

**Exh. JL-8**  
**Dockets UE-190529/UG-190530 and**  
**UE-190274/UG-190275 (*consolidated*)**  
**Witness: Jing Liu**

**BEFORE THE WASHINGTON  
UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**PUGET SOUND ENERGY,**

**Respondent.**

**DOCKETS UE-190529  
and UG-190530 (*consolidated*)**

**In the Matter of the Petition of**

**PUGET SOUND ENERGY**

**For an Order Authorizing Deferral  
Accounting and Ratemaking Treatment  
for Short-life UT/Technology Investment**

**DOCKETS UE-190274 and  
UG-190275 (*consolidated*)**

**EXHIBIT TO TESTIMONY OF**

**Jing Liu**

**STAFF OF  
WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION**

*Temperature Normalization - Natural Gas*

**November 22, 2019**

Puget Sound Energy  
Weather Normalization of Volume  
12 Months Ended December 31, 2018

Rate Class	Rate Sch.	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Total
<b>CAT Calendarized Volume According to Unbilled Report (Therms)</b>														
F Residential lamps	16	798	798	798	798	798	798	770	817	827	665	808	713	9,386
F Residential	23	83,071,705	86,567,686	73,286,416	51,889,130	21,907,808	18,640,336	13,034,137	12,666,894	17,832,486	42,653,292	62,320,884	87,384,504	571,255,277
F Propane	53	63	20	0	0	0	0	0	0	0	0	0	0	83
F General service - commercial	31	27,989,361	28,605,540	25,864,335	17,343,069	11,029,986	9,889,010	7,348,912	7,861,745	8,768,265	15,189,133	20,797,136	29,951,875	210,638,368
F Large volume - commercial	41	6,599,656	6,429,198	6,128,539	4,918,737	3,084,159	3,441,638	583,132	4,086,516	2,686,687	3,974,477	4,984,768	7,219,455	54,136,963
F Emergency Compressed Nature Gas Service	50	0	0	0	0	0	0	0	0	0	0	0	0	0
I Interruptible with firm option - com	85	2,022,941	314,036	1,880,143	880,345	865,804	1,329,275	813,027	957,935	646,293	1,378,666	1,762,986	1,309,763	14,161,213
I Limited interrupt w/ firm option - com	86	1,176,540	1,109,413	1,068,008	902,261	513,347	419,393	221,023	203,131	286,646	646,158	795,638	1,021,112	8,362,671
I Non-exclus interrupt/firm option - com	87	2,909,610	1,168,827	4,157,183	84,174	2,010,425	1,783,685	1,382,354	1,653,355	1,304,457	2,254,037	1,973,878	2,036,573	22,718,559
F General service - industrial	31	1,920,071	1,982,697	1,693,868	1,161,580	550,449	530,333	295,184	380,155	453,865	899,599	1,335,917	3,185,945	14,389,663
F Large volume - industrial	41	1,037,876	1,049,930	711,737	740,955	453,863	1,027,916	39,510	1,230,859	668,754	768,841	868,549	901,357	9,500,149
I Interruptible with firm option - ind	85	133,894	124,164	138,006	87,688	84,537	176,576	134,430	150,672	101,730	147,491	102,166	175,895	1,557,249
I Limited interrupt w/ firm option - ind	86	18,071	18,532	15,454	24,166	11,317	9,807	8,046	7,495	10,015	29,074	19,633	303,999	475,609
I Non-excl interrupt w/ firm option - ind	87	0	0	0	0	0	0	0	0	0	0	0	0	0
T Trans. - commercial	31T	2,158	3,421	697	1,866	1,271	768	221	1,963	549	2,932	89,385	-85,274	19,955
T Trans. large volume - commercial	41T	1,471,846	1,934,626	531,568	1,106,687	1,080,705	1,009,103	793,591	1,218,757	972,013	1,159,407	1,464,773	1,116,201	13,859,277
T Trans. interrupt with firm option - com	85T	2,118,113	3,064,456	1,047,684	1,933,917	1,694,365	1,745,325	1,681,239	2,528,863	798,919	2,066,029	1,868,268	2,155,724	22,702,900
T Trans. non-exclus inter w/ firm option - com	87T	1,951,460	3,913,159	-94,622	1,599,861	1,278,690	1,168,041	1,014,528	1,093,444	1,127,082	1,863,753	1,113,764	1,913,417	17,942,576
