

## TRC Results

SF Floor Insulation	Council	Avista	PacificCorp	PSE
<b>Benefits</b>				
NPV Avoided Electric Energy Savings	\$0.32	\$0.75	\$0.47	\$0.27
NPV Avoided Peak Capacity Savings (if separate from Energy)	\$0.00	included in energy		\$0.20
NPV Avoided Gas Energy Savings	\$0.00	\$0.00		\$0.00
NPV Deferred T&D system savings	\$0.06	\$0.03		\$0.05
NPV Risk Mitigation Adjustment	\$0.22	included in energy		\$0.06
NPV 10% Power Act credit	\$0.06	\$0.02	\$0.05	\$0.06
NPV Quantified Non-Energy Benefits	\$0.00	\$0.00		\$0.00
NPV Environmental Externalities Not In Avoided Energy or Capacity	\$0.00	included in energy		\$0.00
<b>NPV Total Benefits</b>	<b>\$0.66</b>	<b>\$0.79</b>	<b>\$0.52</b>	<b>\$0.63</b>
<b>Sub-Total All Electric Energy &amp; Capacity Related Benefits</b>	<b>\$0.66</b>	<b>\$0.79</b>	<b>\$0.52</b>	<b>\$0.63</b>
<b>Sub-Total All Gas Energy Related Benefits</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
<b>Subtotal All Non-energy Benefits</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
<b>Costs</b>				
NPV Installed Capital Cost cost (material & labor)	\$0.49	\$0.50	\$0.50	\$0.50
NPV Ongoing and periodic O&M or Replacement costs (plus or minus)	\$0.00	\$0.00		\$0.00
NPV Non-incentive Program "Admin." Costs	\$0.10	\$0.10	\$0.10	\$0.10
NPV Avoided Gas Energy Cost	\$0.00	\$0.00		\$0.00
<b>NPV Total Costs</b>	<b>\$0.59</b>	<b>\$0.60</b>	<b>\$0.60</b>	<b>\$0.60</b>
<b>Levelized Costs (is this useful for comparison?)</b>	<b>\$116.38</b>			
<b>TRC Results</b>				
B/C Ratio	1.12	1.32	0.87	1.06
Total NPV Value (Benefits-Costs)	\$0.07	\$0.19	-\$0.08	\$0.03

Residential Windows	Council	Avista	PacificCorp	PSE
<b>Benefits</b>				
NPV Avoided Electric Energy Savings	\$1.56	\$3.70	\$2.32	\$1.35
NPV Avoided Peak Capacity Savings (if separate from Energy)	\$0.00	included in energy		\$0.97
NPV Avoided Gas Energy Savings	\$0.00	\$0.00		\$0.00
NPV Deferred T&D system savings	\$0.31	\$0.23		\$0.24
NPV Risk Mitigation Adjustment	\$1.07	included in energy		\$0.31
NPV 10% Power Act credit	\$0.29	\$0.39	\$0.23	\$0.29
NPV Quantified Non-Energy Benefits	\$0.00	\$0.00		\$0.00
NPV Environmental Externalities Not In Avoided Energy or Capacity	\$0.00	included in energy		\$0.00
<b>NPV Total Benefits</b>	<b>\$3.23</b>	<b>\$4.31</b>	<b>\$2.55</b>	<b>\$3.15</b>
<b>Sub-Total All Electric Energy &amp; Capacity Related Benefits</b>	<b>\$3.23</b>	<b>\$4.31</b>	<b>\$2.55</b>	<b>\$3.15</b>
<b>Sub-Total All Gas Energy Related Benefits</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
<b>Subtotal All Non-energy Benefits</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
<b>Costs</b>				
NPV Installed Capital Cost cost (material & labor)	\$0.87	\$0.89	\$0.89	\$0.89
NPV Ongoing and periodic O&M or Replacement costs (plus or minus)	\$0.00	\$0.00		\$0.00
NPV Non-incentive Program "Admin." Costs	\$0.18	\$0.18	\$0.18	\$0.18
NPV Avoided Gas Energy Cost	\$0.00	\$0.00		\$0.00
<b>NPV Total Costs</b>	<b>\$1.04</b>	<b>\$1.07</b>	<b>\$1.07</b>	<b>\$1.07</b>
<b>Levelized Costs (is this useful for comparison?)</b>	<b>\$42.08</b>			
<b>TRC Results</b>				
B/C Ratio	3.09	4.04	2.38	2.95
Total NPV Value (Benefits-Costs)	\$2.19	\$3.25	\$1.48	\$2.08

