount Rate = 8.700%
 Revised Discount Rate = 7.631%
 Years 21-45 Escalation = 2.60% (EIA Inflation Rate)

Conservation Credit % attempts to recognize non-quantifiable benefits associated with conservation, including benefits of price certainty & hedge against future carbon costs. Carbon estimated at \$30/ton, applies to Natural Gas 2017

Cascade's Long Term Real Discount Rate:
 IRP Discount Rate =
 Years 21-45 Escalation =

| Category | 2022 11 | 2023 12 | 2024 13 | 2025 14 | 2026 15 | 2027 16 | 2028 17 | 2029 18 | 2030 19 | 2031 20 | 2032 21 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.31 | \$ 0.29 | \$ 0.28 | \$ 0.26 | \$ 0.26 | \$ 0.25 | \$ 0.24 | \$ 0.22 | \$ 0.21 | \$ 0.21 | \$ 0.19 |
| Nominal Cost Per Therm | \$ 0.77 | \$ 0.78 | \$ 0.83 | \$ 0.82 | \$ 0.90 | \$ 0.96 | \$ 0.98 | \$ 1.00 | \$ 1.04 | \$ 1.12 | \$ 1.15 |
| Verification | \$0.3091 | \$0.2883 | \$0.2807 | \$0.2558 | \$0.2565 | \$0.2517 | \$0.2368 | \$0.2217 | \$0.2140 | \$0.2112 | \$0.1994 |
| Resource Portfolio Cost - % Change | 10.54% | 1.38% | 5.85% | -0.94% | 8.97% | 6.71% | 2.23% | 1.79% | 4.91% | 7.31% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 3.78 | \$ 4.10 | \$ 4.42 | \$ 4.71 | \$ 5.01 | \$ 5.31 | \$ 5.59 | \$ 5.85 | \$ 6.11 | \$ 6.37 | \$ 6.61 |
| Portfolio Costs with 10% Conservation Credit | \$4.15 | \$4.51 | \$4.86 | \$5.19 | \$5.51 | \$5.84 | \$6.15 | \$6.44 | \$6.72 | \$7.00 | \$7.27 |
| Cost-Effectiveness Limit | \$0.4786 | \$0.4855 | \$0.4921 | \$0.4965 | \$0.5018 | \$0.5073 | \$0.5118 | \$0.5155 | \$0.5191 | \$0.5232 | \$0.5266 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

Cascade's Long Term Real Discount Rate:
 IRP Discount Rate =
 Years 21-45 Escalation =

| Category | 2033 22 | 2034 23 | 2035 24 | 2036 25 | 2037 26 | 2038 27 | 2039 28 | 2040 29 | 2041 30 | 2042 31 | 2043 32 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.18 | \$ 0.18 | \$ 0.17 | \$ 0.16 | \$ 0.15 | \$ 0.14 | \$ 0.13 | \$ 0.13 | \$ 0.12 | \$ 0.11 | \$ 0.11 |
| Nominal Cost Per Therm | \$ 1.18 | \$ 1.21 | \$ 1.24 | \$ 1.27 | \$ 1.31 | \$ 1.34 | \$ 1.38 | \$ 1.41 | \$ 1.45 | \$ 1.49 | \$ 1.52 |
| Verification | \$0.1882 | \$0.1776 | \$0.1677 | \$0.1583 | \$0.1494 | \$0.1410 | \$0.1331 | \$0.1256 | \$0.1186 | \$0.1119 | \$0.1056 |
| Resource Portfolio Cost - % Change | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 6.85 | \$ 7.07 | \$ 7.28 | \$ 7.48 | \$ 7.68 | \$ 7.86 | \$ 8.04 | \$ 8.20 | \$ 8.36 | \$ 8.52 | \$ 8.66 |
| Portfolio Costs with 10% Conservation Credit | \$7.53 | \$7.78 | \$8.01 | \$8.23 | \$8.45 | \$8.65 | \$8.84 | \$9.03 | \$9.20 | \$9.37 | \$9.53 |
| Cost-Effectiveness Limit | \$0.5297 | \$0.5323 | \$0.5346 | \$0.5365 | \$0.5383 | \$0.5398 | \$0.5410 | \$0.5422 | \$0.5431 | \$0.5439 | \$0.5446 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

Cascade's Long Term Real Discount Rate:
 IRP Discount Rate =
 Years 21-45 Escalation =

| Category | 2044 33 | 2045 34 | 2046 35 | 2047 36 | 2048 37 | 2049 38 | 2050 39 | 2051 40 | 2052 41 | 2053 42 | 2054 43 |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.10 | \$ 0.09 | \$ 0.09 | \$ 0.08 | \$ 0.08 | \$ 0.07 | \$ 0.07 | \$ 0.07 | \$ 0.06 | \$ 0.06 | \$ 0.06 |
| Nominal Cost Per Therm | \$ 1.56 | \$ 1.60 | \$ 1.65 | \$ 1.69 | \$ 1.73 | \$ 1.78 | \$ 1.82 | \$ 1.87 | \$ 1.92 | \$ 1.97 | \$ 2.02 |
| Verification | \$ 0.0997 | \$ 0.0941 | \$ 0.0888 | \$ 0.0838 | \$ 0.0791 | \$ 0.0747 | \$ 0.0705 | \$ 0.0665 | \$ 0.0628 | \$ 0.0593 | \$ 0.0560 |
| Resource Portfolio Cost - % Change | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 8.80 | \$ 8.93 | \$ 9.06 | \$ 9.18 | \$ 9.29 | \$ 9.40 | \$ 9.50 | \$ 9.60 | \$ 9.70 | \$ 9.79 | \$ 9.87 |
| Portfolio Costs with 10% Conservation Credit | \$9.68 | \$9.82 | \$9.96 | \$10.09 | \$10.22 | \$10.34 | \$10.45 | \$10.56 | \$10.67 | \$10.76 | \$10.86 |
| Cost-Effectiveness Limit | \$0.5452 | \$0.5457 | \$0.5461 | \$0.5465 | \$0.5467 | \$0.5469 | \$0.5471 | \$0.5472 | \$0.5473 | \$0.5473 | \$0.5473 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

Cascade's Long Term Real Discount Rate:

IRP Discount Rate =
Years 21-45 Escalation =

| Category | 2055 | 2056 |
|--|----------|----------|
| | 44 | 45 |
| IRP Annual Portfolio Cost Per Therm (PV)* | \$ 0.05 | \$ 0.05 |
| Nominal Cost Per Therm | \$ 2.07 | \$ 2.13 |
| Verification | \$0.0528 | \$0.0499 |
| Resource Portfolio Cost - % Change | 2.60% | 2.60% |
| PV of Resource Portfolio Cost/Therm | \$ 9.95 | \$ 10.03 |
| Portfolio Costs with 10% Conservation Credit | \$10.95 | \$11.03 |
| Cost-Effectiveness Limit | \$0.5472 | \$0.5471 |

* 2012 IRP Basecase- Draft Medium Forecast Average Wea

Avoided costs are the unit cost to serve the next unit of demand with a supply-side resource option.

- DSM is not included when calculating the avoided cost so that the demand is served by supply-side resources only.
- Cascade's SENDOUT® model produces a marginal cost report which shows the daily incremental cost to serve the next unit of demand.
- The computed marginal cost includes
 - price of natural gas
 - variable transportation charges
 - variable charges related to storage
- Distribution costs are not currently included in Cascade's avoided cost.
- The draft 2012 IRP cost effectiveness tests use the avoided costs from the most developed (as of September 2012) IRP for the base case portfolio resources. Non-energy benefit percentages are consistent with Cascade's most recently approved 2011 IRP.

The high and low natural gas price sensitivities that are being developed for the 2012 IRP are used to scale the base case avoided cost up or down to produce the high and low avoided cost sensitivities.

For many years, The Northwest Power and Conservation Council (NPCC) has utilized a 10% cost advantage for electric utilities acquiring conservation resources to realize the benefits of not using supply side resources. Such electric utility benefits include reduced fish and wildlife impacts, load stability, load predictability and improved air quality. As discussed in Section 7, when calculating the avoided cost figures, the company includes an incremental cost advantage for conservation resources. Historically, Cascade has included the 10% cost advantage for conservation resources which was consistent with the region's requirements for gas utilities for mandated residential weatherization programs. For this plan, the company developed a graduated scale ranging from 5% for short-term measures up to a 20% factor for longer-lived measures. The use of a graduated scale is an attempt to recognize non-quantifiable benefits associated with conservation, such as price certainty and a hedge value against future carbon costs.

At the time of this writing, specific details on the level of carbon allowances and how they may be allocated to the gas utilities under a cap and trade program are still unknown.

| | |
|------------------------|--------|
| Admin Adder | 5.00% |
| Conservation Credit | 10.00% |
| Electric: Carbon Adder | 20.00% |
| Gas: Carbon Adder | 10.00% |

To develop avoided cost figures associated with the reduction of incremental natural gas usage, a demand forecast, existing and future supply-side resources and demand-side resources are required. Cascade utilizes SENDOUT® model results to produce avoided costs, using the Marginal Cost of Gas report, with the Company's Weighted Average Cost of Capital (8.7%) discount rate across the planning horizon. Starting with year 21 we assume and apply a flat price forecast with the the DSM discount applied through the end of the 45 year period.

The company assumes the Expected Average Cost as the appropriate data set for the analysis of avoided costs and calculation of the cost-effectiveness limits (CEs). However, Appendix H includes tables that provide the avoided costs and CEL calculations expected minimum and expected maximum Monte-Carlo results as well as the various Carbon Cost scenarios included in the Plan. This will allow the company to further analyze its Conservation potential curves and the magnitude of the measures that could be deemed cost-effective depending on the outcome of the Carbon Cost proposals.

Natural Gas Environmental Externality Cost Analysis
 Updated with EIA's Estimated Emission Factors & Inflation

| Emission | Emission (Lbs/Therm) | Cost (\$/Lb) | Externality Adder (\$/Therm) |
|--------------------------|----------------------|--------------|------------------------------|
| Carbon Scenario 1 | | | |
| NO2 | 0.008 | \$1.250 | \$0.010 |
| \$2500/Ton CO2 | 11.673 | \$0.008 | \$0.088 |
| \$15/Ton | | | |
| Carbon Scenario 2 | | | |
| NO2 | 0.008 | \$1.250 | \$0.010 |
| \$2500/Ton CO2 | 11.673 | \$0.010 | \$0.117 |
| \$20/Ton | | | |
| Carbon Scenario 3 | | | |
| NO2 | 0.008 | \$1.250 | \$0.010 |
| \$2500/Ton CO2 | 11.673 | \$0.015 | \$0.175 |
| \$30/Ton | | | |

General Assumptions:

Externality Adder reflects 1st year adder

Adder will increase annually by 3% and will be adjusted by the CPI, estimated to be 3.5%/year

EIA ECONOMIC GROWTH FACTORS (EIA ANNUAL ENERGY OUTLOOK 2011, TABLE E-1)

| Case name | Description | Integration mode | Reference in text | Reference in Appendix E |
|----------------------|---|------------------|-------------------|-------------------------|
| Reference | Baseline economic growth (2.7 percent per year from 2009 through 2035), world oil price, and technology assumptions. Complete projection tables in Appendix A. World light, sweet crude oil prices rise to about \$125 per barrel (2009 dollars) in 2035. Assumes RFS target to be met as soon as possible. | Fully integrated | -- | -- |
| Low Economic Growth | Real GDP grows at an average annual rate of 2.1 percent from 2009 to 2035. Other energy market assumptions are the same as in the Reference case. Partial projection tables in Appendix B. | Fully integrated | p. 58 | p. 213 |
| High Economic Growth | Real GDP grows at an average annual rate of 3.2 percent from 2009 to 2035. Other energy market assumptions are the same as in the Reference case. Partial projection tables in Appendix B. | Fully integrated | p. 58 | p. 213 |

FACTORS USED IN PRICE FORECAST

| | | | | |
|----------------|-----|---------|---------|--------|
| Low Case | 2.1 | -0.6000 | -0.0600 | 0.9400 |
| Reference Case | 2.7 | | | |
| High Case | 3.2 | 0.5000 | 0.0500 | 1.0500 |

Important to note about EIAs forecast methodology: The variation among published projections of natural gas consumption, production, imports, and prices (Table 16) can be significant. It results from differences in the assumptions that underlie the projections. For example, the natural gas projection in the AEO2011 Reference case assumes, for the most part, that current laws and regulations will continue through the projection period, whereas other natural gas projections may include anticipated policy developments over the next 25 years. In particular, AEO2011 does not assume the implementation of regulations limiting CO2 emissions or other types of emissions beyond those already in effect.

| Year | Financial Forecast Center | | | TEXAS | | WoodMac April | | NYMEX | | WAVG RES PLAN | | ORIG WAVG | | | | |
|------|---------------------------|-------|-------------|-------|------|---------------|----------|----------|----------|---------------|-----------|--------------|----------|--------------|-----------|--------------|
| | Jun 2012 | NWPPC | Comptroller | 2011 | EIA | HH | HH PRICE | RES PLAN | HH PRICE | LO BASE CASE | BASE CASE | HI BASE CASE | RES PLAN | LO BASE CASE | BASE CASE | HI BASE CASE |
| 2011 | 0.005 | 0.08 | 0.005 | 0.08 | 0.08 | 0.75 | 3.810192 | 3.810192 | 3.810192 | 3.581581 | 3.810192 | 4.000702 | 3.810192 | 3.581581 | 3.810192 | 4.000702 |
| 2012 | 0 | 0.15 | 0 | 0 | 0 | 0.35 | 2.501292 | 2.501292 | 2.501292 | 4.183583 | 2.351214 | 2.501292 | 2.501292 | 2.351214 | 2.501292 | 2.626356 |
| 2013 | 0 | 0.15 | 0 | 0 | 0 | 0.4 | 3.4944 | 3.4944 | 3.4944 | 4.707848 | 3.284736 | 3.4944 | 3.4944 | 3.284736 | 3.4944 | 3.66912 |
| 2014 | 0 | 0.15 | 0 | 0 | 0 | 0.45 | 3.851608 | 3.851608 | 3.851608 | 4.979343 | 3.620512 | 3.851608 | 4.044188 | 3.620512 | 3.851608 | 4.044188 |
| 2015 | 0 | 0.15 | 0 | 0 | 0 | 0.5 | 4.136053 | 4.136053 | 4.136053 | 5.059543 | 3.88789 | 4.136053 | 4.342856 | 3.88789 | 4.136053 | 4.342856 |
| 2016 | 0 | 0.15 | 0 | 0 | 0 | 0.55 | 4.246546 | 4.246546 | 4.246546 | 5.492729 | 3.91754 | 4.246546 | 4.458874 | 3.91754 | 4.246546 | 4.458874 |
| 2017 | 0 | 0.15 | 0 | 0 | 0 | 0.6 | 4.403922 | 4.403922 | 4.403922 | 5.219655 | 3.991754 | 4.403922 | 4.624118 | 3.991754 | 4.403922 | 4.624118 |
| 2018 | 0 | 0.15 | 0 | 0 | 0 | 0.65 | 4.587599 | 4.587599 | 4.587599 | 5.355059 | 4.139686 | 4.587599 | 4.816979 | 4.139686 | 4.587599 | 4.816979 |
| 2019 | 0 | 0.15 | 0 | 0 | 0 | 0.7 | 4.748719 | 4.748719 | 4.748719 | 5.492729 | 4.312343 | 4.748719 | 4.986155 | 4.312343 | 4.748719 | 4.986155 |
| 2020 | 0 | 0.15 | 0 | 0 | 0 | 0.75 | 4.845769 | 4.845769 | 4.845769 | 5.658523 | 4.463796 | 4.845769 | 5.088057 | 4.463796 | 4.845769 | 5.088057 |
| 2021 | 0 | 0.15 | 0 | 0 | 0 | 0.8 | 5.017672 | 5.017672 | 5.017672 | 5.844025 | 4.555023 | 5.017672 | 5.268555 | 4.555023 | 5.017672 | 5.268555 |
| 2022 | 0 | 0.15 | 0 | 0 | 0 | 0.85 | 5.248481 | 5.248481 | 5.248481 | 6.065605 | 4.716611 | 5.248481 | 5.510905 | 4.716611 | 5.248481 | 5.510905 |
| 2023 | 0 | 0.15 | 0 | 0 | 0 | 0.85 | 5.439439 | 5.439439 | 5.439439 | 6.093523 | 4.933572 | 5.439439 | 5.711411 | 4.933572 | 5.439439 | 5.711411 |
| 2024 | 0 | 0.15 | 0 | 0 | 0 | 0.85 | 5.592843 | 5.592843 | 5.592843 | 6.241047 | 5.113073 | 5.592843 | 5.872485 | 5.113073 | 5.592843 | 5.872485 |
| 2025 | 0 | 0.5 | 0 | 0 | 0 | 0.5 | 5.832857 | 5.832857 | 5.832857 | 6.335575 | 5.257272 | 5.832857 | 6.1245 | 5.257272 | 5.832857 | 6.1245 |
| 2026 | 0 | 0.5 | 0 | 0 | 0 | 0.5 | 6.001937 | 6.001937 | 6.001937 | 6.404211 | 5.482886 | 6.001937 | 6.302034 | 5.482886 | 6.001937 | 6.302034 |
| 2027 | 0 | 0.5 | 0 | 0 | 0 | 0.5 | 6.154418 | 6.154418 | 6.154418 | 6.540815 | 5.641821 | 6.154418 | 6.462139 | 5.641821 | 6.154418 | 6.462139 |
| 2028 | 0 | 0.5 | 0 | 0 | 0 | 0.5 | 6.208714 | 6.208714 | 6.208714 | 6.756594 | 5.785153 | 6.208714 | 6.51915 | 5.785153 | 6.208714 | 6.51915 |
| 2029 | 0 | 0.5 | 0 | 0 | 0 | 0.5 | 6.239631 | 6.239631 | 6.239631 | 6.896811 | 5.836191 | 6.239631 | 6.51915 | 5.836191 | 6.239631 | 6.51915 |
| 2030 | 0 | 0.5 | 0 | 0 | 0 | 0.5 | 6.324187 | 6.324187 | 6.324187 | 6.942189 | 5.865253 | 6.324187 | 6.51915 | 5.865253 | 6.324187 | 6.51915 |
| 2031 | 0 | 0 | 0 | 0 | 1 | 0 | 6.370103 | 6.370103 | 6.370103 | 7.019357 | 5.944736 | 6.370103 | 6.640396 | 5.944736 | 6.370103 | 6.640396 |
| 2032 | 0 | 0 | 0 | 0 | 1 | 0 | 6.630243 | 6.630243 | 6.630243 | 7.278991 | 5.987897 | 6.630243 | 6.688608 | 5.987897 | 6.630243 | 6.688608 |
| 2033 | 0 | 0 | 0 | 0 | 1 | 0 | 6.793119 | 6.793119 | 6.793119 | 7.555593 | 6.232429 | 6.793119 | 6.961755 | 6.232429 | 6.793119 | 6.961755 |
| 2034 | 0 | 0 | 0 | 0 | 1 | 0 | 6.95751 | 6.95751 | 6.95751 | 7.659265 | 6.385532 | 6.95751 | 7.132775 | 6.385532 | 6.95751 | 7.132775 |
| 2035 | 0 | 0 | 0 | 0 | 1 | 0 | 7.198939 | 7.198939 | 7.198939 | 7.873841 | 6.540059 | 7.198939 | 7.305386 | 6.540059 | 7.198939 | 7.305386 |
| | | | | | | | | | | 8.068624 | 6.767002 | 8.068624 | 7.558886 | 6.767002 | 8.068624 | 7.558886 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2012 | 2013 |
|--------------------------------|------------|----------------------|-----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -2.761451 | -3.47396 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options **DSM disabled**;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2012 | 2013 |
|--------------------------------|------------|----------------------|-----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -2.761451 | -3.47396 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM disabled;

Process control: **DSM in Optimization enabled**; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2012 | 2013 |
|--------------------------------|------------|----------------------|-----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -2.761451 | -3.47396 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2033; Report Parm: **Nominal enabled**

| Data Item | Area | Scenario | 2012 | 2013 |
|--------------------------------|------------|----------------------|-----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -2.761451 | -3.47396 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -2.752932 | -3.50448 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2014 | 2015 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -3.959 | -4.37764 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options **DSM disabled**;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2014 | 2015 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -3.959 | -4.37764 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM disabled;

Process control: **DSM in Optimization enabled**; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2014 | 2015 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -3.959 | -4.37764 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2033; Report Parm: **Nominal enabled**

| Data Item | Area | Scenario | 2014 | 2015 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -3.959 | -4.37764 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -3.96666 | -4.34926 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2016 | 2017 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.39748 | -4.409 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options **DSM disabled**;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2016 | 2017 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.39748 | -4.409 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM disabled;

Process control: **DSM in Optimization enabled**; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2016 | 2017 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.39748 | -4.409 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2033; Report Parm: **Nominal enabled**

| Data Item | Area | Scenario | 2016 | 2017 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.39748 | -4.409 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.31927 | -4.32631 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2018 | 2019 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.47473 | -4.68587 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options **DSM disabled**;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2018 | 2019 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.47473 | -4.68587 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM disabled;

Process control: **DSM in Optimization enabled**; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2018 | 2019 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.47473 | -4.68587 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2033; Report Parm: **Nominal enabled**

| Data Item | Area | Scenario | 2018 | 2019 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.47473 | -4.68587 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.38318 | -4.62179 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2020 | 2021 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.76946 | -4.83158 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options **DSM disabled**;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2020 | 2021 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.76946 | -4.83158 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM disabled;

Process control: **DSM in Optimization enabled**; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2020 | 2021 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.76946 | -4.83158 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2033; Report Parm: **Nominal enabled**

| Data Item | Area | Scenario | 2020 | 2021 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -4.76946 | -4.83158 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -4.70255 | -4.75185 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2022 | 2023 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -5.20288 | -5.33053 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options **DSM disabled**;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2022 | 2023 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -5.20288 | -5.33053 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM disabled;

Process control: **DSM in Optimization enabled**; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2022 | 2023 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -5.20288 | -5.33053 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2033; Report Parm: **Nominal enabled**

| Data Item | Area | Scenario | 2022 | 2023 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -5.20288 | -5.33053 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.10146 | -5.21373 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2024 | 2025 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -5.28998 | -46.4651 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -5.44148 | -46.5609 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options **DSM disabled**;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2024 | 2025 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -5.28998 | -46.4651 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -5.44148 | -46.5609 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM disabled;

Process control: **DSM in Optimization enabled**; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2024 | 2025 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -5.28998 | -46.4651 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -5.44148 | -46.5609 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2033; Report Parm: **Nominal enabled**

| Data Item | Area | Scenario | 2024 | 2025 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -5.28998 | -46.4651 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -5.44148 | -46.5609 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.28998 | -5.30095 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2026 | 2027 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.7486 | -46.9422 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -46.7956 | -47.0014 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options **DSM disabled**;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2026 | 2027 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.7486 | -46.9422 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -46.7956 | -47.0014 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM disabled;

Process control: **DSM in Optimization enabled**; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2026 | 2027 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.7486 | -46.9422 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -46.7956 | -47.0014 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2033; Report Parm: **Nominal enabled**

| Data Item | Area | Scenario | 2026 | 2027 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.7486 | -46.9422 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -46.7956 | -47.0014 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.62593 | -5.8411 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2028 | 2029 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.9862 | -46.9036 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.0659 | -47.0682 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options **DSM disabled**;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2028 | 2029 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.9862 | -46.9036 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.0659 | -47.0682 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM disabled;

Process control: **DSM in Optimization enabled**; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2028 | 2029 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.9862 | -46.9036 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.0659 | -47.0682 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2033; Report Parm: **Nominal enabled**

| Data Item | Area | Scenario | 2028 | 2029 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.9862 | -46.9036 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.0659 | -47.0682 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.88939 | -5.80211 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2030 | 2031 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -47.0006 | -46.738 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.2223 | -46.9629 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options **DSM disabled**;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2030 | 2031 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -47.0006 | -46.738 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.2223 | -46.9629 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM disabled;

Process control: **DSM in Optimization enabled**; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2030 | 2031 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -47.0006 | -46.738 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.2223 | -46.9629 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2033; Report Parm: **Nominal enabled**

| Data Item | Area | Scenario | 2030 | 2031 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -47.0006 | -46.738 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.2223 | -46.9629 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -5.91828 | -6.06032 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2032 | 2033 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.7889 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.1498 | -6.68368 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options **DSM disabled**;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2032 | 2033 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.7889 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.1498 | -6.68368 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM disabled;

Process control: **DSM in Optimization enabled**; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2032 | 2033 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.7889 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.1498 | -6.68368 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2033; Report Parm: **Nominal enabled**

| Data Item | Area | Scenario | 2032 | 2033 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -46.7889 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -47.1498 | -6.68368 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -6.13734 | -6.02365 |

2012 CNGC IRP

APPENDIX H (AVOIDED COST BY ZONE)

PAGE

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2012 | 2013 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal enabled

| Data Item | Area | Scenario | 2012 | 2013 |
|--------------------------------|------------|----------------------|-----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2936-2012 IRP Ver 11 | -2.618134 | -3.34568 |
| Peak Day Marginal Cost by Area | Zone 11 | 2936-2012 IRP Ver 11 | -2.618134 | -3.34568 |
| Peak Day Marginal Cost by Area | Zone 20 | 2936-2012 IRP Ver 11 | -2.618134 | -3.34568 |
| Peak Day Marginal Cost by Area | Zone 24 | 2936-2012 IRP Ver 11 | -2.618134 | -3.34568 |
| Peak Day Marginal Cost by Area | Zone 26 | 2936-2012 IRP Ver 11 | -2.618134 | -3.34568 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2936-2012 IRP Ver 11 | -2.618134 | -3.34568 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2936-2012 IRP Ver 11 | -2.618134 | -3.34568 |
| Peak Day Marginal Cost by Area | Zone GTN | 2936-2012 IRP Ver 11 | -44.03491 | -3.3058 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2936-2012 IRP Ver 11 | -2.618134 | -3.34568 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2936-2012 IRP Ver 11 | -2.618134 | -3.34568 |
| | | | 0.261813 | 0.334568 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2012 | 2013 |
|--------------------------------|------------|----------------------|-----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -2.736498 | -3.43783 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -2.736498 | -3.43783 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -2.736498 | -3.43783 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -2.736498 | -3.43783 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -2.736498 | -3.43783 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -2.736498 | -3.43783 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -2.736498 | -3.43783 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -2.745291 | -3.4013 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -2.736498 | -3.43783 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -2.736498 | -3.43783 |

AVOIDED COST

| | | |
|---------------|---------|----------|
| Base | 0.27365 | 0.343783 |
| \$15 Carbon 1 | 0.27365 | 0.343783 |
| \$20 Carbon 2 | 0.27365 | 0.343783 |
| \$30 Carbon 3 | 0.27365 | 0.343783 |

\$4.99 over planning horizon

2012 CNGC IRP

APPENDIX H (AVOIDED COST BY ZONE)

PAGE

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2014 | 2015 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal enabled

| Data Item | Area | Scenario | 2014 | 2015 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2936-2012 IRP Ver 11 | -3.45774 | -3.4642 |
| Peak Day Marginal Cost by Area | Zone 11 | 2936-2012 IRP Ver 11 | -3.45774 | -3.4642 |
| Peak Day Marginal Cost by Area | Zone 20 | 2936-2012 IRP Ver 11 | -3.45774 | -3.4642 |
| Peak Day Marginal Cost by Area | Zone 24 | 2936-2012 IRP Ver 11 | -3.45774 | -3.4642 |
| Peak Day Marginal Cost by Area | Zone 26 | 2936-2012 IRP Ver 11 | -3.45774 | -3.4642 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2936-2012 IRP Ver 11 | -3.45774 | -3.4642 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2936-2012 IRP Ver 11 | -3.45774 | -3.4642 |
| Peak Day Marginal Cost by Area | Zone GTN | 2936-2012 IRP Ver 11 | -3.43714 | -3.44918 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2936-2012 IRP Ver 11 | -3.45774 | -3.4642 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2936-2012 IRP Ver 11 | -3.45774 | -3.4642 |

0.345774 0.34642

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2014 | 2015 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -3.59386 | -3.64752 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -3.59386 | -3.64752 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -3.59386 | -3.64752 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -3.59386 | -3.64752 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -3.59386 | -3.64752 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -3.59386 | -3.64752 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -3.59386 | -3.64752 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -3.58331 | -3.67225 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -3.59386 | -3.64752 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -3.59386 | -3.64752 |

AVOIDED COST

| | | |
|---------------|----------|----------|
| Base | 0.359386 | 0.364752 |
| \$15 Carbon 1 | 0.359386 | 0.364752 |
| \$20 Carbon 2 | 0.359386 | 0.364752 |
| \$30 Carbon 3 | 0.359386 | 0.364752 |

\$4.99 over planning horizon

2012 CNGC IRP

APPENDIX H (AVOIDED COST BY ZONE)

PAGE

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2016 | 2017 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal enabled

| Data Item | Area | Scenario | 2016 | 2017 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2936-2012 IRP Ver 11 | -3.12581 | -2.86376 |
| Peak Day Marginal Cost by Area | Zone 11 | 2936-2012 IRP Ver 11 | -3.12581 | -2.86376 |
| Peak Day Marginal Cost by Area | Zone 20 | 2936-2012 IRP Ver 11 | -3.12581 | -2.86376 |
| Peak Day Marginal Cost by Area | Zone 24 | 2936-2012 IRP Ver 11 | -3.12581 | -2.86376 |
| Peak Day Marginal Cost by Area | Zone 26 | 2936-2012 IRP Ver 11 | -3.12581 | -2.86376 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2936-2012 IRP Ver 11 | -3.12581 | -2.86376 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2936-2012 IRP Ver 11 | -3.12581 | -2.86376 |
| Peak Day Marginal Cost by Area | Zone GTN | 2936-2012 IRP Ver 11 | -3.11111 | -2.84691 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2936-2012 IRP Ver 11 | -3.12581 | -2.86376 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2936-2012 IRP Ver 11 | -3.12581 | -2.86376 |

0.312581 0.286376

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2016 | 2017 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -3.35343 | -3.09915 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -3.35343 | -3.09915 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -3.35343 | -3.09915 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -3.35343 | -3.09915 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -3.35343 | -3.09915 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -3.35343 | -3.09915 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -3.35343 | -3.09915 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -3.40882 | -3.15698 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -3.35343 | -3.09915 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -3.35343 | -3.09915 |

AVOIDED COST

| | | |
|---------------|----------|----------|
| Base | 0.335343 | 0.309915 |
| \$15 Carbon 1 | 0.335343 | 0.309915 |
| \$20 Carbon 2 | 0.335343 | 0.309915 |
| \$30 Carbon 3 | 0.335343 | 0.309915 |

\$4.99 over planning horizon

2012 CNGC IRP

APPENDIX H (AVOIDED COST BY ZONE)

PAGE

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2018 | 2019 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal enabled

| Data Item | Area | Scenario | 2018 | 2019 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2936-2012 IRP Ver 11 | -2.64843 | -2.55689 |
| Peak Day Marginal Cost by Area | Zone 11 | 2936-2012 IRP Ver 11 | -2.64843 | -2.55689 |
| Peak Day Marginal Cost by Area | Zone 20 | 2936-2012 IRP Ver 11 | -2.64843 | -2.55689 |
| Peak Day Marginal Cost by Area | Zone 24 | 2936-2012 IRP Ver 11 | -2.64843 | -2.55689 |
| Peak Day Marginal Cost by Area | Zone 26 | 2936-2012 IRP Ver 11 | -2.64843 | -2.55689 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2936-2012 IRP Ver 11 | -2.64843 | -2.55689 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2936-2012 IRP Ver 11 | -2.64843 | -2.55188 |
| Peak Day Marginal Cost by Area | Zone GTN | 2936-2012 IRP Ver 11 | -2.62585 | -2.52317 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2936-2012 IRP Ver 11 | -2.64843 | -2.55689 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2936-2012 IRP Ver 11 | -2.64843 | -2.55689 |

0.264843 0.255689

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2018 | 2019 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -2.90233 | -2.82051 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -2.90233 | -2.82051 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -2.90233 | -2.82051 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -2.90233 | -2.82051 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -2.90233 | -2.82051 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -2.90233 | -2.82051 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -2.90233 | -2.82051 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -2.96021 | -2.8587 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -2.90233 | -2.82051 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -2.90233 | -2.82051 |

AVOIDED COST

| | | |
|---------------|----------|----------|
| Base | 0.290233 | 0.282051 |
| \$15 Carbon 1 | 0.290233 | 0.317308 |
| \$20 Carbon 2 | 0.290233 | 0.323184 |
| \$30 Carbon 3 | 0.290233 | 0.346688 |

\$4.99 over planning horizon

2012 CNGC IRP

APPENDIX H (AVOIDED COST BY ZONE)

PAGE

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2020 | 2021 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal enabled

| Data Item | Area | Scenario | 2020 | 2021 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2936-2012 IRP Ver 11 | -2.37074 | -2.19142 |
| Peak Day Marginal Cost by Area | Zone 11 | 2936-2012 IRP Ver 11 | -2.37074 | -2.19142 |
| Peak Day Marginal Cost by Area | Zone 20 | 2936-2012 IRP Ver 11 | -2.37074 | -2.19142 |
| Peak Day Marginal Cost by Area | Zone 24 | 2936-2012 IRP Ver 11 | -2.37074 | -2.19142 |
| Peak Day Marginal Cost by Area | Zone 26 | 2936-2012 IRP Ver 11 | -2.37074 | -2.19142 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2936-2012 IRP Ver 11 | -2.37074 | -2.19142 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2936-2012 IRP Ver 11 | -2.36841 | -2.18639 |
| Peak Day Marginal Cost by Area | Zone GTN | 2936-2012 IRP Ver 11 | -2.34015 | -2.16605 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2936-2012 IRP Ver 11 | -2.37074 | -2.19142 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2936-2012 IRP Ver 11 | -2.37074 | -2.19142 |

0.237074 0.219142

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2020 | 2021 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -2.65247 | -2.47632 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -2.65247 | -2.47632 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -2.65247 | -2.47632 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -2.65247 | -2.47632 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -2.65247 | -2.47632 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -2.65247 | -2.47632 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -2.65247 | -2.47632 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -2.69019 | -2.51949 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -2.65247 | -2.47632 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -2.65247 | -2.47632 |

AVOIDED COST

| | | |
|---------------|----------|----------|
| Base | 0.265247 | 0.247632 |
| \$15 Carbon 1 | 0.294078 | 0.275771 |
| \$20 Carbon 2 | 0.30561 | 0.281399 |
| \$30 Carbon 3 | 0.322909 | 0.303911 |

\$4.99 over planning horizon

2012 CNGC IRP

APPENDIX H (AVOIDED COST BY ZONE)

PAGE

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;
 Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2022 | 2023 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;
 Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal enabled

| Data Item | Area | Scenario | 2022 | 2023 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2936-2012 IRP Ver 11 | -2.15591 | -2.01666 |
| Peak Day Marginal Cost by Area | Zone 11 | 2936-2012 IRP Ver 11 | -2.15591 | -2.01666 |
| Peak Day Marginal Cost by Area | Zone 20 | 2936-2012 IRP Ver 11 | -2.15591 | -2.01666 |
| Peak Day Marginal Cost by Area | Zone 24 | 2936-2012 IRP Ver 11 | -2.15591 | -2.01666 |
| Peak Day Marginal Cost by Area | Zone 26 | 2936-2012 IRP Ver 11 | -2.15591 | -2.01666 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2936-2012 IRP Ver 11 | -2.15591 | -2.01666 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2936-2012 IRP Ver 11 | -2.14997 | -2.00775 |
| Peak Day Marginal Cost by Area | Zone GTN | 2936-2012 IRP Ver 11 | -2.13368 | -1.99634 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2936-2012 IRP Ver 11 | -2.15591 | -2.01666 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2936-2012 IRP Ver 11 | -2.15591 | -2.01666 |
| | | | 0.215591 | 0.201666 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;
 Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2022 | 2023 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -2.45988 | -2.31861 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -2.45988 | -2.31861 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -2.45988 | -2.31861 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -2.45988 | -2.31861 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -2.45988 | -2.31861 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -2.45988 | -2.31861 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -2.45988 | -2.31861 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -2.50547 | -2.37049 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -2.45988 | -2.31861 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -2.45988 | -2.31861 |

| AVOIDED COST | Base | 2022 | 2023 |
|--------------|---------------|----------|----------|
| | \$15 Carbon 1 | 0.283832 | 0.263193 |
| | \$20 Carbon 2 | 0.290139 | 0.26946 |
| | \$30 Carbon 3 | 0.309061 | 0.288259 |

\$4.99 over planning horizon

2012 CNGC IRP

APPENDIX H (AVOIDED COST BY ZONE)

PAGE

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2024 | 2025 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal enabled

| Data Item | Area | Scenario | 2024 | 2025 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2936-2012 IRP Ver 11 | -1.86763 | -1.69364 |
| Peak Day Marginal Cost by Area | Zone 11 | 2936-2012 IRP Ver 11 | -1.86763 | -1.69364 |
| Peak Day Marginal Cost by Area | Zone 20 | 2936-2012 IRP Ver 11 | -1.86763 | -1.69364 |
| Peak Day Marginal Cost by Area | Zone 24 | 2936-2012 IRP Ver 11 | -1.86763 | -1.69364 |
| Peak Day Marginal Cost by Area | Zone 26 | 2936-2012 IRP Ver 11 | -1.86763 | -1.69364 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2936-2012 IRP Ver 11 | -1.86763 | -1.69364 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2936-2012 IRP Ver 11 | -1.8577 | -1.6846 |
| Peak Day Marginal Cost by Area | Zone GTN | 2936-2012 IRP Ver 11 | -1.8505 | -1.68178 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2936-2012 IRP Ver 11 | -1.86763 | -1.69364 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2936-2012 IRP Ver 11 | -1.86763 | -1.69364 |

0.186763 0.169364

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2024 | 2025 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -2.18339 | -2.02278 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -2.18339 | -2.02278 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -2.18339 | -2.02278 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -2.18339 | -2.02278 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -2.18339 | -2.02278 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -2.18339 | -43.4931 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -2.18339 | -2.02278 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -2.23677 | -2.06159 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -2.18339 | -2.02278 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -2.18339 | -2.02278 |

AVOIDED COST

| | | |
|---------------|----------|----------|
| Base | 0.218339 | 0.202278 |
| \$15 Carbon 1 | 0.24953 | 0.232025 |
| \$20 Carbon 2 | 0.262007 | 0.237975 |
| \$30 Carbon 3 | 0.280722 | 0.255823 |

\$4.99 over planning horizon

2012 CNGC IRP

APPENDIX H (AVOIDED COST BY ZONE)

PAGE

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2026 | 2027 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal enabled

| Data Item | Area | Scenario | 2026 | 2027 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2936-2012 IRP Ver 11 | -1.64551 | -1.55086 |
| Peak Day Marginal Cost by Area | Zone 11 | 2936-2012 IRP Ver 11 | -1.64551 | -1.55086 |
| Peak Day Marginal Cost by Area | Zone 20 | 2936-2012 IRP Ver 11 | -1.64551 | -1.55086 |
| Peak Day Marginal Cost by Area | Zone 24 | 2936-2012 IRP Ver 11 | -1.64551 | -1.55086 |
| Peak Day Marginal Cost by Area | Zone 26 | 2936-2012 IRP Ver 11 | -1.64551 | -1.55086 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2936-2012 IRP Ver 11 | -1.64551 | -1.55658 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2936-2012 IRP Ver 11 | -1.64006 | -1.54419 |
| Peak Day Marginal Cost by Area | Zone GTN | 2936-2012 IRP Ver 11 | -1.62802 | -1.53462 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2936-2012 IRP Ver 11 | -1.64551 | -1.55086 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2936-2012 IRP Ver 11 | -1.64551 | -1.55086 |

0.164551 0.155086

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2026 | 2027 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -1.97262 | -1.8882 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -1.97262 | -1.8882 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -1.97262 | -1.8882 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -1.97262 | -1.8882 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -1.97262 | -1.8882 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -43.4524 | -43.3783 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -1.97262 | -1.8882 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -1.99134 | -11.7488 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -1.97262 | -1.8882 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -1.97262 | -1.8882 |

AVOIDED COST

| | | |
|---------------|----------|----------|
| Base | 0.197262 | 0.18882 |
| \$15 Carbon 1 | 0.230139 | 0.223786 |
| \$20 Carbon 2 | 0.236714 | 0.23078 |
| \$30 Carbon 3 | 0.256441 | 0.251759 |

\$4.99 over planning horizon

2012 CNGC IRP

APPENDIX H (AVOIDED COST BY ZONE)

PAGE

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2028 | 2029 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal enabled

| Data Item | Area | Scenario | 2028 | 2029 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2936-2012 IRP Ver 11 | -1.42777 | -1.28089 |
| Peak Day Marginal Cost by Area | Zone 11 | 2936-2012 IRP Ver 11 | -1.42777 | -1.28089 |
| Peak Day Marginal Cost by Area | Zone 20 | 2936-2012 IRP Ver 11 | -1.42777 | -1.28089 |
| Peak Day Marginal Cost by Area | Zone 24 | 2936-2012 IRP Ver 11 | -1.42777 | -1.28089 |
| Peak Day Marginal Cost by Area | Zone 26 | 2936-2012 IRP Ver 11 | -1.42777 | -1.28089 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2936-2012 IRP Ver 11 | -1.42777 | -1.28089 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2936-2012 IRP Ver 11 | -1.42169 | -1.27542 |
| Peak Day Marginal Cost by Area | Zone GTN | 2936-2012 IRP Ver 11 | -1.41351 | -1.2873 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2936-2012 IRP Ver 11 | -1.42777 | -1.28089 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2936-2012 IRP Ver 11 | -1.42777 | -1.28089 |

0.142777 0.128089

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2028 | 2029 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -1.75882 | -1.61234 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -1.75882 | -1.61234 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -1.75882 | -1.61234 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -1.75882 | -1.61234 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -1.75882 | -1.61234 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -43.2612 | -43.1174 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -1.75882 | -1.61234 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -43.2876 | -43.1522 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -1.75882 | -1.61234 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -1.75882 | -1.61234 |