T Trans. - industrial	31T	4,410	2,531	3,906	2,821	1,981	623	0	0	0	0	0	0	16,272
T Trans. large volume - industrial	41T	519,665	1,013,753	207,865	577,053	565,620	461,301	415,083	665,211	473,339	539,227	545,700	491,945	6,475,762
T Trans. interrupt with firm option - ind	85T	4,528,829	6,304,390	2,618,419	3,952,102	4,540,873	4,212,502	4,026,444	4,289,592	4,344,189	4,690,276	4,159,750	4,085,807	51,753,173
T Trans. limited interrupt w/ firm option - ind	86T	49,344	43,261	47,998	20,571	28,894	16,797	16,356	13,576	18,921	36,888	30,447	28,235	351,288
T Trans. non-exclus inter w/ firm option - ind	87T	6,528,196	8,258,590	6,332,828	6,615,628	6,953,514	6,482,373	7,603,946	7,599,367	6,557,927	6,995,747	5,045,348	6,991,470	81,964,934
T Special contracts - ind	SC	4,032,428	5,366,620	2,533,019	3,178,038	2,302,353	2,150,808	1,817,240	1,242,901	2,733,436	3,940,248	2,150,157	4,201,168	35,648,418
Total sales & transportation volume		148,087,035	157,275,647	128,173,849	97,021,447	58,960,756	54,496,409	41,229,173	47,853,248	49,786,401	89,235,942	111,429,957	154,389,883	1,137,939,745
Subtotal transportation		21,206,449	29,904,806	13,229,362	18,988,544	18,448,264	17,247,641	17,368,647	18,653,674	17,026,375	21,294,508	16,467,593	20,898,692	230,734,556
<b>Customer Counts</b>														
Residential lamps	16	7	6	6	6	6	7	7	7	7	8	7	6	80
Residential	23	768,037	769,182	769,904	770,294	770,940	771,256	771,472	772,026	772,614	774,702	776,863	778,192	9,265,482
Propane	53	1	0	0	0	0	0	0	0	0	0	0	0	1
Standby & auxiliary heating - res	61													0
General service - commercial	31	54,410	54,413	54,486	54,455	54,442	54,374	54,349	54,342	54,331	54,478	54,612	54,744	653,436
Large volume - commercial	41	1,289	1,284	1,287	1,290	1,288	1,280	1,243	1,230	1,230	1,237	1,245	1,247	15,150
Emergency Compressed Nature Gas Service	50													0
Standby & auxiliary heating - com	61													0
Interruptible with firm option - com	85	25	25	25	25	25	24	24	24	24	24	24	24	293
Limited interrupt w/ firm option - com	86	222	222	222	222	221	221	220	220	220	220	217	213	2,640
Non-excl interrupt w/ firm option - com	87	5	5	5	5	5	5	5	5	5	5	5	5	60
General service - industrial	31	2,248	2,248	2,252	2,245	2,242	2,235	2,232	2,223	2,218	2,221	2,230	2,232	26,826
Large volume - industrial	41	73	73	73	73	73	72	72	72	71	71	73	72	868
Standby & auxiliary heating - ind	61													0
Interruptible with firm option - ind	85	4	4	4	4	4	4	4	4	4	4	4	4	48
Limited interrupt w/ firm option - ind	86	6	6	6	6	6	6	6	6	6	6	6	6	72
Non-excl interrupt w/ firm option - ind	87													0
Trans. - commercial	31T	2	2	2	2	2	2	3	2	2	2	2	2	25
Trans. large volume - commercial	41T	77	79	79	80	81	85	84	84	84	84	82	82	981
Trans. interrupt with firm option - com	85T	33	33	33	33	33	33	33	33	33	33	33	33	396
Trans. limited interrupt w/ firm option - com	86T													1
Trans. non-exclus inter w/ firm option - com	87T	3	3	3	3	3	3	3	3	3	3	3	3	36
Trans. - industrial	31T	1	1	1	1	1	1	0	0	0	0	0	0	6
Trans. large volume - industrial	41T	26	26	26	25	24	24	25	25	25	25	24	24	299
Trans. interrupt with firm option - ind	85T	68	68	68	68	69	70	70	70	70	70	70	70	831
Trans. limited interrupt w/ firm option - ind	86T	2	2	2	2	2	2	2	2	2	2	2	2	24
Trans. non-exclus inter w/ firm option - ind	87T	7	7	7	7	7	7	7	7	7	7	7	7	84
Special contracts - ind	SC	10	10	10	10	10	10	10	10	10	10	10	10	120
Total		826,556	827,699	828,501	828,856	829,484	829,721	829,871	830,395	830,966	833,212	835,519	836,979	9,967,759