<b>E-Star Clothes Washer w/Gas DHW &amp; Electric Dryer</b>	<b>Council</b>	<b>Avista</b>	<b>PacificCorp</b>	<b>PSE</b>
<b>Benefits</b>				
NPV Avoided Electric Energy Savings	\$45.97	\$62.19	\$85.25	\$49.20
NPV Avoided Peak Capacity Savings (if separate from Energy)	\$0.00	included in energy		\$26.17
NPV Avoided Gas Energy Savings	\$19.44	\$25.67	\$19.36	\$29.21
NPV Deferred T&D system savings	\$8.91	\$3.81		\$6.47
NPV Risk Mitigation Adjustment	\$50.49	included in energy		\$11.29
NPV 10% Power Act credit	\$10.54	\$6.60	\$8.53	\$9.72
NPV Quantified Non-Energy Benefits	\$301.51	\$269.61	\$260.11	\$283.02
NPV Environmental Externalities Not In Avoided Energy or Capacity	\$0.00	included in energy		\$0.00
<b>NPV Total Benefits</b>	<b>\$436.86</b>	<b>\$367.87</b>	<b>\$373.25</b>	<b>\$415.08</b>
<b>Sub-Total All Electric Energy &amp; Capacity Related Benefits</b>	<b>\$115.91</b>	<b>\$72.59</b>	<b>\$93.78</b>	<b>\$102.84</b>
<b>Sub-Total All Gas Energy Related Benefits</b>	<b>\$19.44</b>	<b>\$25.67</b>	<b>\$19.36</b>	<b>\$29.21</b>
<b>Subtotal All Non-energy Benefits</b>	<b>\$301.51</b>	<b>\$269.61</b>	<b>\$260.11</b>	<b>\$283.02</b>
<b>Costs</b>				
NPV Installed Capital Cost cost (material & labor)	\$104.19	\$107.09	\$107.09	\$107.09
NPV Ongoing and periodic O&M or Replacement costs (plus or minus)	\$0.00	\$0.00		incl. as NEB
NPV Non-incentive Program "Admin." Costs	\$21.42	\$21.42	\$21.42	\$21.42
NPV Avoided Gas Energy Cost	\$0.00	\$0.00		\$0.00
<b>NPV Total Costs</b>	<b>\$125.61</b>	<b>\$128.51</b>	<b>\$128.51</b>	<b>\$128.51</b>
<b>Levelized Costs (is this useful for comparison?)</b>	<b>\$144.30</b>			
<b>TRC Results</b>				
B/C Ratio	3.48	2.86	2.90	3.23
Total NPV Value (Benefits-Costs)	\$311.26	\$239.37	\$244.74	\$286.57

<b>Lighting Upgrade in New School w/Gas Heating</b>	<b>Council</b>	<b>Avista</b>	<b>PacificCorp</b>	<b>PSE</b>
<b>Benefits</b>				
NPV Avoided Electric Energy Savings	\$58.20	\$99.46	\$101.01	\$56.94
NPV Avoided Peak Capacity Savings (if separate from Energy)	\$0.00	included in energy		\$32.56
NPV Avoided Gas Energy Savings	-\$13.58	-\$20.97	-\$12.09	\$0.00
NPV Deferred T&D system savings	\$4.82	\$6.09		\$8.01
NPV Risk Mitigation Adjustment	\$57.63	included in energy		\$13.14
NPV 10% Power Act credit	\$12.07	\$10.55	\$10.10	\$11.36
NPV Quantified Non-Energy Benefits	\$0.00	\$0.00		\$51.01
NPV Environmental Externalities Not In Avoided Energy or Capacity	\$0.00	included in energy		\$0.00
<b>NPV Total Benefits</b>	<b>\$119.14</b>	<b>\$95.13</b>	<b>\$99.02</b>	<b>\$173.02</b>
<b>Sub-Total All Electric Energy &amp; Capacity Related Benefits</b>	<b>\$132.72</b>	<b>\$116.10</b>	<b>\$111.11</b>	<b>\$122.01</b>
<b>Sub-Total All Gas Energy Related Benefits</b>	<b>-\$13.58</b>	<b>-\$20.97</b>	<b>-\$12.09</b>	<b>\$0.00</b>
<b>Subtotal All Non-energy Benefits</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$51.01</b>
<b>Costs</b>				
NPV Installed Capital Cost cost (material & labor)	-\$10.31	-\$9.81	-\$9.81	\$0.00
NPV Ongoing and periodic O&M or Replacement costs (plus or minus)	-\$14.86	-\$14.65	-\$11.70	\$26.51
NPV Non-incentive Program "Admin." Costs	\$1.96	-\$1.96	\$1.96	\$1.96
NPV Avoided Gas Energy Cost	\$0.00	\$0.00		\$20.99
<b>NPV Total Costs</b>	<b>-\$23.21</b>	<b>-\$26.42</b>	<b>-\$19.55</b>	<b>\$49.46</b>
<b>Levelized Costs (is this useful for comparison?)</b>	<b>-\$27.31</b>			
<b>TRC Results</b>				
B/C Ratio	10.16	3.60	5.06	3.50
Total NPV Value (Benefits-Costs)	\$142.35	\$121.55	\$118.57	\$123.55