AVOIDED COST

| | | |
|---------------|----------|----------|
| Base | 0.175882 | 0.161234 |
| \$15 Carbon 1 | 0.202941 | 0.194824 |
| \$20 Carbon 2 | 0.21647 | 0.201542 |
| \$30 Carbon 3 | 0.236764 | 0.221696 |

\$4.99 over planning horizon

2012 CNGC IRP

APPENDIX H (AVOIDED COST BY ZONE)

PAGE

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2030 | 2031 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal enabled

| Data Item | Area | Scenario | 2030 | 2031 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2936-2012 IRP Ver 11 | -1.18763 | -1.043 |
| Peak Day Marginal Cost by Area | Zone 11 | 2936-2012 IRP Ver 11 | -1.18763 | -1.043 |
| Peak Day Marginal Cost by Area | Zone 20 | 2936-2012 IRP Ver 11 | -1.18763 | -1.043 |
| Peak Day Marginal Cost by Area | Zone 24 | 2936-2012 IRP Ver 11 | -1.18763 | -1.043 |
| Peak Day Marginal Cost by Area | Zone 26 | 2936-2012 IRP Ver 11 | -1.18763 | -1.043 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2936-2012 IRP Ver 11 | -1.18763 | -1.043 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2936-2012 IRP Ver 11 | -1.1826 | -1.03857 |
| Peak Day Marginal Cost by Area | Zone GTN | 2936-2012 IRP Ver 11 | -1.2106 | -1.05516 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2936-2012 IRP Ver 11 | -1.18763 | -1.043 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2936-2012 IRP Ver 11 | -1.18763 | -1.043 |
| | | | 0.118763 | 0.1043 |

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2030 | 2031 |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -1.538 | -1.4992 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -1.538 | -1.4992 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -1.538 | -1.4992 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -1.538 | -1.4992 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -1.538 | -1.4992 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -43.0319 | -42.8649 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -1.538 | -1.4992 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -43.0791 | -42.9069 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -1.538 | -1.4992 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -1.538 | -1.4992 |

AVOIDED COST

| | | |
|---------------|----------|----------|
| Base | 0.1538 | 0.14992 |
| \$15 Carbon 1 | 0.187235 | 0.177178 |
| \$20 Carbon 2 | 0.193922 | 0.190807 |
| \$30 Carbon 3 | 0.213983 | 0.211251 |

\$4.99 over planning horizon

2012 CNGC IRP

APPENDIX H (AVOIDED COST BY ZONE)

PAGE

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization disabled; Present worth 7.631 year 2033; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2032 | 2033 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal enabled

| Data Item | Area | Scenario | 2032 | 2033 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2936-2012 IRP Ver 11 | -1.01638 | -0.96121 |
| Peak Day Marginal Cost by Area | Zone 11 | 2936-2012 IRP Ver 11 | -1.01638 | -0.96121 |
| Peak Day Marginal Cost by Area | Zone 20 | 2936-2012 IRP Ver 11 | -1.01638 | -0.96121 |
| Peak Day Marginal Cost by Area | Zone 24 | 2936-2012 IRP Ver 11 | -1.01638 | -0.96121 |
| Peak Day Marginal Cost by Area | Zone 26 | 2936-2012 IRP Ver 11 | -1.01638 | -0.96121 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2936-2012 IRP Ver 11 | -1.01638 | -0.96121 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2936-2012 IRP Ver 11 | -1.01231 | -0.96121 |
| Peak Day Marginal Cost by Area | Zone GTN | 2936-2012 IRP Ver 11 | -3.32168 | -0.96637 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2936-2012 IRP Ver 11 | -1.01638 | -0.96121 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2936-2012 IRP Ver 11 | -1.01638 | -0.96121 |

0.101638 0.096121

Analysi type: Full Optimization; Risk Analysis disabled; Portfoli Options DSM enabled;

Process control: DSM in Optimization enabled; Present worth 7.631 year 2013; Report Parm: Nominal disabled

| Data Item | Area | Scenario | 2032 | 2033 |
|-----------|------|----------|------|------|
|-----------|------|----------|------|------|

| | | | | |
|--------------------------------|------------|----------------------|----------|----------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 IRP Test 2 | -1.33195 | -1.24798 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 IRP Test 2 | -1.33195 | -1.24798 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 IRP Test 2 | -1.33195 | -1.24798 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 IRP Test 2 | -1.33195 | -1.24798 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 IRP Test 2 | -1.33195 | -1.24798 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 IRP Test 2 | -42.7856 | -1.24798 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 IRP Test 2 | -1.33195 | -1.24798 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 IRP Test 2 | -42.85 | -1.38517 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 IRP Test 2 | -1.33195 | -1.24798 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 IRP Test 2 | -1.33195 | -1.24798 |

AVOIDED COST

| | | |
|---------------|----------|----------|
| Base | 0.133195 | 0.124798 |
| \$15 Carbon 1 | 0.166494 | 0.155997 |
| \$20 Carbon 2 | 0.173154 | 0.162237 |
| \$30 Carbon 3 | 0.193133 | 0.180957 |

\$4.99 over planning horizon

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------------|---|--|---|--|---------------------------------------|--|--|
| Jan-12 | 3.084 | 2.906516749 | 3.142180269 | 3.299289282 | 2.850753704 | 3.000793373 | 3.150833041 | 2.886444478 |
| Feb-12 | 2.678 | 2.569279364 | 2.777599313 | 2.916479278 | 2.503803932 | 2.635583087 | 2.767362241 | 2.563893936 |
| Mar-12 | 2.43 | 2.367408402 | 2.559360434 | 2.687328456 | 2.281349945 | 2.401420994 | 2.521492044 | 2.35668016 |
| Apr-12 | 2.335 | 2.292730229 | 2.478627274 | 2.602558638 | 2.194237722 | 2.309723918 | 2.425210113 | 2.276638605 |
| May-12 | 1.981 | 1.894971594 | 2.04861794 | 2.151048837 | 1.677918332 | 1.766229823 | 1.854541314 | 1.865552743 |
| Jun-12 | 2.737 | 2.557358083 | 2.764711441 | 2.902947013 | 2.352106317 | 2.475901386 | 2.599696456 | 2.543055205 |
| Jul-12 | 2.774 | 2.452826854 | 2.651704707 | 2.784289942 | 2.165795612 | 2.279784855 | 2.393774097 | 2.34135289 |
| Aug-12 | 2.737 | 2.433094586 | 2.630372526 | 2.761891152 | 2.244503254 | 2.362635004 | 2.480766755 | 2.319234961 |
| Sep-12 | 2.728 | 2.42763872 | 2.624474292 | 2.755698007 | 2.272353551 | 2.391951106 | 2.511548662 | 2.321503508 |
| Oct-12 | 2.773 | 2.483101399 | 2.684433945 | 2.818655643 | 2.443401557 | 2.572001638 | 2.70060172 | 2.382251964 |
| Nov-12 | 2.961 | 2.58259821 | 2.791998065 | 2.931597968 | 2.907043966 | 3.06004628 | 3.213048594 | 2.488737514 |
| Dec-12 | 3.243 | 2.811630722 | 3.03960078 | 3.191580819 | 3.159073237 | 3.325340249 | 3.491607262 | 2.725669747 |
| Jan-13 | 3.393 | 3.090018036 | 3.340560039 | 3.507588041 | 3.441342662 | 3.62246596 | 3.803589258 | 3.012243272 |
| Feb-13 | 3.426 | 3.08477841 | 3.334895579 | 3.501640358 | 3.432313498 | 3.612961577 | 3.793609655 | 3.062059955 |
| Mar-13 | 3.419 | 3.071509457 | 3.320550765 | 3.486578303 | 3.396365685 | 3.575121774 | 3.753877862 | 3.043265132 |
| Apr-13 | 3.416 | 3.090399496 | 3.340972428 | 3.508021049 | 2.983713611 | 3.14075117 | 3.297788728 | 3.056119793 |
| May-13 | 3.461 | 3.127566897 | 3.381153402 | 3.550211072 | 2.999378135 | 3.157240142 | 3.315102149 | 3.083337143 |
| Jun-13 | 3.505 | 3.166393504 | 3.423128113 | 3.594284518 | 3.017466988 | 3.17628104 | 3.335095092 | 3.112691003 |
| Jul-13 | 3.548 | 3.207832035 | 3.467926525 | 3.641322851 | 3.050424545 | 3.210973206 | 3.371521866 | 3.091597337 |
| Aug-13 | 3.569 | 3.224064452 | 3.485475083 | 3.659748837 | 3.070428705 | 3.232030215 | 3.393631726 | 3.107416924 |
| Sep-13 | 3.571 | 3.224750726 | 3.486217001 | 3.660527851 | 3.089091943 | 3.251675729 | 3.414259516 | 3.125322888 |
| Oct-13 | 3.605 | 3.258953917 | 3.523193424 | 3.699353095 | 3.133045428 | 3.297942556 | 3.462839684 | 3.171301927 |
| Nov-13 | 3.713 | 3.346765781 | 3.618125169 | 3.799031428 | 3.658439123 | 3.850988551 | 4.043537978 | 3.275212496 |
| Dec-13 | 3.918 | 3.494475541 | 3.777811396 | 3.966701966 | 3.854547539 | 4.057418462 | 4.260289385 | 3.429517541 |
| Jan-14 | 4.02 | 3.671672596 | 3.96937578 | 4.167844569 | 4.032425394 | 4.24465831 | 4.456891225 | 3.61082021 |
| Feb-14 | 4.01 | 3.665339085 | 3.962528741 | 4.160655178 | 4.021528284 | 4.233187668 | 4.444847051 | 3.655343862 |
| Mar-14 | 3.957 | 3.568244152 | 3.857561246 | 4.050439308 | 3.871083014 | 4.074824225 | 4.278565436 | 3.539499656 |
| Apr-14 | 3.842 | 3.550868608 | 3.838776874 | 4.030715717 | 3.431394865 | 3.611994595 | 3.792594325 | 3.516285822 |
| May-14 | 3.853 | 3.57246939 | 3.86212907 | 4.055235524 | 3.426501286 | 3.606843458 | 3.787185631 | 3.519994088 |
| Jun-14 | 3.875 | 3.592398003 | 3.883673517 | 4.077857193 | 3.410677088 | 3.590186409 | 3.769695729 | 3.521311586 |
| Jul-14 | 3.914 | 3.622329072 | 3.916031429 | 4.111833 | 3.441336573 | 3.62245955 | 3.803582528 | 3.497035715 |
| Aug-14 | 3.933 | 3.633137675 | 3.927716405 | 4.124102226 | 3.447615688 | 3.629069145 | 3.810522603 | 3.506906675 |
| Sep-14 | 3.936 | 3.626235575 | 3.920254676 | 4.116267409 | 3.465585388 | 3.647984619 | 3.83038385 | 3.535362871 |
| Oct-14 | 3.973 | 3.673047236 | 3.970861877 | 4.16940497 | 3.510957307 | 3.695744534 | 3.880531761 | 3.5904588 |
| Nov-14 | 4.058 | 3.7308408 | 4.033341405 | 4.235008476 | 3.864017778 | 4.067387135 | 4.270756492 | 3.667942827 |
| Dec-14 | 4.243 | 3.841781826 | 4.15327765 | 4.360941532 | 4.055821424 | 4.26928571 | 4.482749995 | 3.792594635 |
| Jan-15 | 4.345 | 4.183848213 | 4.523079149 | 4.749233106 | 4.336306236 | 4.56453288 | 4.792759524 | 4.155150825 |
| Feb-15 | 4.315 | 4.170422365 | 4.508564719 | 4.733992955 | 4.313730597 | 4.540769049 | 4.767807502 | 4.135774111 |
| Mar-15 | 4.235 | 4.088543267 | 4.420046775 | 4.641049114 | 4.109010613 | 4.32527433 | 4.541538046 | 4.014018586 |
| Apr-15 | 4.035 | 4.036094632 | 4.363345548 | 4.581512825 | 3.8087872 | 4.009249684 | 4.209712169 | 3.937729424 |
| May-15 | 4.05 | 4.084347531 | 4.415510845 | 4.636286387 | 3.79143168 | 3.990980716 | 4.190529752 | 3.943880555 |
| Jun-15 | 4.072 | 4.09201717 | 4.423802346 | 4.644992463 | 3.729173628 | 3.925445924 | 4.12171822 | 3.906488955 |
| Jul-15 | 4.109 | 4.112218128 | 4.445641219 | 4.66792328 | 3.734317496 | 3.930860522 | 4.127403549 | 3.909058904 |
| Aug-15 | 4.128 | 4.110570917 | 4.44386045 | 4.666053473 | 3.902547666 | 4.107944912 | 4.313342157 | 3.903989006 |
| Sep-15 | 4.131 | 4.073631581 | 4.403926033 | 4.624122335 | 3.92769752 | 4.134418442 | 4.341139364 | 3.937596373 |
| Oct-15 | 4.167 | 4.133366487 | 4.468504311 | 4.691929526 | 3.998999172 | 4.209472813 | 4.419946453 | 4.022677055 |
| Nov-15 | 4.255 | 4.153232526 | 4.489981109 | 4.714480164 | 4.142052511 | 4.360055274 | 4.578058038 | 4.117284177 |
| Dec-15 | 4.441 | 4.265785288 | 4.611659771 | 4.84224276 | 4.368628552 | 4.59855637 | 4.828484189 | 4.19892872 |
| Jan-16 | 4.541 | 4.293002898 | 4.641084214 | 4.873138424 | 4.241712543 | 4.464960572 | 4.6882086 | 4.190102357 |
| Feb-16 | 4.511 | 4.279920239 | 4.626940799 | 4.858287839 | 4.223565782 | 4.445858718 | 4.668151654 | 4.177083775 |
| Mar-16 | 4.431 | 4.165039626 | 4.502745542 | 4.727882819 | 3.963020221 | 4.171600232 | 4.380180244 | 4.002280439 |
| Apr-16 | 4.221 | 4.147973796 | 4.484295996 | 4.708510795 | 3.92028804 | 4.12661899 | 4.332949939 | 3.988178015 |
| May-16 | 4.236 | 4.193754584 | 4.53378874 | 4.760478177 | 3.914714317 | 4.120751913 | 4.326789508 | 3.939085196 |

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------------|---|--|---|--|---------------------------------------|--|--|
| Jun-16 | 4.258 | 4.217376594 | 4.559326047 | 4.78729235 | 3.874482018 | 4.078402124 | 4.28232223 | 3.856231457 |
| Jul-16 | 4.295 | 4.235770212 | 4.57921104 | 4.808171592 | 3.856743742 | 4.059730254 | 4.262716767 | 3.800518404 |
| Aug-16 | 4.314 | 4.213708975 | 4.555361054 | 4.783129107 | 4.00262199 | 4.213286305 | 4.42395062 | 3.77545823 |
| Sep-16 | 4.317 | 4.16908621 | 4.507120227 | 4.732476238 | 4.019786441 | 4.231354148 | 4.442921855 | 3.884500655 |
| Oct-16 | 4.353 | 4.222743568 | 4.565128182 | 4.793384591 | 3.836825209 | 4.038763378 | 4.240701547 | 4.023397213 |
| Nov-16 | 4.444 | 4.277729092 | 4.624571992 | 4.855800591 | 3.979457441 | 4.18890257 | 4.398347698 | 4.178031555 |
| Dec-16 | 4.635 | 4.357140575 | 4.710422243 | 4.945943355 | 4.280617789 | 4.505913462 | 4.731209135 | 4.23859568 |
| Jan-17 | 4.737 | 4.410933645 | 4.768576913 | 5.007005759 | 4.339748254 | 4.568156057 | 4.796563859 | 4.288162055 |
| Feb-17 | 4.707 | 4.403877193 | 4.760948317 | 4.998995733 | 4.287370524 | 4.513021605 | 4.738672685 | 4.226180372 |
| Mar-17 | 4.627 | 4.198408258 | 4.538819739 | 4.765760726 | 3.861986016 | 4.065248438 | 4.26851086 | 3.990885376 |
| Apr-17 | 4.42 | 4.280154097 | 4.627193619 | 4.8585533 | 3.844403212 | 4.046740223 | 4.249077234 | 4.023895352 |
| May-17 | 4.437 | 4.322044633 | 4.672480684 | 4.906104718 | 3.770459547 | 3.968904787 | 4.167350026 | 3.961079064 |
| Jun-17 | 4.461 | 4.3311903 | 4.682367891 | 4.916486286 | 3.684285516 | 3.87819528 | 4.072105044 | 3.903935689 |
| Jul-17 | 4.5 | 4.39010983 | 4.746064681 | 4.983367915 | 3.662094567 | 3.854836386 | 4.047578206 | 3.833922932 |
| Aug-17 | 4.519 | 4.338516925 | 4.690288567 | 4.924802996 | 3.595977191 | 3.785239148 | 3.974501105 | 3.774374894 |
| Sep-17 | 4.523 | 4.255070031 | 4.600075709 | 4.830079494 | 3.702946379 | 3.897838294 | 4.092730208 | 3.919426944 |
| Oct-17 | 4.56 | 4.348551171 | 4.701136401 | 4.936193221 | 3.869434035 | 4.073088458 | 4.276742881 | 4.086620366 |
| Nov-17 | 4.664 | 4.411620504 | 4.769319464 | 5.007785437 | 4.016894536 | 4.228310038 | 4.43972554 | 4.253469973 |
| Dec-17 | 4.871 | 4.49242463 | 4.856675275 | 5.099509039 | 4.337167384 | 4.565439351 | 4.793711319 | 4.307027795 |
| Jan-18 | 4.984 | 4.562382393 | 4.93230529 | 5.178920554 | 4.407428602 | 4.639398529 | 4.871368455 | 4.376726393 |
| Feb-18 | 4.954 | 4.550263237 | 4.919203499 | 5.165163674 | 4.386503188 | 4.617371777 | 4.848240366 | 4.355363838 |
| Mar-18 | 4.876 | 4.331275355 | 4.682459843 | 4.916582835 | 3.951482093 | 4.159454834 | 4.367427576 | 4.145011198 |
| Apr-18 | 4.669 | 4.426356893 | 4.785250695 | 5.02451323 | 3.918445617 | 4.124679597 | 4.330913577 | 4.176983625 |
| May-18 | 4.689 | 4.482922826 | 4.846403055 | 5.088723208 | 3.839195989 | 4.041258936 | 4.243321883 | 4.155304717 |
| Jun-18 | 4.719 | 4.504061916 | 4.869256126 | 5.112718932 | 3.73483573 | 3.931406032 | 4.127976333 | 4.072195373 |
| Jul-18 | 4.764 | 4.530178029 | 4.897489762 | 5.14236425 | 3.724023288 | 3.920024513 | 4.116025739 | 4.023657029 |
| Aug-18 | 4.786 | 4.496724041 | 4.861323288 | 5.104389452 | 3.707808505 | 3.902956321 | 4.098104138 | 3.980039655 |
| Sep-18 | 4.792 | 4.451321071 | 4.812238996 | 5.052850946 | 3.78929166 | 3.988728063 | 4.188164466 | 4.080299465 |
| Oct-18 | 4.832 | 4.480277957 | 4.843543737 | 5.085720924 | 3.921024686 | 4.127394407 | 4.333764127 | 4.242442519 |
| Nov-18 | 4.947 | 4.557191692 | 4.926693721 | 5.173028407 | 4.118215876 | 4.33496408 | 4.551712284 | 4.380290871 |
| Dec-18 | 5.167 | 4.668058666 | 5.046549909 | 5.298877405 | 4.506645143 | 4.743836992 | 4.981028842 | 4.467403972 |
| Jan-19 | 5.286 | 4.736283569 | 5.120306562 | 5.37632189 | 4.558235831 | 4.79814298 | 5.038050129 | 4.520832009 |
| Feb-19 | 5.258 | 4.723642578 | 5.106640624 | 5.361972656 | 4.545233712 | 4.784456539 | 5.023679366 | 4.507213363 |
| Mar-19 | 5.182 | 4.612047334 | 4.985997118 | 5.235296974 | 4.473754781 | 4.709215559 | 4.944676337 | 4.417774075 |
| Apr-19 | 4.982 | 4.611973338 | 4.985917122 | 5.235212978 | 4.364743834 | 4.594467194 | 4.824190553 | 4.322101121 |
| May-19 | 5.004 | 4.65886375 | 5.036609459 | 5.288439932 | 4.311906433 | 4.538848877 | 4.765791321 | 4.25595336 |
| Jun-19 | 5.034 | 4.678714811 | 5.058070066 | 5.310973569 | 4.046572388 | 4.259549882 | 4.472527376 | 4.177759374 |
| Jul-19 | 5.079 | 4.713439444 | 5.095610209 | 5.35039072 | 3.980570242 | 4.190073939 | 4.399577636 | 4.122635457 |
| Aug-19 | 5.101 | 4.672055502 | 5.050870813 | 5.303414353 | 3.921329186 | 4.127714933 | 4.33410068 | 4.069279716 |
| Sep-19 | 5.107 | 4.612263724 | 4.986231053 | 5.235542605 | 4.016051952 | 4.227423108 | 4.438794263 | 4.189107029 |
| Oct-19 | 5.147 | 4.640543786 | 5.016804093 | 5.267644298 | 4.197287631 | 4.418197507 | 4.639107382 | 4.392764163 |
| Nov-19 | 5.262 | 4.742625327 | 5.127162515 | 5.383520641 | 4.592534359 | 4.834246694 | 5.075959029 | 4.562442335 |
| Dec-19 | 5.492 | 4.861207276 | 5.255359218 | 5.518127179 | 4.673612804 | 4.919592425 | 5.165572047 | 4.632956476 |
| Jan-20 | 5.612 | 4.930092167 | 5.32982937 | 5.596320838 | 4.697902968 | 4.945161019 | 5.19241907 | 4.649014357 |
| Feb-20 | 5.587 | 4.877649548 | 5.273134647 | 5.536791379 | 4.685844029 | 4.932467399 | 5.179090769 | 4.619737972 |
| Mar-20 | 5.512 | 4.79516879 | 5.183966259 | 5.443164572 | 4.587657904 | 4.829113583 | 5.070569262 | 4.539563393 |
| Apr-20 | 5.312 | 4.777780196 | 5.165167779 | 5.423426168 | 4.48583531 | 4.721931905 | 4.9580285 | 4.42657537 |
| May-20 | 5.334 | 4.845823834 | 5.238728469 | 5.500664893 | 4.249804079 | 4.473477977 | 4.697151876 | 4.38197497 |
| Jun-20 | 5.364 | 4.855591969 | 5.249288615 | 5.511753045 | 4.143764959 | 4.361857851 | 4.579950744 | 4.290717087 |
| Jul-20 | 5.409 | 4.889317231 | 5.285748358 | 5.550035776 | 4.077886135 | 4.292511721 | 4.507137307 | 4.218603689 |
| Aug-20 | 5.431 | 4.848447971 | 5.241565375 | 5.503643643 | 4.053557827 | 4.266902975 | 4.480248124 | 4.165994431 |
| Sep-20 | 5.437 | 4.782241179 | 5.169990463 | 5.428489986 | 4.180914344 | 4.400962467 | 4.621010591 | 4.302825798 |
| Oct-20 | 5.477 | 4.837884091 | 5.230144964 | 5.491652212 | 4.338740955 | 4.567095743 | 4.79545053 | 4.50663551 |

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------------|---|--|---|--|---------------------------------------|--|--|
| Nov-20 | 5.597 | 4.94691827 | 5.348019752 | 5.615420739 | 4.745192958 | 4.994939956 | 5.244686953 | 4.695339013 |
| Dec-20 | 5.832 | 5.05656533 | 5.466557113 | 5.739884969 | 4.768987381 | 5.019986717 | 5.270986052 | 4.721729552 |
| Jan-21 | 5.962 | 5.147156726 | 5.564493757 | 5.842718445 | 4.816481233 | 5.069980246 | 5.323479258 | 4.762301636 |
| Feb-21 | 5.937 | 5.103246028 | 5.517022732 | 5.792873869 | 4.789435169 | 5.041510705 | 5.29358624 | 4.734887287 |
| Mar-21 | 5.862 | 5.032246797 | 5.440266807 | 5.712280148 | 4.77686598 | 5.028279979 | 5.279693978 | 4.68963494 |
| Apr-21 | 5.662 | 4.994022933 | 5.398943711 | 5.668890897 | 4.575838076 | 4.816671659 | 5.057505242 | 4.486745225 |
| May-21 | 5.684 | 5.059865906 | 5.470125304 | 5.743631569 | 4.337636847 | 4.565933524 | 4.7942302 | 4.411022086 |
| Jun-21 | 5.714 | 5.094484064 | 5.507550339 | 5.782927856 | 4.269328503 | 4.494030003 | 4.718731503 | 4.294650487 |
| Jul-21 | 5.759 | 5.096623927 | 5.509863705 | 5.785356891 | 4.18694473 | 4.407310242 | 4.627675754 | 4.209854967 |
| Aug-21 | 5.781 | 5.063404115 | 5.473950395 | 5.747647915 | 4.157830872 | 4.376664075 | 4.595497279 | 4.162476791 |
| Sep-21 | 5.787 | 4.99713063 | 5.402303384 | 5.672418553 | 4.203260378 | 4.424484608 | 4.645708839 | 4.30010126 |
| Oct-21 | 5.827 | 5.031197274 | 5.439132188 | 5.711088797 | 4.403181791 | 4.634928201 | 4.866674611 | 4.536514615 |
| Nov-21 | 5.945 | 5.15650088 | 5.574595546 | 5.853325323 | 4.850446815 | 5.105733489 | 5.361020163 | 4.758833045 |
| Dec-21 | 6.18 | 5.235353792 | 5.659841937 | 5.942834034 | 4.900062321 | 5.157960338 | 5.415858355 | 4.823337601 |
| Jan-22 | 6.307 | 5.375547333 | 5.811402523 | 6.101972649 | 5.031958962 | 5.296798908 | 5.561638853 | 4.939546562 |
| Feb-22 | 6.282 | 5.366307579 | 5.801413599 | 6.091484279 | 5.017935455 | 5.282037321 | 5.546139187 | 4.926897895 |
| Mar-22 | 6.207 | 5.224344794 | 5.647940318 | 5.930337334 | 4.926034578 | 5.185299555 | 5.444564533 | 4.80275689 |
| Apr-22 | 6.002 | 5.354940117 | 5.789124451 | 6.078580674 | 4.838866317 | 5.093543492 | 5.348220666 | 4.728299677 |
| May-22 | 5.997 | 5.438290204 | 5.879232653 | 6.173194286 | 4.627994285 | 4.871572932 | 5.115151579 | 4.710051666 |
| Jun-22 | 6.029 | 5.463723986 | 5.906728633 | 6.202065065 | 4.599075359 | 4.841131957 | 5.083188555 | 4.604077333 |
| Jul-22 | 6.072 | 5.412839475 | 5.851718351 | 6.144304269 | 4.445147138 | 4.679102251 | 4.913057363 | 4.451223617 |
| Aug-22 | 6.114 | 5.346803839 | 5.780328475 | 6.069344899 | 4.381304508 | 4.611899482 | 4.842494456 | 4.368711691 |
| Sep-22 | 6.125 | 5.264552912 | 5.691408554 | 5.975978982 | 4.477313695 | 4.712961784 | 4.948609873 | 4.525211153 |
| Oct-22 | 6.18 | 5.347393613 | 5.780966068 | 6.070014371 | 4.74321438 | 4.992857242 | 5.242500104 | 4.86013292 |
| Nov-22 | 6.3 | 5.478446205 | 5.922644546 | 6.218776774 | 5.193346435 | 5.466680458 | 5.740014481 | 5.056420452 |
| Dec-22 | 6.535 | 5.516581774 | 5.963872188 | 6.262065798 | 5.186125523 | 5.459079498 | 5.732033473 | 5.070728141 |
| Jan-23 | 6.66 | 5.53297712 | 5.981596887 | 6.280676731 | 5.149552217 | 5.420581281 | 5.691610345 | 5.00461773 |
| Feb-23 | 6.635 | 5.492477987 | 5.937814039 | 6.234704741 | 5.144100289 | 5.414842409 | 5.68558453 | 5.00134335 |
| Mar-23 | 6.56 | 5.420947998 | 5.860484323 | 6.153508539 | 5.07180488 | 5.338741979 | 5.605679078 | 4.926914786 |
| Apr-23 | 6.325 | 5.498754378 | 5.944599328 | 6.241829294 | 4.947116089 | 5.20749062 | 5.467865151 | 4.834192968 |
| May-23 | 6.31 | 5.590151478 | 6.043407003 | 6.345577353 | 4.7431994 | 4.992841474 | 5.242483548 | 4.806449322 |
| Jun-23 | 6.35 | 5.602284714 | 6.056524015 | 6.359350216 | 4.734867353 | 4.984070898 | 5.233274443 | 4.709259528 |
| Jul-23 | 6.4 | 5.551290781 | 6.001395439 | 6.301465211 | 4.561385553 | 4.801458477 | 5.041531401 | 4.53142082 |
| Aug-23 | 6.445 | 5.48014038 | 5.924476086 | 6.22069989 | 4.496492357 | 4.733149849 | 4.969807342 | 4.444771619 |
| Sep-23 | 6.46 | 5.375722699 | 5.811592107 | 6.102171713 | 4.598772688 | 4.840813356 | 5.082854024 | 4.602832432 |
| Oct-23 | 6.525 | 5.482297916 | 5.926808558 | 6.223148986 | 4.878591513 | 5.135359488 | 5.392127462 | 4.912945771 |
| Nov-23 | 6.645 | 5.613257269 | 6.068386237 | 6.371805549 | 5.323795708 | 5.603995483 | 5.884195257 | 5.121852216 |
| Dec-23 | 6.88 | 5.639778305 | 6.097057627 | 6.401910508 | 5.32585152 | 5.606159495 | 5.886467469 | 5.163437756 |
| Jan-24 | 7.005 | 5.60896832 | 6.063749535 | 6.366937012 | 5.231007381 | 5.506323559 | 5.781639737 | 5.0419131 |
| Feb-24 | 6.98 | 5.568979733 | 6.02051863 | 6.321544561 | 5.223545743 | 5.498469203 | 5.773392663 | 5.017111254 |
| Mar-24 | 6.905 | 5.412221367 | 5.851050126 | 6.143602632 | 5.084266353 | 5.351859319 | 5.619452285 | 4.872384596 |
| Apr-24 | 6.655 | 5.569161504 | 6.020715139 | 6.321750896 | 5.110865024 | 5.37985792 | 5.648850816 | 4.903248218 |
| May-24 | 6.64 | 5.655349073 | 6.11389089 | 6.419585435 | 4.934388977 | 5.19409366 | 5.453798343 | 4.889778 |
| Jun-24 | 6.68 | 5.679787623 | 6.140310944 | 6.447326491 | 4.82242361 | 5.076235379 | 5.330047148 | 4.78874205 |
| Jul-24 | 6.73 | 5.680510371 | 6.141092293 | 6.448146908 | 4.693897794 | 4.940945046 | 5.187992298 | 4.664606212 |
| Aug-24 | 6.775 | 5.587069365 | 6.040074989 | 6.342078739 | 4.604579061 | 4.846925327 | 5.089271594 | 4.551792878 |
| Sep-24 | 6.79 | 5.548471606 | 5.998347682 | 6.298265066 | 4.744671524 | 4.994391078 | 5.244110632 | 4.692216933 |
| Oct-24 | 6.855 | 5.564118861 | 6.015263634 | 6.316026815 | 4.951747871 | 5.21236618 | 5.472984489 | 4.936035276 |
| Nov-24 | 6.98 | 5.711309058 | 6.174388171 | 6.48310758 | 5.397798456 | 5.681893111 | 5.965987767 | 5.116073431 |
| Dec-24 | 7.215 | 5.757906879 | 6.224764194 | 6.536002403 | 5.395040247 | 5.678989734 | 5.962939221 | 5.198174379 |
| Jan-25 | 6.800832006 | 5.435052149 | 5.875732054 | 6.169518656 | 5.024952848 | 5.289424051 | 5.553895254 | 4.75807565 |
| Feb-25 | 6.786767148 | 5.394166469 | 5.831531317 | 6.123107883 | 5.004499358 | 5.267894061 | 5.531288764 | 4.726811427 |
| Mar-25 | 6.863765286 | 5.18873312 | 5.60944121 | 5.889913271 | 4.829009109 | 5.083167483 | 5.337325857 | 4.554138808 |

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------------|---|--|---|--|---------------------------------------|--|--|
| Apr-25 | 7.007974407 | 5.436418607 | 5.877209305 | 6.17106977 | 4.959666269 | 5.220701336 | 5.481736403 | 4.715900438 |
| May-25 | 7.220157448 | 5.541027849 | 5.990300378 | 6.289815396 | 4.809464157 | 5.06259385 | 5.315723542 | 4.739452375 |
| Jun-25 | 7.263046556 | 5.588740089 | 6.041881177 | 6.343975236 | 4.726560661 | 4.975327012 | 5.224093363 | 4.64482083 |
| Jul-25 | 7.106225839 | 5.584708698 | 6.037522917 | 6.339399063 | 4.572603444 | 4.813266783 | 5.053930122 | 4.503148392 |
| Aug-25 | 6.918342048 | 5.444474405 | 5.885918276 | 6.180214189 | 4.433924379 | 4.66728882 | 4.900653261 | 4.345446696 |
| Sep-25 | 6.952508956 | 5.347877147 | 5.781488807 | 6.070563247 | 4.516658141 | 4.754376991 | 4.99209584 | 4.46219814 |
| Oct-25 | 7.110514592 | 5.369091704 | 5.804423464 | 6.094644637 | 4.976357347 | 5.238270891 | 5.500184436 | 4.719938904 |
| Nov-25 | 7.152821764 | 5.499615901 | 5.945530704 | 6.242807239 | 5.238808025 | 5.514534763 | 5.790261501 | 5.035475195 |
| Dec-25 | 7.195142616 | 5.578220313 | 6.030508446 | 6.332033869 | 5.23223472 | 5.507615494 | 5.782996269 | 5.134840277 |
| Jan-26 | 6.941315368 | 5.559902468 | 6.010705371 | 6.31124064 | 5.207235241 | 5.481300254 | 5.755365267 | 5.113161254 |
| Feb-26 | 6.905999321 | 5.550890217 | 6.000962397 | 6.301010517 | 5.192853774 | 5.466161867 | 5.739469961 | 5.100440921 |
| Mar-26 | 6.983420494 | 5.40848231 | 5.847007902 | 6.139358297 | 5.10792532 | 5.376763495 | 5.645601669 | 4.974782753 |
| Apr-26 | 7.139517211 | 5.566373075 | 6.017700622 | 6.318585653 | 5.173840022 | 5.446147392 | 5.718454761 | 5.102913189 |
| May-26 | 7.368893674 | 5.688105085 | 6.149302795 | 6.456767935 | 5.07624271 | 5.343413379 | 5.610584048 | 5.102327991 |
| Jun-26 | 7.412673049 | 5.742897973 | 6.208538349 | 6.518965267 | 4.992286084 | 5.255037983 | 5.517789882 | 5.006487034 |
| Jul-26 | 7.19797232 | 5.727316999 | 6.191694053 | 6.501278756 | 4.813077044 | 5.066396888 | 5.319716733 | 4.849555397 |
| Aug-26 | 7.107507045 | 5.601662528 | 6.055851382 | 6.358643951 | 4.672080114 | 4.917979067 | 5.16387802 | 4.706962111 |
| Sep-26 | 7.142640514 | 5.473333856 | 5.917117682 | 6.212973566 | 4.791025783 | 5.043185035 | 5.295344286 | 4.843991352 |
| Oct-26 | 7.331147281 | 5.585170211 | 6.03802185 | 6.339922942 | 5.14416779 | 5.414913463 | 5.685659136 | 5.144614443 |
| Nov-26 | 7.37476986 | 5.664953649 | 6.124274215 | 6.430487926 | 5.429485212 | 5.715247592 | 6.001009972 | 5.28990966 |
| Dec-26 | 7.418622898 | 5.760267135 | 6.227315821 | 6.538681612 | 5.437471479 | 5.723654189 | 6.009836898 | 5.315618915 |
| Jan-27 | 7.220728861 | 5.728387032 | 6.192850846 | 6.502493388 | 5.398830848 | 5.68297984 | 5.967128832 | 5.279584818 |
| Feb-27 | 7.213731421 | 5.726611382 | 6.190931224 | 6.500477785 | 5.397678093 | 5.681766414 | 5.965854734 | 5.274073342 |
| Mar-27 | 7.278822495 | 5.611604747 | 6.066599727 | 6.369929713 | 5.34707306 | 5.628497958 | 5.909922856 | 5.174954325 |
| Apr-27 | 7.447814936 | 5.757629694 | 6.224464534 | 6.535687761 | 5.385064189 | 5.66848862 | 5.951913051 | 5.265034024 |
| May-27 | 7.6701445 | 5.853783974 | 6.328415107 | 6.644835862 | 5.284668902 | 5.562809371 | 5.840949839 | 5.257978872 |
| Jun-27 | 7.71571967 | 5.922407599 | 6.402602809 | 6.72273295 | 5.204823176 | 5.478761237 | 5.752699299 | 5.166576782 |
| Jul-27 | 7.511172303 | 5.897686386 | 6.375877174 | 6.694671032 | 5.024171948 | 5.28860205 | 5.553032153 | 5.024167871 |
| Aug-27 | 7.415530113 | 5.77734283 | 6.245776033 | 6.558064835 | 4.895047056 | 5.152681112 | 5.410315167 | 4.886867773 |
| Sep-27 | 7.468232684 | 5.659902495 | 6.118813509 | 6.424754184 | 5.151802477 | 5.422949975 | 5.694097474 | 5.026738175 |
| Oct-27 | 7.60598947 | 5.750030553 | 6.216249246 | 6.527061709 | 5.414344579 | 5.699310083 | 5.984275587 | 5.279904634 |
| Nov-27 | 7.651245259 | 5.841314186 | 6.314934255 | 6.630680968 | 5.629515291 | 5.92580557 | 6.222095848 | 5.437358762 |
| Dec-27 | 7.695579736 | 5.898127401 | 6.376353947 | 6.695171644 | 5.623824506 | 5.91981527 | 6.215806033 | 5.427784901 |
| Jan-28 | 7.434769256 | 5.813013604 | 6.284339031 | 6.598555983 | 5.530667715 | 5.82175549 | 6.112843264 | 5.336586862 |
| Feb-28 | 7.385473063 | 5.799984894 | 6.270253939 | 6.583766636 | 5.512537222 | 5.80267076 | 6.092804298 | 5.312865047 |
| Mar-28 | 7.478941149 | 5.662452235 | 6.121569983 | 6.427648483 | 5.370729374 | 5.653399341 | 5.936069308 | 5.171545528 |
| Apr-28 | 7.663770038 | 5.819553732 | 6.29140944 | 6.605979912 | 5.42925689 | 5.715007253 | 6.000757615 | 5.286379002 |
| May-28 | 7.886209044 | 5.953754889 | 6.436491772 | 6.758316361 | 5.354822108 | 5.636654851 | 5.918487593 | 5.297873351 |
| Jun-28 | 7.933066998 | 6.014467213 | 6.502126716 | 6.827233052 | 5.248316958 | 5.524544166 | 5.800771374 | 5.200919154 |
| Jul-28 | 7.58421738 | 5.944232181 | 6.426196953 | 6.7475068 | 5.032849175 | 5.297735973 | 5.562622772 | 5.004507977 |
| Aug-28 | 7.499695641 | 5.829308127 | 6.301954732 | 6.617052468 | 4.904557362 | 5.16269196 | 5.420826558 | 4.866414705 |
| Sep-28 | 7.567061842 | 5.643696988 | 6.101294041 | 6.406358743 | 5.047464982 | 5.313121033 | 5.578777085 | 4.967994204 |
| Oct-28 | 7.694839425 | 5.809050232 | 6.280054305 | 6.59405702 | 5.534297239 | 5.825576041 | 6.116854843 | 5.282387911 |
| Nov-28 | 7.74062506 | 5.90223745 | 6.380797244 | 6.699837106 | 5.718743451 | 6.019729949 | 6.320716446 | 5.429490097 |
| Dec-28 | 7.786483831 | 5.945841735 | 6.427937011 | 6.749333861 | 5.73384779 | 6.035629253 | 6.337410715 | 5.404239802 |
| Jan-29 | 7.421257921 | 5.821852452 | 6.293894542 | 6.60858927 | 5.59531982 | 5.889810337 | 6.184300854 | 5.248180914 |
| Feb-29 | 7.338566702 | 5.73664599 | 6.201779449 | 6.511868421 | 5.502572043 | 5.792181098 | 6.081790153 | 5.156654413 |
| Mar-29 | 7.407736064 | 5.542399656 | 5.991783411 | 6.291372582 | 5.22503106 | 5.500032694 | 5.775034329 | 4.954279845 |
| Apr-29 | 7.618141726 | 5.738582992 | 6.203873504 | 6.51406718 | 5.359985228 | 5.642089714 | 5.924194199 | 5.142369004 |
| May-29 | 7.862548555 | 5.882445376 | 6.359400406 | 6.677370426 | 5.318063663 | 5.59796175 | 5.877859838 | 5.187751864 |
| Jun-29 | 7.909267603 | 5.970222844 | 6.454294967 | 6.777009715 | 5.260221471 | 5.537075232 | 5.813928994 | 5.080428542 |
| Jul-29 | 7.672975782 | 5.925536215 | 6.405985097 | 6.726284352 | 5.041037367 | 5.306355123 | 5.571672879 | 4.898116897 |
| Aug-29 | 7.46394814 | 5.768247891 | 6.235943666 | 6.547740849 | 4.866280963 | 5.122401014 | 5.378521064 | 4.722330834 |