Rate Class	Rate Sch.	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Total
<b>Usage Per Customer (Therms)</b>														
Residential	23	108	113	95	67	28	24	17	16	23	55	80	112	740
General service - commercial	31	514	526	475	318	203	182	135	145	161	279	381	547	3,866
Large volume - commercial	41	5,120	5,007	4,762	3,813	2,395	2,689	469	3,322	2,184	3,213	4,004	5,789	42,767
Large volume - industrial	41	14,217	14,383	9,750	10,150	6,217	14,277	549	17,095	9,419	10,829	11,898	12,519	131,303
Trans. large volume - commercial	41T	19,115	24,489	6,729	13,834	13,342	11,872	9,448	14,509	11,572	13,802	17,863	13,612	170,186
Trans. interrupt with firm option - com	85T	64,185	92,862	31,748	58,604	51,344	52,889	50,947	76,632	24,210	62,607	56,614	65,325	687,967
Trans. non-exclus inter w/ firm option - com	87T	650,487	1,304,386	-31,541	533,287	426,230	389,347	338,176	364,481	375,694	621,251	371,255	637,806	5,980,859
Interruptible with firm option - com	85	80,918	12,561	75,206	35,214	34,632	55,386	33,876	39,914	26,929	57,444	73,458	54,573	580,112
Limited interrupt w/ firm option - com	86	5,300	4,997	4,811	4,064	2,323	1,898	1,005	923	1,303	2,937	3,667	4,794	38,021
Non-excl interrupt w/ firm option - com	87	581,922	233,765	831,437	16,835	402,085	356,737	276,471	330,671	260,891	450,807	394,776	407,315	4,543,712
General service - industrial	31	854	882	752	517	246	237	132	171	205	405	599	1,427	6,428
Trans. General service - industrial	31T	4,410	2,531	3,906	2,821	1,981	623	0	0	0	0	0	0	16,272
Special contracts - ind	SC	403,243	536,662	253,302	317,804	230,235	215,081	181,724	124,290	273,344	394,025	215,016	420,117	3,564,842
<b>Weather Data</b>														
Actual heating degree days (HDD)		629	673	589	419	172	125	17	25	117	366	494	653	4,278
Normal heating degree days (HDD)		723	617	592	450	297	163	57	48	137	386	584	748	4,800
Difference (actual - normal HDD)		-95	56	-3	-31	-124	-38	-40	-22	-20	-20	-90	-94	-522
<b>Weather Normalization Coefficients</b>														
Residential	23	0.142589	0.135672	0.124869	0.097505	0.077024	0.049308	-	-	0.061267	0.103350	0.131090	0.140386	
General service - commercial	31	0.530047	0.483022	0.442668	0.309646	0.204967	-	-	-	0.286029	0.439966	0.517904	0.517904	
Large volume - commercial	41	4.423234	4.096090	4.255017	3.316930	3.085182	2.372405	-	-	1.886956	3.332477	3.963417	4.302514	
Trans. large volume - commercial	41T	6.245014	5.584304	6.601832	4.430010	3.140245	-	-	-	4.907023	5.095238	5.999064	5.999064	
Trans. interrupt with firm option - com	85T	25.863020	17.022880	23.357070	17.929850	18.489040	15.670390	-	-	-	19.421810	20.552880	25.147640	
Trans. non-exclus inter w/ firm option - com	87T	498.617700	416.053400	437.855600	350.514500	357.574600	231.974400	-	-	-	292.326000	405.238600	489.973100	
Interruptible with firm option - com	85	54.698980	51.855840	54.701530	47.905470	41.308880	-	-	-	-	42.228180	47.382180	51.544720	
Limited interrupt w/ firm option - com	86	6.306381	6.331225	6.477360	5.619127	5.451611	4.064739	-	-	3.822363	5.554151	5.970630	5.991973	
Non-excl interrupt w/ firm option - com	87	365.734700	312.016800	327.769800	283.701800	241.943600	-	-	-	-	262.266000	312.301400	353.040900	
General service - industrial	31	1.024623	0.963366	0.875636	0.624408	0.460654	0.267515	-	-	0.364275	0.622251	0.844629	0.981571	
Large volume - industrial	41	4.761362	3.707606	5.633764	3.607056	2.986578	-	-	-	-	4.887119	4.120049	4.208282	
Special contracts - ind	SC	366.296600	343.179700	353.948800	310.798800	284.052500	242.886800	-	-	191.566100	304.528200	327.966600	325.367500	
<b>Weather Normalized Usage per Customer (Therms)</b>														
Residential	23	122	105	96	70	38	26	17	16	24	57	92	126	789
General service - commercial	31	565	499	476	328	228	182	135	145	161	284	420	596	4,020
Large volume - commercial	41	5,538	4,779	4,775	3,916	2,778	2,778	469	3,322	2,222	3,278	4,360	6,195	44,413
Trans. large volume - commercial	41T	19,705	24,178	6,749	13,971	13,732	11,872	9,448	14,509	11,572	13,899	18,322	14,178	172,135
Trans. interrupt with firm option - com	85T	66,629	91,916	31,822	59,161	53,641	53,479	50,947	76,632	24,210	62,989	58,464	67,698	697,587
Trans. non-exclus inter w/ firm option - com	87T	697,609	1,281,255	-30,163	544,190	470,642	398,087	338,176	364,481	375,694	626,996	407,721	684,044	6,158,731
Interruptible with firm option - com	85	86,087	9,678	75,378	36,704	39,763	55,386	33,876	39,914	26,929	58,274	77,722	59,438	599,149
Limited interrupt w/ firm option - com	86	5,896	4,645	4,831	4,239	3,000	2,051	1,005	923	1,380	3,046	4,204	5,359	40,579
Non-excl interrupt w/ firm option - com	87	616,486	216,418	832,468	25,659	432,135	356,737	276,471	330,671	260,891	455,962	422,879	440,631	4,667,408
General service - industrial	31	951	828	755	537	303	247	132	171	212	417	675	1,520	6,749
Large volume - industrial	41	14,667	14,176	9,768	10,262	6,588	14,277	549	17,095	9,419	10,925	12,269	12,916	132,911
Trans. General service - industrial	31T	4,507	2,477	3,909	2,841	2,038	633	0	0	0	0	0	0	16,405
Special contracts - ind	SC	437,860	517,582	254,416	327,471	265,515	224,232	181,724	124,290	277,193	400,010	244,528	450,822	3,705,643