Lighting Upgrade in MiniMart w/Gas Heating	Council	Avista	PacificCorp	PSE
<b>Benefits</b>				
NPV Avoided Electric Energy Savings	\$205.90	\$357.05	\$393.91	\$222.36
NPV Avoided Peak Capacity Savings (if separate from Energy)	\$0.00	included in energy		\$130.46
NPV Avoided Gas Energy Savings	-\$41.95	-\$55.17	-\$39.79	\$0.00
NPV Deferred T&D system savings	\$12.51	\$21.85		\$32.22
NPV Risk Mitigation Adjustment	\$169.77	included in energy		\$50.54
NPV 10% Power Act credit	\$38.82	\$37.89	\$39.40	\$43.56
NPV Quantified Non-Energy Benefits	\$0.00	\$0.00		\$0.00
NPV Environmental Externalities Not In Avoided Energy or Capacity	\$0.00	included in energy		\$0.00
<b>NPV Total Benefits</b>	<b>\$385.04</b>	<b>\$361.62</b>	<b>\$393.52</b>	<b>\$479.14</b>
<b>Sub-Total All Electric Energy &amp; Capacity Related Benefits</b>	<b>\$426.99</b>	<b>\$416.79</b>	<b>\$433.31</b>	<b>\$479.14</b>
<b>Sub-Total All Gas Energy Related Benefits</b>	<b>-\$41.95</b>	<b>-\$55.17</b>	<b>-\$39.79</b>	<b>\$0.00</b>
<b>Subtotal All Non-energy Benefits</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
<b>Costs</b>				
NPV Installed Capital Cost cost (material & labor)	\$129.69	\$123.39	\$123.39	\$123.39
NPV Ongoing and periodic O&M or Replacement costs (plus or minus)	\$345.80	\$424.61	\$305.99	\$426.37
NPV Non-incentive Program "Admin." Costs	\$24.68	\$24.68	\$24.68	\$24.68
NPV Avoided Gas Energy Cost	\$0.00	\$0.00		\$67.15
<b>NPV Total Costs</b>	<b>\$500.17</b>	<b>\$572.68</b>	<b>\$454.06</b>	<b>\$641.59</b>
<b>Levelized Costs (is this useful for comparison?)</b>	<b>\$126.69</b>			
<b>TRC Results</b>				
B/C Ratio	0.79	0.63	0.87	0.75
Total NPV Value (Benefits-Costs)	-\$115.14	\$7.00	-\$60.54	-\$162.46

**Notes:**

<p>Council uses beginning of year discounting, so PV of capital is slightly less than "overnight" cost. TRC B/C ratios are calculated in a manner to avoid "negative ratios." This means that "negative cost" are treated as benefits and "negative benefits" are treated as costs. Hence, one cannot simply divide NPV Benefits by NPV Costs in this table to arrive at the TRC B/C for the commercial lighting measures which have "negative benefits" or "negative costs." All NPV calculations done for the life of each measure (e.g. 45 yrs for windows &amp; floor insulation, 14 yrs for clothes washers).</p>	<p>* Avista does not discount the 1st year of capital cost (assuming that it is a year zero expense). * We treat up-front and future capital expenditures (necessary to maintain the measure) as a present value. It is unlikely that we would provide incentives for a measure with negative capital costs, though we may have educational programs. * Our energy, generation capacity, T&amp;D capacity, risk and carbon costs are not easily separable. I have separated T&amp;D losses and 10% Act credit for the comparison above. * Avista would not apply an assumption of a fixed % of utility admin cost to programs, we use actual allocations and we also distinguish between incremental costs of adding a</p>	<p>First year costs not discounted for the purposes of this analysis. B/C ratios for lighting in new school was calculated using the absolute values of the "costs". There are multiple ways to represent b/c ratios for this measure. Representing it this way indicates it is an attractive measure/resource from a TRC basis which seems intuitively correct.</p>	<p>PSE does not discount 1st year costs. Any cost savings are treated as non-energy benefit. The secondary gas avoided cost "savings" impacts are counted as costs if there is an increase in gas use. The avoided energy benefit includes the additional benefits when savings are taken from meter level to generator level to account for line losses.</p>
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