| PERIOD | NYMEX CURRENT MARKET | CASCADE NYMEX LO PROJECTED PRICE | NYMEX CASCADE PROJECTED PRICE | CASCADE NYMEX HI PROJECTED PRICE | CASCADE SUMAS LO FORECAST PRICE | SUMAS CASCADE FORECAST PRICE | CASCADE SUMAS HI FORECAST PRICE | CASCADE ROCKIES LO FORECAST PRICE |
|--------|----------------------------|---|--|---|--|---------------------------------------|--|--|
| Sep-29 | 7.48147094 | 5.629166327 | 6.085585219 | 6.38986448 | 5.086030832 | 5.353716665 | 5.621402499 | 4.820261207 |
| Oct-29 | 7.637834948 | 5.679038732 | 6.139501332 | 6.446476398 | 5.39998325 | 5.684192894 | 5.968402539 | 5.1225798 |
| Nov-29 | 7.683282259 | 5.80900799 | 6.280008638 | 6.59400907 | 5.666229506 | 5.964452112 | 6.262674717 | 5.290860839 |
| Dec-29 | 7.727064266 | 5.894342095 | 6.372261724 | 6.69087481 | 5.717151498 | 6.018054208 | 6.318956919 | 5.297578644 |
| Jan-30 | 7.367588264 | 5.857346808 | 6.33226682 | 6.648880161 | 5.668181622 | 5.96650697 | 6.264832319 | 5.251020514 |
| Feb-30 | 7.321648464 | 5.844755936 | 6.318655066 | 6.634587819 | 5.652267028 | 5.949754766 | 6.247242505 | 5.235030724 |
| Mar-30 | 7.406757927 | 5.651078631 | 6.109274196 | 6.414737906 | 5.3627951 | 5.645047473 | 5.927299847 | 5.002567348 |
| Apr-30 | 7.580241694 | 5.860636326 | 6.335823055 | 6.652614208 | 5.484706732 | 5.773375507 | 6.062044282 | 5.145747109 |
| May-30 | 7.819005427 | 5.994241742 | 6.480261342 | 6.80427441 | 5.489615137 | 5.778542249 | 6.067469362 | 5.187345416 |
| Jun-30 | 7.86546718 | 6.054519199 | 6.545426161 | 6.872697469 | 5.407456253 | 5.692059214 | 5.976662174 | 5.085189054 |
| Jul-30 | 7.674693704 | 6.039804645 | 6.529518535 | 6.855994462 | 5.224090229 | 5.499042347 | 5.773994464 | 4.96363424 |
| Aug-30 | 7.576169194 | 5.909768398 | 6.388938809 | 6.708385749 | 5.078127871 | 5.345397759 | 5.612667647 | 4.819570384 |
| Sep-30 | 7.621866959 | 5.796888056 | 6.266906007 | 6.580251307 | 5.25502175 | 5.531601842 | 5.808181934 | 4.899749767 |
| Oct-30 | 7.834628253 | 5.897418101 | 6.375587136 | 6.694366493 | 5.573282861 | 5.866613538 | 6.159944215 | 5.206878971 |
| Nov-30 | 7.883184134 | 5.987347328 | 6.472807922 | 6.796448318 | 5.795249998 | 6.100263156 | 6.405276314 | 5.35798949 |
| Dec-30 | 7.999686049 | 6.106775651 | 6.601919622 | 6.932015603 | 5.876833936 | 6.186140985 | 6.495448035 | 5.465264603 |
| Jan-31 | 7.441264146 | 5.888864991 | 6.366340531 | 6.684657558 | 5.481198995 | 5.769683153 | 6.05816731 | 5.059866277 |
| Feb-31 | 7.394864948 | 5.833589632 | 6.306583386 | 6.621912555 | 5.476689382 | 5.764936192 | 6.053183002 | 5.055280715 |
| Mar-31 | 7.480825506 | 5.52348101 | 5.971330822 | 6.269897363 | 5.07507302 | 5.342182126 | 5.609291233 | 4.711242991 |
| Apr-31 | 7.656044111 | 5.762721125 | 6.229968784 | 6.541467223 | 5.220102684 | 5.49484493 | 5.769587177 | 4.877753465 |
| May-31 | 7.897195481 | 5.86878125 | 6.344628379 | 6.661859798 | 5.192546138 | 5.46583804 | 5.739129942 | 4.88725372 |
| Jun-31 | 7.944121852 | 5.938843698 | 6.420371565 | 6.741390144 | 5.117111967 | 5.38643365 | 5.655755332 | 4.791622097 |
| Jul-31 | 7.751440641 | 5.986801876 | 6.472218244 | 6.795829156 | 4.995140329 | 5.258042451 | 5.520944574 | 4.732079779 |
| Aug-31 | 7.651930886 | 5.835037496 | 6.308148644 | 6.623556077 | 4.830819642 | 5.085073307 | 5.339326973 | 4.569676581 |
| Sep-31 | 7.698085629 | 5.655714272 | 6.1142857 | 6.419999985 | 4.947225401 | 5.207605685 | 5.46798597 | 4.588400698 |
| Oct-31 | 7.912974535 | 5.723514019 | 6.187582723 | 6.496961859 | 5.232198517 | 5.507577386 | 5.782956256 | 4.862130588 |
| Nov-31 | 7.962015975 | 5.835569709 | 6.30872401 | 6.624160211 | 5.475172862 | 5.763339855 | 6.051506848 | 5.033539749 |
| Dec-31 | 8.079682909 | 5.965520795 | 6.44921167 | 6.771672253 | 5.563658664 | 5.856482804 | 6.149306944 | 5.147973637 |
| Jan-32 | 7.515676788 | 6.123585201 | 6.620092109 | 6.951096715 | 5.537435985 | 5.828879984 | 6.120323983 | 5.11188994 |
| Feb-32 | 7.468813598 | 6.066157375 | 6.558007973 | 6.885908371 | 5.532881276 | 5.824085554 | 6.115289832 | 5.107258522 |
| Mar-32 | 7.555633761 | 5.743972872 | 6.209700402 | 6.520185422 | 5.12724875 | 5.397103947 | 5.666959145 | 4.759780421 |
| Apr-32 | 7.732604552 | 5.992529191 | 6.478409936 | 6.802330433 | 5.27372871 | 5.551293379 | 5.828858048 | 4.927956 |
| May-32 | 7.976167436 | 6.102719383 | 6.597534468 | 6.927411192 | 5.245896599 | 5.52199642 | 5.798096241 | 4.937551257 |
| Jun-32 | 8.023563071 | 6.175510119 | 6.676227156 | 7.010038514 | 5.169708087 | 5.441797986 | 5.713887885 | 4.840963318 |
| Jul-32 | 7.828955047 | 6.225335827 | 6.730092786 | 7.066597426 | 5.046516732 | 5.312122876 | 5.57772902 | 4.780825577 |
| Aug-32 | 7.728450195 | 6.06766162 | 6.559634184 | 6.887615893 | 4.880552839 | 5.137424041 | 5.394295243 | 4.616798346 |
| Sep-32 | 7.775066485 | 5.881355404 | 6.358222059 | 6.676133162 | 4.998122655 | 5.261181742 | 5.524240829 | 4.635709705 |
| Oct-32 | 7.992104281 | 5.951795328 | 6.434373328 | 6.756091994 | 5.285945502 | 5.56415316 | 5.842360818 | 4.912176894 |
| Nov-32 | 8.041636135 | 6.068214558 | 6.560231954 | 6.888243552 | 5.531349591 | 5.822473254 | 6.113596916 | 5.085300146 |
| Dec-32 | 8.160479738 | 6.203226044 | 6.706190317 | 7.041499833 | 5.62072025 | 5.916547632 | 6.212375014 | 5.200878374 |
| Jan-33 | 7.590833556 | 6.273806136 | 6.782493119 | 7.121617775 | 5.594235345 | 5.888668784 | 6.183102223 | 5.164433839 |
| Feb-33 | 7.543501734 | 6.21500073 | 6.718919708 | 7.054865694 | 5.589635089 | 5.883826409 | 6.17801773 | 5.159756107 |
| Mar-33 | 7.631190099 | 5.885087664 | 6.362256934 | 6.68036978 | 5.179946238 | 5.452574987 | 5.725203736 | 4.808803225 |
| Apr-33 | 7.809930598 | 6.139606353 | 6.637412273 | 6.969282887 | 5.327890998 | 5.608306313 | 5.888721629 | 4.97866056 |
| May-33 | 8.05592911 | 6.252439788 | 6.759394366 | 7.097364084 | 5.299780565 | 5.578716385 | 5.857652204 | 4.988351769 |
| Jun-33 | 8.103798701 | 6.326976629 | 6.839974734 | 7.181973471 | 5.222830168 | 5.497715966 | 5.772601764 | 4.890797951 |
| Jul-33 | 7.907244598 | 6.377997556 | 6.895132493 | 7.239889118 | 5.098406899 | 5.366744105 | 5.63508131 | 4.830058833 |
| Aug-33 | 7.805734697 | 6.216541059 | 6.720584929 | 7.056614175 | 4.930783367 | 5.190298281 | 5.449813195 | 4.66439133 |
| Sep-33 | 7.85281715 | 6.025765729 | 6.514341328 | 6.840058395 | 5.049528882 | 5.31529356 | 5.581058238 | 4.683491802 |
| Oct-33 | 8.072025323 | 6.097895366 | 6.592319315 | 6.92193528 | 5.340229957 | 5.621294692 | 5.902359426 | 4.962723663 |
| Nov-33 | 8.122052497 | 6.217107261 | 6.721197039 | 7.057256891 | 5.588088087 | 5.882197986 | 6.176307886 | 5.137578148 |
| Dec-33 | 8.242084535 | 6.355357403 | 6.870656652 | 7.214189484 | 5.678352453 | 5.977213108 | 6.276073764 | 5.254312157 |

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|--------------------------------------|-----------------------------------|--------------------------------------|--|---------------------------------------|--|
| Jan-12 | 3.038362609 | 3.190280739 | 2.619804183 | 2.757688614 | 2.895573044 | 2.908374518 | 3.061446861 | 3.214519204 |
| Feb-12 | 2.698835722 | 2.833777508 | 2.273319773 | 2.392968182 | 2.512616592 | 2.56139512 | 2.69620539 | 2.831015659 |
| Mar-12 | 2.480715958 | 2.604751756 | 2.072123224 | 2.181182341 | 2.290241458 | 2.354171242 | 2.478074992 | 2.601978741 |
| Apr-12 | 2.396461689 | 2.516284774 | 1.981949904 | 2.086263056 | 2.190576209 | 2.273466819 | 2.393122967 | 2.512779116 |
| May-12 | 1.96373973 | 2.061926716 | 1.534789937 | 1.615568355 | 1.696346773 | 1.821689386 | 1.917567774 | 2.013446163 |
| Jun-12 | 2.676900215 | 2.810745226 | 2.212118879 | 2.328546188 | 2.444973498 | 2.463130759 | 2.59276922 | 2.722407681 |
| Jul-12 | 2.46458199 | 2.587811089 | 1.922129902 | 2.023294633 | 2.124459365 | 2.271141092 | 2.390674833 | 2.510208575 |
| Aug-12 | 2.441299959 | 2.563364957 | 1.998607229 | 2.103797083 | 2.208986937 | 2.354092233 | 2.477991824 | 2.601891416 |
| Sep-12 | 2.443687903 | 2.565872298 | 2.044795205 | 2.152416005 | 2.260036805 | 2.347585919 | 2.471143072 | 2.594700226 |
| Oct-12 | 2.507633647 | 2.633015329 | 2.155020953 | 2.268443108 | 2.381865264 | 2.428102644 | 2.55589752 | 2.683692396 |
| Nov-12 | 2.619723699 | 2.750709884 | 2.336851449 | 2.45984363 | 2.582835812 | 2.648493384 | 2.787887772 | 2.927282161 |
| Dec-12 | 2.86912605 | 3.012582352 | 2.569917068 | 2.705175861 | 2.840434654 | 2.875734068 | 3.027088492 | 3.178442917 |
| Jan-13 | 3.170782392 | 3.329321511 | 2.814178377 | 2.962293029 | 3.11040768 | 3.12145193 | 3.285738874 | 3.450025817 |
| Feb-13 | 3.223221005 | 3.384382055 | 2.794975658 | 2.94207964 | 3.089183622 | 3.118096922 | 3.282207286 | 3.446317651 |
| Mar-13 | 3.203436981 | 3.36360883 | 2.808444941 | 2.956257833 | 3.104070724 | 3.101082901 | 3.264297791 | 3.427512681 |
| Apr-13 | 3.216968203 | 3.377816613 | 2.790732717 | 2.937613387 | 3.084494056 | 3.060199446 | 3.221262575 | 3.382325703 |
| May-13 | 3.245618045 | 3.407898947 | 2.797184844 | 2.944405099 | 3.091625354 | 3.087036187 | 3.249511776 | 3.411987365 |
| Jun-13 | 3.276516845 | 3.440342687 | 2.802329637 | 2.949820671 | 3.097311704 | 3.116862578 | 3.280907977 | 3.444953376 |
| Jul-13 | 3.254312987 | 3.417028636 | 2.827553116 | 2.976371701 | 3.125190286 | 3.153583914 | 3.319562014 | 3.485540115 |
| Aug-13 | 3.270965183 | 3.434513442 | 2.829885578 | 2.978826924 | 3.127768271 | 3.169519136 | 3.336335933 | 3.50315273 |
| Sep-13 | 3.289813567 | 3.454304245 | 2.869894827 | 3.020941923 | 3.171989019 | 3.187003068 | 3.354740072 | 3.522477075 |
| Oct-13 | 3.338212555 | 3.505123183 | 2.929890498 | 3.084095261 | 3.238300024 | 3.233208569 | 3.403377441 | 3.573546313 |
| Nov-13 | 3.447592101 | 3.619971706 | 3.094443657 | 3.257309113 | 3.420174568 | 3.390199704 | 3.568631267 | 3.747062831 |
| Dec-13 | 3.610018465 | 3.790519388 | 3.237225445 | 3.407605731 | 3.577986018 | 3.54372935 | 3.730241422 | 3.916753493 |
| Jan-14 | 3.800863379 | 3.990906548 | 3.396948655 | 3.575735426 | 3.754522198 | 3.724216675 | 3.920228079 | 4.116239483 |
| Feb-14 | 3.847730381 | 4.0401169 | 3.38499493 | 3.563152558 | 3.741310186 | 3.717135583 | 3.912774297 | 4.108413012 |
| Mar-14 | 3.725789111 | 3.912078567 | 3.302503888 | 3.476319882 | 3.650135876 | 3.600040916 | 3.789516754 | 3.978992592 |
| Apr-14 | 3.701353496 | 3.886421171 | 3.292996619 | 3.46631223 | 3.639627842 | 3.605945818 | 3.79573244 | 3.98519062 |
| May-14 | 3.705256934 | 3.890519781 | 3.272305011 | 3.444531591 | 3.61675817 | 3.607583404 | 3.797456215 | 3.987329026 |
| Jun-14 | 3.706643774 | 3.891975963 | 3.254484477 | 3.425773134 | 3.59706179 | 3.608334343 | 3.798246677 | 3.988159011 |
| Jul-14 | 3.681090227 | 3.865144738 | 3.289897162 | 3.463049644 | 3.636202126 | 3.627215943 | 3.818122045 | 4.009028147 |
| Aug-14 | 3.69148071 | 3.876054746 | 3.286797759 | 3.459787114 | 3.63277647 | 3.636419118 | 3.827809597 | 4.019200077 |
| Sep-14 | 3.721434601 | 3.907506331 | 3.329749444 | 3.504999414 | 3.680249385 | 3.663334788 | 3.856141883 | 4.048948977 |
| Oct-14 | 3.779430315 | 3.968401831 | 3.351150861 | 3.527527222 | 3.703903584 | 3.717904389 | 3.913583568 | 4.109262746 |
| Nov-14 | 3.860992449 | 4.054042072 | 3.499365225 | 3.683542342 | 3.867719459 | 3.79632588 | 3.996132505 | 4.19593913 |
| Dec-14 | 3.992204878 | 4.191815122 | 3.600326063 | 3.789816908 | 3.979307754 | 3.919971424 | 4.12628571 | 4.332599995 |
| Jan-15 | 4.373842973 | 4.592535122 | 3.920883939 | 4.127246252 | 4.333608564 | 4.25152256 | 4.475286905 | 4.69905125 |
| Feb-15 | 4.353446433 | 4.571118754 | 3.900284464 | 4.105562594 | 4.310840724 | 4.222674657 | 4.444920691 | 4.667166726 |
| Mar-15 | 4.225282722 | 4.436546858 | 3.850415767 | 4.053069229 | 4.25572269 | 4.10010836 | 4.315903537 | 4.531698714 |
| Apr-15 | 4.144978341 | 4.352227258 | 3.733343714 | 3.929835488 | 4.126327263 | 4.019310083 | 4.230852719 | 4.442395355 |
| May-15 | 4.151453216 | 4.359025877 | 3.709553439 | 3.904793094 | 4.100032749 | 4.022492102 | 4.234202213 | 4.445912323 |
| Jun-15 | 4.112093636 | 4.317698318 | 3.671589285 | 3.864830827 | 4.058072368 | 3.84071827 | 4.042861337 | 4.245004403 |
| Jul-15 | 4.114798846 | 4.320538789 | 3.552238558 | 3.739198482 | 3.926158406 | 3.833565672 | 4.035332286 | 4.2370989 |
| Aug-15 | 4.109462112 | 4.314935218 | 3.529079833 | 3.714820877 | 3.900561921 | 3.829227543 | 4.030765834 | 4.232304126 |
| Sep-15 | 4.144838287 | 4.352080202 | 3.576815597 | 3.76506905 | 3.953322502 | 3.909155418 | 4.11490044 | 4.320645462 |
| Oct-15 | 4.2343969 | 4.446116745 | 3.649689433 | 3.841778351 | 4.033867268 | 4.012651736 | 4.223843933 | 4.43503613 |
| Nov-15 | 4.333983344 | 4.550682512 | 3.835134253 | 4.036983424 | 4.238832596 | 4.163679967 | 4.382821018 | 4.601962068 |
| Dec-15 | 4.419924969 | 4.640921217 | 3.883564728 | 4.087962872 | 4.292361015 | 4.223096031 | 4.445364243 | 4.667632455 |
| Jan-16 | 4.41063406 | 4.631165763 | 3.914077825 | 4.120081921 | 4.326086017 | 4.237710351 | 4.460747738 | 4.683785125 |
| Feb-16 | 4.396930289 | 4.616776804 | 3.896269723 | 4.101336551 | 4.306403378 | 4.224986669 | 4.447354388 | 4.669722108 |
| Mar-16 | 4.212926778 | 4.423573117 | 3.81255876 | 4.013219747 | 4.213880734 | 4.048209633 | 4.261273298 | 4.474336963 |
| Apr-16 | 4.198082121 | 4.407986227 | 3.743634119 | 3.940667494 | 4.137700868 | 4.026886463 | 4.238827856 | 4.450769249 |
| May-16 | 4.146405469 | 4.353725743 | 3.734478725 | 3.931030237 | 4.127581748 | 3.97257242 | 4.181655179 | 4.390737938 |

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|--------------------------------------|-----------------------------------|--------------------------------------|--|---------------------------------------|--|
| Jun-16 | 4.059191007 | 4.262150557 | 3.712323638 | 3.907709092 | 4.103094547 | 3.924999767 | 4.131578702 | 4.338157637 |
| Jul-16 | 4.000545688 | 4.200572972 | 3.664426113 | 3.857290645 | 4.050155177 | 3.879075942 | 4.083237834 | 4.287399726 |
| Aug-16 | 3.974166558 | 4.172874886 | 3.618052963 | 3.808476803 | 3.998900643 | 3.85619377 | 4.059151337 | 4.262108904 |
| Sep-16 | 4.088948058 | 4.293395461 | 3.658826279 | 3.851396083 | 4.043965887 | 3.944530233 | 4.152137088 | 4.359743942 |
| Oct-16 | 4.235154961 | 4.446912709 | 3.762832685 | 3.960876511 | 4.158920336 | 4.06920908 | 4.283377979 | 4.497546878 |
| Nov-16 | 4.397927953 | 4.61782435 | 3.884186641 | 4.088617516 | 4.293048392 | 4.226152793 | 4.448581887 | 4.671010981 |
| Dec-16 | 4.461679663 | 4.684763646 | 3.905288533 | 4.110830034 | 4.316371536 | 4.287111929 | 4.512749399 | 4.738386869 |
| Jan-17 | 4.513854795 | 4.739547534 | 3.953107252 | 4.161165528 | 4.369223805 | 4.336881699 | 4.565138631 | 4.793395563 |
| Feb-17 | 4.448610918 | 4.671041464 | 3.919603119 | 4.12589802 | 4.332192921 | 4.274748716 | 4.499735491 | 4.724722266 |
| Mar-17 | 4.200931975 | 4.410978573 | 3.80752828 | 4.007924506 | 4.208320731 | 4.035984229 | 4.248404452 | 4.460824674 |
| Apr-17 | 4.235679318 | 4.447463283 | 3.760682161 | 3.958612801 | 4.156543441 | 4.069337575 | 4.283513237 | 4.497688899 |
| May-17 | 4.169556909 | 4.378034755 | 3.739651065 | 3.936474805 | 4.133298546 | 4.058419147 | 4.272020155 | 4.485621162 |
| Jun-17 | 4.109405989 | 4.314876288 | 3.715117464 | 3.910649962 | 4.10618246 | 4.004970855 | 4.215758795 | 4.426546735 |
| Jul-17 | 4.03570835 | 4.237493767 | 3.644062817 | 3.835855597 | 4.027648377 | 3.934926842 | 4.142028254 | 4.349129667 |
| Aug-17 | 3.973026204 | 4.171677514 | 3.572979706 | 3.76103127 | 3.949082833 | 3.879752925 | 4.083950448 | 4.28814797 |
| Sep-17 | 4.125712573 | 4.331998201 | 3.661295907 | 3.853995692 | 4.046695476 | 4.031542375 | 4.243728816 | 4.455915256 |
| Oct-17 | 4.301705649 | 4.516790931 | 3.800992062 | 4.001044276 | 4.20109649 | 4.192700994 | 4.413369467 | 4.634037941 |
| Nov-17 | 4.477336813 | 4.701203654 | 3.909291844 | 4.115044047 | 4.320796249 | 4.300595074 | 4.526942183 | 4.753289292 |
| Dec-17 | 4.533713468 | 4.760399141 | 3.954662682 | 4.162802823 | 4.370942965 | 4.35446365 | 4.583645948 | 4.812828245 |
| Jan-18 | 4.607080413 | 4.837434434 | 4.020999149 | 4.232630683 | 4.444262218 | 4.424440841 | 4.657306148 | 4.890171455 |
| Feb-18 | 4.584593514 | 4.81382319 | 4.003003709 | 4.213688115 | 4.42437252 | 4.403293912 | 4.635046223 | 4.866798534 |
| Mar-18 | 4.363169682 | 4.581328166 | 3.878868758 | 4.083019745 | 4.287170732 | 4.189594089 | 4.410099041 | 4.630603993 |
| Apr-18 | 4.396824868 | 4.616666112 | 3.840506145 | 4.042638047 | 4.24476995 | 4.214117008 | 4.435912641 | 4.657708273 |
| May-18 | 4.374004965 | 4.592705213 | 3.813880075 | 4.014610605 | 4.215341136 | 4.199004267 | 4.420004492 | 4.641004717 |
| Jun-18 | 4.286521445 | 4.500847518 | 3.770924688 | 3.969394408 | 4.167864129 | 4.118807684 | 4.335587035 | 4.552366387 |
| Jul-18 | 4.235428452 | 4.447199874 | 3.711378105 | 3.906713795 | 4.102049485 | 4.074841874 | 4.289307236 | 4.503772598 |
| Aug-18 | 4.189515426 | 4.398991198 | 3.668330146 | 3.861400154 | 4.054470162 | 4.054557382 | 4.267955139 | 4.481352896 |
| Sep-18 | 4.295052068 | 4.509804671 | 3.730245716 | 3.926574437 | 4.122903159 | 4.131690875 | 4.34914829 | 4.566605704 |
| Oct-18 | 4.465728967 | 4.689015416 | 3.857094547 | 4.060099523 | 4.263104499 | 4.282487756 | 4.507881849 | 4.733275941 |
| Nov-18 | 4.610832496 | 4.84137412 | 4.013054376 | 4.224267764 | 4.435481152 | 4.426504092 | 4.659477992 | 4.892451892 |
| Dec-18 | 4.702530496 | 4.937657021 | 4.0741207 | 4.288548105 | 4.50297551 | 4.51408559 | 4.751669042 | 4.989252495 |
| Jan-19 | 4.758770536 | 4.996709062 | 4.135671396 | 4.353338311 | 4.571005227 | 4.567677612 | 4.808081697 | 5.048485781 |
| Feb-19 | 4.744435119 | 4.981656875 | 4.118508515 | 4.335272121 | 4.552035727 | 4.554333028 | 4.794034767 | 5.033736505 |
| Mar-19 | 4.6502885 | 4.882802925 | 4.123074358 | 4.340078272 | 4.557082185 | 4.463763516 | 4.698698438 | 4.93363336 |
| Apr-19 | 4.549580128 | 4.777059134 | 3.972327776 | 4.181397659 | 4.390467542 | 4.363747697 | 4.593418629 | 4.82308956 |
| May-19 | 4.479950905 | 4.70394845 | 3.979013958 | 4.188435745 | 4.397857533 | 4.343583036 | 4.572192669 | 4.800802303 |
| Jun-19 | 4.397641446 | 4.617523518 | 3.923951724 | 4.130475499 | 4.336999274 | 4.269034756 | 4.493720796 | 4.718406835 |
| Jul-19 | 4.339616271 | 4.556597084 | 3.857406437 | 4.060427829 | 4.26344922 | 4.213948891 | 4.435735675 | 4.657522458 |
| Aug-19 | 4.283452333 | 4.49762495 | 3.797798002 | 3.997682107 | 4.197566213 | 4.175461362 | 4.395222486 | 4.61498361 |
| Sep-19 | 4.409586346 | 4.630065663 | 3.877229912 | 4.081294644 | 4.285359376 | 4.289302794 | 4.515055573 | 4.740808352 |
| Oct-19 | 4.623962277 | 4.855160391 | 4.046535053 | 4.259510583 | 4.472486112 | 4.475647354 | 4.711207741 | 4.946768128 |
| Nov-19 | 4.802570879 | 5.042699422 | 4.1980733 | 4.419024526 | 4.639975752 | 4.609855088 | 4.85247904 | 5.095102992 |
| Dec-19 | 4.87679629 | 5.120636105 | 4.236905856 | 4.459900901 | 4.682895946 | 4.680851216 | 4.927211806 | 5.173572397 |
| Jan-20 | 4.893699323 | 5.138384289 | 4.256953719 | 4.481003915 | 4.705054111 | 4.697121099 | 4.944337999 | 5.191554898 |
| Feb-20 | 4.862882075 | 5.106026179 | 4.241246355 | 4.464469848 | 4.687693334 | 4.667975629 | 4.913658557 | 5.159341485 |
| Mar-20 | 4.778487782 | 5.017412171 | 4.272932171 | 4.497823338 | 4.722714505 | 4.586615562 | 4.828016381 | 5.0694172 |
| Apr-20 | 4.659553022 | 4.892530673 | 4.132330189 | 4.349821252 | 4.567312315 | 4.526391979 | 4.764623136 | 5.002854292 |
| May-20 | 4.612605232 | 4.843235493 | 4.125377776 | 4.342502922 | 4.559628068 | 4.504304992 | 4.741373676 | 4.97844236 |
| Jun-20 | 4.516544302 | 4.742371517 | 4.061172772 | 4.274918707 | 4.488664643 | 4.41555625 | 4.647953947 | 4.880351645 |
| Jul-20 | 4.440635462 | 4.662667235 | 3.98945665 | 4.199428053 | 4.409399455 | 4.346440321 | 4.575200338 | 4.803960355 |
| Aug-20 | 4.385257296 | 4.604520161 | 3.927149216 | 4.13384128 | 4.340533344 | 4.299095322 | 4.525363497 | 4.751631672 |
| Sep-20 | 4.529290314 | 4.755754829 | 4.038859729 | 4.251431294 | 4.464002858 | 4.434500207 | 4.667894955 | 4.901289702 |
| Oct-20 | 4.743826852 | 4.981018195 | 4.191593314 | 4.412203489 | 4.632813663 | 4.616873275 | 4.859866605 | 5.102859935 |

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|--------------------------------------|-----------------------------------|--------------------------------------|--|---------------------------------------|--|
| Nov-20 | 4.942462119 | 5.189585225 | 4.357454802 | 4.586794528 | 4.816134254 | 4.745192958 | 4.994939956 | 5.244686953 |
| Dec-20 | 4.970241634 | 5.218753715 | 4.369218122 | 4.599176971 | 4.829135819 | 4.771199357 | 5.022315112 | 5.273430868 |
| Jan-21 | 5.012949091 | 5.263596546 | 4.425355578 | 4.65826903 | 4.891182481 | 4.812062717 | 5.065329176 | 5.318595635 |
| Feb-21 | 4.984091881 | 5.233296476 | 4.397389028 | 4.628830556 | 4.860272083 | 4.784928772 | 5.036767129 | 5.288605485 |
| Mar-21 | 4.936457832 | 5.183280724 | 4.44114301 | 4.674887378 | 4.908631747 | 4.775761578 | 5.02711745 | 5.278473323 |
| Apr-21 | 4.72288971 | 4.959034196 | 4.233173586 | 4.455972196 | 4.678770805 | 4.626534139 | 4.870035935 | 5.113537732 |
| May-21 | 4.643181143 | 4.8753402 | 4.208873114 | 4.430392752 | 4.65191239 | 4.556711716 | 4.796538649 | 5.036365581 |
| Jun-21 | 4.520684724 | 4.74671896 | 4.177005524 | 4.39684792 | 4.616690316 | 4.473555998 | 4.709006314 | 4.94445663 |
| Jul-21 | 4.431426282 | 4.652997596 | 4.088443801 | 4.303625054 | 4.518806307 | 4.40488847 | 4.636724705 | 4.868560941 |
| Aug-21 | 4.381554517 | 4.600632243 | 4.041199259 | 4.253893957 | 4.466588654 | 4.364982904 | 4.594718847 | 4.824454789 |
| Sep-21 | 4.526422379 | 4.752743498 | 4.06010589 | 4.273795674 | 4.487485458 | 4.456357006 | 4.690902112 | 4.925447217 |
| Oct-21 | 4.775278542 | 5.014042469 | 4.256789746 | 4.480831311 | 4.704872877 | 4.671320581 | 4.917179559 | 5.163038537 |
| Nov-21 | 5.009297942 | 5.259762839 | 4.455547709 | 4.690050219 | 4.92455273 | 4.852720398 | 5.108126735 | 5.363533071 |
| Dec-21 | 5.077197475 | 5.331057348 | 4.499408816 | 4.736219806 | 4.973030796 | 4.902414726 | 5.160436553 | 5.418458381 |
| Jan-22 | 5.199522697 | 5.459498832 | 4.634188319 | 4.878092968 | 5.121997616 | 5.005561567 | 5.269012176 | 5.532462785 |
| Feb-22 | 5.186208311 | 5.445518726 | 4.619254291 | 4.862372938 | 5.105491585 | 4.996390092 | 5.259357992 | 5.522325891 |
| Mar-22 | 5.055533568 | 5.308310246 | 4.597303589 | 4.839266936 | 5.081230283 | 4.89613417 | 5.153825442 | 5.411516714 |
| Apr-22 | 4.977157555 | 5.226015433 | 4.521545103 | 4.759521161 | 4.997497219 | 4.889517987 | 5.146861039 | 5.404204091 |
| May-22 | 4.957949122 | 5.205846578 | 4.500320006 | 4.737178954 | 4.974037902 | 4.841167079 | 5.095965346 | 5.350763613 |
| Jun-22 | 4.846397193 | 5.088717053 | 4.507697781 | 4.744945033 | 4.982192285 | 4.790616721 | 5.042754443 | 5.294892165 |
| Jul-22 | 4.685498544 | 4.919773472 | 4.34762332 | 4.5764456 | 4.80526788 | 4.631176453 | 4.874922582 | 5.118668712 |
| Aug-22 | 4.598643886 | 4.82857608 | 4.265230985 | 4.489716827 | 4.714202668 | 4.57710629 | 4.818006621 | 5.058906953 |
| Sep-22 | 4.763380161 | 5.001549169 | 4.347952461 | 4.576792065 | 4.805631668 | 4.73057159 | 4.979549042 | 5.228526494 |
| Oct-22 | 5.115929389 | 5.371725859 | 4.598136474 | 4.840143657 | 5.08215084 | 5.001871525 | 5.265127921 | 5.528384317 |
| Nov-22 | 5.322547844 | 5.588675236 | 4.800412876 | 5.053066185 | 5.305719494 | 5.199358589 | 5.473009041 | 5.746659493 |
| Dec-22 | 5.33760857 | 5.604488998 | 4.784966475 | 5.036806816 | 5.288647156 | 5.189757639 | 5.462902778 | 5.736047917 |
| Jan-23 | 5.268018663 | 5.531419596 | 4.753781095 | 5.0039801 | 5.254179105 | 5.114279738 | 5.383452356 | 5.652624973 |
| Feb-23 | 5.264571947 | 5.527800545 | 4.747425894 | 4.997290415 | 5.247154936 | 5.11362503 | 5.38276319 | 5.651901349 |
| Mar-23 | 5.18622609 | 5.445537395 | 4.778863691 | 5.030382833 | 5.281901974 | 5.05655434 | 5.322688779 | 5.588823218 |
| Apr-23 | 5.088624177 | 5.343055386 | 4.637880388 | 4.881979356 | 5.126078323 | 4.997787691 | 5.260829148 | 5.523870605 |
| May-23 | 5.059420339 | 5.312391356 | 4.625928611 | 4.869398538 | 5.112868465 | 4.952745513 | 5.21341633 | 5.474087146 |
| Jun-23 | 4.957115293 | 5.204971058 | 4.641265115 | 4.885542226 | 5.129819338 | 4.91096384 | 5.169435621 | 5.427907402 |
| Jul-23 | 4.769916653 | 5.008412485 | 4.461562784 | 4.696381878 | 4.931200972 | 4.73292083 | 4.982021927 | 5.231123023 |
| Aug-23 | 4.678706967 | 4.912642315 | 4.379050336 | 4.609526669 | 4.840003002 | 4.672896881 | 4.918838822 | 5.164780763 |
| Sep-23 | 4.845086771 | 5.087341109 | 4.468580661 | 4.703769117 | 4.938957573 | 4.851923223 | 5.107287603 | 5.362651983 |
| Oct-23 | 5.171521864 | 5.430097957 | 4.732678737 | 4.981767092 | 5.230855447 | 5.137182975 | 5.407561026 | 5.677939077 |
| Nov-23 | 5.391423385 | 5.660994554 | 4.929556164 | 5.189006488 | 5.448456812 | 5.337254199 | 5.618162315 | 5.89907043 |
| Dec-23 | 5.435197638 | 5.70695752 | 4.924303349 | 5.183477209 | 5.44265107 | 5.337897571 | 5.618839548 | 5.899781526 |
| Jan-24 | 5.307276947 | 5.572640795 | 4.83418531 | 5.088616116 | 5.343046922 | 5.195406933 | 5.468849404 | 5.742291874 |
| Feb-24 | 5.281169741 | 5.545228229 | 4.825818134 | 5.079808562 | 5.33379899 | 5.192742968 | 5.46604523 | 5.739347491 |
| Mar-24 | 5.128825891 | 5.385267185 | 4.7948771 | 5.047239053 | 5.299601005 | 5.070119763 | 5.336968171 | 5.60381658 |
| Apr-24 | 5.161313913 | 5.419379609 | 4.803398269 | 5.056208704 | 5.309019139 | 5.161507633 | 5.43316593 | 5.704824226 |
| May-24 | 5.147134737 | 5.404491474 | 4.818961426 | 5.072590975 | 5.326220524 | 5.144087297 | 5.414828733 | 5.68557017 |
| Jun-24 | 5.040781106 | 5.292820161 | 4.733670687 | 4.982811249 | 5.231951812 | 5.046349153 | 5.311946476 | 5.5775438 |
| Jul-24 | 4.910111802 | 5.155617392 | 4.599094666 | 4.841152279 | 5.083209893 | 4.92793238 | 5.187297242 | 5.446662104 |
| Aug-24 | 4.791360924 | 5.03092897 | 4.489976414 | 4.726290962 | 4.96260551 | 4.817191046 | 5.070727417 | 5.324263788 |
| Sep-24 | 4.939175719 | 5.186134505 | 4.629230836 | 4.872874564 | 5.116518293 | 4.963333715 | 5.224561805 | 5.485789895 |
| Oct-24 | 5.195826607 | 5.455617937 | 4.821717111 | 5.075491695 | 5.32926628 | 5.21039188 | 5.484623032 | 5.758854183 |
| Nov-24 | 5.385340453 | 5.654607476 | 5.005580629 | 5.269032241 | 5.532483853 | 5.397280682 | 5.681348086 | 5.965415491 |
| Dec-24 | 5.471762504 | 5.745350629 | 5.000882694 | 5.264087047 | 5.527291399 | 5.398275993 | 5.682395782 | 5.966515571 |
| Jan-25 | 5.008500684 | 5.258925719 | 4.629903348 | 4.873582472 | 5.117261595 | 4.989906414 | 5.252533067 | 5.515159721 |
| Feb-25 | 4.975590975 | 5.224370524 | 4.608553832 | 4.851109297 | 5.093664762 | 4.974253767 | 5.236056597 | 5.497859427 |
| Mar-25 | 4.793830325 | 5.033521841 | 4.540965705 | 4.7799639 | 5.018962095 | 4.816017204 | 5.069491793 | 5.322966383 |