Rate Class	Rate Sch.	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Total
<b>Weather Normalized Volume - Rate Class Analysis (Therms)</b>														
Residential	23	93,421,351	80,765,757	73,588,981	54,225,391	29,283,078	20,073,082	13,034,137	12,666,894	18,783,606	44,226,801	71,485,047	97,694,107	609,248,232
General service - commercial	31	30,714,888	27,144,297	25,940,243	17,867,563	12,415,941	9,889,010	7,348,912	7,861,745	8,768,265	15,495,369	22,959,287	32,627,450	219,032,971
Large volume - commercial	41	7,138,484	6,136,791	6,145,774	5,051,833	3,577,706	3,556,045	583,132	4,086,516	2,733,322	4,055,491	5,428,804	7,725,769	56,219,667
Trans. large volume - commercial	41T	1,517,291	1,910,099	533,209	1,117,711	1,112,297	1,009,103	793,591	1,218,757	972,013	1,167,508	1,502,370	1,162,624	51,468,427
Trans. interrupt with firm option - com	85T	2,198,771	3,033,224	1,050,110	1,952,322	1,770,145	1,764,808	1,681,239	2,528,863	798,919	2,078,625	1,929,201	2,234,038	579,694,633
Trans. non-exclus inter w/ firm option - com	87T	2,092,826	3,843,764	-90,488	1,632,570	1,411,925	1,194,260	1,014,528	1,093,444	1,127,082	1,880,988	1,223,162	2,052,133	18,476,194
Interruptible with firm option - com	85	2,152,175	241,960	1,884,447	917,598	994,071	1,329,275	813,027	957,935	646,293	1,398,584	1,865,317	1,426,505	14,627,185
Limited interrupt w/ firm option - com	86	1,308,850	1,031,269	1,072,534	941,064	662,987	453,237	221,023	203,131	303,543	670,172	912,228	1,141,555	8,921,592
Non-excl interrupt w/ firm option - com	87	3,082,429	1,082,091	4,162,341	128,297	2,160,675	1,783,685	1,382,354	1,653,355	1,304,457	2,279,809	2,114,394	2,203,154	23,337,042
General service - industrial	31	2,137,751	1,862,293	1,700,074	1,205,184	678,724	552,859	295,184	380,155	470,100	926,760	1,505,409	3,392,696	15,107,187
Large volume - industrial	41	1,070,725	1,034,883	713,031	749,146	480,941	1,027,916	39,510	1,230,859	668,754	775,660	895,614	929,951	9,616,990
Trans. General service - industrial	31T	4,507	2,477	3,909	2,841	2,038	633	0	0	0	0	0	0	16,405
Special contracts - ind	SC	4,378,598	5,175,822	2,544,159	3,274,714	2,655,154	2,242,316	1,817,240	1,242,901	2,771,928	4,000,097	2,445,284	4,508,216	37,056,428
Total weather normalized portion of volume		151,218,646	133,264,725	119,248,324	89,066,233	57,205,683	44,876,229	29,023,877	35,124,555	39,348,282	78,955,862	114,266,217	157,098,198	1,048,696,830

<b>Cat Weather Adjustment to Volume - Rate Class Analysis (Therms)</b>														
F Residential	23	10,349,646	-5,801,929	302,565	2,336,261	7,375,271	1,432,746	0	0	951,120	1,573,509	9,164,164	10,309,603	37,992,955
F General service - commercial	31	2,725,527	-1,461,244	75,909	524,495	1,385,956	0	0	0	306,235	2,162,151	2,675,575	8,394,604	8,394,604
F Large volume - commercial	41	538,828	-292,407	17,235	133,096	493,546	114,407	0	0	46,635	81,014	444,036	506,314	2,082,704
T Trans. large volume - commercial	41T	45,445	-24,527	1,641	11,024	31,592	0	0	0	8,101	37,597	46,423	157,295	157,295
T Trans. interrupt with firm option - com	85T	80,659	-31,232	2,426	18,405	75,781	19,483	0	0	12,596	61,033	78,315	317,464	317,464
T Trans. non-exclus inter w/ firm option - com	87T	141,366	-69,394	4,134	32,709	133,235	26,219	0	0	17,235	109,398	138,715	533,618	533,618
I Interruptible with firm option - com	85	129,234	-72,076	4,304	37,253	128,267	0	0	0	19,918	102,331	116,742	465,972	465,972
I Limited interrupt w/ firm option - com	86	132,309	-78,144	4,526	38,803	149,640	33,844	0	0	16,897	24,014	116,589	120,443	558,921
I Non-excl interrupt w/ firm option - com	87	172,820	-86,736	5,158	44,124	150,250	0	0	0	25,771	140,515	166,581	618,483	618,483
F General service - industrial	31	217,680	-120,404	6,206	43,604	128,275	22,526	0	0	16,234	27,161	169,492	206,751	717,524
F Large volume - industrial	41	32,848	-15,048	1,294	8,191	27,079	0	0	0	6,819	27,065	28,594	116,842	116,842
T Trans. General service - industrial	31T	97	-54	3	19	57	10	0	0	0	0	0	0	133
T Special contracts - ind	SC	346,171	-190,798	11,140	96,676	352,801	91,508	0	0	38,491	59,848	295,127	307,048	1,408,010
Total adjustment		14,912,629	-8,243,993	436,540	3,324,657	10,431,750	1,740,742	0	0	1,069,377	2,162,220	12,829,498	14,701,104	53,364,524
Percent change		10.1%	-5.2%	0.3%	3.4%	17.7%	3.2%	0.0%	0.0%	2.1%	2.4%	11.5%	9.5%	4.7%