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|--------------------------------------|-----------------------------------|--------------------------------------|--|---------------------------------------|--|
| Apr-25 | 4.964105724 | 5.212311011 | 4.65243326 | 4.897298168 | 5.142163077 | 5.010302084 | 5.274002194 | 5.537702303 |
| May-25 | 4.988897237 | 5.238342098 | 4.682211617 | 4.928643807 | 5.175075997 | 5.019304264 | 5.283478173 | 5.547652082 |
| Jun-25 | 4.889285085 | 5.133749339 | 4.638138878 | 4.88225145 | 5.126364023 | 4.937451717 | 5.197317597 | 5.457183477 |
| Jul-25 | 4.740156202 | 4.977164013 | 4.478136891 | 4.713828306 | 4.949519722 | 4.806020144 | 5.058968573 | 5.311917001 |
| Aug-25 | 4.574154417 | 4.802862138 | 4.319536905 | 4.546880953 | 4.774225 | 4.650632348 | 4.895402471 | 5.140172595 |
| Sep-25 | 4.697050674 | 4.931903208 | 4.398812501 | 4.630328948 | 4.861845396 | 4.73540323 | 4.984634979 | 5.233866728 |
| Oct-25 | 4.968356741 | 5.216774578 | 4.656181809 | 4.901244009 | 5.14630621 | 5.027111846 | 5.29169668 | 5.556281514 |
| Nov-25 | 5.300500206 | 5.565525216 | 4.864804233 | 5.120846561 | 5.376888889 | 5.23769275 | 5.51336079 | 5.789028829 |
| Dec-25 | 5.405095029 | 5.67534978 | 4.837799481 | 5.092420506 | 5.347041532 | 5.216380337 | 5.490926671 | 5.765473004 |
| Jan-26 | 5.382275005 | 5.651388755 | 4.812089253 | 5.065357108 | 5.318624964 | 5.17210002 | 5.44431581 | 5.716531601 |
| Feb-26 | 5.36888518 | 5.637329439 | 4.796602477 | 5.049055239 | 5.301508001 | 5.161695851 | 5.433364054 | 5.705032257 |
| Mar-26 | 5.236613425 | 5.498444096 | 4.828938198 | 5.08309284 | 5.337247482 | 5.075898099 | 5.343050631 | 5.610203162 |
| Apr-26 | 5.371487567 | 5.640061946 | 4.883317103 | 5.140333793 | 5.397350483 | 5.203992295 | 5.477886627 | 5.751780958 |
| May-26 | 5.37087157 | 5.639415148 | 4.959942237 | 5.220991828 | 5.48204142 | 5.260392548 | 5.537255313 | 5.814118079 |
| Jun-26 | 5.269986351 | 5.533485669 | 4.896390784 | 5.154095562 | 5.41180034 | 5.16807544 | 5.440079411 | 5.712083381 |
| Jul-26 | 5.104795154 | 5.360034912 | 4.71087605 | 4.958816894 | 5.206757739 | 4.983179497 | 5.245452102 | 5.507724707 |
| Aug-26 | 4.954696959 | 5.202431807 | 4.564136498 | 4.804354208 | 5.044571919 | 4.846517279 | 5.101597136 | 5.356676993 |
| Sep-26 | 5.098938266 | 5.353885179 | 4.67231311 | 4.918224326 | 5.164135542 | 4.984479691 | 5.246820727 | 5.509161763 |
| Oct-26 | 5.415383624 | 5.686152805 | 4.920523285 | 5.179498195 | 5.438473104 | 5.253421649 | 5.529917525 | 5.806413402 |
| Nov-26 | 5.568325957 | 5.846742255 | 5.071859919 | 5.338799914 | 5.60573991 | 5.41313933 | 5.6980414 | 5.98294347 |
| Dec-26 | 5.595388331 | 5.875157748 | 5.036910838 | 5.302011408 | 5.567111979 | 5.400701851 | 5.684949317 | 5.969196782 |
| Jan-27 | 5.557457703 | 5.835330588 | 4.997344737 | 5.260362881 | 5.523381025 | 5.349755602 | 5.631321686 | 5.91288777 |
| Feb-27 | 5.55165615 | 5.829238957 | 4.995059494 | 5.257957362 | 5.52085523 | 5.346627788 | 5.62802925 | 5.909430713 |
| Mar-27 | 5.447320342 | 5.719686359 | 5.068856031 | 5.335637927 | 5.602419823 | 5.317388278 | 5.597250819 | 5.87711336 |
| Apr-27 | 5.542141078 | 5.819248132 | 5.107609732 | 5.376431296 | 5.645252861 | 5.414391558 | 5.699359534 | 5.984327511 |
| May-27 | 5.534714602 | 5.811450332 | 5.162693757 | 5.434414481 | 5.706135205 | 5.457357053 | 5.744586371 | 6.03181569 |
| Jun-27 | 5.438501876 | 5.71042697 | 5.098985988 | 5.367353671 | 5.635721355 | 5.369749704 | 5.65236811 | 5.934986515 |
| Jul-27 | 5.288597759 | 5.553027646 | 4.911680712 | 5.170190223 | 5.428699734 | 5.183004784 | 5.455794509 | 5.728584235 |
| Aug-27 | 5.14407134 | 5.401274907 | 4.772866251 | 5.024069738 | 5.275273225 | 5.05169419 | 5.317572832 | 5.583451473 |
| Sep-27 | 5.291303342 | 5.555868509 | 4.887667893 | 5.144913572 | 5.40215925 | 5.193902048 | 5.467265314 | 5.740628579 |
| Oct-27 | 5.557794351 | 5.835684069 | 5.111433598 | 5.380456419 | 5.64947924 | 5.446382219 | 5.733033914 | 6.01968561 |
| Nov-27 | 5.723535539 | 6.009712316 | 5.244225122 | 5.52023697 | 5.796248819 | 5.610779859 | 5.906084062 | 6.201388265 |
| Dec-27 | 5.713457791 | 5.99913068 | 5.214993983 | 5.48946735 | 5.763940718 | 5.58720799 | 5.881271569 | 6.175335147 |
| Jan-28 | 5.617459854 | 5.898332847 | 5.120862346 | 5.390381416 | 5.659900487 | 5.498847966 | 5.788261017 | 6.077674068 |
| Feb-28 | 5.592489523 | 5.872113999 | 5.101747946 | 5.370260996 | 5.638774046 | 5.472567181 | 5.760597033 | 6.048626885 |
| Mar-28 | 5.443732135 | 5.715918741 | 5.078024648 | 5.345289103 | 5.612553559 | 5.316951583 | 5.59679114 | 5.876630698 |
| Apr-28 | 5.564609475 | 5.842839949 | 5.16654743 | 5.438470979 | 5.710394528 | 5.458492754 | 5.745781846 | 6.033070939 |
| May-28 | 5.57670879 | 5.85554423 | 5.233326232 | 5.508764454 | 5.784202677 | 5.517121264 | 5.807496068 | 6.097870871 |
| Jun-28 | 5.474651741 | 5.748384328 | 5.137913124 | 5.408329605 | 5.678746085 | 5.408494737 | 5.693152355 | 5.977809973 |
| Jul-28 | 5.267903133 | 5.53129829 | 4.906436487 | 5.164669987 | 5.422903486 | 5.213744241 | 5.488151832 | 5.762559424 |
| Aug-28 | 5.122541794 | 5.378668884 | 4.777517729 | 5.028966031 | 5.280414332 | 5.08654913 | 5.354262242 | 5.621975354 |
| Sep-28 | 5.229467583 | 5.490940963 | 4.911737352 | 5.170249844 | 5.428762336 | 5.246614853 | 5.522752476 | 5.7988901 |
| Oct-28 | 5.560408328 | 5.838428744 | 5.229102255 | 5.504318163 | 5.779534072 | 5.567411195 | 5.860432837 | 6.153454479 |
| Nov-28 | 5.715252734 | 6.001015371 | 5.354416998 | 5.636228419 | 5.91803984 | 5.71267422 | 6.013341284 | 6.314008349 |
| Dec-28 | 5.688673476 | 5.97310715 | 5.320975642 | 5.601026992 | 5.881078342 | 5.71222723 | 6.012870769 | 6.313514307 |
| Jan-29 | 5.524400963 | 5.800621011 | 5.187257577 | 5.460271133 | 5.73328469 | 5.530531073 | 5.821611656 | 6.112692239 |
| Feb-29 | 5.428057277 | 5.699460141 | 5.09350415 | 5.361583316 | 5.629662482 | 5.442374857 | 5.728815639 | 6.015256421 |
| Mar-29 | 5.215031416 | 5.475782987 | 4.95343365 | 5.214140684 | 5.474847719 | 5.171563118 | 5.443750651 | 5.715938183 |
| Apr-29 | 5.413020004 | 5.683671004 | 5.101769481 | 5.370283664 | 5.638797848 | 5.391958089 | 5.675745357 | 5.959532625 |
| May-29 | 5.460791436 | 5.733831007 | 5.211185945 | 5.485458889 | 5.759731834 | 5.481238006 | 5.769724217 | 6.058210428 |
| Jun-29 | 5.347819518 | 5.615210494 | 5.149202017 | 5.420212649 | 5.691223282 | 5.378251661 | 5.661317538 | 5.944383415 |
| Jul-29 | 5.155912523 | 5.413708149 | 4.923186744 | 5.182301835 | 5.441416927 | 5.180725263 | 5.453395013 | 5.726064764 |
| Aug-29 | 4.970874562 | 5.219418291 | 4.74223427 | 4.991825547 | 5.241416825 | 5.032105329 | 5.296952977 | 5.561800626 |