<b>Weather Adjustment by Group - System Level Analysis (TI Set to be equal to Rate Class Analysis)</b>														
Firm		13,864,529	-7,691,032	403,209	3,045,646	9,410,126	1,569,679	0	0	1,013,989	1,994,738	11,966,907	13,726,837	49,304,628
Interruptible		434,363	-236,956	13,987	120,179	428,158	33,844	0	0	16,897	69,703	359,435	403,766	1,643,375
Transportation		613,737	-316,005	19,344	158,832	593,467	137,219	0	0	38,491	97,780	503,155	570,500	2,416,520
Total adjustment		14,912,629	-8,243,993	436,540	3,324,657	10,431,750	1,740,742	0	0	1,069,377	2,162,220	12,829,498	14,701,104	53,364,524

<b>Weather Adjustment to Volume - System Level Analysis Spread to Rate Classes (Therms)</b>														
Residential	23	10,349,646	-5,801,929	302,565	2,336,261	7,375,271	1,432,746	0	0	951,120	1,573,509	9,164,164	10,309,603	37,992,955
General service - commercial	31	2,725,527	-1,461,244	75,909	524,495	1,385,956	0	0	0	306,235	2,162,151	2,675,575	8,394,604	8,394,604
Large volume - commercial	41	538,828	-292,407	17,235	133,096	493,546	114,407	0	0	46,635	81,014	444,036	506,314	2,082,704
Trans. large volume - commercial	41T	45,445	-24,527	1,641	11,024	31,592	0	0	0	8,101	37,597	46,423	157,296	157,296
Trans. interrupt with firm option - com	85T	80,659	-31,232	2,426	18,405	75,781	19,483	0	0	12,596	61,033	78,315	317,466	317,466
Trans. non-exclus inter w/ firm option - com	87T	141,366	-69,394	4,134	32,709	133,235	26,219	0	0	17,235	109,398	138,715	533,617	533,617
Interruptible with firm option - com	85	129,234	-72,076	4,304	37,253	128,267	0	0	0	19,918	102,331	116,742	465,973	465,973
Limited interrupt w/ firm option - com	86	132,309	-78,144	4,526	38,803	149,640	33,844	0	0	16,897	24,014	116,589	120,443	558,921
Non-excl interrupt w/ firm option - com	87	172,820	-86,736	5,158	44,124	150,250	0	0	0	25,771	140,515	166,581	618,483	618,483
General service - industrial	31	217,680	-120,404	6,206	43,604	128,275	22,526	0	0	16,234	27,161	169,492	206,751	717,525
Large volume - industrial	41	32,848	-15,048	1,294	8,191	27,079	0	0	0	6,819	27,065	28,594	116,842	116,842
Trans. General service - industrial	31T	97	-54	3	19	57	10	0	0	0	0	0	0	132
Special contracts - ind	SC	346,171	-190,798	11,140	96,676	352,801	91,508	0	0	38,491	59,848	295,127	307,048	1,408,012
Total adjustment		14,912,630	-8,243,993	436,541	3,324,660	10,431,750	1,740,743	0	0	1,069,377	2,162,221	12,829,498	14,701,104	53,364,531
Percent change		10%	-5%	0%	3%	18%	3%	0%	0%	2%	2%	12%	10%	5%

Rate Class	Rate Sch.	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Total
<b>Cat Weather Normalized Volume - System Level Analysis (Therms)</b>														
F Residential	23	93,421,351	80,765,757	73,588,981	54,225,391	29,283,079	20,073,082	13,034,137	12,666,894	18,783,606	44,226,801	71,485,048	97,694,107	609,248,233
F General service - commercial	31	30,714,888	27,144,296	25,940,244	17,867,564	12,415,942	9,889,010	7,348,912	7,861,745	8,768,265	15,495,368	22,959,287	32,627,450	219,032,972
F Large volume - commercial	41	7,138,484	6,136,791	6,145,774	5,051,833	3,577,705	3,556,045	583,132	4,086,516	2,733,322	4,055,491	5,428,804	7,725,769	56,219,667
T Trans. large volume - commercial	41T	1,517,291	1,910,099	533,209	1,117,711	1,112,297	1,009,103	793,591	1,218,757	972,013	1,167,508	1,502,370	1,162,624	14,016,573
T Trans. interrupt with firm option - com	85T	2,198,772	3,033,224	1,050,110	1,952,322	1,770,146	1,764,808	1,681,239	2,528,863	798,919	2,078,625	1,929,301	2,234,039	23,020,366
T Trans. non-exclus inter w/ firm option - com	87T	2,092,826	3,843,765	-90,488	1,632,570	1,411,925	1,194,260	1,014,528	1,093,444	1,127,082	1,880,988	1,223,162	2,052,132	18,476,193
I Interruptible with firm option - com	85	2,152,175	241,960	1,884,447	917,598	994,071	1,329,275	813,027	957,935	646,293	1,398,584	1,865,317	1,426,505	14,627,186
I Limited interrupt w/ firm option - com	86	1,308,849	1,031,269	1,072,534	941,064	662,987	453,237	221,023	203,131	303,543	670,172	912,227	1,141,555	8,921,592
I Non-excl interrupt w/ firm option - com	87	3,082,430	1,082,091	4,162,341	128,298	2,160,675	1,783,685	1,382,354	1,653,355	1,304,457	2,279,808	2,114,393	2,203,154	23,337,042
F General service - industrial	31	2,137,751	1,862,293	1,700,074	1,205,184	678,724	552,859	295,184	380,155	470,099	926,760	1,505,409	3,392,696	15,107,188
F Large volume - industrial	41	1,070,724	1,034,882	713,031	749,146	480,942	1,027,916	39,510	1,230,859	668,754	775,660	895,614	929,951	9,616,991
T Trans. General service - industrial	31T	4,507	2,477	3,909	2,840	2,038	633	0	0	0	0	0	0	16,404
T Special contracts - ind	SC	4,378,599	5,175,822	2,544,159	3,274,714	2,655,154	2,242,316	1,817,240	1,242,901	2,771,927	4,000,096	2,445,284	4,508,216	37,056,430
Total weather normalized portion of volume		151,218,647	133,264,726	119,248,325	89,066,235	57,205,683	44,876,230	29,023,877	35,124,555	39,348,281	78,955,862	114,266,217	157,098,198	1,048,696,837
F Residential lights	16	798	798	798	798	798	798	770	817	827	665	808	713	9,386
F Propane	53	63	20	0	0	0	0	0	0	0	0	0	0	83
F Emergency Compressed Nature Gas Service	50	0	0	0	0	0	0	0	0	0	0	0	0	0
T Trans. - commercial	31T	2,158	3,421	697	1,866	1,271	768	221	1,963	549	2,932	89,385	-85,274	19,955
I Interruptible with firm option - ind	85	133,894	124,164	138,006	87,688	84,537	176,576	134,430	150,672	101,730	147,491	102,166	175,895	1,557,249
I Limited interrupt w/ firm option - ind	86	18,071	18,532	15,454	24,166	11,317	9,807	8,046	7,495	10,015	29,074	19,633	303,999	475,609
I Non-excl interrupt w/ firm option - ind	87	0	0	0	0	0	0	0	0	0	0	0	0	0
T Trans. large volume - industrial	41T	519,665	1,013,753	207,865	577,053	565,620	461,301	415,083	665,211	473,339	539,227	545,700	491,945	6,475,762