| PERIOD | ROCKIES CASCADE FORECAST PRICE | CASCADE ROCKIES HI FORECAST PRICE | CASCADE AECO LO FORECAST PRICE | AECO CASCADE FORECAST PRICE | CASCADE AECO HI FORECAST PRICE | CASCADE MALIN LO FORECAST PRICE | MALIN CASCADE FORECAST PRICE | CASCADE MALIN HI FORECAST PRICE |
|--------|---|--|--------------------------------------|-----------------------------------|--------------------------------------|--|---------------------------------------|--|
| Sep-29 | 5.073959166 | 5.327657124 | 4.841089207 | 5.095883375 | 5.350677544 | 5.130796281 | 5.40083819 | 5.6708801 |
| Oct-29 | 5.392189263 | 5.661798726 | 5.116181875 | 5.385454605 | 5.654727336 | 5.440063821 | 5.726382969 | 6.012702118 |
| Nov-29 | 5.569327199 | 5.847793559 | 5.319814487 | 5.599804723 | 5.879794959 | 5.665000983 | 5.963158929 | 6.261316876 |
| Dec-29 | 5.576398573 | 5.855218501 | 5.304657602 | 5.583850107 | 5.863042612 | 5.683741283 | 5.982885561 | 6.282029839 |
| Jan-30 | 5.527390015 | 5.803759516 | 5.260501706 | 5.537370217 | 5.814238728 | 5.606183779 | 5.901246083 | 6.196308387 |
| Feb-30 | 5.510558657 | 5.786086589 | 5.243035151 | 5.518984369 | 5.794933588 | 5.594335724 | 5.888774446 | 6.183213169 |
| Mar-30 | 5.265860366 | 5.529153385 | 5.091783866 | 5.359772491 | 5.627761115 | 5.309505186 | 5.588952827 | 5.868400468 |
| Apr-30 | 5.416575905 | 5.6874047 | 5.277821241 | 5.555601307 | 5.833381372 | 5.516672798 | 5.807023998 | 6.097375198 |
| May-30 | 5.460363595 | 5.733381775 | 5.380849334 | 5.664051931 | 5.947254527 | 5.581680089 | 5.875452726 | 6.169225362 |
| Jun-30 | 5.352830584 | 5.620472113 | 5.295492304 | 5.574202425 | 5.852912546 | 5.482261632 | 5.770801718 | 6.059341804 |
| Jul-30 | 5.224878147 | 5.486122054 | 5.105258419 | 5.37395623 | 5.642654042 | 5.320467698 | 5.600492313 | 5.880516929 |
| Aug-30 | 5.073231983 | 5.326893582 | 4.953052426 | 5.213739395 | 5.474426365 | 5.192321644 | 5.46560173 | 5.738881817 |
| Sep-30 | 5.157631334 | 5.4155129 | 5.083173634 | 5.350709089 | 5.618244543 | 5.309247099 | 5.588681157 | 5.868115215 |
| Oct-30 | 5.480925233 | 5.754971495 | 5.322579135 | 5.602714879 | 5.882850623 | 5.595910882 | 5.890432508 | 6.184954133 |
| Nov-30 | 5.639988937 | 5.921988383 | 5.481180203 | 5.769663371 | 6.05814654 | 5.773442805 | 6.077308215 | 6.381173626 |
| Dec-30 | 5.752910108 | 6.040555614 | 5.485621306 | 5.774338217 | 6.063055127 | 5.816310593 | 6.122432203 | 6.428553813 |
| Jan-31 | 5.326175028 | 5.59248378 | 5.06944228 | 5.336255032 | 5.603067784 | 5.418581174 | 5.703769657 | 5.988958139 |
| Feb-31 | 5.321348121 | 5.587415527 | 5.063365186 | 5.329858091 | 5.596350995 | 5.418178765 | 5.703346069 | 5.988513372 |
| Mar-31 | 4.959203148 | 5.207163305 | 4.801351674 | 5.054054394 | 5.306757114 | 5.021250207 | 5.285526533 | 5.54980286 |
| Apr-31 | 5.134477332 | 5.391201198 | 5.011148338 | 5.274892988 | 5.538637637 | 5.252388411 | 5.528829906 | 5.805271401 |
| May-31 | 5.1444776 | 5.40170148 | 5.082692678 | 5.350202818 | 5.617712959 | 5.28553174 | 5.563717621 | 5.841903502 |
| Jun-31 | 5.043812733 | 5.29600337 | 5.004028378 | 5.267398293 | 5.530768208 | 5.1926654 | 5.465963579 | 5.739261758 |
| Jul-31 | 4.98113661 | 5.23019344 | 4.8751202 | 5.131705473 | 5.388290747 | 5.092481572 | 5.360506917 | 5.628532263 |
| Aug-31 | 4.810185874 | 5.050695168 | 4.704493442 | 4.95209836 | 5.199703279 | 4.946155353 | 5.206479319 | 5.466803285 |
| Sep-31 | 4.829895472 | 5.071390245 | 4.773658804 | 5.024904004 | 5.276149204 | 5.001993004 | 5.265255794 | 5.528518583 |
| Oct-31 | 5.118032198 | 5.373933808 | 4.978987754 | 5.241039741 | 5.503091728 | 5.255052819 | 5.531634546 | 5.808216273 |
| Nov-31 | 5.298462893 | 5.563386038 | 5.157962369 | 5.429434073 | 5.700905776 | 5.453147597 | 5.740155365 | 6.027163133 |
| Dec-31 | 5.418919618 | 5.689865599 | 5.168533907 | 5.440562008 | 5.712590108 | 5.502530087 | 5.792136934 | 6.081743781 |
| Jan-32 | 5.380936779 | 5.649983617 | 5.121561703 | 5.391117582 | 5.660673461 | 5.474191986 | 5.762307353 | 6.050422721 |
| Feb-32 | 5.376061602 | 5.644864682 | 5.115423838 | 5.384656672 | 5.653889505 | 5.473785553 | 5.761879529 | 6.049973506 |
| Mar-32 | 5.01029518 | 5.260809939 | 4.850790191 | 5.106094938 | 5.361399685 | 5.072887709 | 5.339881799 | 5.606875889 |
| Apr-32 | 5.187322105 | 5.44668821 | 5.062684822 | 5.329141918 | 5.595599013 | 5.306337295 | 5.585618205 | 5.864899115 |
| May-32 | 5.197422376 | 5.457293494 | 5.134944604 | 5.405204847 | 5.675465089 | 5.339812058 | 5.620854798 | 5.901897537 |
| Jun-32 | 5.095750861 | 5.350538404 | 5.055493662 | 5.321572276 | 5.58765089 | 5.246017054 | 5.522123215 | 5.798229375 |
| Jul-32 | 5.032447976 | 5.284070374 | 4.925296402 | 5.184522528 | 5.443748655 | 5.144831387 | 5.415611987 | 5.686392586 |
| Aug-32 | 4.859787733 | 5.10277712 | 4.752963377 | 5.003119344 | 5.253275311 | 4.997041907 | 5.260044112 | 5.523046318 |
| Sep-32 | 4.879694426 | 5.123679148 | 4.822820392 | 5.076653044 | 5.330485696 | 5.053437934 | 5.319408352 | 5.585378769 |
| Oct-32 | 5.17071252 | 5.429248146 | 5.030202632 | 5.294950138 | 5.559697645 | 5.309028347 | 5.588450891 | 5.867873436 |
| Nov-32 | 5.352947522 | 5.620594899 | 5.210966993 | 5.485228413 | 5.759489834 | 5.509104073 | 5.799056919 | 6.089009765 |
| Dec-32 | 5.474608814 | 5.748339255 | 5.221644246 | 5.496467628 | 5.771291009 | 5.558980388 | 5.851558303 | 6.144136218 |
| Jan-33 | 5.436246146 | 5.708058454 | 5.17420232 | 5.446528758 | 5.718855196 | 5.530358905 | 5.821430427 | 6.112501948 |
| Feb-33 | 5.431322218 | 5.702888329 | 5.168003076 | 5.440003238 | 5.7120034 | 5.529948408 | 5.820998325 | 6.112048241 |
| Mar-33 | 5.061898131 | 5.314993038 | 4.900723093 | 5.158655887 | 5.416588682 | 5.125041586 | 5.394780617 | 5.664519647 |
| Apr-33 | 5.240695326 | 5.502730092 | 5.11473667 | 5.383933337 | 5.653130004 | 5.360825668 | 5.642974387 | 5.925123106 |
| May-33 | 5.250896599 | 5.513441429 | 5.18771905 | 5.460756895 | 5.73379474 | 5.394635178 | 5.678563346 | 5.962491513 |
| Jun-33 | 5.148208369 | 5.405618788 | 5.107473599 | 5.376287999 | 5.645102399 | 5.299902224 | 5.578844447 | 5.857786669 |
| Jul-33 | 5.084272455 | 5.338486078 | 4.975974366 | 5.237867753 | 5.499761141 | 5.197704701 | 5.471268107 | 5.744831512 |
| Aug-33 | 4.90988561 | 5.155379891 | 4.801918011 | 5.054650538 | 5.307383064 | 5.048437326 | 5.314144553 | 5.579851781 |
| Sep-33 | 4.929991371 | 5.176490939 | 4.872473596 | 5.128919575 | 5.385365553 | 5.105397313 | 5.374102435 | 5.642807557 |
| Oct-33 | 5.223919646 | 5.485115628 | 5.081929658 | 5.34939964 | 5.616869622 | 5.36354363 | 5.6458354 | 5.92812717 |
| Nov-33 | 5.407976998 | 5.678375848 | 5.264501662 | 5.541580697 | 5.818659732 | 5.565620113 | 5.858547488 | 6.151474862 |
| Dec-33 | 5.530854903 | 5.807397648 | 5.275285689 | 5.552932304 | 5.830578919 | 5.615995192 | 5.911573886 | 6.207152581 |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Nov | -3.0489 | -3.6521 | -3.7425 | -3.6462 | -3.4233 | -3.2027 | -3.0193 | -2.8932 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Dec | -3.5753 | -4.0073 | -3.9404 | -3.794 | -3.5434 | -3.2948 | -3.1311 | -2.9675 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Jan | -3.2362 | -3.5613 | -3.8614 | -3.9801 | -3.773 | -3.507 | -3.2666 | -3.0926 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Feb | -2.8648 | -3.5258 | -3.888 | -4.0185 | -3.7475 | -3.5006 | -3.2833 | -3.1111 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Mar | -2.6267 | -3.375 | -3.6208 | -3.8546 | -3.4195 | -3.1427 | -2.9459 | -3.0169 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Apr | -2.4553 | -3.3048 | -3.4913 | -3.6199 | -3.3387 | -3.0999 | -2.8964 | -2.8614 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | May | -1.9807 | -3.2983 | -3.4358 | -3.5399 | -3.2455 | -2.9874 | -2.7862 | -2.7657 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Jun | -2.6947 | -3.3044 | -3.4174 | -3.4617 | -3.1564 | -2.902 | -2.6927 | -2.6591 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Jul | -2.4701 | -3.2694 | -3.3904 | -3.4618 | -3.1002 | -2.8649 | -2.6647 | -2.5962 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Aug | -2.5779 | -3.291 | -3.4098 | -3.4881 | -3.1168 | -2.8299 | -2.6673 | -2.5705 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Sep | -2.5804 | -3.3187 | -3.4489 | -3.5242 | -3.1455 | -2.8607 | -2.6957 | -2.5968 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Oct | -2.727 | -3.3459 | -3.4795 | -3.3813 | -3.2313 | -2.9972 | -2.7787 | -2.7153 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Nov | -2.7375 | -2.5979 | -2.5817 | -2.4445 | -2.2821 | -2.1264 | -2.0279 | -1.9511 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Dec | -2.7672 | -2.6533 | -2.5963 | -2.4571 | -2.3997 | -2.3564 | -2.2431 | -2.1185 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Jan | -2.9453 | -2.7709 | -2.7178 | -2.5616 | -2.3981 | -2.1893 | -2.0931 | -2.0023 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Feb | -2.9307 | -2.7366 | -2.6922 | -2.5418 | -2.3787 | -2.1663 | -2.0738 | -1.9886 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Mar | -2.8494 | -2.6994 | -2.6201 | -2.4896 | -2.3001 | -2.079 | -2.0275 | -1.9576 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Apr | -2.6769 | -2.4744 | -2.4575 | -2.3154 | -2.1658 | -2.0042 | -1.9832 | -1.889 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | May | -2.567 | -2.387 | -2.4038 | -2.2637 | -2.1442 | -1.9639 | -1.951 | -1.8563 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Jun | -2.485 | -2.3053 | -2.3366 | -2.2026 | -2.0644 | -1.9126 | -1.9022 | -1.8124 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Jul | -2.4268 | -2.2411 | -2.2432 | -2.104 | -1.9966 | -1.8429 | -1.8312 | -1.7515 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Aug | -2.4239 | -2.2263 | -2.2101 | -2.0714 | -1.9549 | -1.7864 | -1.7843 | -1.7099 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Sep | -2.4575 | -2.2516 | -2.2511 | -2.1097 | -1.9823 | -1.8027 | -1.8051 | -1.7294 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Oct | -2.5624 | -2.3719 | -2.408 | -2.2619 | -2.1338 | -2.0434 | -1.949 | -1.8918 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Nov | -1.8305 | -1.6757 | -1.5821 | -1.383 | -1.2901 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Dec | -1.9717 | -1.9392 | -2.0727 | -3.6114 | -2.5568 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Jan | -1.8932 | -1.7686 | -1.6543 | -1.4791 | -1.3798 | -1.2872 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Feb | -1.8748 | -1.7287 | -1.6389 | -1.4682 | -1.3696 | -1.2777 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Mar | -1.816 | -1.6333 | -1.5472 | -1.3548 | -1.2639 | -1.179 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Apr | -1.7518 | -1.603 | -1.5304 | -1.3452 | -1.2553 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | May | -1.7275 | -1.578 | -1.4575 | -1.2698 | -1.1847 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Jun | -1.6851 | -1.5209 | -1.4062 | -1.2249 | -1.1543 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Jul | -1.6116 | -1.4574 | -1.364 | -1.2019 | -1.1215 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Aug | -1.5729 | -1.4107 | -1.3294 | -1.1575 | -1.08 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Sep | -1.5858 | -1.4226 | -1.3403 | -1.1625 | -1.0846 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 0 | Oct | -1.7849 | -1.6099 | -1.5333 | -1.3322 | -1.2428 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 49 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 50 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 51 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Nov | -3.2461 | -3.8402 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Dec | -3.4941 | -4.1373 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Jan | -3.2362 | -3.4307 | -4.1764 | -4.6181 | -4.6632 | -4.7172 | -4.8412 | -4.8664 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Feb | -2.8648 | -3.4602 | -4.1085 | -4.6475 | -4.6926 | -4.6863 | -4.807 | -4.9108 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Mar | -2.6267 | -3.375 | -3.9656 | -4.5185 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Nov | -3.0489 | -3.8252 | -4.2874 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.8879 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Dec | -3.3714 | -3.9914 | -4.4978 | -4.6613 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Jan | -3.1584 | -3.7609 | -4.1764 | -4.7078 | -4.6935 | -4.7023 | -4.8412 | -4.9579 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6714 | -4.6738 | -4.6867 | -4.807 | -4.9432 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Mar | -2.6267 | -3.4722 | -4.0478 | -4.539 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1183 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Jul | -2.4701 | -3.3349 | -3.7611 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Sep | -2.5804 | -3.4068 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Nov | -3.0489 | -3.6521 | -3.7425 | -3.6462 | -3.4233 | -3.2027 | -3.0193 | -2.8932 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Dec | -3.5753 | -4.0073 | -3.9404 | -3.794 | -3.5434 | -3.2948 | -3.1311 | -2.9675 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Jan | -3.2362 | -3.5613 | -3.8614 | -3.9801 | -3.773 | -3.507 | -3.2666 | -3.0926 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Feb | -2.8648 | -3.5258 | -3.888 | -4.0185 | -3.7475 | -3.5006 | -3.2833 | -3.1111 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Mar | -2.6267 | -3.375 | -3.6208 | -3.8546 | -3.4195 | -3.1427 | -2.9459 | -3.0169 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Apr | -2.4553 | -3.3048 | -3.4913 | -3.6199 | -3.3387 | -3.0999 | -2.8964 | -2.8614 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | May | -1.9807 | -3.2983 | -3.4358 | -3.5399 | -3.2455 | -2.9874 | -2.7862 | -2.7657 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Jun | -2.6947 | -3.3044 | -3.4174 | -3.4617 | -3.1564 | -2.902 | -2.6927 | -2.6591 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Jul | -2.4701 | -3.2694 | -3.3904 | -3.4618 | -3.1002 | -2.8649 | -2.6647 | -2.5962 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Aug | -2.5779 | -3.291 | -3.4098 | -3.4881 | -3.1168 | -2.8299 | -2.6673 | -2.5705 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Sep | -2.5804 | -3.3187 | -3.4489 | -3.5242 | -3.1455 | -2.8607 | -2.6957 | -2.5968 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Oct | -2.727 | -3.3459 | -3.4795 | -3.3813 | -3.2313 | -2.9972 | -2.7787 | -2.7153 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Nov | -5.0342 | -5.1349 | -5.5367 | -5.6856 | -5.7464 | -5.7417 | -5.961 | -6.1754 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Dec | -5.0855 | -5.2599 | -5.5924 | -5.7298 | -5.7907 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Jan | -5.0536 | -5.1262 | -5.3585 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Feb | -5.0412 | -5.0964 | -5.388 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1166 | -5.1249 | -5.5116 | -5.6775 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9874 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4311 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2317 | -5.2462 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Nov | -4.9979 | -5.1349 | -5.5507 | -5.6506 | -5.7194 | -5.7414 | -5.961 | -6.1605 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Dec | -5.0342 | -5.1778 | -5.5924 | -5.6948 | -5.7638 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Jan | -4.9766 | -5.0637 | -5.4433 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Feb | -5.006 | -5.0964 | -5.4278 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Mar | -4.934 | -5.0817 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1684 | -5.1249 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2179 | -5.2253 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Nov | -2.7375 | -2.5979 | -2.5817 | -2.4445 | -2.2821 | -2.1264 | -2.0279 | -1.9511 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Dec | -2.7672 | -2.6533 | -2.5963 | -2.4571 | -2.3997 | -2.3564 | -2.2431 | -2.1185 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Jan | -2.9453 | -2.7709 | -2.7178 | -2.5616 | -2.3981 | -2.1893 | -2.0931 | -2.0023 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Feb | -2.9307 | -2.7366 | -2.6922 | -2.5418 | -2.3787 | -2.1663 | -2.0738 | -1.9886 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Mar | -2.8494 | -2.6994 | -2.6201 | -2.4896 | -2.3001 | -2.079 | -2.0275 | -1.9576 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Apr | -2.6769 | -2.4744 | -2.4575 | -2.3154 | -2.1658 | -2.0042 | -1.9832 | -1.889 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | May | -2.567 | -2.387 | -2.4038 | -2.2637 | -2.1442 | -1.9639 | -1.951 | -1.8563 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Jun | -2.485 | -2.3053 | -2.3366 | -2.2026 | -2.0644 | -1.9126 | -1.9022 | -1.8124 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Jul | -2.4268 | -2.2411 | -2.2432 | -2.104 | -1.9966 | -1.8429 | -1.8312 | -1.7515 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Aug | -2.4239 | -2.2263 | -2.2101 | -2.0714 | -1.9549 | -1.7864 | -1.7843 | -1.7099 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Sep | -2.4575 | -2.2516 | -2.2511 | -2.1097 | -1.9823 | -1.8027 | -1.8051 | -1.7294 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Oct | -2.5624 | -2.3719 | -2.408 | -2.2619 | -2.1338 | -2.0434 | -1.949 | -1.8918 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 52 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Nov | -6.2932 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | May | -5.72 | -5.6027 | -5.645 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0441 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 53 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Nov | -6.2784 | -6.2502 | -6.3883 | -6.0541 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.7763 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | May | -5.72 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Jun | -5.6167 | -5.4883 | -5.4934 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0371 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 10 | 2925-2012 | 54 | Oct | -5.7579 | -5.727 | -5.8595 | -5.7856 | -5.64 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Nov | -1.8305 | -1.6757 | -1.5821 | -1.383 | -1.2901 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Dec | -1.9717 | -1.9392 | -2.0727 | -3.6114 | -2.5568 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Jan | -1.8932 | -1.7686 | -1.6543 | -1.4791 | -1.3798 | -1.2872 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Feb | -1.8748 | -1.7287 | -1.6389 | -1.4682 | -1.3696 | -1.2777 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Mar | -1.816 | -1.6333 | -1.5472 | -1.3548 | -1.2639 | -1.179 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Apr | -1.7518 | -1.603 | -1.5304 | -1.3452 | -1.2553 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | May | -1.7275 | -1.578 | -1.4575 | -1.2698 | -1.1847 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Jun | -1.6851 | -1.5209 | -1.4062 | -1.2249 | -1.1543 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Jul | -1.6116 | -1.4574 | -1.364 | -1.2019 | -1.1215 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Aug | -1.5729 | -1.4107 | -1.3294 | -1.1575 | -1.08 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Sep | -1.5858 | -1.4226 | -1.3403 | -1.1625 | -1.0846 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 0 | Oct | -1.7849 | -1.6099 | -1.5333 | -1.3322 | -1.2428 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 49 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Nov | -3.2461 | -3.8402 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Dec | -3.4941 | -4.1373 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Jan | -3.2362 | -3.4307 | -4.1764 | -4.6181 | -4.6632 | -4.7172 | -4.8412 | -4.8664 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Feb | -2.8648 | -3.4602 | -4.1085 | -4.6475 | -4.6926 | -4.6863 | -4.807 | -4.9108 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Mar | -2.6267 | -3.375 | -3.9656 | -4.5185 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Nov | -3.0489 | -3.8252 | -4.2874 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.8879 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Dec | -3.3714 | -3.9914 | -4.4978 | -4.6613 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Jan | -3.1584 | -3.7609 | -4.1764 | -4.7078 | -4.6935 | -4.7023 | -4.8412 | -4.9579 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6714 | -4.6738 | -4.6867 | -4.807 | -4.9432 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Mar | -2.6267 | -3.4722 | -4.0478 | -4.539 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1183 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Jul | -2.4701 | -3.3349 | -3.7611 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Sep | -2.5804 | -3.4068 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Nov | -3.0489 | -3.6521 | -3.7425 | -3.6462 | -3.4233 | -3.2027 | -3.0193 | -2.8932 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Dec | -3.5753 | -4.0073 | -3.9404 | -3.794 | -3.5434 | -3.2948 | -3.1311 | -2.9675 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Jan | -3.2362 | -3.5613 | -3.8614 | -3.9801 | -3.773 | -3.507 | -3.2666 | -3.0926 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Nov | -5.0342 | -5.1349 | -5.5367 | -5.6856 | -5.7464 | -5.7417 | -5.961 | -6.1754 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Dec | -5.0855 | -5.2599 | -5.5924 | -5.7298 | -5.7907 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Jan | -5.0536 | -5.1262 | -5.3585 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Feb | -5.0412 | -5.0964 | -5.388 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1166 | -5.1249 | -5.5116 | -5.6775 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9874 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4311 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2317 | -5.2462 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Nov | -4.9979 | -5.1349 | -5.5507 | -5.6506 | -5.7194 | -5.7414 | -5.961 | -6.1605 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Dec | -5.0342 | -5.1778 | -5.5924 | -5.6948 | -5.7638 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Jan | -4.9766 | -5.0637 | -5.4433 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Feb | -5.006 | -5.0964 | -5.4278 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Mar | -4.934 | -5.0817 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1684 | -5.1249 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2179 | -5.2253 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Nov | -2.7375 | -2.5979 | -2.5817 | -2.4445 | -2.2821 | -2.1264 | -2.0279 | -1.9511 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Dec | -2.7672 | -2.6533 | -2.5963 | -2.4571 | -2.3997 | -2.3564 | -2.2431 | -2.1185 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Jan | -2.9453 | -2.7709 | -2.7178 | -2.5616 | -2.3981 | -2.1893 | -2.0931 | -2.0023 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 50 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 51 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 52 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Nov | -6.2932 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | May | -5.72 | -5.6027 | -5.645 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0441 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 53 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Nov | -6.2784 | -6.2502 | -6.3883 | -6.0541 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.7763 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | May | -5.72 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Jun | -5.6167 | -5.4883 | -5.4934 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0371 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 11 | 2925-2012 | 54 | Oct | -5.7579 | -5.727 | -5.8595 | -5.7856 | -5.64 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Nov | -1.8305 | -1.6757 | -1.5821 | -1.383 | -1.2901 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Dec | -1.9717 | -1.9392 | -2.0727 | -3.6114 | -2.5568 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Jan | -1.8932 | -1.7686 | -1.6543 | -1.4791 | -1.3798 | -1.2872 |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Feb | -2.8648 | -3.5258 | -3.888 | -4.0185 | -3.7475 | -3.5006 | -3.2833 | -3.1111 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Mar | -2.6267 | -3.375 | -3.6208 | -3.8546 | -3.4195 | -3.1427 | -2.9459 | -3.0169 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Apr | -2.4553 | -3.3048 | -3.4913 | -3.6199 | -3.3387 | -3.0999 | -2.8964 | -2.8614 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | May | -1.9807 | -3.2983 | -3.4358 | -3.5399 | -3.2455 | -2.9874 | -2.7862 | -2.7657 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Jun | -2.6947 | -3.3044 | -3.4174 | -3.4617 | -3.1564 | -2.902 | -2.6927 | -2.6591 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Jul | -2.4701 | -3.2694 | -3.3904 | -3.4618 | -3.1002 | -2.8649 | -2.6647 | -2.5962 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Aug | -2.5779 | -3.291 | -3.4098 | -3.4881 | -3.1168 | -2.8299 | -2.6673 | -2.5705 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Sep | -2.5804 | -3.3187 | -3.4489 | -3.5242 | -3.1455 | -2.8607 | -2.6957 | -2.5968 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Oct | -2.727 | -3.3459 | -3.4795 | -3.3813 | -3.2313 | -2.9972 | -2.7787 | -2.7153 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Feb | -2.9307 | -2.7366 | -2.6922 | -2.5418 | -2.3787 | -2.1663 | -2.0738 | -1.9886 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Mar | -2.8494 | -2.6994 | -2.6201 | -2.4896 | -2.3001 | -2.079 | -2.0275 | -1.9576 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Apr | -2.6769 | -2.4744 | -2.4575 | -2.3154 | -2.1658 | -2.0042 | -1.9832 | -1.889 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | May | -2.567 | -2.387 | -2.4038 | -2.2637 | -2.1442 | -1.9639 | -1.951 | -1.8563 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Jun | -2.485 | -2.3053 | -2.3366 | -2.2026 | -2.0644 | -1.9126 | -1.9022 | -1.8124 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Jul | -2.4268 | -2.2411 | -2.2432 | -2.104 | -1.9966 | -1.8429 | -1.8312 | -1.7515 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Aug | -2.4239 | -2.2263 | -2.2101 | -2.0714 | -1.9549 | -1.7864 | -1.7843 | -1.7099 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Sep | -2.4575 | -2.2516 | -2.2511 | -2.1097 | -1.9823 | -1.8027 | -1.8051 | -1.7294 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Oct | -2.5624 | -2.3719 | -2.408 | -2.2619 | -2.1338 | -2.0434 | -1.949 | -1.8918 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Feb | -1.8748 | -1.7287 | -1.6389 | -1.4682 | -1.3696 | -1.2777 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Mar | -1.816 | -1.6333 | -1.5472 | -1.3548 | -1.2639 | -1.179 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Apr | -1.7518 | -1.603 | -1.5304 | -1.3452 | -1.2553 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | May | -1.7275 | -1.578 | -1.4575 | -1.2698 | -1.1847 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Jun | -1.6851 | -1.5209 | -1.4062 | -1.2249 | -1.1543 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Jul | -1.6116 | -1.4574 | -1.364 | -1.2019 | -1.1215 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Aug | -1.5729 | -1.4107 | -1.3294 | -1.1575 | -1.08 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Sep | -1.5858 | -1.4226 | -1.3403 | -1.1625 | -1.0846 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 0 | Oct | -1.7849 | -1.6099 | -1.5333 | -1.3322 | -1.2428 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 49 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 50 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 51 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 52 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Nov | -3.2461 | -3.8402 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Dec | -3.4941 | -4.1373 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Jan | -3.2362 | -3.4307 | -4.1764 | -4.6181 | -4.6632 | -4.7172 | -4.8412 | -4.8664 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Feb | -2.8648 | -3.4602 | -4.1085 | -4.6475 | -4.6926 | -4.6863 | -4.807 | -4.9108 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Mar | -2.6267 | -3.375 | -3.9656 | -4.5185 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Nov | -3.0489 | -3.8252 | -4.2874 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.8879 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Dec | -3.3714 | -3.9914 | -4.4978 | -4.6613 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Jan | -3.1584 | -3.7609 | -4.1764 | -4.7078 | -4.6935 | -4.7023 | -4.8412 | -4.9579 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6714 | -4.6738 | -4.6867 | -4.807 | -4.9432 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Mar | -2.6267 | -3.4722 | -4.0478 | -4.539 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1183 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Jul | -2.4701 | -3.3349 | -3.7611 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Sep | -2.5804 | -3.4068 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Nov | -3.0489 | -3.6521 | -3.7425 | -3.6462 | -3.4233 | -3.2027 | -3.0193 | -2.8932 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Dec | -3.5753 | -4.0073 | -3.9404 | -3.794 | -3.5434 | -3.2948 | -3.1311 | -2.9675 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Jan | -3.2362 | -3.5613 | -3.8614 | -3.9801 | -3.773 | -3.507 | -3.2666 | -3.0926 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Feb | -2.8648 | -3.5258 | -3.888 | -4.0185 | -3.7475 | -3.5006 | -3.2833 | -3.1111 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Mar | -2.6267 | -3.375 | -3.6208 | -3.8546 | -3.4195 | -3.1427 | -2.9459 | -3.0169 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Apr | -2.4553 | -3.3048 | -3.4913 | -3.6199 | -3.3387 | -3.0999 | -2.8964 | -2.8614 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | May | -1.9807 | -3.2983 | -3.4358 | -3.5399 | -3.2455 | -2.9874 | -2.7862 | -2.7657 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Jun | -2.6947 | -3.3044 | -3.4174 | -3.4617 | -3.1564 | -2.902 | -2.6927 | -2.6591 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Jul | -2.4701 | -3.2694 | -3.3904 | -3.4618 | -3.1002 | -2.8649 | -2.6647 | -2.5962 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Aug | -2.5779 | -3.291 | -3.4098 | -3.4881 | -3.1168 | -2.8299 | -2.6673 | -2.5705 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Sep | -2.5804 | -3.3187 | -3.4489 | -3.5242 | -3.1455 | -2.8607 | -2.6957 | -2.5968 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Oct | -2.727 | -3.3459 | -3.4795 | -3.3813 | -3.2313 | -2.9972 | -2.7787 | -2.7153 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Nov | -5.0342 | -5.1349 | -5.5367 | -5.6856 | -5.7464 | -5.7417 | -5.961 | -6.1754 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Dec | -5.0855 | -5.2599 | -5.5924 | -5.7298 | -5.7907 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Jan | -5.0536 | -5.1262 | -5.3585 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Feb | -5.0412 | -5.0964 | -5.388 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1166 | -5.1249 | -5.5116 | -5.6775 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9874 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4311 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2317 | -5.2462 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Nov | -4.9979 | -5.1349 | -5.5507 | -5.6506 | -5.7194 | -5.7414 | -5.961 | -6.1605 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Dec | -5.0342 | -5.1778 | -5.5924 | -5.6948 | -5.7638 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Jan | -4.9766 | -5.0637 | -5.4433 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Feb | -5.006 | -5.0964 | -5.4278 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Mar | -4.934 | -5.0817 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1684 | -5.1249 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2179 | -5.2253 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Nov | -2.7375 | -2.5979 | -2.5817 | -2.4445 | -2.2821 | -2.1264 | -2.0279 | -1.9511 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Dec | -2.7672 | -2.6533 | -2.5963 | -2.4571 | -2.3997 | -2.3564 | -2.2431 | -2.1185 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Jan | -2.9453 | -2.7709 | -2.7178 | -2.5616 | -2.3981 | -2.1893 | -2.0931 | -2.0023 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Feb | -2.9307 | -2.7366 | -2.6922 | -2.5418 | -2.3787 | -2.1663 | -2.0738 | -1.9886 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Mar | -2.8494 | -2.6994 | -2.6201 | -2.4896 | -2.3001 | -2.079 | -2.0275 | -1.9576 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Apr | -2.6769 | -2.4744 | -2.4575 | -2.3154 | -2.1658 | -2.0042 | -1.9832 | -1.889 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | May | -2.567 | -2.387 | -2.4038 | -2.2637 | -2.1442 | -1.9639 | -1.951 | -1.8563 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Jun | -2.485 | -2.3053 | -2.3366 | -2.2026 | -2.0644 | -1.9126 | -1.9022 | -1.8124 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Jul | -2.4268 | -2.2411 | -2.2432 | -2.104 | -1.9966 | -1.8429 | -1.8312 | -1.7515 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Aug | -2.4239 | -2.2263 | -2.2101 | -2.0714 | -1.9549 | -1.7864 | -1.7843 | -1.7099 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Sep | -2.4575 | -2.2516 | -2.2511 | -2.1097 | -1.9823 | -1.8027 | -1.8051 | -1.7294 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Oct | -2.5624 | -2.3719 | -2.408 | -2.2619 | -2.1338 | -2.0434 | -1.949 | -1.8918 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Nov | -6.2932 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | May | -5.72 | -5.6027 | -5.645 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0441 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 53 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Nov | -6.2784 | -6.2502 | -6.3883 | -6.0541 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.7763 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | May | -5.72 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Jun | -5.6167 | -5.4883 | -5.4934 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0371 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 20 | 2925-2012 | 54 | Oct | -5.7579 | -5.727 | -5.8595 | -5.7856 | -5.64 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Nov | -1.8305 | -1.6757 | -1.5821 | -1.383 | -1.2901 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Dec | -1.9717 | -1.9392 | -2.0727 | -3.6114 | -2.5568 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Jan | -1.8932 | -1.7686 | -1.6543 | -1.4791 | -1.3798 | -1.2872 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Feb | -1.8748 | -1.7287 | -1.6389 | -1.4682 | -1.3696 | -1.2777 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Mar | -1.816 | -1.6333 | -1.5472 | -1.3548 | -1.2639 | -1.179 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Apr | -1.7518 | -1.603 | -1.5304 | -1.3452 | -1.2553 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | May | -1.7275 | -1.578 | -1.4575 | -1.2698 | -1.1847 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Jun | -1.6851 | -1.5209 | -1.4062 | -1.2249 | -1.1543 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Jul | -1.6116 | -1.4574 | -1.364 | -1.2019 | -1.1215 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Aug | -1.5729 | -1.4107 | -1.3294 | -1.1575 | -1.08 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Sep | -1.5858 | -1.4226 | -1.3403 | -1.1625 | -1.0846 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 0 | Oct | -1.7849 | -1.6099 | -1.5333 | -1.3322 | -1.2428 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 49 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Nov | -3.2461 | -3.8402 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Dec | -3.4941 | -4.1373 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Jan | -3.2362 | -4.4307 | -4.1764 | -4.6181 | -4.6632 | -4.7172 | -4.8412 | -4.8664 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Feb | -2.8648 | -3.4602 | -4.1085 | -4.6475 | -4.6926 | -4.6863 | -4.807 | -4.9108 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Mar | -2.6267 | -3.375 | -3.9656 | -4.5185 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Nov | -3.0489 | -3.8252 | -4.2874 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.8879 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Dec | -3.3714 | -3.9914 | -4.4978 | -4.6613 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Jan | -3.1584 | -3.7609 | -4.1764 | -4.7078 | -4.6935 | -4.7023 | -4.8412 | -4.9579 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6714 | -4.6738 | -4.6867 | -4.807 | -4.9432 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Mar | -2.6267 | -3.4722 | -4.0478 | -4.539 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1183 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Jul | -2.4701 | -3.3349 | -3.7611 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Sep | -2.5804 | -3.4068 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Nov | -3.0489 | -3.6521 | -3.7425 | -3.6462 | -3.4233 | -3.2027 | -3.0193 | -2.8932 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Dec | -3.5753 | -4.0073 | -3.9404 | -3.794 | -3.5434 | -3.2948 | -3.1311 | -2.9675 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Jan | -3.2362 | -3.5613 | -3.8614 | -3.9801 | -3.773 | -3.507 | -3.2666 | -3.0926 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Feb | -2.8648 | -3.5258 | -3.888 | -4.0185 | -3.7475 | -3.5006 | -3.2833 | -3.1111 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Mar | -2.6267 | -3.375 | -3.6208 | -3.8546 | -3.4195 | -3.1427 | -2.9459 | -3.0169 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Apr | -2.4553 | -3.3048 | -3.4913 | -3.6199 | -3.3387 | -3.0999 | -2.8964 | -2.8614 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Nov | -5.0342 | -5.1349 | -5.5367 | -5.6856 | -5.7464 | -5.7417 | -5.961 | -6.1754 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Dec | -5.0855 | -5.2599 | -5.5924 | -5.7298 | -5.7907 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Jan | -5.0536 | -5.1262 | -5.3585 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Feb | -5.0412 | -5.0964 | -5.388 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1166 | -5.1249 | -5.5116 | -5.6775 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9874 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4311 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2317 | -5.2462 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Nov | -4.9979 | -5.1349 | -5.5507 | -5.6506 | -5.7194 | -5.7414 | -5.961 | -6.1605 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Dec | -5.0342 | -5.1778 | -5.5924 | -5.6948 | -5.7638 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Jan | -4.9766 | -5.0637 | -5.4433 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Feb | -5.006 | -5.0964 | -5.4278 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Mar | -4.934 | -5.0817 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1684 | -5.1249 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2179 | -5.2253 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Nov | -2.7375 | -2.5979 | -2.5817 | -2.4445 | -2.2821 | -2.1264 | -2.0279 | -1.9511 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Dec | -2.7672 | -2.6533 | -2.5963 | -2.4571 | -2.3997 | -2.3564 | -2.2431 | -2.1185 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Jan | -2.9453 | -2.7709 | -2.7178 | -2.5616 | -2.3981 | -2.1893 | -2.0931 | -2.0023 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Feb | -2.9307 | -2.7366 | -2.6922 | -2.5418 | -2.3787 | -2.1663 | -2.0738 | -1.9886 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Mar | -2.8494 | -2.6994 | -2.6201 | -2.4896 | -2.3001 | -2.079 | -2.0275 | -1.9576 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Apr | -2.6769 | -2.4744 | -2.4575 | -2.3154 | -2.1658 | -2.0042 | -1.9832 | -1.889 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 50 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 51 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 52 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Nov | -6.2932 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | May | -5.72 | -5.6027 | -5.645 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0441 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 53 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Nov | -6.2784 | -6.2502 | -6.3883 | -6.0541 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.7763 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | May | -5.72 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Jun | -5.6167 | -5.4883 | -5.4934 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0371 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 24 | 2925-2012 | 54 | Oct | -5.7579 | -5.727 | -5.8595 | -5.7856 | -5.64 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Nov | -1.8305 | -1.6757 | -1.5821 | -1.383 | -1.2901 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Dec | -1.9717 | -1.9392 | -2.0727 | -3.6114 | -2.5568 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Jan | -1.8932 | -1.7686 | -1.6543 | -1.4791 | -1.3798 | -1.2872 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Feb | -1.8748 | -1.7287 | -1.6389 | -1.4682 | -1.3696 | -1.2777 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Mar | -1.816 | -1.6333 | -1.5472 | -1.3548 | -1.2639 | -1.179 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Apr | -1.7518 | -1.603 | -1.5304 | -1.3452 | -1.2553 | |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | May | -1.9807 | -3.2983 | -3.4358 | -3.5399 | -3.2455 | -2.9874 | -2.7862 | -2.7657 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Jun | -2.6947 | -3.3044 | -3.4174 | -3.4617 | -3.1564 | -2.902 | -2.6927 | -2.6591 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Jul | -2.4701 | -3.2694 | -3.3904 | -3.4618 | -3.1002 | -2.8649 | -2.6647 | -2.5962 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Aug | -2.5779 | -3.291 | -3.4098 | -3.4881 | -3.1168 | -2.8299 | -2.6673 | -2.5705 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Sep | -2.5804 | -3.3187 | -3.4489 | -3.5242 | -3.1455 | -2.8607 | -2.6957 | -2.5968 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Oct | -2.727 | -3.3459 | -3.4795 | -3.3813 | -3.2313 | -2.9972 | -2.7787 | -2.7153 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Nov | -3.2461 | -3.8402 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Dec | -3.4941 | -4.1373 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Jan | -3.2362 | -3.4307 | -4.1764 | -4.6181 | -4.6632 | -4.7172 | -4.8412 | -4.8664 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | May | -2.567 | -2.387 | -2.4038 | -2.2637 | -2.1442 | -1.9639 | -1.951 | -1.8563 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Jun | -2.485 | -2.3053 | -2.3366 | -2.2026 | -2.0644 | -1.9126 | -1.9022 | -1.8124 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Jul | -2.4268 | -2.2411 | -2.2432 | -2.104 | -1.9966 | -1.8429 | -1.8312 | -1.7515 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Aug | -2.4239 | -2.2263 | -2.2101 | -2.0714 | -1.9549 | -1.7864 | -1.7843 | -1.7099 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Sep | -2.4575 | -2.2516 | -2.2511 | -2.1097 | -1.9823 | -1.8027 | -1.8051 | -1.7294 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Oct | -2.5624 | -2.3719 | -2.408 | -2.2619 | -2.1338 | -2.0434 | -1.949 | -1.8918 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Nov | -5.0342 | -5.1349 | -5.5367 | -5.6856 | -5.7464 | -5.7417 | -5.961 | -6.1754 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Dec | -5.0855 | -5.2599 | -5.5924 | -5.7298 | -5.7907 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Jan | -5.0536 | -5.1262 | -5.3585 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|---------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | May | -1.7275 | -1.578 | -1.4575 | -1.2698 | -1.1847 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Jun | -1.6851 | -1.5209 | -1.4062 | -1.2249 | -1.1543 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Jul | -1.6116 | -1.4574 | -1.364 | -1.2019 | -1.1215 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Aug | -1.5729 | -1.4107 | -1.3294 | -1.1575 | -1.08 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Sep | -1.5858 | -1.4226 | -1.3403 | -1.1625 | -1.0846 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 0 | Oct | -1.7849 | -1.6099 | -1.5333 | -1.3322 | -1.2428 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 49 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 50 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 51 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 52 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Nov | -6.2932 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Feb | -2.8648 | -3.4602 | -4.1085 | -4.6475 | -4.6926 | -4.6863 | -4.807 | -4.9108 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Mar | -2.6267 | -3.375 | -3.9656 | -4.5185 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Nov | -3.0489 | -3.8252 | -4.2874 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.8879 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Dec | -3.3714 | -3.9914 | -4.4978 | -4.6613 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Jan | -3.1584 | -3.7609 | -4.1764 | -4.7078 | -4.6935 | -4.7023 | -4.8412 | -4.9579 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6714 | -4.6738 | -4.6867 | -4.807 | -4.9432 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Mar | -2.6267 | -3.4722 | -4.0478 | -4.539 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1183 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Jul | -2.4701 | -3.3349 | -3.7611 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Sep | -2.5804 | -3.4068 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Nov | -3.0489 | -3.6521 | -3.7425 | -3.6462 | -3.4233 | -3.2027 | -3.0193 | -2.8932 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Dec | -3.5753 | -4.0073 | -3.9404 | -3.794 | -3.5434 | -3.2948 | -3.1311 | -2.9675 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Jan | -3.2362 | -3.5613 | -3.8614 | -3.9801 | -3.773 | -3.507 | -3.2666 | -3.0926 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Feb | -2.8648 | -3.5258 | -3.888 | -4.0185 | -3.7475 | -3.5006 | -3.2833 | -3.1111 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Mar | -2.6267 | -3.375 | -3.6208 | -3.8546 | -3.4195 | -3.1427 | -2.9459 | -3.0169 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Apr | -2.4553 | -3.3048 | -3.4913 | -3.6199 | -3.3387 | -3.0999 | -2.8964 | -2.8614 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | May | -1.9807 | -3.2983 | -3.4358 | -3.5399 | -3.2455 | -2.9874 | -2.7862 | -2.7657 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Jun | -2.6947 | -3.3044 | -3.4174 | -3.4617 | -3.1564 | -2.902 | -2.6927 | -2.6591 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Jul | -2.4701 | -3.2694 | -3.3904 | -3.4618 | -3.1002 | -2.8649 | -2.6647 | -2.5962 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Aug | -2.5779 | -3.291 | -3.4098 | -3.4881 | -3.1168 | -2.8299 | -2.6673 | -2.5705 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Sep | -2.5804 | -3.3187 | -3.4489 | -3.5242 | -3.1455 | -2.8607 | -2.6957 | -2.5968 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Oct | -2.727 | -3.3459 | -3.4795 | -3.3813 | -3.2313 | -2.9972 | -2.7787 | -2.7153 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Feb | -5.0412 | -5.0964 | -5.388 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1166 | -5.1249 | -5.5116 | -5.6775 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9874 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4311 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2317 | -5.2462 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Nov | -4.9979 | -5.1349 | -5.5507 | -5.6506 | -5.7194 | -5.7414 | -5.961 | -6.1605 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Dec | -5.0342 | -5.1778 | -5.5924 | -5.6948 | -5.7638 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Jan | -4.9766 | -5.0637 | -5.4433 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Feb | -5.006 | -5.0964 | -5.4278 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Mar | -4.934 | -5.0817 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1684 | -5.1249 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2179 | -5.2253 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Nov | -2.7375 | -2.5979 | -2.5817 | -2.4445 | -2.2821 | -2.1264 | -2.0279 | -1.9511 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Dec | -2.7672 | -2.6533 | -2.5963 | -2.4571 | -2.3997 | -500 | -500 | -500 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Jan | -2.9453 | -2.7709 | -2.7178 | -2.5616 | -2.3981 | -2.1893 | -2.0931 | -2.0023 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Feb | -2.9307 | -2.7366 | -2.6922 | -2.5418 | -2.3787 | -2.1663 | -2.0738 | -1.9886 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Mar | -2.8494 | -2.6994 | -2.6201 | -2.4896 | -2.3001 | -2.079 | -2.0275 | -1.9576 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Apr | -2.6769 | -2.4744 | -2.4575 | -2.3154 | -2.1658 | -2.0042 | -1.9832 | -1.889 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | May | -2.567 | -2.387 | -2.4038 | -2.2637 | -2.1442 | -1.9639 | -1.951 | -1.8563 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Jun | -2.485 | -2.3053 | -2.3366 | -2.2026 | -2.0644 | -1.9126 | -1.9022 | -1.8124 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Jul | -2.4268 | -2.2411 | -2.2432 | -2.104 | -1.9966 | -1.8429 | -1.8312 | -1.7515 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Aug | -2.4239 | -2.2263 | -2.2101 | -2.0714 | -1.9549 | -1.7864 | -1.7843 | -1.7099 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Sep | -2.4575 | -2.2516 | -2.2511 | -2.1097 | -1.9823 | -1.8027 | -1.8051 | -1.7294 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Oct | -2.5624 | -2.3719 | -2.408 | -2.2619 | -2.1338 | -2.0434 | -1.949 | -1.8918 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -500 | -500 | -500 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -500 | -500 | -500 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | May | -5.72 | -5.6027 | -5.645 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0441 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 53 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Nov | -6.2784 | -6.2502 | -6.3883 | -6.0541 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.7763 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | May | -5.72 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Jun | -5.6167 | -5.4883 | -5.4934 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0371 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 26 | 2925-2012 | 54 | Oct | -5.7579 | -5.727 | -5.8595 | -5.7856 | -5.64 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Nov | -1.8305 | -1.6757 | -1.5821 | -1.383 | -1.2901 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Jan | -1.8932 | -1.7686 | -1.6543 | -1.4791 | -1.3798 | -1.2872 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Feb | -1.8748 | -1.7287 | -1.6389 | -1.4682 | -1.3696 | -1.2777 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Mar | -1.816 | -1.6333 | -1.5472 | -1.3548 | -1.2639 | -1.179 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Apr | -1.7518 | -1.603 | -1.5304 | -1.3452 | -1.2553 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | May | -1.7275 | -1.578 | -1.4575 | -1.2698 | -1.1847 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Jun | -1.6851 | -1.5209 | -1.4062 | -1.2249 | -1.1543 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Jul | -1.6116 | -1.4574 | -1.364 | -1.2019 | -1.1215 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Aug | -1.5729 | -1.4107 | -1.3294 | -1.1575 | -1.08 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Sep | -1.5858 | -1.4226 | -1.3403 | -1.1625 | -1.0846 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 0 | Oct | -1.7849 | -1.6099 | -1.5333 | -1.3322 | -1.2428 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 49 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 50 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Nov | -3.2461 | -3.8402 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Dec | -3.4941 | -4.1373 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Jan | -3.2362 | -3.4307 | -4.1764 | -4.6181 | -4.6632 | -4.7172 | -4.8412 | -4.8664 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Feb | -2.8648 | -3.4602 | -4.1085 | -4.6475 | -4.6926 | -4.6863 | -4.807 | -4.9108 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Mar | -2.6267 | -3.375 | -3.9656 | -4.5185 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Nov | -3.0489 | -3.8252 | -4.2874 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.8879 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Dec | -3.3714 | -3.9914 | -4.4978 | -4.6613 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Jan | -3.1584 | -3.7609 | -4.1764 | -4.7078 | -4.6935 | -4.7023 | -4.8412 | -4.9579 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6714 | -4.6738 | -4.6867 | -4.807 | -4.9432 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Mar | -2.6267 | -3.4722 | -4.0478 | -4.539 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1183 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Jul | -2.4701 | -3.3349 | -3.7611 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Sep | -2.5804 | -3.4068 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Nov | -3.0489 | -3.6521 | -3.7425 | -3.6462 | -3.4233 | -3.2027 | -3.0193 | -2.8932 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Dec | -3.5753 | -4.0073 | -3.9404 | -3.794 | -3.5434 | -3.2948 | -3.1311 | -2.9675 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Jan | -3.2362 | -3.5613 | -3.8614 | -3.9801 | -3.773 | -3.507 | -3.2666 | -3.0926 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Feb | -2.8648 | -3.5258 | -3.888 | -4.0185 | -3.7475 | -3.5006 | -3.2833 | -3.1111 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Mar | -2.6267 | -3.375 | -3.6208 | -3.8546 | -3.4195 | -3.1427 | -2.9459 | -3.0169 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Apr | -2.4553 | -3.3048 | -3.4913 | -3.6199 | -3.3387 | -3.0999 | -2.8964 | -2.8614 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | May | -1.9807 | -3.2983 | -3.4358 | -3.5399 | -3.2455 | -2.9874 | -2.7862 | -2.7657 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Jun | -2.6947 | -3.3044 | -3.4174 | -3.4617 | -3.1564 | -2.902 | -2.6927 | -2.6591 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Jul | -2.4701 | -3.2694 | -3.3904 | -3.4618 | -3.1002 | -2.8649 | -2.6647 | -2.5962 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -500 | -500 | -500 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -500 | -500 | -500 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Nov | -5.0342 | -5.1349 | -5.5367 | -5.6856 | -5.7464 | -5.7417 | -5.961 | -6.1754 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Dec | -5.0855 | -5.2599 | -5.5924 | -5.7298 | -5.7907 | -500 | -500 | -500 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Jan | -5.0536 | -5.1262 | -5.3585 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Feb | -5.0412 | -5.0964 | -5.388 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1166 | -5.1249 | -5.5116 | -5.6775 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9874 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4311 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2317 | -5.2462 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Nov | -4.9979 | -5.1349 | -5.5507 | -5.6506 | -5.7194 | -5.7414 | -5.961 | -6.1605 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Dec | -5.0342 | -5.1778 | -5.5924 | -5.6948 | -5.7638 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Jan | -4.9766 | -5.0637 | -5.4433 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Feb | -5.006 | -5.0964 | -5.4278 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Mar | -4.934 | -5.0817 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1684 | -5.1249 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2179 | -5.2253 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Nov | -2.7375 | -2.5979 | -2.5817 | -2.4445 | -2.2821 | -2.1264 | -2.0279 | -1.9511 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Dec | -2.7672 | -2.6533 | -2.5963 | -2.4571 | -2.3997 | -2.3564 | -2.2431 | -2.1185 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Jan | -2.9453 | -2.7709 | -2.7178 | -2.5616 | -2.3981 | -2.1893 | -2.0931 | -2.0023 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Feb | -2.9307 | -2.7366 | -2.6922 | -2.5418 | -2.3787 | -2.1663 | -2.0738 | -1.9886 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Mar | -2.8494 | -2.6994 | -2.6201 | -2.4896 | -2.3001 | -2.079 | -2.0275 | -1.9576 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Apr | -2.6769 | -2.4744 | -2.4575 | -2.3154 | -2.1658 | -2.0042 | -1.9832 | -1.889 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | May | -2.567 | -2.387 | -2.4038 | -2.2637 | -2.1442 | -1.9639 | -1.951 | -1.8563 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Jun | -2.485 | -2.3053 | -2.3366 | -2.2026 | -2.0644 | -1.9126 | -1.9022 | -1.8124 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Jul | -2.4268 | -2.2411 | -2.2432 | -2.104 | -1.9966 | -1.8429 | -1.8312 | -1.7515 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 51 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 52 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Nov | -6.2932 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | May | -5.72 | -5.6027 | -5.645 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0441 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 53 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Nov | -6.2784 | -6.2502 | -6.3883 | -6.0541 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Jan | -6.1051 | -6.1743 | -6.2523 | -500 | -6.1123 | -500 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | May | -5.72 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Jun | -5.6167 | -5.4883 | -5.4934 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0371 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-S | 2925-2012 | 54 | Oct | -5.7579 | -5.727 | -5.8595 | -5.7856 | -5.64 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Nov | -1.8305 | -1.6757 | -1.5821 | -1.383 | -1.2901 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Dec | -1.9717 | -1.9392 | -2.0727 | -3.6114 | -2.5568 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Jan | -1.8932 | -1.7686 | -1.6543 | -1.4791 | -1.3798 | -1.2872 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Feb | -1.8748 | -1.7287 | -1.6389 | -1.4682 | -1.3696 | -1.2777 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Mar | -1.816 | -1.6333 | -1.5472 | -1.3548 | -1.2639 | -1.179 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Apr | -1.7518 | -1.603 | -1.5304 | -1.3452 | -1.2553 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | May | -1.7275 | -1.578 | -1.4575 | -1.2698 | -1.1847 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Jun | -1.6851 | -1.5209 | -1.4062 | -1.2249 | -1.1543 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Jul | -1.6116 | -1.4574 | -1.364 | -1.2019 | -1.1215 | |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Aug | -2.5779 | -3.291 | -3.4098 | -3.4881 | -3.1168 | -2.8299 | -2.6673 | -2.5705 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Sep | -2.5804 | -3.3187 | -3.4489 | -3.5242 | -3.1455 | -2.8607 | -2.6957 | -2.5968 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Oct | -2.727 | -3.3459 | -3.4795 | -3.3813 | -3.2313 | -2.9972 | -2.7787 | -2.7153 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Nov | -3.2461 | -3.8402 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Dec | -3.4941 | -4.1373 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Jan | -3.2362 | -3.4307 | -4.1764 | -4.6181 | -4.6632 | -4.7172 | -4.8412 | -4.8664 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Feb | -2.8648 | -3.4602 | -4.1085 | -4.6475 | -4.6926 | -4.6863 | -4.807 | -4.9108 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Mar | -2.6267 | -3.375 | -3.9656 | -4.5185 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Aug | -2.4239 | -2.2263 | -2.2101 | -2.0714 | -1.9549 | -1.7864 | -1.7843 | -1.7099 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Sep | -2.4575 | -2.2516 | -2.2511 | -2.1097 | -1.9823 | -1.8027 | -1.8051 | -1.7294 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Oct | -2.5624 | -2.3719 | -2.408 | -2.2619 | -2.1338 | -2.0434 | -1.949 | -1.8918 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Nov | -5.0342 | -5.1349 | -5.5367 | -5.6856 | -5.7464 | -5.7417 | -5.961 | -6.1754 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Dec | -5.0855 | -5.2599 | -5.5924 | -5.7298 | -5.7907 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Jan | -5.0536 | -5.1262 | -5.3585 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Feb | -5.0412 | -5.0964 | -5.388 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Aug | -1.5729 | -1.4107 | -1.3294 | -1.1575 | -1.08 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Sep | -1.5858 | -1.4226 | -1.3403 | -1.1625 | -1.0846 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 0 | Oct | -1.7849 | -1.6099 | -1.5333 | -1.3322 | -1.2428 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 49 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 50 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 51 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 52 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Nov | -6.2932 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Nov | -3.0489 | -3.8252 | -4.2874 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.8879 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Dec | -3.3714 | -3.9914 | -4.4978 | -4.6613 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Jan | -3.1584 | -3.7609 | -4.1764 | -4.7078 | -4.6935 | -4.7023 | -4.8412 | -4.9579 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6714 | -4.6738 | -4.6867 | -4.807 | -4.9432 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Mar | -2.6267 | -3.4722 | -4.0478 | -4.539 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1183 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Jul | -2.4701 | -3.3349 | -3.7611 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Sep | -2.5804 | -3.4068 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Nov | -2.973 | -3.5673 | -3.659 | -3.6303 | -3.4085 | -3.1889 | -3.0065 | -2.8811 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Dec | -3.4941 | -3.9851 | -3.9875 | -4.052 | -3.8079 | -3.5987 | -3.4177 | -3.2504 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Jan | -3.5522 | -3.791 | -4.1506 | -4.286 | -4.0483 | -3.8248 | -3.6228 | -3.4375 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Feb | -3.1876 | -3.4419 | -3.8008 | -4.0013 | -3.7316 | -3.5006 | -3.2833 | -3.1111 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Mar | -2.5578 | -3.2937 | -3.5381 | -3.7708 | -3.4195 | -3.1427 | -2.9459 | -3.0043 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Apr | -2.3893 | -3.2246 | -3.411 | -3.5595 | -3.2909 | -3.0335 | -2.8501 | -2.8028 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | May | -1.9492 | -3.2458 | -3.423 | -3.5244 | -3.2827 | -3.0265 | -2.8274 | -2.7549 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Jun | -2.6513 | -3.2518 | -3.4046 | -3.4808 | -3.2438 | -2.9879 | -2.7767 | -2.6494 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Jul | -2.4304 | -3.2173 | -3.3777 | -3.4288 | -3.182 | -2.8548 | -2.6559 | -2.5872 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Aug | -2.5365 | -3.2386 | -3.3898 | -3.4727 | -3.123 | -2.8399 | -2.6661 | -2.5332 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Sep | -2.5389 | -3.2658 | -3.3945 | -3.479 | -3.1362 | -2.8881 | -2.6915 | -2.5773 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Oct | -2.6831 | -3.2925 | -3.463 | -3.3813 | -3.2313 | -2.9972 | -2.7787 | -2.7153 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Nov | -3.167 | -3.7364 | -4.149 | -4.4566 | -4.53 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Dec | -3.4941 | -4.2017 | -4.5516 | -5.0073 | -5.0944 | -5.2123 | -5.359 | -5.5178 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Jan | -3.5522 | -3.791 | -4.4052 | -4.9247 | -5.0359 | -5.151 | -5.2819 | -5.4259 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Feb | -3.1876 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Mar | -2.5578 | -3.2937 | -3.8755 | -4.3905 | -4.3103 | -4.2886 | -4.3523 | -4.8052 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Apr | -2.3893 | -3.2246 | -3.6928 | -4.1719 | -4.1757 | -4.1672 | -4.2386 | -4.5126 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | May | -1.9492 | -3.2674 | -3.7303 | -4.1582 | -4.193 | -4.1851 | -4.2328 | -4.4649 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Jun | -2.6513 | -3.2539 | -3.735 | -4.134 | -4.1708 | -4.1592 | -4.1845 | -4.3225 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Jul | -2.4304 | -3.2818 | -3.747 | -4.0993 | -4.1185 | -4.0003 | -4.029 | -4.249 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Aug | -2.5365 | -3.3098 | -3.7682 | -4.1793 | -4.069 | -4.0058 | -4.0713 | -4.1879 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Sep | -2.5389 | -3.3756 | -3.7986 | -4.2147 | -4.1133 | -4.1008 | -4.1375 | -4.2892 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Oct | -2.6831 | -3.4258 | -3.9009 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Nov | -3.167 | -3.7364 | -4.149 | -4.4566 | -4.53 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Dec | -3.4941 | -4.2017 | -4.5516 | -5.0073 | -5.0944 | -5.2123 | -5.359 | -5.5178 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Jan | -3.5522 | -3.791 | -4.4052 | -4.9247 | -5.0359 | -5.151 | -5.2819 | -5.4259 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Feb | -3.1876 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Mar | -2.5578 | -3.2937 | -3.8755 | -4.3905 | -4.3103 | -4.2886 | -4.3523 | -4.8052 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Apr | -2.3893 | -3.2246 | -3.6928 | -4.1719 | -4.1757 | -4.1672 | -4.2386 | -4.5126 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | May | -1.9492 | -3.2674 | -3.7303 | -4.1582 | -4.193 | -4.1851 | -4.2328 | -4.4649 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Jun | -2.6513 | -3.2539 | -3.735 | -4.134 | -4.1708 | -4.1592 | -4.1845 | -4.3225 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Jul | -2.4304 | -3.2818 | -3.747 | -4.0993 | -4.1185 | -4.0003 | -4.029 | -4.249 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Aug | -2.5365 | -3.3098 | -3.7682 | -4.1793 | -4.069 | -4.0058 | -4.0713 | -4.1879 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Sep | -2.5389 | -3.3756 | -3.7986 | -4.2147 | -4.1133 | -4.1008 | -4.1375 | -4.2892 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Oct | -2.6831 | -3.4258 | -3.9009 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Nov | -3.167 | -3.7364 | -4.149 | -4.4566 | -4.53 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Dec | -3.4941 | -4.2017 | -4.5516 | -5.0073 | -5.0944 | -5.2123 | -5.359 | -5.5178 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Jan | -3.5522 | -3.791 | -4.4052 | -4.9247 | -5.0359 | -5.151 | -5.2819 | -5.4259 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1166 | -5.1249 | -5.5116 | -5.6775 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9874 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4311 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2317 | -5.2462 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Nov | -4.9979 | -5.1349 | -5.5507 | -5.6506 | -5.7194 | -5.7414 | -5.961 | -6.1605 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Dec | -5.0342 | -5.1778 | -5.5924 | -5.6948 | -5.7638 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Jan | -4.9766 | -5.0637 | -5.4433 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Feb | -5.006 | -5.0964 | -5.4278 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Mar | -4.934 | -5.0817 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1684 | -5.1249 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2179 | -5.2253 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Nov | -2.7263 | -2.5979 | -2.5817 | -2.4445 | -2.2821 | -2.1264 | -2.0279 | -1.9511 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Dec | -3.0883 | -2.9261 | -2.8934 | -2.7246 | -2.5621 | -2.3564 | -2.2431 | -120.17 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Jan | -3.2683 | -3.1155 | -3.0435 | -2.883 | -2.6929 | -2.4734 | -2.3337 | -2.2168 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Feb | -2.9307 | -2.7366 | -2.6922 | -2.5418 | -2.3787 | -2.1663 | -2.0738 | -1.9886 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Mar | -2.7925 | -2.6465 | -2.5699 | -2.4427 | -2.2911 | -2.0708 | -2.0197 | -1.9503 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Apr | -2.6229 | -2.4253 | -2.4099 | -2.2714 | -2.1658 | -2.0042 | -1.9492 | -1.874 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | May | -2.5576 | -2.3787 | -2.3944 | -2.255 | -2.1693 | -2.0131 | -1.9659 | -1.8877 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Jun | -2.4764 | -2.3317 | -2.3747 | -2.2525 | -2.1171 | -1.9818 | -1.9289 | -1.853 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Jul | -2.4188 | -2.2343 | -2.2355 | -2.1519 | -2.0439 | -1.8374 | -1.8251 | -1.7456 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Aug | -2.3892 | -2.2248 | -2.2194 | -2.0986 | -1.9827 | -1.827 | -1.7794 | -1.7162 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Sep | -2.4488 | -2.2445 | -2.243 | -2.1269 | -2.0301 | -1.8468 | -1.8078 | -1.7442 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Oct | -2.5624 | -2.3719 | -2.408 | -2.2529 | -2.1253 | -2.0355 | -1.9416 | -1.8848 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Dec | -5.6758 | -5.8218 | -6.2325 | -6.3537 | -6.4684 | -500 | -500 | -500 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Jan | -5.585 | -5.7637 | -6.0956 | -6.2512 | -6.3213 | -6.2857 | -6.4207 | -6.6029 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Mar | -4.8355 | -4.9612 | -5.2155 | -5.3669 | -5.4499 | -5.3328 | -5.6309 | -5.8865 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Apr | -4.572 | -4.5767 | -4.9234 | -5.0238 | -5.1828 | -5.1955 | -5.4705 | -5.6937 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | May | -4.4877 | -4.5186 | -4.9241 | -5.0207 | -5.2288 | -5.2533 | -5.5537 | -5.7736 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Jun | -4.374 | -4.4587 | -4.9162 | -5.0483 | -5.137 | -5.2058 | -5.4853 | -5.705 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Jul | -4.3007 | -4.3009 | -4.6586 | -4.8549 | -4.9922 | -4.8586 | -5.2247 | -5.41 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Aug | -4.2763 | -4.311 | -4.6557 | -4.7661 | -4.8748 | -4.863 | -5.1278 | -5.3541 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Sep | -4.412 | -4.3779 | -4.7365 | -4.8625 | -5.0246 | -4.9483 | -5.2442 | -5.4776 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.1846 | -5.2359 | -5.4902 | -5.6696 | -5.9583 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Dec | -5.6758 | -5.8218 | -6.2325 | -6.3537 | -6.4684 | -500 | -500 | -500 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Jan | -5.585 | -5.7637 | -6.0956 | -6.2512 | -6.3213 | -6.2857 | -6.4207 | -6.6029 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Mar | -4.8355 | -4.9612 | -5.2155 | -5.3669 | -5.4499 | -5.3328 | -5.6309 | -5.8865 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Apr | -4.572 | -4.5767 | -4.9234 | -5.0238 | -5.1828 | -5.1955 | -5.4705 | -5.6937 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | May | -4.4877 | -4.5186 | -4.9241 | -5.0207 | -5.2288 | -5.2533 | -5.5537 | -5.7736 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Jun | -4.374 | -4.4587 | -4.9162 | -5.0483 | -5.137 | -5.2058 | -5.4853 | -5.705 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Jul | -4.3007 | -4.3009 | -4.6586 | -4.8549 | -4.9922 | -4.8586 | -5.2247 | -5.41 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Aug | -4.2763 | -4.311 | -4.6557 | -4.7661 | -4.8748 | -4.863 | -5.1278 | -5.3541 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Sep | -4.412 | -4.3779 | -4.7365 | -4.8625 | -5.0246 | -4.9483 | -5.2442 | -5.4776 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.1846 | -5.2359 | -5.4902 | -5.6696 | -5.9583 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Dec | -5.6758 | -5.8218 | -6.2325 | -6.3537 | -6.4684 | -500 | -500 | -500 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Jan | -5.585 | -5.7637 | -6.0956 | -6.2512 | -6.3213 | -6.2857 | -6.4207 | -6.6029 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|-----------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | May | -5.72 | -5.6027 | -5.645 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0441 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 53 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Nov | -6.2784 | -6.2502 | -6.3883 | -6.0541 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.7763 | -6.1123 | -500 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | May | -5.72 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Jun | -5.6167 | -5.4883 | -5.4934 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0371 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone 30-W | 2925-2012 | 54 | Oct | -5.7579 | -5.727 | -5.8595 | -5.7856 | -5.64 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Nov | -1.8305 | -1.6757 | -1.5821 | -1.383 | -1.2901 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Jan | -2.076 | -1.9203 | -1.7839 | -1.6561 | -1.587 | -1.4998 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Feb | -1.8748 | -1.7287 | -1.6389 | -1.4682 | -1.5626 | -1.4767 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Mar | -1.8092 | -1.6271 | -1.5414 | -1.3496 | -1.259 | -1.179 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Apr | -1.7452 | -1.5969 | -1.5247 | -1.3401 | -1.2505 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | May | -1.7671 | -1.6261 | -1.5495 | -1.3554 | -1.2647 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Jun | -1.7247 | -1.5969 | -1.5158 | -1.3264 | -1.2377 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Jul | -1.6391 | -1.5194 | -1.4538 | -1.2 | -1.1992 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Aug | -1.5872 | -1.4562 | -1.4028 | -1.2338 | -1.1513 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Sep | -1.6192 | -1.4755 | -1.4287 | -1.2429 | -1.1598 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 0 | Oct | -1.7784 | -1.6039 | -1.5277 | -1.3272 | -1.2381 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.9702 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Jan | -6.6943 | -6.7039 | -6.7423 | -6.7763 | -7.0301 | -7.1925 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Feb | -6.0857 | -6.6118 | -6.7287 | -6.7166 | -6.968 | -7.1289 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Mar | -5.9117 | -5.756 | -5.9033 | -5.5958 | -5.6515 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Apr | -5.7404 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | May | -5.8513 | -5.8292 | -6.0136 | -5.6946 | -5.7527 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Jun | -5.7486 | -5.7625 | -5.9217 | -5.61 | -5.6672 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Jul | -5.4995 | -5.5193 | -5.717 | -5.1089 | -5.5272 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Aug | -5.3608 | -5.3246 | -5.5532 | -5.2877 | -5.3417 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Sep | -5.5052 | -5.431 | -5.6933 | -5.3621 | -5.4169 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 49 | Oct | -6.0865 | -5.943 | -6.1282 | -5.7637 | -5.8211 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.9702 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Jan | -6.6943 | -6.7039 | -6.7423 | -6.7763 | -7.0301 | -7.1925 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Feb | -6.0857 | -6.6118 | -6.7287 | -6.7166 | -6.968 | -7.1289 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Mar | -5.9117 | -5.756 | -5.9033 | -5.5958 | -5.6515 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Apr | -5.7404 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | May | -5.8513 | -5.8292 | -6.0136 | -5.6946 | -5.7527 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Jun | -5.7486 | -5.7625 | -5.9217 | -5.61 | -5.6672 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Jul | -5.4995 | -5.5193 | -5.717 | -5.1089 | -5.5272 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Aug | -5.3608 | -5.3246 | -5.5532 | -5.2877 | -5.3417 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Sep | -5.5052 | -5.431 | -5.6933 | -5.3621 | -5.4169 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 50 | Oct | -6.0865 | -5.943 | -6.1282 | -5.7637 | -5.8211 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.9702 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Jan | -6.6943 | -6.7039 | -6.7423 | -6.7763 | -7.0301 | -7.1925 |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Feb | -3.1876 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Mar | -2.5578 | -3.2937 | -3.8755 | -4.3905 | -4.3103 | -4.2886 | -4.3523 | -4.8052 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Apr | -2.3893 | -3.2246 | -3.6928 | -4.1719 | -4.1757 | -4.1672 | -4.2386 | -4.5126 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | May | -1.9492 | -3.2674 | -3.7303 | -4.1582 | -4.193 | -4.1851 | -4.2328 | -4.4649 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Jun | -2.6513 | -3.2539 | -3.735 | -4.134 | -4.1708 | -4.1592 | -4.1845 | -4.3225 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Jul | -2.4304 | -3.2818 | -3.747 | -4.0993 | -4.1185 | -4.0003 | -4.029 | -4.249 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Aug | -2.5365 | -3.3098 | -3.7682 | -4.1793 | -4.069 | -4.0058 | -4.0713 | -4.1879 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Sep | -2.5389 | -3.3756 | -3.7986 | -4.2147 | -4.1133 | -4.1008 | -4.1375 | -4.2892 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Oct | -2.6831 | -3.4258 | -3.9009 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Nov | -3.167 | -3.7364 | -4.149 | -4.4566 | -4.53 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Dec | -3.4941 | -4.2017 | -4.5516 | -5.0073 | -5.0944 | -5.2123 | -5.359 | -5.5178 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Jan | -3.5522 | -3.791 | -4.4052 | -4.9247 | -5.0359 | -5.151 | -5.2819 | -5.4259 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Feb | -3.1876 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Mar | -2.5578 | -3.2937 | -3.8755 | -4.3905 | -4.3103 | -4.2886 | -4.3523 | -4.8052 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Apr | -2.3893 | -3.2246 | -3.6928 | -4.1719 | -4.1757 | -4.1672 | -4.2386 | -4.5126 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | May | -1.9492 | -3.2674 | -3.7303 | -4.1582 | -4.193 | -4.1851 | -4.2328 | -4.4649 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Jun | -2.6513 | -3.2539 | -3.735 | -4.134 | -4.1708 | -4.1592 | -4.1845 | -4.3225 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Jul | -2.4304 | -3.2818 | -3.747 | -4.0993 | -4.1185 | -4.0003 | -4.029 | -4.249 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Aug | -2.5365 | -3.3098 | -3.7682 | -4.1793 | -4.069 | -4.0058 | -4.0713 | -4.1879 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Sep | -2.5389 | -3.3756 | -3.7986 | -4.2147 | -4.1133 | -4.1008 | -4.1375 | -4.2892 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Oct | -2.6831 | -3.4258 | -3.9009 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Nov | -3.167 | -3.7511 | -4.149 | -4.4566 | -4.53 | -4.5883 | -4.7031 | -4.9445 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Dec | -3.4941 | -4.2017 | -4.5516 | -5.0073 | -5.0944 | -5.2123 | -5.359 | -5.5178 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Jan | -3.5522 | -3.791 | -4.4052 | -4.9247 | -5.0359 | -5.151 | -5.2819 | -5.4259 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Feb | -2.792 | -3.771 | -4.0161 | -4.5473 | -4.6727 | -4.6863 | -4.7869 | -4.9108 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Mar | -2.5578 | -3.2937 | -3.8755 | -4.4204 | -4.2169 | -4.1969 | -4.3523 | -4.7273 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Apr | -2.3893 | -3.2246 | -3.6928 | -4.1719 | -4.1757 | -4.1672 | -4.2168 | -4.5126 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | May | -1.9492 | -3.2674 | -3.7303 | -4.1582 | -4.193 | -4.1851 | -4.2328 | -4.4649 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Jun | -2.6513 | -3.2538 | -3.735 | -4.134 | -4.1708 | -4.1592 | -4.1845 | -4.3225 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Jul | -2.4304 | -3.2818 | -3.7469 | -4.0993 | -4.1185 | -4.0003 | -4.1163 | -4.249 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Aug | -2.5365 | -3.3098 | -3.7682 | -4.1793 | -4.069 | -4.0058 | -4.0713 | -4.1879 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Sep | -2.5389 | -3.3756 | -3.7986 | -4.2147 | -4.1133 | -4.1008 | -4.1375 | -4.2892 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Oct | -2.6488 | -3.4636 | -3.9009 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.482 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Nov | -2.973 | -3.7364 | -4.192 | -4.4566 | -4.53 | -4.6081 | -4.7031 | -4.8879 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Dec | -3.4941 | -4.2017 | -4.5516 | -5.0073 | -5.0944 | -4.752 | -4.8893 | -5.5178 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Jan | -3.5522 | -3.6746 | -4.4052 | -4.9247 | -5.0359 | -5.151 | -5.2819 | -5.4259 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Feb | -2.792 | -3.4419 | -4.1539 | -4.6714 | -4.6738 | -4.6668 | -4.7869 | -4.9432 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Mar | -2.5578 | -3.3892 | -3.9564 | -4.4405 | -4.2508 | -4.234 | -4.2798 | -4.7273 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Apr | -2.3893 | -3.2246 | -3.6928 | -4.1492 | -4.1757 | -4.1672 | -4.2168 | -4.5126 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | May | -1.9492 | -3.2674 | -3.7303 | -4.1582 | -4.193 | -4.1851 | -4.2328 | -4.4649 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Jun | -2.6513 | -3.2538 | -3.735 | -4.134 | -4.0427 | -4.1592 | -4.1845 | -4.3225 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Jul | -2.4304 | -3.2818 | -3.7469 | -4.0993 | -4.1185 | -4.0811 | -4.1163 | -4.249 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Aug | -2.5365 | -3.3099 | -3.7682 | -4.1793 | -4.069 | -4.0058 | -4.0713 | -4.1879 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Sep | -2.5389 | -3.3526 | -3.7986 | -4.2147 | -4.1133 | -4.1008 | -4.1375 | -4.2892 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Oct | -2.6061 | -3.4258 | -3.9009 | -4.1235 | -4.2662 | -4.2507 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Nov | -3.0489 | -3.6521 | -3.7425 | -3.6462 | -3.4233 | -3.2027 | -3.0193 | -2.8932 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Dec | -3.5753 | -4.0073 | -3.9404 | -3.794 | -3.5434 | -3.2948 | -3.1311 | -2.9675 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Jan | -3.2362 | -3.5613 | -3.8614 | -3.9801 | -3.773 | -3.507 | -3.2666 | -3.0926 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Feb | -2.8648 | -3.5258 | -3.888 | -4.0185 | -3.7475 | -3.5006 | -3.2833 | -3.1111 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Mar | -2.6267 | -3.375 | -3.6208 | -3.8546 | -3.4195 | -3.1427 | -2.9459 | -3.0169 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Apr | -2.4553 | -3.3048 | -3.4913 | -3.6199 | -3.3387 | -3.0999 | -2.8964 | -2.8614 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | May | -1.9807 | -3.2983 | -3.4358 | -3.5399 | -3.2455 | -2.9874 | -2.7862 | -2.7657 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Jun | -2.6947 | -3.3044 | -3.4174 | -3.4617 | -3.1564 | -2.902 | -2.6927 | -2.6591 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Jul | -2.4701 | -3.2694 | -3.3904 | -3.4618 | -3.1002 | -2.8649 | -2.6647 | -2.5962 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Aug | -2.5779 | -3.291 | -3.4098 | -3.4881 | -3.1168 | -2.8299 | -2.6673 | -2.5705 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Sep | -2.5804 | -3.3187 | -3.4489 | -3.5242 | -3.1455 | -2.8607 | -2.6957 | -2.5968 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Oct | -2.727 | -3.3459 | -3.4795 | -3.3813 | -3.2313 | -2.9972 | -2.7787 | -2.7153 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Mar | -4.8355 | -4.9612 | -5.2155 | -5.3669 | -5.4499 | -5.3328 | -5.6309 | -5.8865 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Apr | -4.572 | -4.5767 | -4.9234 | -5.0238 | -5.1828 | -5.1955 | -5.4705 | -5.6937 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | May | -4.4877 | -4.5186 | -4.9241 | -5.0207 | -5.2288 | -5.2533 | -5.5537 | -5.7736 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Jun | -4.374 | -4.4587 | -4.9162 | -5.0483 | -5.137 | -5.2058 | -5.4853 | -5.705 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Jul | -4.3007 | -4.3009 | -4.6586 | -4.8549 | -4.9922 | -4.8586 | -5.2247 | -5.41 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Aug | -4.2763 | -4.311 | -4.6557 | -4.7661 | -4.8748 | -4.863 | -5.1278 | -5.3541 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Sep | -4.412 | -4.3779 | -4.7365 | -4.8625 | -5.0246 | -4.9483 | -5.2442 | -5.4776 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.1846 | -5.2359 | -5.4902 | -5.6696 | -5.9583 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Dec | -5.6758 | -5.8218 | -6.2325 | -6.3537 | -6.4684 | -500 | -500 | -500 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Jan | -5.585 | -5.7637 | -6.0956 | -6.2512 | -6.3213 | -6.2857 | -6.4207 | -6.6029 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Mar | -4.8355 | -4.9612 | -5.2155 | -5.3669 | -5.4499 | -5.3328 | -5.6309 | -5.8865 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Apr | -4.572 | -4.5767 | -4.9234 | -5.0238 | -5.1828 | -5.1955 | -5.4705 | -5.6937 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | May | -4.4877 | -4.5186 | -4.9241 | -5.0207 | -5.2288 | -5.2533 | -5.5537 | -5.7736 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Jun | -4.374 | -4.4587 | -4.9162 | -5.0483 | -5.137 | -5.2058 | -5.4853 | -5.705 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Jul | -4.3007 | -4.3009 | -4.6586 | -4.8549 | -4.9922 | -4.8586 | -5.2247 | -5.41 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Aug | -4.2763 | -4.311 | -4.6557 | -4.7661 | -4.8748 | -4.863 | -5.1278 | -5.3541 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Sep | -4.412 | -4.3779 | -4.7365 | -4.8625 | -5.0246 | -4.9483 | -5.2442 | -5.4776 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.1846 | -5.2359 | -5.4902 | -5.6696 | -5.9583 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Nov | -5.0342 | -5.1349 | -5.5153 | -5.6856 | -5.7464 | -5.7417 | -5.961 | -6.1754 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Dec | -5.6758 | -5.8218 | -6.2325 | -6.3537 | -6.4684 | -500 | -500 | -500 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Jan | -5.585 | -5.7637 | -6.0956 | -6.2512 | -6.3213 | -6.2857 | -6.4207 | -6.6029 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Feb | -5.0412 | -5.0964 | -5.388 | -5.5481 | -5.5993 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Mar | -4.9136 | -5.0398 | -5.2966 | -5.3669 | -5.4499 | -5.2559 | -5.5511 | -5.8046 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Apr | -4.572 | -4.5767 | -4.9234 | -5.0238 | -5.1828 | -5.1955 | -5.4705 | -5.6937 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | May | -4.4877 | -4.5186 | -4.9241 | -5.0207 | -5.2288 | -5.2533 | -5.5537 | -5.7736 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Jun | -4.374 | -4.4587 | -4.9162 | -5.0483 | -5.137 | -5.2058 | -5.4853 | -5.705 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Jul | -4.3007 | -4.3009 | -4.7443 | -4.8549 | -4.9922 | -4.8586 | -5.2247 | -5.41 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Aug | -4.2763 | -4.311 | -4.6557 | -4.7661 | -4.8748 | -4.863 | -5.1278 | -5.3541 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Sep | -4.412 | -4.3779 | -4.7365 | -4.8625 | -4.8898 | -4.8155 | -5.2188 | -5.4127 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.1846 | -5.2317 | -5.2253 | -5.5889 | -5.9583 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Nov | -4.9979 | -5.1349 | -5.5507 | -5.6506 | -5.7194 | -5.7414 | -5.961 | -6.1605 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Dec | -5.6758 | -5.8218 | -6.2325 | -6.3537 | -6.4684 | -6.4405 | -6.6373 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Jan | -4.9766 | -5.7637 | -6.0956 | -6.2512 | -6.3213 | -5.5637 | -5.7588 | -6.6029 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Feb | -5.006 | -5.0964 | -5.4278 | -5.5266 | -5.5993 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Mar | -4.8355 | -4.9821 | -5.2155 | -5.3669 | -5.3696 | -5.2559 | -5.6309 | -5.8865 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Apr | -4.572 | -4.5767 | -4.9234 | -5.0238 | -5.1828 | -5.1515 | -5.4658 | -5.6889 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | May | -4.4877 | -4.5186 | -4.9241 | -5.0207 | -5.2288 | -5.2533 | -5.5537 | -5.7736 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Jun | -4.374 | -4.4587 | -4.8191 | -5.0483 | -5.137 | -5.2058 | -5.4853 | -5.705 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Jul | -4.3007 | -4.3593 | -4.7443 | -4.8549 | -4.9922 | -5.0337 | -5.2857 | -5.5035 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Aug | -4.2763 | -4.311 | -4.6557 | -4.7661 | -4.8748 | -4.863 | -5.1278 | -5.3541 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Sep | -4.412 | -4.3779 | -4.7365 | -4.8625 | -5.0246 | -4.9483 | -5.2442 | -5.4127 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.1846 | -5.2179 | -5.2253 | -5.5889 | -5.9583 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Nov | -2.7375 | -2.5979 | -2.5817 | -2.4445 | -2.2821 | -2.1264 | -2.0279 | -1.9511 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Dec | -2.7672 | -2.6533 | -2.5963 | -2.4571 | -2.3997 | -2.3564 | -2.2431 | -2.1185 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Jan | -2.9453 | -2.7709 | -2.7178 | -2.5616 | -2.3981 | -2.1893 | -2.0931 | -2.0023 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Feb | -2.9307 | -2.7366 | -2.6922 | -2.5418 | -2.3787 | -2.1663 | -2.0738 | -1.9886 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Mar | -2.8494 | -2.6994 | -2.6201 | -2.4896 | -2.3001 | -2.079 | -2.0275 | -1.9576 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Apr | -2.6769 | -2.4744 | -2.4575 | -2.3154 | -2.1658 | -2.0042 | -1.9832 | -1.889 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | May | -2.567 | -2.387 | -2.4038 | -2.2637 | -2.1442 | -1.9639 | -1.951 | -1.8563 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Jun | -2.485 | -2.3053 | -2.3366 | -2.2026 | -2.0644 | -1.9126 | -1.9022 | -1.8124 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Jul | -2.4268 | -2.2411 | -2.2432 | -2.104 | -1.9966 | -1.8429 | -1.8312 | -1.7515 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Aug | -2.4239 | -2.2263 | -2.2101 | -2.0714 | -1.9549 | -1.7864 | -1.7843 | -1.7099 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Sep | -2.4575 | -2.2516 | -2.2511 | -2.1097 | -1.9823 | -1.8027 | -1.8051 | -1.7294 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Oct | -2.5624 | -2.3719 | -2.408 | -2.2619 | -2.1338 | -2.0434 | -1.949 | -1.8918 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Feb | -6.0857 | -6.6118 | -6.7287 | -6.7166 | -6.968 | -7.1289 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Mar | -5.9117 | -5.756 | -5.9033 | -5.5958 | -5.6515 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Apr | -5.7404 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | May | -5.8513 | -5.8292 | -6.0136 | -5.6946 | -5.7527 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Jun | -5.7486 | -5.7625 | -5.9217 | -5.61 | -5.6672 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Jul | -5.4995 | -5.5193 | -5.717 | -5.1089 | -5.5272 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Aug | -5.3608 | -5.3246 | -5.5532 | -5.2877 | -5.3417 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Sep | -5.5052 | -5.431 | -5.6933 | -5.3621 | -5.4169 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 51 | Oct | -6.0865 | -5.943 | -6.1282 | -5.7637 | -5.8211 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.9702 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Jan | -6.6943 | -6.7039 | -6.7423 | -6.7763 | -7.0301 | -7.1925 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Feb | -6.0857 | -6.6118 | -6.7287 | -6.7166 | -6.968 | -7.1289 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Mar | -5.9117 | -5.756 | -5.9033 | -5.5958 | -5.6515 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Apr | -5.7404 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | May | -5.8513 | -5.8292 | -6.0136 | -5.6946 | -5.7527 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Jun | -5.7486 | -5.7625 | -5.9217 | -5.61 | -5.6672 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Jul | -5.4995 | -5.5193 | -5.717 | -5.1089 | -5.5272 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Aug | -5.3608 | -5.3246 | -5.5532 | -5.2877 | -5.3417 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Sep | -5.5052 | -5.431 | -5.6933 | -5.3621 | -5.4169 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 52 | Oct | -6.0865 | -5.943 | -6.1282 | -5.7637 | -5.8211 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Nov | -6.2932 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Dec | -500 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Jan | -6.6943 | -6.7039 | -6.7423 | -6.7763 | -7.0301 | -7.1925 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Feb | -6.0857 | -6.6118 | -6.7287 | -6.7166 | -6.968 | -7.1289 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Mar | -5.8312 | -5.6796 | -5.8265 | -5.5255 | -5.5823 | -5.6398 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Apr | -5.7404 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | May | -5.8513 | -5.8292 | -6.0136 | -5.6946 | -5.7527 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Jun | -5.7486 | -5.7625 | -5.9217 | -5.61 | -5.6672 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Jul | -5.4995 | -5.5193 | -5.717 | -5.1089 | -5.5272 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Aug | -5.3608 | -5.3246 | -5.5532 | -5.2877 | -5.3417 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Sep | -5.3524 | -5.1985 | -5.2838 | -4.9577 | -5.0092 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 53 | Oct | -6.0865 | -5.943 | -6.1282 | -5.7637 | -5.8211 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Nov | -6.2784 | -6.2502 | -6.3883 | -6.0541 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Dec | -6.8379 | -500 | -500 | -500 | -500 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Jan | -6.6943 | -6.7039 | -6.7423 | -6.7763 | -7.0301 | -7.1925 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Feb | -6.0857 | -6.6118 | -6.7287 | -6.025 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Mar | -5.8312 | -5.756 | -5.8265 | -5.5255 | -5.5823 | -5.7079 |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Apr | -5.7404 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | May | -5.8513 | -5.8292 | -6.0136 | -5.6946 | -5.7527 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Jun | -5.7486 | -5.4723 | -5.9217 | -5.61 | -5.6672 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Jul | -5.4995 | -5.5193 | -5.717 | -5.4712 | -5.5272 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Aug | -5.3608 | -5.3246 | -5.5532 | -5.2877 | -5.3417 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Sep | -5.5052 | -5.431 | -5.6933 | -5.3621 | -5.4169 | |
| Peak Day Marginal Cost by Area | Zone GTN | 2925-2012 | 54 | Oct | -5.8467 | -5.727 | -5.9509 | -5.7637 | -5.64 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Nov | -1.8305 | -1.6757 | -1.5821 | -1.383 | -1.2901 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Dec | -1.9717 | -1.9392 | -2.0727 | -3.6114 | -2.5568 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Jan | -1.8932 | -1.7686 | -1.6543 | -1.4791 | -1.3798 | -1.2872 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Feb | -1.8748 | -1.7287 | -1.6389 | -1.4682 | -1.3696 | -1.2777 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Mar | -1.816 | -1.6333 | -1.5472 | -1.3548 | -1.2639 | -1.179 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Apr | -1.7518 | -1.603 | -1.5304 | -1.3452 | -1.2553 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | May | -1.7275 | -1.578 | -1.4575 | -1.2698 | -1.1847 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Jun | -1.6851 | -1.5209 | -1.4062 | -1.2249 | -1.1543 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Jul | -1.6116 | -1.4574 | -1.364 | -1.2019 | -1.1215 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Aug | -1.5729 | -1.4107 | -1.3294 | -1.1575 | -1.08 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Sep | -1.5858 | -1.4226 | -1.3403 | -1.1625 | -1.0846 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 0 | Oct | -1.7849 | -1.6099 | -1.5333 | -1.3322 | -1.2428 | |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Nov | -3.2461 | -3.8402 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Dec | -3.4941 | -4.1373 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Jan | -3.2362 | -3.4307 | -4.1764 | -4.6181 | -4.6632 | -4.7172 | -4.8412 | -4.8664 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Feb | -2.8648 | -3.4602 | -4.1085 | -4.6475 | -4.6926 | -4.6863 | -4.807 | -4.9108 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Mar | -2.6267 | -3.375 | -3.9656 | -4.5185 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Nov | -5.0342 | -5.1349 | -5.5367 | -5.6856 | -5.7464 | -5.7417 | -5.961 | -6.1754 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Dec | -5.0855 | -5.2599 | -5.5924 | -5.7298 | -5.7907 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Jan | -5.0536 | -5.1262 | -5.3585 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Feb | -5.0412 | -5.0964 | -5.388 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1166 | -5.1249 | -5.5116 | -5.6775 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9874 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 49 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 50 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 51 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 52 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Nov | -6.2932 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | May | -5.72 | -5.6027 | -5.645 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Nov | -3.0489 | -3.8252 | -4.2874 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.8879 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Dec | -3.3714 | -3.9914 | -4.4978 | -4.6613 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Jan | -3.1584 | -3.7609 | -4.1764 | -4.7078 | -4.6935 | -4.7023 | -4.8412 | -4.9579 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6714 | -4.6738 | -4.6867 | -4.807 | -4.9432 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Mar | -2.6267 | -3.4722 | -4.0478 | -4.539 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1183 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Jul | -2.4701 | -3.3349 | -3.7611 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Sep | -2.5804 | -3.4068 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Nov | -3.0489 | -3.6521 | -3.7425 | -3.6462 | -3.4233 | -3.2027 | -3.0193 | -2.8932 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Dec | -3.5753 | -4.0073 | -3.9404 | -3.794 | -3.5434 | -3.2948 | -3.1311 | -2.9675 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Jan | -3.2362 | -3.5613 | -3.8614 | -3.9801 | -3.773 | -3.507 | -3.2666 | -3.0926 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Feb | -2.8648 | -3.5258 | -3.888 | -4.0185 | -3.7475 | -3.5006 | -3.2833 | -3.1111 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Mar | -2.6267 | -3.375 | -3.6208 | -3.8546 | -3.4195 | -3.1427 | -2.9459 | -3.0169 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Apr | -2.4553 | -3.3048 | -3.4913 | -3.6199 | -3.3387 | -3.0999 | -2.8964 | -2.8614 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | May | -1.9807 | -3.2983 | -3.4358 | -3.5399 | -3.2455 | -2.9874 | -2.7862 | -2.7657 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Jun | -2.6947 | -3.3044 | -3.4174 | -3.4617 | -3.1564 | -2.902 | -2.6927 | -2.6591 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Jul | -2.4701 | -3.2694 | -3.3904 | -3.4618 | -3.1002 | -2.8649 | -2.6647 | -2.5962 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Aug | -2.5779 | -3.291 | -3.4098 | -3.4881 | -3.1168 | -2.8299 | -2.6673 | -2.5705 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Sep | -2.5804 | -3.3187 | -3.4489 | -3.5242 | -3.1455 | -2.8607 | -2.6957 | -2.5968 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Oct | -2.727 | -3.3459 | -3.4795 | -3.3813 | -3.2313 | -2.9972 | -2.7787 | -2.7153 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4311 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2317 | -5.2462 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Nov | -4.9979 | -5.1349 | -5.5507 | -5.6506 | -5.7194 | -5.7414 | -5.961 | -6.1605 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Dec | -5.0342 | -5.1778 | -5.5924 | -5.6948 | -5.7638 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Jan | -4.9766 | -5.0637 | -5.4433 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Feb | -5.006 | -5.0964 | -5.4278 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Mar | -4.934 | -5.0817 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1684 | -5.1249 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2179 | -5.2253 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Nov | -2.7375 | -2.5979 | -2.5817 | -2.4445 | -2.2821 | -2.1264 | -2.0279 | -1.9511 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Dec | -2.7672 | -2.6533 | -2.5963 | -2.4571 | -2.3997 | -2.3564 | -2.2431 | -2.1185 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Jan | -2.9453 | -2.7709 | -2.7178 | -2.5616 | -2.3981 | -2.1893 | -2.0931 | -2.0023 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Feb | -2.9307 | -2.7366 | -2.6922 | -2.5418 | -2.3787 | -2.1663 | -2.0738 | -1.9886 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Mar | -2.8494 | -2.6994 | -2.6201 | -2.4896 | -2.3001 | -2.079 | -2.0275 | -1.9576 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Apr | -2.6769 | -2.4744 | -2.4575 | -2.3154 | -2.1658 | -2.0042 | -1.9832 | -1.889 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | May | -2.567 | -2.387 | -2.4038 | -2.2637 | -2.1442 | -1.9639 | -1.951 | -1.8563 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Jun | -2.485 | -2.3053 | -2.3366 | -2.2026 | -2.0644 | -1.9126 | -1.9022 | -1.8124 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Jul | -2.4268 | -2.2411 | -2.2432 | -2.104 | -1.9966 | -1.8429 | -1.8312 | -1.7515 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Aug | -2.4239 | -2.2263 | -2.2101 | -2.0714 | -1.9549 | -1.7864 | -1.7843 | -1.7099 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Sep | -2.4575 | -2.2516 | -2.2511 | -2.1097 | -1.9823 | -1.8027 | -1.8051 | -1.7294 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Oct | -2.5624 | -2.3719 | -2.408 | -2.2619 | -2.1338 | -2.0434 | -1.949 | -1.8918 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0441 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 53 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Nov | -6.2784 | -6.2502 | -6.3883 | -6.0541 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.7763 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | May | -5.72 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Jun | -5.6167 | -5.4883 | -5.4934 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0371 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-OR | 2925-2012 | 54 | Oct | -5.7579 | -5.727 | -5.8595 | -5.7856 | -5.64 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Nov | -1.8305 | -1.6757 | -1.5821 | -1.383 | -1.2901 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Dec | -1.9717 | -1.9392 | -2.0727 | -3.6114 | -2.5568 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Jan | -1.8932 | -1.7686 | -1.6543 | -1.4791 | -1.3798 | -1.2872 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Feb | -1.8748 | -1.7287 | -1.6389 | -1.4682 | -1.3696 | -1.2777 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Mar | -1.816 | -1.6333 | -1.5472 | -1.3548 | -1.2639 | -1.179 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Apr | -1.7518 | -1.603 | -1.5304 | -1.3452 | -1.2553 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | May | -1.7275 | -1.578 | -1.4575 | -1.2698 | -1.1847 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Jun | -1.6851 | -1.5209 | -1.4062 | -1.2249 | -1.1543 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Jul | -1.6116 | -1.4574 | -1.364 | -1.2019 | -1.1215 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Aug | -1.5729 | -1.4107 | -1.3294 | -1.1575 | -1.08 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Sep | -1.5858 | -1.4226 | -1.3403 | -1.1625 | -1.0846 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 0 | Oct | -1.7849 | -1.6099 | -1.5333 | -1.3322 | -1.2428 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 49 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 50 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |

| Data Item | Area | Scenario | Draw | Mon | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Nov | -3.2461 | -3.8252 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Dec | -3.5753 | -4.225 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Jan | -3.2362 | -3.5613 | -4.1764 | -4.6273 | -4.6935 | -4.7229 | -4.7627 | -4.8974 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6717 | -4.6926 | -4.7456 | -4.807 | -4.9417 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Mar | -2.6267 | -3.375 | -3.9656 | -4.488 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Jun | -2.6947 | -3.3065 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Aug | -2.5779 | -3.3633 | -3.7827 | -4.1979 | -4.0411 | -3.9917 | -4.0707 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0845 | -4.0591 | -4.1141 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Oct | -2.727 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Nov | -3.2461 | -3.8402 | -4.2437 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.9649 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Dec | -3.4941 | -4.1373 | -4.4978 | -4.6884 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Jan | -3.2362 | -3.4307 | -4.1764 | -4.6181 | -4.6632 | -4.7172 | -4.8412 | -4.8664 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Feb | -2.8648 | -3.4602 | -4.1085 | -4.6475 | -4.6926 | -4.6863 | -4.807 | -4.9108 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Mar | -2.6267 | -3.375 | -3.9656 | -4.5185 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1184 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Jul | -2.4701 | -3.3349 | -3.7612 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Sep | -2.5804 | -3.4303 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Nov | -3.0489 | -3.8252 | -4.2874 | -4.4761 | -4.5497 | -4.6081 | -4.7031 | -4.8879 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Dec | -3.3714 | -3.9914 | -4.4978 | -4.6613 | -4.7404 | -4.7721 | -4.9096 | -5.0375 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Jan | -3.1584 | -3.7609 | -4.1764 | -4.7078 | -4.6935 | -4.7023 | -4.8412 | -4.9579 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Feb | -2.8648 | -3.5258 | -4.1539 | -4.6714 | -4.6738 | -4.6867 | -4.807 | -4.9432 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Mar | -2.6267 | -3.4722 | -4.0478 | -4.539 | -4.3103 | -4.2886 | -4.3523 | -4.8254 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Apr | -2.4553 | -3.3048 | -3.7797 | -4.2427 | -4.2364 | -4.2584 | -4.3076 | -4.6071 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | May | -1.9807 | -3.3202 | -3.7444 | -4.1765 | -4.1455 | -4.1311 | -4.1711 | -4.4824 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Jun | -2.6947 | -3.3064 | -3.749 | -4.1183 | -4.0584 | -4.0396 | -4.0579 | -4.3383 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Jul | -2.4701 | -3.3349 | -3.7611 | -4.1469 | -4.0127 | -4.0144 | -4.0423 | -4.2639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Aug | -2.5779 | -3.3634 | -3.7827 | -4.1979 | -4.035 | -3.9917 | -4.0708 | -4.2497 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Sep | -2.5804 | -3.4068 | -3.8261 | -4.2337 | -4.0784 | -4.0591 | -4.1142 | -4.3045 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Oct | -2.6488 | -3.4814 | -3.9195 | -4.1235 | -4.2662 | -4.284 | -4.2998 | -4.5487 |

| Data Item | Area | Scenario | Draw | Mon | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Nov | -5.0261 | -5.1349 | -5.5482 | -5.6856 | -5.7613 | -5.7563 | -5.976 | -6.1927 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Dec | -5.0855 | -5.3166 | -5.5924 | -5.7298 | -5.7907 | -6.0305 | -6.5281 | -6.7864 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Jan | -5.0562 | -5.1148 | -5.3651 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Feb | -5.0412 | -5.0964 | -5.4095 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1955 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | May | -4.5042 | -4.5446 | -4.9435 | -5.04 | -5.1684 | -5.1767 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2568 | -5.5115 | -5.6913 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Nov | -5.0342 | -5.1349 | -5.5367 | -5.6856 | -5.7464 | -5.7417 | -5.961 | -6.1754 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Dec | -5.0855 | -5.2599 | -5.5924 | -5.7298 | -5.7907 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Jan | -5.0536 | -5.1262 | -5.3585 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Feb | -5.0412 | -5.0964 | -5.388 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Mar | -4.934 | -5.0604 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1166 | -5.1249 | -5.5116 | -5.6775 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9874 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4311 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2317 | -5.2462 | -5.6104 | -5.9806 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Nov | -4.9979 | -5.1349 | -5.5507 | -5.6506 | -5.7194 | -5.7414 | -5.961 | -6.1605 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Dec | -5.0342 | -5.1778 | -5.5924 | -5.6948 | -5.7638 | -5.7856 | -6.0053 | -6.2048 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Jan | -4.9766 | -5.0637 | -5.4433 | -5.5543 | -5.6293 | -5.5637 | -5.7588 | -5.9639 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Feb | -5.006 | -5.0964 | -5.4278 | -5.5481 | -5.6209 | -5.5418 | -5.7434 | -5.9627 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Mar | -4.934 | -5.0817 | -5.3176 | -5.4701 | -5.4712 | -5.3539 | -5.6525 | -5.9085 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Apr | -4.666 | -4.6694 | -5.0206 | -5.1211 | -5.1828 | -5.1515 | -5.5658 | -5.7394 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | May | -4.5042 | -4.5343 | -4.9435 | -5.04 | -5.1684 | -5.1249 | -5.5652 | -5.7318 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Jun | -4.3892 | -4.4083 | -4.8373 | -4.9364 | -5.009 | -5.024 | -5.4095 | -5.5801 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Jul | -4.3149 | -4.3138 | -4.6748 | -4.7469 | -4.8767 | -4.8731 | -5.2422 | -5.4283 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Aug | -4.3383 | -4.3138 | -4.6362 | -4.7042 | -4.8066 | -4.7549 | -5.1419 | -5.3345 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Sep | -4.4276 | -4.3919 | -4.7536 | -4.823 | -4.9061 | -4.8294 | -5.2363 | -5.4843 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Oct | -4.6473 | -4.6573 | -5.1187 | -5.2054 | -5.2179 | -5.2253 | -5.6104 | -5.9806 |

| Data Item | Area | Scenario | Draw | Mon | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------------------|------------|-----------|------|-----|---------|---------|---------|---------|---------|---------|
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 51 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Nov | -6.3064 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Dec | -6.8379 | -6.7823 | -7.0119 | -11.868 | -12.181 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.6146 | -5.6723 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | May | -5.7745 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9936 | -5.0442 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Sep | -5.4214 | -5.2632 | -5.3483 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 52 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Nov | -6.2932 | -6.2502 | -6.3883 | -6.0457 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.0521 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | May | -5.72 | -5.6027 | -5.645 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Jun | -5.6167 | -5.5417 | -5.5468 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0441 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 53 | Oct | -6.109 | -5.9652 | -6.1507 | -5.7856 | -5.8431 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Nov | -6.2784 | -6.2502 | -6.3883 | -6.0541 | -6.1058 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Dec | -6.3226 | -6.3047 | -6.4757 | -6.1404 | -6.2015 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Jan | -6.1051 | -6.1743 | -6.2523 | -6.7763 | -6.1123 | -6.1731 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Feb | -6.0857 | -6.075 | -6.2353 | -6.0473 | -6.1074 | -6.1682 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Mar | -5.9339 | -5.7779 | -5.9254 | -5.6174 | -5.6732 | -5.7296 |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Apr | -5.7622 | -5.6865 | -5.8779 | -5.5931 | -5.6507 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | May | -5.72 | -5.6566 | -5.6562 | -5.3349 | -5.3888 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Jun | -5.6167 | -5.4883 | -5.4934 | -5.2326 | -5.2854 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Jul | -5.4074 | -5.294 | -5.3638 | -5.117 | -5.169 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Aug | -5.3126 | -5.1584 | -5.2625 | -4.9935 | -5.0371 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Sep | -5.3685 | -5.211 | -5.3059 | -5.015 | -5.0657 | |
| Peak Day Marginal Cost by Area | Zone ME-WA | 2925-2012 | 54 | Oct | -5.7579 | -5.727 | -5.8595 | -5.7856 | -5.64 | |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.84016 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.03424 | -5.13485 | -5.53673 | -5.6856 |
| Dec | -3.4941 | -4.1373 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.25995 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.43073 | -4.17644 | -4.6181 | -4.66318 | -4.71722 | -4.84121 | -4.8664 | -5.05363 | -5.12615 | -5.35852 | -5.55431 |
| Feb | -2.86479 | -3.46016 | -4.10851 | -4.64752 | -4.6926 | -4.68629 | -4.807 | -4.91075 | -5.04122 | -5.09639 | -5.38795 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.51848 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.30642 | -3.74904 | -4.11837 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.98737 |
| Jul | -2.47005 | -3.33491 | -3.76116 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.3634 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.0708 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11421 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.04889 | -3.8252 | -4.28735 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.88786 | -4.99786 | -5.13485 | -5.55074 | -5.65059 |
| Dec | -3.37143 | -3.99142 | -4.49782 | -4.66129 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.03424 | -5.1778 | -5.59244 | -5.6948 |
| Jan | -3.15836 | -3.76087 | -4.17644 | -4.70781 | -4.69347 | -4.70232 | -4.84121 | -4.95791 | -4.97656 | -5.06369 | -5.44327 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.6714 | -4.6738 | -4.68674 | -4.807 | -4.94317 | -5.00602 | -5.09639 | -5.42785 | -5.54806 |
| Mar | -2.62665 | -3.47216 | -4.04777 | -4.53895 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.08171 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3064 | -3.74904 | -4.11834 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76114 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36343 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.07083 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.40684 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11423 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.84016 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.03424 | -5.13485 | -5.53673 | -5.6856 |
| Dec | -3.4941 | -4.1373 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.25995 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.43073 | -4.17644 | -4.6181 | -4.66318 | -4.71722 | -4.84121 | -4.8664 | -5.05363 | -5.12615 | -5.35852 | -5.55431 |
| Feb | -2.86479 | -3.46016 | -4.10851 | -4.64752 | -4.6926 | -4.68629 | -4.807 | -4.91075 | -5.04122 | -5.09639 | -5.38795 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.51848 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.30642 | -3.74904 | -4.11837 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.98737 |
| Jul | -2.47005 | -3.33491 | -3.76116 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.3634 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.0708 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11421 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.04889 | -3.8252 | -4.28735 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.88786 | -4.99786 | -5.13485 | -5.55074 | -5.65059 |
| Dec | -3.37143 | -3.99142 | -4.49782 | -4.66129 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.03424 | -5.1778 | -5.59244 | -5.6948 |
| Jan | -3.15836 | -3.76087 | -4.17644 | -4.70781 | -4.69347 | -4.70232 | -4.84121 | -4.95791 | -4.97656 | -5.06369 | -5.44327 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.6714 | -4.6738 | -4.68674 | -4.807 | -4.94317 | -5.00602 | -5.09639 | -5.42785 | -5.54806 |
| Mar | -2.62665 | -3.47216 | -4.04777 | -4.53895 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.08171 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3064 | -3.74904 | -4.11834 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76114 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36343 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.07083 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.40684 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11423 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Nov | -3.2461 | -3.84016 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.03424 | -5.13485 | -5.53673 | -5.6856 |
| Dec | -3.4941 | -4.1373 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.25995 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.43073 | -4.17644 | -4.6181 | -4.66318 | -4.71722 | -4.84121 | -4.8664 | -5.05363 | -5.12615 | -5.35852 | -5.55431 |
| Feb | -2.86479 | -3.46016 | -4.10851 | -4.64752 | -4.6926 | -4.68629 | -4.807 | -4.91075 | -5.04122 | -5.09639 | -5.38795 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.51848 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.30642 | -3.74904 | -4.11837 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.98737 |
| Jul | -2.47005 | -3.33491 | -3.76116 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.3634 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.0708 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11421 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.04889 | -3.8252 | -4.28735 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.88786 | -4.99786 | -5.13485 | -5.55074 | -5.65059 |
| Dec | -3.37143 | -3.99142 | -4.49782 | -4.66129 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.03424 | -5.1778 | -5.59244 | -5.6948 |
| Jan | -3.15836 | -3.76087 | -4.17644 | -4.70781 | -4.69347 | -4.70232 | -4.84121 | -4.95791 | -4.97656 | -5.06369 | -5.44327 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.6714 | -4.6738 | -4.68674 | -4.807 | -4.94317 | -5.00602 | -5.09639 | -5.42785 | -5.54806 |
| Mar | -2.62665 | -3.47216 | -4.04777 | -4.53895 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.08171 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3064 | -3.74904 | -4.11834 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76114 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36343 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.07083 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.40684 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11423 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.84016 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.03424 | -5.13485 | -5.53673 | -5.6856 |
| Dec | -3.4941 | -4.1373 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.25995 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.43073 | -4.17644 | -4.6181 | -4.66318 | -4.71722 | -4.84121 | -4.8664 | -5.05363 | -5.12615 | -5.35852 | -5.55431 |
| Feb | -2.86479 | -3.46016 | -4.10851 | -4.64752 | -4.6926 | -4.68629 | -4.807 | -4.91075 | -5.04122 | -5.09639 | -5.38795 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.51848 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.30642 | -3.74904 | -4.11837 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.98737 |
| Jul | -2.47005 | -3.33491 | -3.76116 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.3634 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.0708 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11421 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.04889 | -3.8252 | -4.28735 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.88786 | -4.99786 | -5.13485 | -5.55074 | -5.65059 |
| Dec | -3.37143 | -3.99142 | -4.49782 | -4.66129 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.03424 | -5.1778 | -5.59244 | -5.6948 |
| Jan | -3.15836 | -3.76087 | -4.17644 | -4.70781 | -4.69347 | -4.70232 | -4.84121 | -4.95791 | -4.97656 | -5.06369 | -5.44327 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.6714 | -4.6738 | -4.68674 | -4.807 | -4.94317 | -5.00602 | -5.09639 | -5.42785 | -5.54806 |
| Mar | -2.62665 | -3.47216 | -4.04777 | -4.53895 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.08171 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3064 | -3.74904 | -4.11834 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76114 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36343 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.07083 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.40684 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11423 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.84016 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.03424 | -5.13485 | -5.53673 | -5.6856 |
| Dec | -3.4941 | -4.1373 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.25995 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.43073 | -4.17644 | -4.6181 | -4.66318 | -4.71722 | -4.84121 | -4.8664 | -5.05363 | -5.12615 | -5.35852 | -5.55431 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Feb | -2.86479 | -3.46016 | -4.10851 | -4.64752 | -4.6926 | -4.68629 | -4.807 | -4.91075 | -5.04122 | -5.09639 | -5.38795 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.51848 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.30642 | -3.74904 | -4.11837 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.98737 |
| Jul | -2.47005 | -3.33491 | -3.76116 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.3634 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.0708 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11421 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.04889 | -3.8252 | -4.28735 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.88786 | -4.99786 | -5.13485 | -5.55074 | -5.65059 |
| Dec | -3.37143 | -3.99142 | -4.49782 | -4.66129 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.03424 | -5.1778 | -5.59244 | -5.6948 |
| Jan | -3.15836 | -3.76087 | -4.17644 | -4.70781 | -4.69347 | -4.70232 | -4.84121 | -4.95791 | -4.97656 | -5.06369 | -5.44327 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.6714 | -4.6738 | -4.68674 | -4.807 | -4.94317 | -5.00602 | -5.09639 | -5.42785 | -5.54806 |
| Mar | -2.62665 | -3.47216 | -4.04777 | -4.53895 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.08171 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3064 | -3.74904 | -4.11834 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76114 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36343 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.07083 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.40684 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11423 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.84016 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.03424 | -5.13485 | -5.53673 | -5.6856 |
| Dec | -3.4941 | -4.1373 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.25995 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.43073 | -4.17644 | -4.6181 | -4.66318 | -4.71722 | -4.84121 | -4.8664 | -5.05363 | -5.12615 | -5.35852 | -5.55431 |
| Feb | -2.86479 | -3.46016 | -4.10851 | -4.64752 | -4.6926 | -4.68629 | -4.807 | -4.91075 | -5.04122 | -5.09639 | -5.38795 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.51848 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.30642 | -3.74904 | -4.11837 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.98737 |
| Jul | -2.47005 | -3.33491 | -3.76116 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.3634 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.0708 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11421 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.04889 | -3.8252 | -4.28735 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.88786 | -4.99786 | -5.13485 | -5.55074 | -5.65059 |
| Dec | -3.37143 | -3.99142 | -4.49782 | -4.66129 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.03424 | -5.1778 | -5.59244 | -5.6948 |
| Jan | -3.15836 | -3.76087 | -4.17644 | -4.70781 | -4.69347 | -4.70232 | -4.84121 | -4.95791 | -4.97656 | -5.06369 | -5.44327 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.6714 | -4.6738 | -4.68674 | -4.807 | -4.94317 | -5.00602 | -5.09639 | -5.42785 | -5.54806 |
| Mar | -2.62665 | -3.47216 | -4.04777 | -4.53895 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.08171 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3064 | -3.74904 | -4.11834 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76114 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36343 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.07083 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.40684 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11423 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.84016 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.03424 | -5.13485 | -5.53673 | -5.6856 |
| Dec | -3.4941 | -4.1373 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.25995 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.43073 | -4.17644 | -4.6181 | -4.66318 | -4.71722 | -4.84121 | -4.8664 | -5.05363 | -5.12615 | -5.35852 | -5.55431 |
| Feb | -2.86479 | -3.46016 | -4.10851 | -4.64752 | -4.6926 | -4.68629 | -4.807 | -4.91075 | -5.04122 | -5.09639 | -5.38795 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.51848 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.30642 | -3.74904 | -4.11837 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.98737 |
| Jul | -2.47005 | -3.33491 | -3.76116 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.3634 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.0708 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11421 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.04889 | -3.8252 | -4.28735 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.88786 | -4.99786 | -5.13485 | -5.55074 | -5.65059 |
| Dec | -3.37143 | -3.99142 | -4.49782 | -4.66129 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.03424 | -5.1778 | -5.59244 | -5.6948 |
| Jan | -3.15836 | -3.76087 | -4.17644 | -4.70781 | -4.69347 | -4.70232 | -4.84121 | -4.95791 | -4.97656 | -5.06369 | -5.44327 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.6714 | -4.6738 | -4.68674 | -4.807 | -4.94317 | -5.00602 | -5.09639 | -5.42785 | -5.54806 |
| Mar | -2.62665 | -3.47216 | -4.04777 | -4.53895 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.08171 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3064 | -3.74904 | -4.11834 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76114 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36343 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.07083 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.40684 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11423 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.16696 | -3.73637 | -4.14903 | -4.45656 | -4.53 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.4941 | -4.20167 | -4.55158 | -5.00726 | -5.09442 | -5.21228 | -5.35895 | -5.51776 | -5.67576 | -5.82184 | -6.23247 | -6.35366 |
| Jan | -3.55218 | -3.79104 | -4.40522 | -4.92468 | -5.03588 | -5.15098 | -5.28191 | -5.42591 | -5.58503 | -5.76369 | -6.0956 | -6.2512 |
| Feb | -3.1876 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.55784 | -3.2937 | -3.87553 | -4.39047 | -4.31032 | -4.28864 | -4.35231 | -4.8052 | -4.83545 | -4.96117 | -5.21554 | -5.36694 |
| Apr | -2.38935 | -3.2246 | -3.69276 | -4.17188 | -4.17572 | -4.16716 | -4.23862 | -4.51263 | -4.57197 | -4.57671 | -4.92344 | -5.02381 |
| May | -1.94917 | -3.26736 | -3.73034 | -4.15825 | -4.19305 | -4.18515 | -4.23278 | -4.46493 | -4.48767 | -4.51863 | -4.92412 | -5.0207 |
| Jun | -2.65134 | -3.25389 | -3.73497 | -4.13398 | -4.17085 | -4.15916 | -4.18451 | -4.32253 | -4.37405 | -4.45872 | -4.91617 | -5.04829 |
| Jul | -2.4304 | -3.28183 | -3.74699 | -4.09933 | -4.11849 | -4.00028 | -4.02901 | -4.24905 | -4.3007 | -4.30086 | -4.65863 | -4.85493 |
| Aug | -2.53646 | -3.30977 | -3.76819 | -4.17933 | -4.069 | -4.00581 | -4.07126 | -4.18789 | -4.27629 | -4.31096 | -4.65568 | -4.76614 |
| Sep | -2.53893 | -3.37564 | -3.79856 | -4.21471 | -4.11328 | -4.10084 | -4.13747 | -4.2892 | -4.41195 | -4.37792 | -4.73652 | -4.86248 |
| Oct | -2.68309 | -3.42585 | -3.9009 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.18458 |
| Nov | -3.16696 | -3.73637 | -4.14903 | -4.45656 | -4.53 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.4941 | -4.20167 | -4.55158 | -5.00726 | -5.09442 | -5.21228 | -5.35895 | -5.51776 | -5.67576 | -5.82184 | -6.23247 | -6.35366 |
| Jan | -3.55218 | -3.79104 | -4.40522 | -4.92468 | -5.03588 | -5.15098 | -5.28191 | -5.42591 | -5.58503 | -5.76369 | -6.0956 | -6.2512 |
| Feb | -3.1876 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.55784 | -3.2937 | -3.87553 | -4.39047 | -4.31032 | -4.28864 | -4.35231 | -4.8052 | -4.83545 | -4.96117 | -5.21554 | -5.36694 |
| Apr | -2.38935 | -3.2246 | -3.69276 | -4.17188 | -4.17572 | -4.16716 | -4.23862 | -4.51263 | -4.57197 | -4.57671 | -4.92344 | -5.02381 |
| May | -1.94917 | -3.26736 | -3.73034 | -4.15825 | -4.19305 | -4.18515 | -4.23278 | -4.46493 | -4.48767 | -4.51863 | -4.92412 | -5.0207 |
| Jun | -2.65134 | -3.25389 | -3.73497 | -4.13398 | -4.17085 | -4.15916 | -4.18451 | -4.32253 | -4.37405 | -4.45872 | -4.91617 | -5.04829 |
| Jul | -2.4304 | -3.28183 | -3.74699 | -4.09933 | -4.11849 | -4.00028 | -4.02901 | -4.24905 | -4.3007 | -4.30086 | -4.65863 | -4.85493 |
| Aug | -2.53646 | -3.30977 | -3.76819 | -4.17933 | -4.069 | -4.00581 | -4.07126 | -4.18789 | -4.27629 | -4.31096 | -4.65568 | -4.76614 |
| Sep | -2.53893 | -3.37564 | -3.79856 | -4.21471 | -4.11328 | -4.10084 | -4.13747 | -4.2892 | -4.41195 | -4.37792 | -4.73652 | -4.86248 |
| Oct | -2.68309 | -3.42585 | -3.9009 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.18458 |
| Nov | -3.16696 | -3.73637 | -4.14903 | -4.45656 | -4.53 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.4941 | -4.20167 | -4.55158 | -5.00726 | -5.09442 | -5.21228 | -5.35895 | -5.51776 | -5.67576 | -5.82184 | -6.23247 | -6.35366 |
| Jan | -3.55218 | -3.79104 | -4.40522 | -4.92468 | -5.03588 | -5.15098 | -5.28191 | -5.42591 | -5.58503 | -5.76369 | -6.0956 | -6.2512 |
| Feb | -3.1876 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.55784 | -3.2937 | -3.87553 | -4.39047 | -4.31032 | -4.28864 | -4.35231 | -4.8052 | -4.83545 | -4.96117 | -5.21554 | -5.36694 |
| Apr | -2.38935 | -3.2246 | -3.69276 | -4.17188 | -4.17572 | -4.16716 | -4.23862 | -4.51263 | -4.57197 | -4.57671 | -4.92344 | -5.02381 |
| May | -1.94917 | -3.26736 | -3.73034 | -4.15825 | -4.19305 | -4.18515 | -4.23278 | -4.46493 | -4.48767 | -4.51863 | -4.92412 | -5.0207 |
| Jun | -2.65134 | -3.25389 | -3.73497 | -4.13398 | -4.17085 | -4.15916 | -4.18451 | -4.32253 | -4.37405 | -4.45872 | -4.91617 | -5.04829 |
| Jul | -2.4304 | -3.28183 | -3.74699 | -4.09933 | -4.11849 | -4.00028 | -4.02901 | -4.24905 | -4.3007 | -4.30086 | -4.65863 | -4.85493 |
| Aug | -2.53646 | -3.30977 | -3.76819 | -4.17933 | -4.069 | -4.00581 | -4.07126 | -4.18789 | -4.27629 | -4.31096 | -4.65568 | -4.76614 |
| Sep | -2.53893 | -3.37564 | -3.79856 | -4.21471 | -4.11328 | -4.10084 | -4.13747 | -4.2892 | -4.41195 | -4.37792 | -4.73652 | -4.86248 |
| Oct | -2.68309 | -3.42585 | -3.9009 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.18458 |
| Nov | -3.16696 | -3.73637 | -4.14903 | -4.45656 | -4.53 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.4941 | -4.20167 | -4.55158 | -5.00726 | -5.09442 | -5.21228 | -5.35895 | -5.51776 | -5.67576 | -5.82184 | -6.23247 | -6.35366 |
| Jan | -3.55218 | -3.79104 | -4.40522 | -4.92468 | -5.03588 | -5.15098 | -5.28191 | -5.42591 | -5.58503 | -5.76369 | -6.0956 | -6.2512 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Feb | -3.1876 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.55784 | -3.2937 | -3.87553 | -4.39047 | -4.31032 | -4.28864 | -4.35231 | -4.8052 | -4.83545 | -4.96117 | -5.21554 | -5.36694 |
| Apr | -2.38935 | -3.2246 | -3.69276 | -4.17188 | -4.17572 | -4.16716 | -4.23862 | -4.51263 | -4.57197 | -4.57671 | -4.92344 | -5.02381 |
| May | -1.94917 | -3.26736 | -3.73034 | -4.15825 | -4.19305 | -4.18515 | -4.23278 | -4.46493 | -4.48767 | -4.51863 | -4.92412 | -5.0207 |
| Jun | -2.65134 | -3.25389 | -3.73497 | -4.13398 | -4.17085 | -4.15916 | -4.18451 | -4.32253 | -4.37405 | -4.45872 | -4.91617 | -5.04829 |
| Jul | -2.4304 | -3.28183 | -3.74699 | -4.09933 | -4.11849 | -4.00028 | -4.02901 | -4.24905 | -4.3007 | -4.30086 | -4.65863 | -4.85493 |
| Aug | -2.53646 | -3.30977 | -3.76819 | -4.17933 | -4.069 | -4.00581 | -4.07126 | -4.18789 | -4.27629 | -4.31096 | -4.65568 | -4.76614 |
| Sep | -2.53893 | -3.37564 | -3.79856 | -4.21471 | -4.11328 | -4.10084 | -4.13747 | -4.2892 | -4.41195 | -4.37792 | -4.73652 | -4.86248 |
| Oct | -2.68309 | -3.42585 | -3.9009 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.18458 |
| Nov | -3.16696 | -3.73637 | -4.14903 | -4.45656 | -4.53 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.4941 | -4.20167 | -4.55158 | -5.00726 | -5.09442 | -5.21228 | -5.35895 | -5.51776 | -5.67576 | -5.82184 | -6.23247 | -6.35366 |
| Jan | -3.55218 | -3.79104 | -4.40522 | -4.92468 | -5.03588 | -5.15098 | -5.28191 | -5.42591 | -5.58503 | -5.76369 | -6.0956 | -6.2512 |
| Feb | -3.1876 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.55784 | -3.2937 | -3.87553 | -4.39047 | -4.31032 | -4.28864 | -4.35231 | -4.8052 | -4.83545 | -4.96117 | -5.21554 | -5.36694 |
| Apr | -2.38935 | -3.2246 | -3.69276 | -4.17188 | -4.17572 | -4.16716 | -4.23862 | -4.51263 | -4.57197 | -4.57671 | -4.92344 | -5.02381 |
| May | -1.94917 | -3.26736 | -3.73034 | -4.15825 | -4.19305 | -4.18515 | -4.23278 | -4.46493 | -4.48767 | -4.51863 | -4.92412 | -5.0207 |
| Jun | -2.65134 | -3.25389 | -3.73497 | -4.13398 | -4.17085 | -4.15916 | -4.18451 | -4.32253 | -4.37405 | -4.45872 | -4.91617 | -5.04829 |
| Jul | -2.4304 | -3.28183 | -3.74699 | -4.09933 | -4.11849 | -4.00028 | -4.02901 | -4.24905 | -4.3007 | -4.30086 | -4.65863 | -4.85493 |
| Aug | -2.53646 | -3.30977 | -3.76819 | -4.17933 | -4.069 | -4.00581 | -4.07126 | -4.18789 | -4.27629 | -4.31096 | -4.65568 | -4.76614 |
| Sep | -2.53893 | -3.37564 | -3.79856 | -4.21471 | -4.11328 | -4.10084 | -4.13747 | -4.2892 | -4.41195 | -4.37792 | -4.73652 | -4.86248 |
| Oct | -2.68309 | -3.42585 | -3.9009 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.18458 |
| Nov | -3.16696 | -3.75108 | -4.14903 | -4.45656 | -4.53 | -4.58828 | -4.70314 | -4.94452 | -5.03424 | -5.13485 | -5.5153 | -5.6856 |
| Dec | -3.4941 | -4.20167 | -4.55158 | -5.00726 | -5.09442 | -5.21228 | -5.35895 | -5.51776 | -5.67576 | -5.82184 | -6.23247 | -6.35366 |
| Jan | -3.55218 | -3.79104 | -4.40522 | -4.92468 | -5.03588 | -5.15098 | -5.28191 | -5.42591 | -5.58503 | -5.76369 | -6.0956 | -6.2512 |
| Feb | -2.79201 | -3.771 | -4.0161 | -4.54731 | -4.67268 | -4.68629 | -4.78687 | -4.91075 | -5.04122 | -5.09639 | -5.38795 | -5.54806 |
| Mar | -2.55784 | -3.29369 | -3.87553 | -4.42042 | -4.21694 | -4.19687 | -4.35231 | -4.72727 | -4.91363 | -5.03983 | -5.29658 | -5.36694 |
| Apr | -2.38935 | -3.2246 | -3.69276 | -4.17188 | -4.17572 | -4.16716 | -4.21678 | -4.51263 | -4.57197 | -4.57671 | -4.92344 | -5.02381 |
| May | -1.94917 | -3.26736 | -3.73034 | -4.15825 | -4.19305 | -4.18515 | -4.23278 | -4.46493 | -4.48767 | -4.51863 | -4.92412 | -5.0207 |
| Jun | -2.65134 | -3.25382 | -3.73497 | -4.13398 | -4.17085 | -4.15916 | -4.18451 | -4.32253 | -4.37405 | -4.45872 | -4.91617 | -5.04829 |
| Jul | -2.4304 | -3.28183 | -3.74694 | -4.09933 | -4.11849 | -4.00028 | -4.11635 | -4.24905 | -4.3007 | -4.30086 | -4.74434 | -4.85493 |
| Aug | -2.53646 | -3.30985 | -3.76819 | -4.17933 | -4.069 | -4.00581 | -4.07126 | -4.18789 | -4.27629 | -4.31096 | -4.65568 | -4.76614 |
| Sep | -2.53893 | -3.37564 | -3.79856 | -4.21471 | -4.11328 | -4.10084 | -4.13747 | -4.2892 | -4.41195 | -4.37792 | -4.73652 | -4.86248 |
| Oct | -2.64878 | -3.46359 | -3.9009 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.48198 | -4.64727 | -4.65727 | -5.11871 | -5.18458 |
| Nov | -2.97304 | -3.73637 | -4.19196 | -4.45656 | -4.53 | -4.60806 | -4.70314 | -4.88786 | -4.99786 | -5.13485 | -5.55074 | -5.65059 |
| Dec | -3.4941 | -4.20167 | -4.55158 | -5.00726 | -5.09442 | -4.75203 | -4.88928 | -5.51776 | -5.67576 | -5.82184 | -6.23247 | -6.35366 |
| Jan | -3.55218 | -3.67465 | -4.40522 | -4.92468 | -5.03588 | -5.15098 | -5.28191 | -5.42591 | -4.97656 | -5.76369 | -6.0956 | -6.2512 |
| Feb | -2.79201 | -3.44195 | -4.15392 | -4.6714 | -4.6738 | -4.66683 | -4.78687 | -4.94317 | -5.00602 | -5.09639 | -5.42785 | -5.52662 |
| Mar | -2.55784 | -3.38921 | -3.95637 | -4.44055 | -4.2508 | -4.23401 | -4.27981 | -4.72727 | -4.83545 | -4.98212 | -5.21554 | -5.36694 |
| Apr | -2.38935 | -3.2246 | -3.69276 | -4.1492 | -4.17572 | -4.16716 | -4.21678 | -4.51263 | -4.57197 | -4.57671 | -4.92344 | -5.02381 |
| May | -1.94917 | -3.26736 | -3.73034 | -4.15825 | -4.19305 | -4.18515 | -4.23278 | -4.46493 | -4.48767 | -4.51863 | -4.92412 | -5.0207 |
| Jun | -2.65134 | -3.25379 | -3.73497 | -4.13398 | -4.04266 | -4.15916 | -4.18451 | -4.32253 | -4.37405 | -4.45872 | -4.81914 | -5.04829 |
| Jul | -2.4304 | -3.28183 | -3.74692 | -4.09933 | -4.11849 | -4.08107 | -4.11635 | -4.24905 | -4.3007 | -4.35934 | -4.74434 | -4.85493 |
| Aug | -2.53646 | -3.30987 | -3.76819 | -4.17933 | -4.069 | -4.00581 | -4.07126 | -4.18789 | -4.27629 | -4.31096 | -4.65568 | -4.76614 |
| Sep | -2.53893 | -3.35256 | -3.79856 | -4.21471 | -4.11328 | -4.10084 | -4.13747 | -4.2892 | -4.41195 | -4.37792 | -4.73652 | -4.86248 |
| Oct | -2.60615 | -3.42585 | -3.9009 | -4.12355 | -4.26618 | -4.25074 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.18458 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.84016 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.03424 | -5.13485 | -5.53673 | -5.6856 |
| Dec | -3.4941 | -4.1373 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.25995 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.43073 | -4.17644 | -4.6181 | -4.66318 | -4.71722 | -4.84121 | -4.8664 | -5.05363 | -5.12615 | -5.35852 | -5.55431 |
| Feb | -2.86479 | -3.46016 | -4.10851 | -4.64752 | -4.6926 | -4.68629 | -4.807 | -4.91075 | -5.04122 | -5.09639 | -5.38795 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.51848 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.30642 | -3.74904 | -4.11837 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.98737 |
| Jul | -2.47005 | -3.33491 | -3.76116 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Aug | -2.57791 | -3.3634 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.0708 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11421 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.04889 | -3.8252 | -4.28735 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.88786 | -4.99786 | -5.13485 | -5.55074 | -5.65059 |
| Dec | -3.37143 | -3.99142 | -4.49782 | -4.66129 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.03424 | -5.1778 | -5.59244 | -5.6948 |
| Jan | -3.15836 | -3.76087 | -4.17644 | -4.70781 | -4.69347 | -4.70232 | -4.84121 | -4.95791 | -4.97656 | -5.06369 | -5.44327 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.6714 | -4.6738 | -4.68674 | -4.807 | -4.94317 | -5.00602 | -5.09639 | -5.42785 | -5.54806 |
| Mar | -2.62665 | -3.47216 | -4.04777 | -4.53895 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.08171 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3064 | -3.74904 | -4.11834 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76114 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36343 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.07083 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.40684 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11423 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |

| Month | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.8252 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.02613 | -5.13485 | -5.54823 | -5.6856 |
| Dec | -3.57532 | -4.22503 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.31664 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.56132 | -4.17644 | -4.62732 | -4.69347 | -4.72293 | -4.76265 | -4.89736 | -5.05617 | -5.11483 | -5.36511 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.67167 | -4.6926 | -4.74564 | -4.807 | -4.94171 | -5.04122 | -5.09639 | -5.40946 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.48803 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.54459 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3065 | -3.74904 | -4.11844 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76122 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36333 | -3.78268 | -4.19786 | -4.04108 | -3.99167 | -4.07072 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.08449 | -4.05913 | -4.11413 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.72702 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.2461 | -3.84016 | -4.24369 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.96493 | -5.03424 | -5.13485 | -5.53673 | -5.6856 |
| Dec | -3.4941 | -4.1373 | -4.49782 | -4.68842 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.08548 | -5.25995 | -5.59244 | -5.72981 |
| Jan | -3.23621 | -3.43073 | -4.17644 | -4.6181 | -4.66318 | -4.71722 | -4.84121 | -4.8664 | -5.05363 | -5.12615 | -5.35852 | -5.55431 |
| Feb | -2.86479 | -3.46016 | -4.10851 | -4.64752 | -4.6926 | -4.68629 | -4.807 | -4.91075 | -5.04122 | -5.09639 | -5.38795 | -5.54806 |
| Mar | -2.62665 | -3.37501 | -3.96556 | -4.51848 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.06041 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.30642 | -3.74904 | -4.11837 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.98737 |
| Jul | -2.47005 | -3.33491 | -3.76116 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.3634 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.0708 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.43031 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11421 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |
| Nov | -3.04889 | -3.8252 | -4.28735 | -4.4761 | -4.54967 | -4.60806 | -4.70314 | -4.88786 | -4.99786 | -5.13485 | -5.55074 | -5.65059 |
| Dec | -3.37143 | -3.99142 | -4.49782 | -4.66129 | -4.74045 | -4.7721 | -4.90959 | -5.03749 | -5.03424 | -5.1778 | -5.59244 | -5.6948 |
| Jan | -3.15836 | -3.76087 | -4.17644 | -4.70781 | -4.69347 | -4.70232 | -4.84121 | -4.95791 | -4.97656 | -5.06369 | -5.44327 | -5.55431 |
| Feb | -2.86479 | -3.52578 | -4.15392 | -4.6714 | -4.6738 | -4.68674 | -4.807 | -4.94317 | -5.00602 | -5.09639 | -5.42785 | -5.54806 |
| Mar | -2.62665 | -3.47216 | -4.04777 | -4.53895 | -4.31032 | -4.28864 | -4.35231 | -4.82536 | -4.93399 | -5.08171 | -5.31761 | -5.47006 |
| Apr | -2.45531 | -3.30476 | -3.7797 | -4.24267 | -4.23642 | -4.25842 | -4.30758 | -4.60709 | -4.66604 | -4.66944 | -5.02057 | -5.12111 |
| May | -1.98067 | -3.3202 | -3.74436 | -4.17652 | -4.14548 | -4.13108 | -4.17113 | -4.48245 | -4.50424 | -4.53432 | -4.94354 | -5.03998 |
| Jun | -2.69473 | -3.3064 | -3.74904 | -4.11834 | -4.0584 | -4.03965 | -4.05788 | -4.33827 | -4.38921 | -4.40827 | -4.83726 | -4.9364 |
| Jul | -2.47005 | -3.33491 | -3.76114 | -4.14686 | -4.01266 | -4.01438 | -4.04231 | -4.26388 | -4.31495 | -4.31385 | -4.67476 | -4.74687 |
| Aug | -2.57791 | -3.36343 | -3.78268 | -4.19786 | -4.03496 | -3.99167 | -4.07083 | -4.24965 | -4.33832 | -4.31376 | -4.63624 | -4.70424 |
| Sep | -2.58042 | -3.40684 | -3.82609 | -4.23368 | -4.07837 | -4.05913 | -4.11423 | -4.30453 | -4.42758 | -4.39187 | -4.75361 | -4.82297 |
| Oct | -2.64878 | -3.48137 | -3.91945 | -4.12355 | -4.26618 | -4.284 | -4.29977 | -4.54873 | -4.64727 | -4.65727 | -5.11871 | -5.20542 |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.74645 | -5.74171 | -5.96102 | -6.17538 | -6.29316 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.11663 | -5.1249 | -5.51163 | -5.67751 | -5.72003 | -5.60267 | -5.64501 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99349 | -5.04414 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.43107 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.23172 | -5.24617 | -5.61045 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.71944 | -5.74139 | -5.96102 | -6.16045 | -6.27837 | -6.2502 | -6.38832 | -6.05412 | -6.10581 | |
| Dec | -5.76379 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.77634 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.16841 | -5.1249 | -5.56518 | -5.7318 | -5.72003 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.48829 | -5.49336 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99347 | -5.03714 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.21793 | -5.22526 | -5.61045 | -5.98055 | -5.75793 | -5.72697 | -5.85954 | -5.78556 | -5.64003 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.74645 | -5.74171 | -5.96102 | -6.17538 | -6.29316 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.11663 | -5.1249 | -5.51163 | -5.67751 | -5.72003 | -5.60267 | -5.64501 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99349 | -5.04414 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.43107 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.23172 | -5.24617 | -5.61045 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.71944 | -5.74139 | -5.96102 | -6.16045 | -6.27837 | -6.2502 | -6.38832 | -6.05412 | -6.10581 | |
| Dec | -5.76379 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.77634 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.16841 | -5.1249 | -5.56518 | -5.7318 | -5.72003 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.48829 | -5.49336 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99347 | -5.03714 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.21793 | -5.22526 | -5.61045 | -5.98055 | -5.75793 | -5.72697 | -5.85954 | -5.78556 | -5.64003 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Nov | -5.74645 | -5.74171 | -5.96102 | -6.17538 | -6.29316 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.11663 | -5.1249 | -5.51163 | -5.67751 | -5.72003 | -5.60267 | -5.64501 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99349 | -5.04414 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.43107 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.23172 | -5.24617 | -5.61045 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.71944 | -5.74139 | -5.96102 | -6.16045 | -6.27837 | -6.2502 | -6.38832 | -6.05412 | -6.10581 | |
| Dec | -5.76379 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.77634 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.16841 | -5.1249 | -5.56518 | -5.7318 | -5.72003 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.48829 | -5.49336 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99347 | -5.03714 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.21793 | -5.22526 | -5.61045 | -5.98055 | -5.75793 | -5.72697 | -5.85954 | -5.78556 | -5.64003 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.74645 | -5.74171 | -5.96102 | -6.17538 | -6.29316 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.11663 | -5.1249 | -5.51163 | -5.67751 | -5.72003 | -5.60267 | -5.64501 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99349 | -5.04414 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.43107 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.23172 | -5.24617 | -5.61045 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.71944 | -5.74139 | -5.96102 | -6.16045 | -6.27837 | -6.2502 | -6.38832 | -6.05412 | -6.10581 | |
| Dec | -5.76379 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.77634 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.16841 | -5.1249 | -5.56518 | -5.7318 | -5.72003 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.48829 | -5.49336 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99347 | -5.03714 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.21793 | -5.22526 | -5.61045 | -5.98055 | -5.75793 | -5.72697 | -5.85954 | -5.78556 | -5.64003 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.74645 | -5.74171 | -5.96102 | -6.17538 | -6.29316 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.11663 | -5.1249 | -5.51163 | -5.67751 | -5.72003 | -5.60267 | -5.64501 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99349 | -5.04414 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.43107 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.23172 | -5.24617 | -5.61045 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.71944 | -5.74139 | -5.96102 | -6.16045 | -6.27837 | -6.2502 | -6.38832 | -6.05412 | -6.10581 | |
| Dec | -5.76379 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.77634 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.16841 | -5.1249 | -5.56518 | -5.7318 | -5.72003 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.48829 | -5.49336 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99347 | -5.03714 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.21793 | -5.22526 | -5.61045 | -5.98055 | -5.75793 | -5.72697 | -5.85954 | -5.78556 | -5.64003 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.74645 | -5.74171 | -5.96102 | -6.17538 | -6.29316 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.11663 | -5.1249 | -5.51163 | -5.67751 | -5.72003 | -5.60267 | -5.64501 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99349 | -5.04414 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.43107 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.23172 | -5.24617 | -5.61045 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.71944 | -5.74139 | -5.96102 | -6.16045 | -6.27837 | -6.2502 | -6.38832 | -6.05412 | -6.10581 | |
| Dec | -5.76379 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -500 | -6.11232 | -500 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.16841 | -5.1249 | -5.56518 | -5.7318 | -5.72003 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.48829 | -5.49336 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99347 | -5.03714 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.21793 | -5.22526 | -5.61045 | -5.98055 | -5.75793 | -5.72697 | -5.85954 | -5.78556 | -5.64003 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.74645 | -5.74171 | -5.96102 | -6.17538 | -6.29316 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| May | -5.11663 | -5.1249 | -5.51163 | -5.67751 | -5.72003 | -5.60267 | -5.64501 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99349 | -5.04414 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.43107 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.23172 | -5.24617 | -5.61045 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.71944 | -5.74139 | -5.96102 | -6.16045 | -6.27837 | -6.2502 | -6.38832 | -6.05412 | -6.10581 | |
| Dec | -5.76379 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.77634 | -6.11232 | -500 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.16841 | -5.1249 | -5.56518 | -5.7318 | -5.72003 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.48829 | -5.49336 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99347 | -5.03714 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.21793 | -5.22526 | -5.61045 | -5.98055 | -5.75793 | -5.72697 | -5.85954 | -5.78556 | -5.64003 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.97023 | |
| Dec | -6.46836 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -6.32135 | -6.28573 | -6.42071 | -6.60285 | -6.69434 | -6.70389 | -6.74227 | -6.77634 | -7.03009 | -7.19249 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.61178 | -6.72865 | -6.71658 | -6.96801 | -7.12892 |
| Mar | -5.44988 | -5.33284 | -5.6309 | -5.88645 | -5.91173 | -5.75604 | -5.90325 | -5.59579 | -5.65154 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.47046 | -5.69367 | -5.74038 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.22875 | -5.25327 | -5.55373 | -5.77355 | -5.85126 | -5.82919 | -6.01356 | -5.6946 | -5.75274 | |
| Jun | -5.13698 | -5.20585 | -5.48534 | -5.705 | -5.74859 | -5.7625 | -5.92172 | -5.60996 | -5.66725 | |
| Jul | -4.99217 | -4.85859 | -5.2247 | -5.41 | -5.49952 | -5.5193 | -5.71702 | -5.10894 | -5.52715 | |
| Aug | -4.87476 | -4.86303 | -5.12783 | -5.35409 | -5.3608 | -5.32459 | -5.55325 | -5.28765 | -5.34172 | |
| Sep | -5.0246 | -4.94833 | -5.24423 | -5.47762 | -5.50523 | -5.43096 | -5.69326 | -5.36207 | -5.41689 | |
| Oct | -5.23591 | -5.49015 | -5.66962 | -5.95834 | -6.08652 | -5.94299 | -6.12818 | -5.76369 | -5.82113 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.97023 | |
| Dec | -6.46836 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -6.32135 | -6.28573 | -6.42071 | -6.60285 | -6.69434 | -6.70389 | -6.74227 | -6.77634 | -7.03009 | -7.19249 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.61178 | -6.72865 | -6.71658 | -6.96801 | -7.12892 |
| Mar | -5.44988 | -5.33284 | -5.6309 | -5.88645 | -5.91173 | -5.75604 | -5.90325 | -5.59579 | -5.65154 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.47046 | -5.69367 | -5.74038 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.22875 | -5.25327 | -5.55373 | -5.77355 | -5.85126 | -5.82919 | -6.01356 | -5.6946 | -5.75274 | |
| Jun | -5.13698 | -5.20585 | -5.48534 | -5.705 | -5.74859 | -5.7625 | -5.92172 | -5.60996 | -5.66725 | |
| Jul | -4.99217 | -4.85859 | -5.2247 | -5.41 | -5.49952 | -5.5193 | -5.71702 | -5.10894 | -5.52715 | |
| Aug | -4.87476 | -4.86303 | -5.12783 | -5.35409 | -5.3608 | -5.32459 | -5.55325 | -5.28765 | -5.34172 | |
| Sep | -5.0246 | -4.94833 | -5.24423 | -5.47762 | -5.50523 | -5.43096 | -5.69326 | -5.36207 | -5.41689 | |
| Oct | -5.23591 | -5.49015 | -5.66962 | -5.95834 | -6.08652 | -5.94299 | -6.12818 | -5.76369 | -5.82113 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.97023 | |
| Dec | -6.46836 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -6.32135 | -6.28573 | -6.42071 | -6.60285 | -6.69434 | -6.70389 | -6.74227 | -6.77634 | -7.03009 | -7.19249 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.61178 | -6.72865 | -6.71658 | -6.96801 | -7.12892 |
| Mar | -5.44988 | -5.33284 | -5.6309 | -5.88645 | -5.91173 | -5.75604 | -5.90325 | -5.59579 | -5.65154 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.47046 | -5.69367 | -5.74038 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.22875 | -5.25327 | -5.55373 | -5.77355 | -5.85126 | -5.82919 | -6.01356 | -5.6946 | -5.75274 | |
| Jun | -5.13698 | -5.20585 | -5.48534 | -5.705 | -5.74859 | -5.7625 | -5.92172 | -5.60996 | -5.66725 | |
| Jul | -4.99217 | -4.85859 | -5.2247 | -5.41 | -5.49952 | -5.5193 | -5.71702 | -5.10894 | -5.52715 | |
| Aug | -4.87476 | -4.86303 | -5.12783 | -5.35409 | -5.3608 | -5.32459 | -5.55325 | -5.28765 | -5.34172 | |
| Sep | -5.0246 | -4.94833 | -5.24423 | -5.47762 | -5.50523 | -5.43096 | -5.69326 | -5.36207 | -5.41689 | |
| Oct | -5.23591 | -5.49015 | -5.66962 | -5.95834 | -6.08652 | -5.94299 | -6.12818 | -5.76369 | -5.82113 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.97023 | |
| Dec | -6.46836 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -6.32135 | -6.28573 | -6.42071 | -6.60285 | -6.69434 | -6.70389 | -6.74227 | -6.77634 | -7.03009 | -7.19249 |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.61178 | -6.72865 | -6.71658 | -6.96801 | -7.12892 |
| Mar | -5.44988 | -5.33284 | -5.6309 | -5.88645 | -5.91173 | -5.75604 | -5.90325 | -5.59579 | -5.65154 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.47046 | -5.69367 | -5.74038 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.22875 | -5.25327 | -5.55373 | -5.77355 | -5.85126 | -5.82919 | -6.01356 | -5.6946 | -5.75274 | |
| Jun | -5.13698 | -5.20585 | -5.48534 | -5.705 | -5.74859 | -5.7625 | -5.92172 | -5.60996 | -5.66725 | |
| Jul | -4.99217 | -4.85859 | -5.2247 | -5.41 | -5.49952 | -5.5193 | -5.71702 | -5.10894 | -5.52715 | |
| Aug | -4.87476 | -4.86303 | -5.12783 | -5.35409 | -5.3608 | -5.32459 | -5.55325 | -5.28765 | -5.34172 | |
| Sep | -5.0246 | -4.94833 | -5.24423 | -5.47762 | -5.50523 | -5.43096 | -5.69326 | -5.36207 | -5.41689 | |
| Oct | -5.23591 | -5.49015 | -5.66962 | -5.95834 | -6.08652 | -5.94299 | -6.12818 | -5.76369 | -5.82113 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.97023 | |
| Dec | -6.46836 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -6.32135 | -6.28573 | -6.42071 | -6.60285 | -6.69434 | -6.70389 | -6.74227 | -6.77634 | -7.03009 | -7.19249 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.61178 | -6.72865 | -6.71658 | -6.96801 | -7.12892 |
| Mar | -5.44988 | -5.33284 | -5.6309 | -5.88645 | -5.91173 | -5.75604 | -5.90325 | -5.59579 | -5.65154 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.47046 | -5.69367 | -5.74038 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.22875 | -5.25327 | -5.55373 | -5.77355 | -5.85126 | -5.82919 | -6.01356 | -5.6946 | -5.75274 | |
| Jun | -5.13698 | -5.20585 | -5.48534 | -5.705 | -5.74859 | -5.7625 | -5.92172 | -5.60996 | -5.66725 | |
| Jul | -4.99217 | -4.85859 | -5.2247 | -5.41 | -5.49952 | -5.5193 | -5.71702 | -5.10894 | -5.52715 | |
| Aug | -4.87476 | -4.86303 | -5.12783 | -5.35409 | -5.3608 | -5.32459 | -5.55325 | -5.28765 | -5.34172 | |
| Sep | -5.0246 | -4.94833 | -5.24423 | -5.47762 | -5.50523 | -5.43096 | -5.69326 | -5.36207 | -5.41689 | |
| Oct | -5.23591 | -5.49015 | -5.66962 | -5.95834 | -6.08652 | -5.94299 | -6.12818 | -5.76369 | -5.82113 | |
| Nov | -5.74645 | -5.74171 | -5.96102 | -6.17538 | -6.29316 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -6.46836 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | -500 | |
| Jan | -6.32135 | -6.28573 | -6.42071 | -6.60285 | -6.69434 | -6.70389 | -6.74227 | -6.77634 | -7.03009 | -7.19249 |
| Feb | -5.59933 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.61178 | -6.72865 | -6.71658 | -6.96801 | -7.12892 |
| Mar | -5.44988 | -5.25588 | -5.55112 | -5.80455 | -5.83118 | -5.67959 | -5.82645 | -5.52546 | -5.58233 | -5.63981 |
| Apr | -5.18283 | -5.19549 | -5.47046 | -5.69367 | -5.74038 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.22875 | -5.25327 | -5.55373 | -5.77355 | -5.85126 | -5.82919 | -6.01356 | -5.6946 | -5.75274 | |
| Jun | -5.13698 | -5.20585 | -5.48534 | -5.705 | -5.74859 | -5.7625 | -5.92172 | -5.60996 | -5.66725 | |
| Jul | -4.99217 | -4.85859 | -5.2247 | -5.41 | -5.49952 | -5.5193 | -5.71702 | -5.10894 | -5.52715 | |
| Aug | -4.87476 | -4.86303 | -5.12783 | -5.35409 | -5.3608 | -5.32459 | -5.55325 | -5.28765 | -5.34172 | |
| Sep | -4.88981 | -4.81548 | -5.21884 | -5.4127 | -5.3524 | -5.19846 | -5.28376 | -4.95769 | -5.00922 | |
| Oct | -5.23172 | -5.22526 | -5.58889 | -5.95834 | -6.08652 | -5.94299 | -6.12818 | -5.76369 | -5.82113 | |
| Nov | -5.71944 | -5.74139 | -5.96102 | -6.16045 | -6.27837 | -6.2502 | -6.38832 | -6.05412 | -6.10581 | |
| Dec | -6.46836 | -6.44051 | -6.63732 | -6.78635 | -6.83794 | -500 | -500 | -500 | -500 | |
| Jan | -6.32135 | -5.5637 | -5.75884 | -6.60285 | -6.69434 | -6.70389 | -6.74227 | -6.77634 | -7.03009 | -7.19249 |
| Feb | -5.59933 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.61178 | -6.72865 | -6.02496 | -6.10745 | -6.1682 |
| Mar | -5.3696 | -5.25588 | -5.6309 | -5.88645 | -5.83118 | -5.75604 | -5.82645 | -5.52546 | -5.58233 | -5.70786 |
| Apr | -5.18283 | -5.1515 | -5.46584 | -5.68891 | -5.74038 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.22875 | -5.25327 | -5.55373 | -5.77355 | -5.85126 | -5.82919 | -6.01356 | -5.6946 | -5.75274 | |
| Jun | -5.13698 | -5.20585 | -5.48534 | -5.705 | -5.74859 | -5.47233 | -5.92172 | -5.60996 | -5.66725 | |
| Jul | -4.99217 | -5.03368 | -5.28573 | -5.50346 | -5.49952 | -5.5193 | -5.71702 | -5.47125 | -5.52715 | |
| Aug | -4.87476 | -4.86303 | -5.12783 | -5.35409 | -5.3608 | -5.32459 | -5.55325 | -5.28765 | -5.34172 | |
| Sep | -5.0246 | -4.94833 | -5.24423 | -5.4127 | -5.50523 | -5.43096 | -5.69326 | -5.36207 | -5.41689 | |
| Oct | -5.21793 | -5.22526 | -5.58889 | -5.95834 | -5.84671 | -5.72697 | -5.95086 | -5.76369 | -5.64003 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.74645 | -5.74171 | -5.96102 | -6.17538 | -6.29316 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.11663 | -5.1249 | -5.51163 | -5.67751 | -5.72003 | -5.60267 | -5.64501 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99349 | -5.04414 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.43107 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.23172 | -5.24617 | -5.61045 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.71944 | -5.74139 | -5.96102 | -6.16045 | -6.27837 | -6.2502 | -6.38832 | -6.05412 | -6.10581 | |
| Dec | -5.76379 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.77634 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.16841 | -5.1249 | -5.56518 | -5.7318 | -5.72003 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.48829 | -5.49336 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99347 | -5.03714 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.21793 | -5.22526 | -5.61045 | -5.98055 | -5.75793 | -5.72697 | -5.85954 | -5.78556 | -5.64003 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |

| Month | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.76131 | -5.75625 | -5.97596 | -6.19268 | -6.30641 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -6.03051 | -6.5281 | -6.78635 | -6.83794 | -6.78226 | -7.01192 | -11.8681 | -12.1808 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.19549 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.61464 | -5.67233 | |
| May | -5.16841 | -5.17672 | -5.56518 | -5.7318 | -5.77451 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99355 | -5.0442 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.42137 | -5.26322 | -5.34832 | -5.01501 | -5.06566 | |
| Oct | -5.25684 | -5.51154 | -5.69133 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.74645 | -5.74171 | -5.96102 | -6.17538 | -6.29316 | -6.2502 | -6.38832 | -6.04567 | -6.10581 | |
| Dec | -5.79066 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.05212 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.11663 | -5.1249 | -5.51163 | -5.67751 | -5.72003 | -5.60267 | -5.64501 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.54173 | -5.54683 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99349 | -5.04414 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.43107 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.23172 | -5.24617 | -5.61045 | -5.98055 | -6.10896 | -5.96518 | -6.1507 | -5.78556 | -5.8431 | |
| Nov | -5.71944 | -5.74139 | -5.96102 | -6.16045 | -6.27837 | -6.2502 | -6.38832 | -6.05412 | -6.10581 | |
| Dec | -5.76379 | -5.7856 | -6.00531 | -6.2048 | -6.32258 | -6.30471 | -6.47565 | -6.14039 | -6.20148 | |
| Jan | -5.6293 | -5.5637 | -5.75884 | -5.96394 | -6.10508 | -6.17429 | -6.25229 | -6.77634 | -6.11232 | -6.17313 |
| Feb | -5.62091 | -5.54181 | -5.74344 | -5.96271 | -6.08567 | -6.075 | -6.23525 | -6.04729 | -6.10745 | -6.1682 |
| Mar | -5.4712 | -5.35395 | -5.65253 | -5.90854 | -5.93386 | -5.77789 | -5.92537 | -5.61736 | -5.67321 | -5.72963 |
| Apr | -5.18283 | -5.1515 | -5.5658 | -5.73936 | -5.76221 | -5.68649 | -5.87794 | -5.59307 | -5.65066 | |
| May | -5.16841 | -5.1249 | -5.56518 | -5.7318 | -5.72003 | -5.65662 | -5.65619 | -5.33494 | -5.38878 | |
| Jun | -5.00895 | -5.02404 | -5.40949 | -5.5801 | -5.6167 | -5.48829 | -5.49336 | -5.23256 | -5.28538 | |
| Jul | -4.87666 | -4.87306 | -5.24224 | -5.42833 | -5.40738 | -5.29399 | -5.36382 | -5.11704 | -5.16899 | |
| Aug | -4.8066 | -4.75493 | -5.14193 | -5.33453 | -5.31263 | -5.15839 | -5.26248 | -4.99347 | -5.03714 | |
| Sep | -4.90608 | -4.82942 | -5.23631 | -5.48426 | -5.36846 | -5.21102 | -5.30589 | -5.01501 | -5.06566 | |
| Oct | -5.21793 | -5.22526 | -5.61045 | -5.98055 | -5.75793 | -5.72697 | -5.85954 | -5.78556 | -5.64003 | |

| Data Item | Gas Year | Month | Scenario | Year | AECO-BASIS | NYMEX | ROCKS-BASIS | SUMAS-BASIS |
|-------------------------------|-----------|-------|-----------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2010-2011 | Apr | 2925-2012 | 2011 | 3.831197977 | 4.350568771 | 3.866012573 | 3.922355652 |
| First of Month Value by Index | 2010-2011 | May | 2925-2012 | 2011 | 3.825410843 | 4.379208565 | 3.923680305 | 3.938952446 |
| First of Month Value by Index | 2010-2011 | Jun | 2925-2012 | 2011 | 3.75082016 | 4.163276672 | 3.797887802 | 3.727398872 |
| First of Month Value by Index | 2010-2011 | Jul | 2925-2012 | 2011 | 3.748403072 | 4.212624073 | 3.856935263 | 3.735191107 |
| First of Month Value by Index | 2010-2011 | Aug | 2925-2012 | 2011 | 3.733804226 | 4.242230892 | 3.971725702 | 3.849343061 |
| First of Month Value by Index | 2010-2011 | Sep | 2925-2012 | 2011 | 3.537297726 | 3.81633997 | 3.619769335 | 3.426472902 |
| First of Month Value by Index | 2010-2011 | Oct | 2925-2012 | 2011 | 3.54514432 | 3.805127859 | 3.630125999 | 3.464040756 |
| First of Month Value by Index | 2011-2012 | Nov | 2925-2012 | 2011 | 3.353828907 | 3.62244153 | 3.504607439 | 3.544529676 |
| First of Month Value by Index | 2011-2012 | Dec | 2925-2012 | 2011 | 3.604379654 | 3.908313274 | 3.827168941 | 3.588603497 |
| First of Month Value by Index | 2011-2012 | Jan | 2925-2012 | 2012 | 2.757688522 | 3.142180204 | 2.980582714 | 3.000793457 |
| First of Month Value by Index | 2011-2012 | Feb | 2925-2012 | 2012 | 2.392968178 | 2.777599335 | 2.615315676 | 2.635583162 |
| First of Month Value by Index | 2011-2012 | Mar | 2925-2012 | 2012 | 2.181182384 | 2.559360504 | 2.397196054 | 2.40142107 |
| First of Month Value by Index | 2011-2012 | Apr | 2925-2012 | 2012 | 2.086262941 | 2.478627205 | 2.31294179 | 2.309723854 |
| First of Month Value by Index | 2011-2012 | May | 2925-2012 | 2012 | 1.615568399 | 2.04861784 | 1.873204708 | 1.766229868 |
| First of Month Value by Index | 2011-2012 | Jun | 2925-2012 | 2012 | 2.328546286 | 2.76471138 | 2.548365116 | 2.475901365 |
| First of Month Value by Index | 2011-2012 | Jul | 2925-2012 | 2012 | 2.023294687 | 2.651704788 | 2.32743597 | 2.279784918 |
| First of Month Value by Index | 2011-2012 | Aug | 2925-2012 | 2012 | 2.103797197 | 2.630372524 | 2.433487892 | 2.362634897 |
| First of Month Value by Index | 2011-2012 | Sep | 2925-2012 | 2012 | 2.152415991 | 2.624474287 | 2.435959816 | 2.391951084 |
| First of Month Value by Index | 2011-2012 | Oct | 2925-2012 | 2012 | 2.260253191 | 2.67624402 | 2.503174543 | 2.50011158 |
| First of Month Value by Index | 2012-2013 | Nov | 2925-2012 | 2012 | 2.503943682 | 2.836097956 | 2.72601366 | 3.068146229 |
| First of Month Value by Index | 2012-2013 | Dec | 2925-2012 | 2012 | 2.749675751 | 3.084100723 | 2.975125074 | 3.334240198 |
| First of Month Value by Index | 2012-2013 | Jan | 2925-2012 | 2013 | 3.002773046 | 3.381040096 | 3.272070408 | 3.627745867 |
| First of Month Value by Index | 2012-2013 | Feb | 2925-2012 | 2013 | 2.968179703 | 3.360995531 | 3.252017975 | 3.604261637 |
| First of Month Value by Index | 2012-2013 | Mar | 2925-2012 | 2013 | 2.967437744 | 3.331730843 | 3.21728301 | 3.551901817 |
| First of Month Value by Index | 2012-2013 | Apr | 2925-2012 | 2013 | 2.9342134 | 3.337572336 | 3.148203135 | 3.141601086 |
| First of Month Value by Index | 2012-2013 | May | 2925-2012 | 2013 | 2.926765203 | 3.36351347 | 3.163382053 | 3.143800259 |
| First of Month Value by Index | 2012-2013 | Jun | 2925-2012 | 2013 | 2.928240776 | 3.401548147 | 3.191109896 | 3.158851147 |
| First of Month Value by Index | 2012-2013 | Jul | 2925-2012 | 2013 | 2.959151745 | 3.450706482 | 3.234059095 | 3.197853327 |
| First of Month Value by Index | 2012-2013 | Aug | 2925-2012 | 2013 | 2.962626934 | 3.469274998 | 3.251768112 | 3.219880104 |
| First of Month Value by Index | 2012-2013 | Sep | 2925-2012 | 2013 | 3.005741835 | 3.471016884 | 3.271653652 | 3.240475655 |
| First of Month Value by Index | 2012-2013 | Oct | 2925-2012 | 2013 | 3.070665359 | 3.509763479 | 3.321859598 | 3.288462639 |
| First of Month Value by Index | 2013-2014 | Nov | 2925-2012 | 2013 | 3.259649038 | 3.620465279 | 3.507496119 | 3.753878593 |
| First of Month Value by Index | 2013-2014 | Dec | 2925-2012 | 2013 | 3.421465635 | 3.791671515 | 3.680704355 | 3.973103523 |
| First of Month Value by Index | 2013-2014 | Jan | 2925-2012 | 2014 | 3.601575375 | 3.995215893 | 3.882791281 | 4.173598289 |
| First of Month Value by Index | 2013-2014 | Feb | 2925-2012 | 2014 | 3.579652548 | 3.979028702 | 3.866105318 | 4.154062748 |
| First of Month Value by Index | 2013-2014 | Mar | 2925-2012 | 2014 | 3.47631979 | 3.85756135 | 3.727639198 | 3.980474234 |
| First of Month Value by Index | 2013-2014 | Apr | 2925-2012 | 2014 | 3.434922218 | 3.807386875 | 3.615213394 | 3.584254503 |
| First of Month Value by Index | 2013-2014 | May | 2925-2012 | 2014 | 3.418611526 | 3.836209059 | 3.625336885 | 3.584523439 |
| First of Month Value by Index | 2013-2014 | Jun | 2925-2012 | 2014 | 3.402343035 | 3.860243559 | 3.629963875 | 3.570306301 |
| First of Month Value by Index | 2013-2014 | Jul | 2925-2012 | 2014 | 3.440649748 | 3.893631458 | 3.651690245 | 3.603559494 |
| First of Month Value by Index | 2013-2014 | Aug | 2925-2012 | 2014 | 3.438397169 | 3.906326294 | 3.663190603 | 3.611129045 |
| First of Month Value by Index | 2013-2014 | Sep | 2925-2012 | 2014 | 3.483919382 | 3.89917469 | 3.69355464 | 3.630304575 |
| First of Month Value by Index | 2013-2014 | Oct | 2925-2012 | 2014 | 3.507427216 | 3.950761795 | 3.752630234 | 3.678994417 |
| First of Month Value by Index | 2014-2015 | Nov | 2925-2012 | 2014 | 3.667042255 | 4.016841412 | 3.893992424 | 4.034387112 |
| First of Month Value by Index | 2014-2015 | Dec | 2925-2012 | 2014 | 3.778116941 | 4.141577721 | 4.029254913 | 4.241335869 |
| First of Month Value by Index | 2014-2015 | Jan | 2925-2012 | 2015 | 4.118846416 | 4.514678955 | 4.395442963 | 4.546133041 |
| First of Month Value by Index | 2014-2015 | Feb | 2925-2012 | 2015 | 4.095962524 | 4.498964787 | 4.363846302 | 4.521169186 |
| First of Month Value by Index | 2014-2015 | Mar | 2925-2012 | 2015 | 4.042669296 | 4.409646988 | 4.234882832 | 4.30487442 |
| First of Month Value by Index | 2014-2015 | Apr | 2925-2012 | 2015 | 3.911035538 | 4.344545364 | 4.107178211 | 3.990449667 |
| First of Month Value by Index | 2014-2015 | May | 2925-2012 | 2015 | 3.885993004 | 4.396710873 | 4.113653183 | 3.972180605 |
| First of Month Value by Index | 2014-2015 | Jun | 2925-2012 | 2015 | 3.847230911 | 4.406202316 | 4.075493813 | 3.907845974 |
| First of Month Value by Index | 2014-2015 | Jul | 2925-2012 | 2015 | 3.721598387 | 4.428041458 | 4.07819891 | 3.91326046 |
| First of Month Value by Index | 2014-2015 | Aug | 2925-2012 | 2015 | 3.697620869 | 4.426660538 | 4.073262215 | 4.074744701 |
| First of Month Value by Index | 2014-2015 | Sep | 2925-2012 | 2015 | 3.747869015 | 4.386725903 | 4.108638287 | 4.101218224 |
| First of Month Value by Index | 2014-2015 | Oct | 2925-2012 | 2015 | 3.824978352 | 4.451704502 | 4.198596954 | 3.873318434 |
| First of Month Value by Index | 2015-2016 | Nov | 2925-2012 | 2015 | 4.020983219 | 4.473980904 | 4.299983501 | 4.110771179 |
| First of Month Value by Index | 2015-2016 | Dec | 2925-2012 | 2015 | 4.073563099 | 4.597259998 | 4.387525082 | 4.42875433 |

| Data Item | Gas Year | Month | Scenario | Year | AECO-BASIS | NYMEX | ROCKS-BASIS | SUMAS-BASIS |
|-------------------------------|-----------|-------|-----------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2015-2016 | Jan | 2925-2012 | 2016 | 4.104881763 | 4.625884056 | 4.395433903 | 4.455677986 |
| First of Month Value by Index | 2015-2016 | Feb | 2925-2012 | 2016 | 4.085736752 | 4.611341 | 4.38133049 | 4.432870865 |
| First of Month Value by Index | 2015-2016 | Mar | 2925-2012 | 2016 | 3.99601984 | 4.485545635 | 4.195726871 | 4.056970119 |
| First of Month Value by Index | 2015-2016 | Apr | 2925-2012 | 2016 | 3.913467407 | 4.4570961 | 4.170882225 | 3.98430109 |
| First of Month Value by Index | 2015-2016 | May | 2925-2012 | 2016 | 3.90383029 | 4.506588936 | 4.119205475 | 3.941527367 |
| First of Month Value by Index | 2015-2016 | Jun | 2925-2012 | 2016 | 3.882109165 | 4.533726215 | 4.033590794 | 3.855519533 |
| First of Month Value by Index | 2015-2016 | Jul | 2925-2012 | 2016 | 3.830890656 | 4.552811146 | 3.974145651 | 3.810343027 |
| First of Month Value by Index | 2015-2016 | Aug | 2925-2012 | 2016 | 3.782476902 | 4.529361248 | 3.948166609 | 3.812569857 |
| First of Month Value by Index | 2015-2016 | Sep | 2925-2012 | 2016 | 3.825796127 | 4.481520176 | 4.063348293 | 3.875243425 |
| First of Month Value by Index | 2015-2016 | Oct | 2925-2012 | 2016 | 3.935676575 | 4.539927959 | 4.209954739 | 4.013563156 |
| First of Month Value by Index | 2016-2017 | Nov | 2925-2012 | 2016 | 4.063017368 | 4.598971844 | 4.372327805 | 4.163302422 |
| First of Month Value by Index | 2016-2017 | Dec | 2925-2012 | 2016 | 4.084829807 | 4.684422016 | 4.435679436 | 4.479913235 |
| First of Month Value by Index | 2016-2017 | Jan | 2925-2012 | 2017 | 4.133565426 | 4.74097681 | 4.486254692 | 4.540555954 |
| First of Month Value by Index | 2016-2017 | Feb | 2925-2012 | 2017 | 4.097898006 | 4.732948303 | 4.420610905 | 4.485021591 |
| First of Month Value by Index | 2016-2017 | Mar | 2925-2012 | 2017 | 3.978324413 | 4.509219646 | 4.171331882 | 4.035648346 |
| First of Month Value by Index | 2016-2017 | Apr | 2925-2012 | 2017 | 3.917812824 | 4.586393833 | 4.194879532 | 4.005940437 |
| First of Month Value by Index | 2016-2017 | May | 2925-2012 | 2017 | 3.894874811 | 4.630880833 | 4.127956867 | 3.927304745 |
| First of Month Value by Index | 2016-2017 | Jun | 2925-2012 | 2017 | 3.869449854 | 4.641168118 | 4.068205833 | 3.836995363 |
| First of Month Value by Index | 2016-2017 | Jul | 2925-2012 | 2017 | 3.793055534 | 4.703264713 | 3.992908239 | 3.812036276 |
| First of Month Value by Index | 2016-2017 | Aug | 2925-2012 | 2017 | 3.719431162 | 4.648688793 | 3.931426287 | 3.743639231 |
| First of Month Value by Index | 2016-2017 | Sep | 2925-2012 | 2017 | 3.812395573 | 4.558475494 | 4.084112644 | 3.856238365 |
| First of Month Value by Index | 2016-2017 | Oct | 2925-2012 | 2017 | 3.959044218 | 4.659136295 | 4.259705544 | 4.031088352 |
| First of Month Value by Index | 2017-2018 | Nov | 2925-2012 | 2017 | 4.067443848 | 4.721719265 | 4.429736614 | 4.180709839 |
| First of Month Value by Index | 2017-2018 | Dec | 2925-2012 | 2017 | 4.108402729 | 4.802275181 | 4.479313374 | 4.511039257 |
| First of Month Value by Index | 2017-2018 | Jan | 2925-2012 | 2018 | 4.172230721 | 4.871905327 | 4.54668045 | 4.578998566 |
| First of Month Value by Index | 2017-2018 | Feb | 2925-2012 | 2018 | 4.153287888 | 4.858803272 | 4.524193287 | 4.55697155 |
| First of Month Value by Index | 2017-2018 | Mar | 2925-2012 | 2018 | 4.021819592 | 4.621259689 | 4.301969528 | 4.098254681 |
| First of Month Value by Index | 2017-2018 | Apr | 2925-2012 | 2018 | 3.972238064 | 4.714850903 | 4.326425076 | 4.054279804 |
| First of Month Value by Index | 2017-2018 | May | 2925-2012 | 2018 | 3.940210581 | 4.772003174 | 4.299604893 | 3.966858864 |
| First of Month Value by Index | 2017-2018 | Jun | 2925-2012 | 2018 | 3.892994404 | 4.792856216 | 4.210121632 | 3.85500598 |
| First of Month Value by Index | 2017-2018 | Jul | 2925-2012 | 2018 | 3.826313734 | 4.817089558 | 4.155028343 | 3.839624405 |
| First of Month Value by Index | 2017-2018 | Aug | 2925-2012 | 2018 | 3.782200098 | 4.782123089 | 4.110315323 | 3.823756218 |
| First of Month Value by Index | 2017-2018 | Sep | 2925-2012 | 2018 | 3.846974373 | 4.732638836 | 4.215452194 | 3.909127951 |
| First of Month Value by Index | 2017-2018 | Oct | 2925-2012 | 2018 | 3.979299545 | 4.76274395 | 4.38492918 | 4.04659462 |
| First of Month Value by Index | 2018-2019 | Nov | 2925-2012 | 2018 | 4.136667728 | 4.839093685 | 4.52323246 | 4.247364044 |
| First of Month Value by Index | 2018-2019 | Dec | 2925-2012 | 2018 | 4.190948009 | 4.948949814 | 4.604930401 | 4.646236897 |
| First of Month Value by Index | 2018-2019 | Jan | 2925-2012 | 2019 | 4.248938084 | 5.015906334 | 4.654370308 | 4.693742752 |
| First of Month Value by Index | 2018-2019 | Feb | 2925-2012 | 2019 | 4.230072021 | 5.001440525 | 4.63923502 | 4.679256439 |
| First of Month Value by Index | 2018-2019 | Mar | 2925-2012 | 2019 | 4.233278275 | 4.879197121 | 4.543488503 | 4.602415562 |
| First of Month Value by Index | 2018-2019 | Apr | 2925-2012 | 2019 | 4.060597897 | 4.865117073 | 4.428780079 | 4.473667145 |
| First of Month Value by Index | 2018-2019 | May | 2925-2012 | 2019 | 4.062835693 | 4.911009312 | 4.354351044 | 4.413249016 |
| First of Month Value by Index | 2018-2019 | Jun | 2925-2012 | 2019 | 4.002875328 | 4.93046999 | 4.270041466 | 4.131949902 |
| First of Month Value by Index | 2018-2019 | Jul | 2925-2012 | 2019 | 3.928827763 | 4.964010239 | 4.208016396 | 4.058474064 |
| First of Month Value by Index | 2018-2019 | Aug | 2925-2012 | 2019 | 3.867282152 | 4.920470715 | 4.15305233 | 3.99731493 |
| First of Month Value by Index | 2018-2019 | Sep | 2925-2012 | 2019 | 3.952494621 | 4.857430935 | 4.280786514 | 4.098623276 |
| First of Month Value by Index | 2018-2019 | Oct | 2925-2012 | 2019 | 4.132710457 | 4.890004158 | 4.497162342 | 4.291397572 |
| First of Month Value by Index | 2019-2020 | Nov | 2925-2012 | 2019 | 4.285424709 | 4.993562698 | 4.668971062 | 4.700646877 |
| First of Month Value by Index | 2019-2020 | Dec | 2925-2012 | 2019 | 4.312300682 | 5.107758999 | 4.729196072 | 4.771992207 |
| First of Month Value by Index | 2019-2020 | Jan | 2925-2012 | 2020 | 4.326203823 | 5.175029278 | 4.738899231 | 4.790360928 |
| First of Month Value by Index | 2019-2020 | Feb | 2925-2012 | 2020 | 4.30766964 | 5.116334438 | 4.706081867 | 4.775667191 |
| First of Month Value by Index | 2019-2020 | Mar | 2925-2012 | 2020 | 4.339023113 | 5.025166035 | 4.619687557 | 4.670313358 |
| First of Month Value by Index | 2019-2020 | Apr | 2925-2012 | 2020 | 4.177021027 | 4.992367744 | 4.486752987 | 4.54913187 |
| First of Month Value by Index | 2019-2020 | May | 2925-2012 | 2020 | 4.164902687 | 5.061128616 | 4.435005188 | 4.295877934 |
| First of Month Value by Index | 2019-2020 | Jun | 2925-2012 | 2020 | 4.095318794 | 5.069688797 | 4.336944103 | 4.182257652 |
| First of Month Value by Index | 2019-2020 | Jul | 2925-2012 | 2020 | 4.015828133 | 5.102148533 | 4.257035255 | 4.108911514 |
| First of Month Value by Index | 2019-2020 | Aug | 2925-2012 | 2020 | 3.951441288 | 5.059165478 | 4.202857494 | 4.084503174 |
| First of Month Value by Index | 2019-2020 | Sep | 2925-2012 | 2020 | 4.070631504 | 4.989190578 | 4.348490238 | 4.220162392 |

| Data Item | Gas Year | Month | Scenario | Year | AECO-BASIS | NYMEX | ROCKS-BASIS | SUMAS-BASIS |
|-------------------------------|-----------|-------|-----------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2019-2020 | Oct | 2925-2012 | 2020 | 4.233403683 | 5.051344872 | 4.56502676 | 4.38829565 |
| First of Month Value by Index | 2020-2021 | Nov | 2925-2012 | 2020 | 4.401194572 | 5.162419796 | 4.756862164 | 4.80934 |
| First of Month Value by Index | 2020-2021 | Dec | 2925-2012 | 2020 | 4.398376942 | 5.265757084 | 4.769441605 | 4.819186687 |
| First of Month Value by Index | 2020-2021 | Jan | 2925-2012 | 2021 | 4.447469234 | 5.353693962 | 4.802149296 | 4.85918045 |
| First of Month Value by Index | 2020-2021 | Feb | 2925-2012 | 2021 | 4.417230606 | 5.305422783 | 4.772491932 | 4.829910755 |
| First of Month Value by Index | 2020-2021 | Mar | 2925-2012 | 2021 | 4.462087154 | 5.227466583 | 4.723657608 | 4.815479755 |
| First of Month Value by Index | 2020-2021 | Apr | 2925-2012 | 2021 | 4.223172188 | 5.166143894 | 4.490089893 | 4.583871841 |
| First of Month Value by Index | 2020-2021 | May | 2925-2012 | 2021 | 4.192792892 | 5.232525349 | 4.405580997 | 4.328333378 |
| First of Month Value by Index | 2020-2021 | Jun | 2925-2012 | 2021 | 4.15724802 | 5.267950535 | 4.281084538 | 4.254429817 |
| First of Month Value by Index | 2020-2021 | Jul | 2925-2012 | 2021 | 4.060025215 | 5.266263485 | 4.187826157 | 4.163710117 |
| First of Month Value by Index | 2020-2021 | Aug | 2925-2012 | 2021 | 4.012693882 | 5.232750416 | 4.140354633 | 4.135464191 |
| First of Month Value by Index | 2020-2021 | Sep | 2925-2012 | 2021 | 4.0341959 | 5.162703514 | 4.286822319 | 4.184884548 |
| First of Month Value by Index | 2020-2021 | Oct | 2925-2012 | 2021 | 4.244031429 | 5.20233202 | 4.538478374 | 4.398128033 |
| First of Month Value by Index | 2021-2022 | Nov | 2925-2012 | 2021 | 4.452050209 | 5.336595535 | 4.771297932 | 4.867733479 |
| First of Month Value by Index | 2021-2022 | Dec | 2925-2012 | 2021 | 4.488219738 | 5.411841869 | 4.829197407 | 4.90996027 |
| First of Month Value by Index | 2021-2022 | Jan | 2925-2012 | 2022 | 4.75229311 | 5.685602665 | 5.073722839 | 5.17099905 |
| First of Month Value by Index | 2021-2022 | Feb | 2925-2012 | 2022 | 4.736173153 | 5.675213814 | 5.060008526 | 5.155837536 |
| First of Month Value by Index | 2021-2022 | Mar | 2925-2012 | 2022 | 4.712466717 | 5.521140099 | 4.928733349 | 5.058499336 |
| First of Month Value by Index | 2021-2022 | Apr | 2925-2012 | 2022 | 4.617721081 | 5.647324562 | 4.835357666 | 4.951743603 |
| First of Month Value by Index | 2021-2022 | May | 2925-2012 | 2022 | 4.595378876 | 5.73743248 | 4.816149235 | 4.729773045 |
| First of Month Value by Index | 2021-2022 | Jun | 2925-2012 | 2022 | 4.603344917 | 5.765128613 | 4.704797268 | 4.699532032 |
| First of Month Value by Index | 2021-2022 | Jul | 2925-2012 | 2022 | 4.435245514 | 5.71051836 | 4.544298649 | 4.537902355 |
| First of Month Value by Index | 2021-2022 | Aug | 2925-2012 | 2022 | 4.348516941 | 5.639128685 | 4.457443714 | 4.47069931 |
| First of Month Value by Index | 2021-2022 | Sep | 2925-2012 | 2022 | 4.435592175 | 5.550208569 | 4.622179985 | 4.571761608 |
| First of Month Value by Index | 2021-2022 | Oct | 2925-2012 | 2022 | 4.699143887 | 5.639966011 | 4.974929333 | 4.851857185 |
| First of Month Value by Index | 2022-2023 | Nov | 2925-2012 | 2022 | 4.913666248 | 5.78324461 | 5.183147907 | 5.327280521 |
| First of Month Value by Index | 2022-2023 | Dec | 2925-2012 | 2022 | 4.895406723 | 5.822472095 | 5.196208477 | 5.317679405 |
| First of Month Value by Index | 2022-2023 | Jan | 2925-2012 | 2023 | 4.863580227 | 5.841197014 | 5.12761879 | 5.280181408 |
| First of Month Value by Index | 2022-2023 | Feb | 2925-2012 | 2023 | 4.856490612 | 5.797014236 | 5.123772144 | 5.274042606 |
| First of Month Value by Index | 2022-2023 | Mar | 2925-2012 | 2023 | 4.888982773 | 5.719084263 | 5.044826031 | 5.197341919 |
| First of Month Value by Index | 2022-2023 | Apr | 2925-2012 | 2023 | 4.727579594 | 5.79019928 | 4.934224129 | 5.053090572 |
| First of Month Value by Index | 2022-2023 | May | 2925-2012 | 2023 | 4.714998722 | 5.889007092 | 4.905020237 | 4.838441372 |
| First of Month Value by Index | 2022-2023 | Jun | 2925-2012 | 2023 | 4.731142044 | 5.902123928 | 4.802715302 | 4.829670906 |
| First of Month Value by Index | 2022-2023 | Jul | 2925-2012 | 2023 | 4.541981697 | 5.846995354 | 4.615516663 | 4.647058487 |
| First of Month Value by Index | 2022-2023 | Aug | 2925-2012 | 2023 | 4.455126762 | 5.770076275 | 4.524306774 | 4.578749657 |
| First of Month Value by Index | 2022-2023 | Sep | 2925-2012 | 2023 | 4.549369335 | 5.65719223 | 4.690686703 | 4.686413288 |
| First of Month Value by Index | 2022-2023 | Oct | 2925-2012 | 2023 | 4.827367306 | 5.772408485 | 5.017121792 | 4.980959415 |
| First of Month Value by Index | 2023-2024 | Nov | 2925-2012 | 2023 | 5.036606312 | 5.915986061 | 5.239023209 | 5.451595306 |
| First of Month Value by Index | 2023-2024 | Dec | 2925-2012 | 2023 | 5.030076981 | 5.943657398 | 5.281797409 | 5.452759266 |
| First of Month Value by Index | 2023-2024 | Jan | 2925-2012 | 2024 | 4.936216354 | 5.911349773 | 5.154877186 | 5.353923798 |
| First of Month Value by Index | 2023-2024 | Feb | 2925-2012 | 2024 | 4.927008629 | 5.867718697 | 5.128369808 | 5.34566927 |
| First of Month Value by Index | 2023-2024 | Mar | 2925-2012 | 2024 | 4.893838882 | 5.697649956 | 4.97542572 | 5.198459148 |
| First of Month Value by Index | 2023-2024 | Apr | 2925-2012 | 2024 | 4.889808655 | 5.854315281 | 4.994914055 | 5.213458061 |
| First of Month Value by Index | 2023-2024 | May | 2925-2012 | 2024 | 4.906190872 | 5.947490692 | 4.980734825 | 5.027693748 |
| First of Month Value by Index | 2023-2024 | Jun | 2925-2012 | 2024 | 4.816411018 | 5.973910809 | 4.874381065 | 4.909835339 |
| First of Month Value by Index | 2023-2024 | Jul | 2925-2012 | 2024 | 4.674752235 | 5.974692345 | 4.743711948 | 4.774545193 |
| First of Month Value by Index | 2023-2024 | Aug | 2925-2012 | 2024 | 4.559890747 | 5.87367487 | 4.624960899 | 4.680525303 |
| First of Month Value by Index | 2023-2024 | Sep | 2925-2012 | 2024 | 4.706474781 | 5.831947803 | 4.77277565 | 4.827991009 |
| First of Month Value by Index | 2023-2024 | Oct | 2925-2012 | 2024 | 4.909091473 | 5.848863602 | 5.029426575 | 5.045966148 |
| First of Month Value by Index | 2024-2025 | Nov | 2925-2012 | 2024 | 5.10363245 | 6.00898838 | 5.219940662 | 5.51649332 |
| First of Month Value by Index | 2024-2025 | Dec | 2925-2012 | 2024 | 5.097687244 | 6.058364391 | 5.305362701 | 5.512589931 |
| First of Month Value by Index | 2024-2025 | Jan | 2925-2012 | 2025 | 4.873582363 | 5.875731945 | 5.008500576 | 5.289423943 |
| First of Month Value by Index | 2024-2025 | Feb | 2925-2012 | 2025 | 4.851109505 | 5.831531525 | 4.975591183 | 5.267894268 |
| First of Month Value by Index | 2024-2025 | Mar | 2925-2012 | 2025 | 4.77996397 | 5.60944128 | 4.793830395 | 5.083167553 |
| First of Month Value by Index | 2024-2025 | Apr | 2925-2012 | 2025 | 4.897298336 | 5.877209187 | 4.964105606 | 5.220701218 |
| First of Month Value by Index | 2024-2025 | May | 2925-2012 | 2025 | 4.928643703 | 5.990300179 | 4.988897324 | 5.062593937 |
| First of Month Value by Index | 2024-2025 | Jun | 2925-2012 | 2025 | 4.882251263 | 6.041881084 | 4.889285088 | 4.975327015 |

| Data Item | Gas Year | Month | Scenario | Year | AECO-BASIS | NYMEX | ROCKS-BASIS | SUMAS-BASIS |
|-------------------------------|-----------|-------|-----------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2024-2025 | Jul | 2925-2012 | 2025 | 4.713828087 | 6.037522793 | 4.740156174 | 4.813266754 |
| First of Month Value by Index | 2024-2025 | Aug | 2925-2012 | 2025 | 4.546880722 | 5.88591814 | 4.574154377 | 4.66728878 |
| First of Month Value by Index | 2024-2025 | Sep | 2925-2012 | 2025 | 4.630329132 | 5.781488895 | 4.697050571 | 4.754376888 |
| First of Month Value by Index | 2024-2025 | Oct | 2925-2012 | 2025 | 4.901244164 | 5.804423332 | 4.968356609 | 5.23827076 |
| First of Month Value by Index | 2025-2026 | Nov | 2925-2012 | 2025 | 5.120846748 | 5.945530891 | 5.300500393 | 5.51453495 |
| First of Month Value by Index | 2025-2026 | Dec | 2925-2012 | 2025 | 5.092420578 | 6.030508518 | 5.4050951 | 5.507615566 |
| First of Month Value by Index | 2025-2026 | Jan | 2925-2012 | 2026 | 5.065357208 | 6.010705471 | 5.382275105 | 5.481300354 |
| First of Month Value by Index | 2025-2026 | Feb | 2925-2012 | 2026 | 5.049055099 | 6.000962257 | 5.36888504 | 5.466161728 |
| First of Month Value by Index | 2025-2026 | Mar | 2925-2012 | 2026 | 5.08309269 | 5.847007751 | 5.236613274 | 5.376763344 |
| First of Month Value by Index | 2025-2026 | Apr | 2925-2012 | 2026 | 5.140333652 | 6.017700672 | 5.371487617 | 5.446147442 |
| First of Month Value by Index | 2025-2026 | May | 2925-2012 | 2026 | 5.220991611 | 6.149302959 | 5.370871544 | 5.343413353 |
| First of Month Value by Index | 2025-2026 | Jun | 2925-2012 | 2026 | 5.15409565 | 6.208538532 | 5.269986153 | 5.255037785 |
| First of Month Value by Index | 2025-2026 | Jul | 2925-2012 | 2026 | 4.958817005 | 6.19169426 | 5.104794979 | 5.066396713 |
| First of Month Value by Index | 2025-2026 | Aug | 2925-2012 | 2026 | 4.804354191 | 6.05585146 | 4.954697132 | 4.91797924 |
| First of Month Value by Index | 2025-2026 | Sep | 2925-2012 | 2026 | 4.918224335 | 5.917117596 | 5.098938465 | 5.043185234 |
| First of Month Value by Index | 2025-2026 | Oct | 2925-2012 | 2026 | 5.179498196 | 6.038022041 | 5.415383816 | 5.414913654 |
| First of Month Value by Index | 2026-2027 | Nov | 2925-2012 | 2026 | 5.338799953 | 6.124274254 | 5.568325996 | 5.715247631 |
| First of Month Value by Index | 2026-2027 | Dec | 2925-2012 | 2026 | 5.30201149 | 6.227315903 | 5.595388412 | 5.72365427 |
| First of Month Value by Index | 2026-2027 | Jan | 2925-2012 | 2027 | 5.260363102 | 6.192851067 | 5.557457924 | 5.682980061 |
| First of Month Value by Index | 2026-2027 | Feb | 2925-2012 | 2027 | 5.257957458 | 6.19093132 | 5.551656246 | 5.68176651 |
| First of Month Value by Index | 2026-2027 | Mar | 2925-2012 | 2027 | 5.335638046 | 6.066599846 | 5.447320461 | 5.628498077 |
| First of Month Value by Index | 2026-2027 | Apr | 2925-2012 | 2027 | 5.376431465 | 6.224464417 | 5.542140961 | 5.668488503 |
| First of Month Value by Index | 2026-2027 | May | 2925-2012 | 2027 | 5.434414387 | 6.328414917 | 5.534714699 | 5.562809467 |
| First of Month Value by Index | 2026-2027 | Jun | 2925-2012 | 2027 | 5.367353439 | 6.402602673 | 5.438501835 | 5.478761196 |
| First of Month Value by Index | 2026-2027 | Jul | 2925-2012 | 2027 | 5.170190334 | 6.37587738 | 5.288597584 | 5.288601875 |
| First of Month Value by Index | 2026-2027 | Aug | 2925-2012 | 2027 | 5.024069786 | 6.245776176 | 5.144071102 | 5.152680874 |
| First of Month Value by Index | 2026-2027 | Sep | 2925-2012 | 2027 | 5.144913673 | 6.118813515 | 5.291303158 | 5.422949791 |
| First of Month Value by Index | 2026-2027 | Oct | 2925-2012 | 2027 | 5.380456448 | 6.216249466 | 5.557794571 | 5.699310303 |
| First of Month Value by Index | 2027-2028 | Nov | 2925-2012 | 2027 | 5.520236969 | 6.314934254 | 5.723535538 | 5.925805569 |
| First of Month Value by Index | 2027-2028 | Dec | 2925-2012 | 2027 | 5.489467144 | 6.376353741 | 5.713457584 | 5.919815063 |
| First of Month Value by Index | 2027-2028 | Jan | 2925-2012 | 2028 | 5.390381336 | 6.284338951 | 5.617459774 | 5.821755409 |
| First of Month Value by Index | 2027-2028 | Feb | 2925-2012 | 2028 | 5.370261192 | 6.270254135 | 5.592489719 | 5.802670956 |
| First of Month Value by Index | 2027-2028 | Mar | 2925-2012 | 2028 | 5.34528923 | 6.12157011 | 5.443732262 | 5.653399467 |
| First of Month Value by Index | 2027-2028 | Apr | 2925-2012 | 2028 | 5.43847084 | 6.291409492 | 5.564609528 | 5.715007305 |
| First of Month Value by Index | 2027-2028 | May | 2925-2012 | 2028 | 5.508764267 | 6.436491966 | 5.576708794 | 5.636654854 |
| First of Month Value by Index | 2027-2028 | Jun | 2925-2012 | 2028 | 5.408329487 | 6.502126694 | 5.474651814 | 5.524544239 |
| First of Month Value by Index | 2027-2028 | Jul | 2925-2012 | 2028 | 5.164669991 | 6.426197052 | 5.267903328 | 5.297736168 |
| First of Month Value by Index | 2027-2028 | Aug | 2925-2012 | 2028 | 5.02896595 | 6.301954746 | 5.122541904 | 5.16269207 |
| First of Month Value by Index | 2027-2028 | Sep | 2925-2012 | 2028 | 5.170249939 | 6.101294041 | 5.229467392 | 5.313120842 |
| First of Month Value by Index | 2027-2028 | Oct | 2925-2012 | 2028 | 5.504318237 | 6.280054092 | 5.560408115 | 5.825575829 |
| First of Month Value by Index | 2028-2029 | Nov | 2925-2012 | 2028 | 5.636228561 | 6.380797386 | 5.715252876 | 6.019730091 |
| First of Month Value by Index | 2028-2029 | Dec | 2925-2012 | 2028 | 5.601027012 | 6.427937031 | 5.688673496 | 6.035629272 |
| First of Month Value by Index | 2028-2029 | Jan | 2925-2012 | 2029 | 5.460271358 | 6.293894768 | 5.524401188 | 5.889810562 |
| First of Month Value by Index | 2028-2029 | Feb | 2925-2012 | 2029 | 5.361583233 | 6.201779366 | 5.428057194 | 5.792181015 |
| First of Month Value by Index | 2028-2029 | Mar | 2925-2012 | 2029 | 5.214140892 | 5.991783619 | 5.215031624 | 5.500032902 |
| First of Month Value by Index | 2028-2029 | Apr | 2925-2012 | 2029 | 5.370283604 | 6.203873634 | 5.413020134 | 5.642089844 |
| First of Month Value by Index | 2028-2029 | May | 2925-2012 | 2029 | 5.485458851 | 6.359400272 | 5.460791588 | 5.597961903 |
| First of Month Value by Index | 2028-2029 | Jun | 2925-2012 | 2029 | 5.420212746 | 6.454295158 | 5.347819328 | 5.537075043 |
| First of Month Value by Index | 2028-2029 | Jul | 2925-2012 | 2029 | 5.182301998 | 6.405984879 | 5.155912399 | 5.306355 |
| First of Month Value by Index | 2028-2029 | Aug | 2925-2012 | 2029 | 4.991825581 | 6.235943794 | 4.970874786 | 5.122401237 |
| First of Month Value by Index | 2028-2029 | Sep | 2925-2012 | 2029 | 5.095883369 | 6.085585117 | 5.073959351 | 5.35371685 |
| First of Month Value by Index | 2028-2029 | Oct | 2925-2012 | 2029 | 5.385454655 | 6.139501095 | 5.392189026 | 5.684192657 |
| First of Month Value by Index | 2029-2030 | Nov | 2925-2012 | 2029 | 5.599804878 | 6.280008793 | 5.569327354 | 5.964452267 |
| First of Month Value by Index | 2029-2030 | Dec | 2925-2012 | 2029 | 5.583849907 | 6.372261524 | 5.576398373 | 6.018054008 |
| First of Month Value by Index | 2029-2030 | Jan | 2925-2012 | 2030 | 5.537370205 | 6.332266808 | 5.527390003 | 5.966506958 |
| First of Month Value by Index | 2029-2030 | Feb | 2925-2012 | 2030 | 5.518984318 | 6.318655014 | 5.510558605 | 5.949754715 |
| First of Month Value by Index | 2029-2030 | Mar | 2925-2012 | 2030 | 5.359772682 | 6.109274387 | 5.265860558 | 5.645047665 |

| Data Item | Gas Year | Month | Scenario | Year | AECO-BASIS | NYMEX | ROCKS-BASIS | SUMAS-BASIS |
|-------------------------------|-----------|-------|-----------|------|-------------|-------------|-------------|-------------|
| First of Month Value by Index | 2029-2030 | Apr | 2925-2012 | 2030 | 5.55560112 | 6.335823059 | 5.416575909 | 5.773375511 |
| First of Month Value by Index | 2029-2030 | May | 2925-2012 | 2030 | 5.66405201 | 6.480261326 | 5.460363388 | 5.778542042 |
| First of Month Value by Index | 2029-2030 | Jun | 2925-2012 | 2030 | 5.574202538 | 6.545426369 | 5.35283041 | 5.69205904 |
| First of Month Value by Index | 2029-2030 | Jul | 2925-2012 | 2030 | 5.373956203 | 6.529518604 | 5.224878311 | 5.499042511 |
| First of Month Value by Index | 2029-2030 | Aug | 2925-2012 | 2030 | 5.213739395 | 6.388938904 | 5.073232174 | 5.345397949 |
| First of Month Value by Index | 2029-2030 | Sep | 2925-2012 | 2030 | 5.350708961 | 6.266905785 | 5.157631397 | 5.531601906 |
| First of Month Value by Index | 2029-2030 | Oct | 2925-2012 | 2030 | 5.602715015 | 6.375586987 | 5.480925083 | 5.866613388 |
| First of Month Value by Index | 2030-2031 | Nov | 2925-2012 | 2030 | 5.769663334 | 6.472807884 | 5.639988899 | 6.100263119 |
| First of Month Value by Index | 2030-2031 | Dec | 2925-2012 | 2030 | 5.774338245 | 6.601919651 | 5.752910137 | 6.186141014 |
| First of Month Value by Index | 2030-2031 | Jan | 2925-2012 | 2031 | 5.336255074 | 6.366340637 | 5.326175213 | 5.769683361 |
| First of Month Value by Index | 2030-2031 | Feb | 2925-2012 | 2031 | 5.329858303 | 6.306583405 | 5.32134819 | 5.76493597 |
| First of Month Value by Index | 2030-2031 | Mar | 2925-2012 | 2031 | 5.05405426 | 5.971330643 | 4.959203243 | 5.342182159 |
| First of Month Value by Index | 2030-2031 | Apr | 2925-2012 | 2031 | 5.274892807 | 6.229968548 | 5.134477139 | 5.494844913 |
| First of Month Value by Index | 2030-2031 | May | 2925-2012 | 2031 | 5.350203037 | 6.344628334 | 5.144477367 | 5.465837955 |
| First of Month Value by Index | 2030-2031 | Jun | 2925-2012 | 2031 | 5.267398357 | 6.420371532 | 5.043812752 | 5.386433601 |
| First of Month Value by Index | 2030-2031 | Jul | 2925-2012 | 2031 | 5.131705284 | 6.472218037 | 4.981136799 | 5.258042336 |
| First of Month Value by Index | 2030-2031 | Aug | 2925-2012 | 2031 | 4.95209837 | 6.308148861 | 4.810185909 | 5.085073471 |
| First of Month Value by Index | 2030-2031 | Sep | 2925-2012 | 2031 | 5.024903774 | 6.114285469 | 4.829895496 | 5.207605839 |
| First of Month Value by Index | 2030-2031 | Oct | 2925-2012 | 2031 | 5.241039753 | 6.187582493 | 5.118031979 | 5.507577419 |
| First of Month Value by Index | 2031-2032 | Nov | 2925-2012 | 2031 | 5.429434299 | 6.308723927 | 5.298462868 | 5.763339996 |
| First of Month Value by Index | 2031-2032 | Dec | 2925-2012 | 2031 | 5.440562248 | 6.449211597 | 5.418919563 | 5.856482983 |
| First of Month Value by Index | 2031-2032 | Jan | 2925-2012 | 2032 | 5.391117573 | 6.620091915 | 5.380936623 | 5.828879833 |
| First of Month Value by Index | 2031-2032 | Feb | 2925-2012 | 2032 | 5.384656906 | 6.558008194 | 5.37606144 | 5.824085712 |
| First of Month Value by Index | 2031-2032 | Mar | 2925-2012 | 2032 | 5.106094837 | 6.209700584 | 5.010295391 | 5.397103786 |
| First of Month Value by Index | 2031-2032 | Apr | 2925-2012 | 2032 | 5.329142094 | 6.478409767 | 5.18732214 | 5.551293373 |
| First of Month Value by Index | 2031-2032 | May | 2925-2012 | 2032 | 5.405204773 | 6.597534657 | 5.197422504 | 5.521996498 |
| First of Month Value by Index | 2031-2032 | Jun | 2925-2012 | 2032 | 5.321572304 | 6.676227093 | 5.095750809 | 5.44179821 |
| First of Month Value by Index | 2031-2032 | Jul | 2925-2012 | 2032 | 5.184522629 | 6.730093002 | 5.032447815 | 5.312122822 |
| First of Month Value by Index | 2031-2032 | Aug | 2925-2012 | 2032 | 5.003119469 | 6.559634209 | 4.859787941 | 5.137423992 |
| First of Month Value by Index | 2031-2032 | Sep | 2925-2012 | 2032 | 5.076653004 | 6.358222008 | 4.879694462 | 5.261181831 |
| First of Month Value by Index | 2031-2032 | Oct | 2925-2012 | 2032 | 5.294950008 | 6.434373379 | 5.170712471 | 5.564153194 |
| First of Month Value by Index | 2032-2033 | Nov | 2925-2012 | 2032 | 5.485228539 | 6.560232162 | 5.352947712 | 5.822473049 |
| First of Month Value by Index | 2032-2033 | Dec | 2925-2012 | 2032 | 5.49646759 | 6.706190109 | 5.474608898 | 5.916547775 |
| First of Month Value by Index | 2032-2033 | Jan | 2925-2012 | 2033 | 5.446528912 | 6.782493114 | 5.436245918 | 5.888669014 |
| First of Month Value by Index | 2032-2033 | Feb | 2925-2012 | 2033 | 5.440003395 | 6.718919754 | 5.431322098 | 5.883826256 |
| First of Month Value by Index | 2032-2033 | Mar | 2925-2012 | 2033 | 5.15865612 | 6.362257004 | 5.061898232 | 5.452575207 |

Appendix I

Update on 2 Year Action Plan

2010 Action Plan Update

1. In continuing efforts to create a more accurate load forecast, Cascade will research the viability of expanding the detail of the data by determining therm usage per customer per degree day by customer class (residential, commercial, etc.) along with the non-heat sensitive baseload usage. This is largely dependent upon the capabilities of the Company's new Customer Information System which came on-line in July 2010.

Update: Cascade continues to evaluate the ability to determine use/customer/degree day by customer class. As indicated in Section 2 of the main text Cascade is examining forecast methods utilized by other LDCs. Additionally, Cascade has been able to extract an increasing amount of detail data from our new Customer Information System.

2. Cascade will continue to monitor outside determinants of natural gas usage, such as legislative building code changes and electrical "Direct Use" campaigns as they are determined to significantly affect the Company's forecast.

Update: Please refer to "2012 Washington State Energy Strategy" in Section 6 of this IRP.

3. Cascade will continue to monitor the effectiveness of the Oregon Public Purpose Fund to ensure the funds are adequate to capture significant portions of achievable therm savings in Oregon.

Update: Please refer to the "Oregon Public Purpose Fund" section beginning on page 69 of the IRP.

4. The company will continue to follow and analyze the impacts of the Western Climate Initiative and proposed carbon legislation at both the state and federal level as they pertain to natural gas conservation, as well as other such acts that may arise from these efforts. The company will continue to monitor the timing and the costs associated with carbon legislation and analyze the impacts on the company's overall portfolio costs. As specific carbon legislation is passed, the company will update its avoided cost calculations, conservation potential and make modifications to its DSM incentive programs as necessary.

Update: Please refer to page 100 of Section 6 for commentary regarding Western Climate Initiative.

5. The company will continue to monitor the cost effectiveness of existing conservation measures and emerging technologies to ensure that the current mix of measures included in the Washington Conservation program is appropriate. Areas for further analysis include the impacts associated with modifications to building codes along with the cost effectiveness of newer technologies such as the next generation of high efficiency water heaters (.70 EF) and high-efficiency hybrid heat pumps. The applicability of these measures within Cascade's service

territory will be analyzed and the company's Conservation Incentive Program will be modified as necessary.

Update: Please refer to the 2 year update in Section 6 of the IRP.

6. Cascade will continue to evaluate gas supply resources on an ongoing basis including supplies of varying lengths (base, swing, peaking) and pricing alternatives. We will continue to analyze the uncertainties associated with supply and demand relationships.

Update: On an ongoing basis, Cascade's Gas Supply Oversight Committee considers a wide range of gas supply resources based on price, availability, reliability and other market sensitive factors.

7. The Company will continue to monitor the proposed pipeline expansion projects to access more supplies out of the Rockies. As cost estimates change, the company will analyze those resources under consideration to determine if modifications to the preferred portfolio are necessary.

Update: As demonstrated in Section 5-A of the IRP, Cascade has been diligently monitoring pipeline expansion projects, becoming a shipper on Ruby Pipeline. The Company continues to monitor proposed expansion projects and holds on-going discussions with the pipelines.

8. Continue to refine our specific peak day resource acquisition action plans to address anticipated capacity shortfalls. Possible solutions may be Satellite LNG, peak shaving facilities or pipeline looping to meet the growing requirements of the firm core load. Specifically, the Company will further analyze issues such as determination of project siting issues and risks, project cost estimates, and construction/acquisition lead times.

Update: We continue to update our various distribution and upstream pipeline capacity needs. Please refer to Section 5-A for a more detailed discussion.

9. The company will continue to explore options to incorporate biogas into its portfolio, as specific projects are identified in our service territory. Price, location and gas quality considerations of the biogas supply will be evaluated.

Update: We continue to hold discussions with potential providers; at this time we do not have any specific transactions in place. We will continue our efforts to look into incorporating BNG into our portfolio.

10. The company will continue to monitor proposed LNG import facilities as information becomes available and will evaluate the various options that, if built, could result. Issues to monitor include specific cost, the availability of pipeline capacity and project timing.

Update: Currently, thanks to low gas prices and abundant supply, proposed LNG import facilities have given way to proposed export facilities. Cascade will continue to monitor these activities, particularly the

impacts to access gas supplies as they are being transported to any proposed LNG export facilities.

11. The Company will continue to monitor the futures market for price trends and will evaluate the effectiveness of its risk management policy.

Update: On an ongoing basis, Cascade's Gas Supply Oversight Committee considers a number of risk management strategies. For example, as prices have remained low, Cascade has reduced the number of financial swaps in our portfolio. We will continue to monitor the future market, and adjust the procurement strategy should market conditions warrant.