T Trans. interrupt with firm option - ind	85T	4,528,829	6,304,390	2,618,419	3,952,102	4,540,873	4,212,502	4,026,444	4,289,592	4,344,189	4,690,276	4,159,750	4,085,807	51,753,173
T Trans. limited interrupt w/ firm option - ind	86T	49,344	43,261	47,998	20,571	28,894	16,797	16,356	13,576	18,921	36,888	30,447	28,235	351,288
T Trans. non-exclus inter w/ firm option - ind	87T	6,528,196	8,258,590	6,332,828	6,615,628	6,953,514	6,482,373	7,603,946	7,599,367	6,557,927	6,995,747	5,045,348	6,991,470	81,964,934
Total other volume		11,781,018	15,766,928	9,362,064	11,279,871	12,186,823	11,360,921	12,205,296	12,728,693	11,507,496	12,442,300	9,993,238	11,992,788	142,607,439
Total weather normalized volume		162,999,665	149,031,654	128,610,390	100,346,107	69,392,506	56,237,152	41,229,173	47,853,248	50,855,778	91,398,163	124,259,455	169,090,987	1,191,304,276
<b>Weather Adjustment by Rate Class (Therms)</b>														
Residential (16)		0	0	0	0	0	0	0	0	0	0	0	0	0
Residential (23,53)		10,349,646	-5,801,929	302,565	2,336,261	7,375,271	1,432,746	0	0	951,120	1,573,509	9,164,164	10,309,603	37,992,956
Commercial & industrial (31)		2,943,207	-1,581,648	82,115	568,099	1,514,231	22,526	0	0	16,234	333,396	2,331,643	2,882,326	9,112,129
Large volume (41)		571,676	-307,455	18,529	141,287	520,625	114,407	0	0	46,635	87,833	471,101	534,908	2,199,546
Compressed natural gas (50)		0	0	0	0	0	0	0	0	0	0	0	0	0
Standby & auxiliary heating (61)		0	0	0	0	0	0	0	0	0	0	0	0	0
Interruptible (85)		129,234	-72,076	4,304	37,253	128,267	0	0	0	0	19,918	102,331	116,742	465,973
Limited interruptible (86)		132,309	-78,144	4,526	38,803	149,640	33,844	0	0	16,897	24,014	116,589	120,443	558,921
Non exclusive interruptible (87)		172,820	-86,736	5,158	44,124	150,250	0	0	0	0	25,771	140,515	166,581	618,483
Trans. General services (31T)		97	-54	3	19	57	10	0	0	0	0	0	0	132
Trans. large volume (41T)		45,445	-24,527	1,641	11,024	31,592	0	0	0	0	8,101	37,597	46,423	157,296
Trans. interrupt with firm option (85T)		80,659	-31,232	2,426	18,405	75,781	19,483	0	0	0	12,596	61,033	78,315	317,466
Trans. limited interrupt w/ firm option - ind (86T)		0	0	0	0	0	0	0	0	0	0	0	0	0
Trans. non-exclus inter w/firm option (87T)		141,366	-69,394	4,134	32,709	133,235	26,219	0	0	0	17,235	109,398	138,715	533,617
Contracts		346,171	-190,798	11,140	96,676	352,801	91,508	0	0	38,491	59,848	295,127	307,048	1,408,012
Total adjustment		14,912,630	-8,243,993	436,541	3,324,660	10,431,750	1,740,743	0	0	1,069,377	2,162,221	12,829,498	14,701,104	53,364,531
Check		1	0	1	3	0	1	0	-1	0	1	0	0	7



Rate Class	Rate Sch.	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Total
<b>Weather Normalized Usage Per Customer (Therms)</b>														
Residential & residential propane	23	122	105	96	70	38	26	17	16	24	57	92	126	789
General service - commercial & industrial	31	580	512	487	336	231	184	135	146	163	290	430	632	4,127
Large volume	41	6,027	5,285	5,043	4,256	2,982	3,391	473	4,084	2,615	3,694	4,798	6,562	49,211
Propane	53	63	0	0	0	0	0	0	0	0	0	0	0	63
Emergency Compressed Nature Gas Service	50	0	0	0	0	0	0	0	0	0	0	0	0	0
Trans. General services (31T)	31T	2,222	1,966	1,535	1,569	1,103	467	74	982	275	1,466	44,693	-42,637	1,173
Trans. large volume (41T)	41T	19,776	27,846	7,058	16,141	15,980	13,490	11,089	17,284	13,260	15,658	19,321	15,609	192,513
Trans. interrupt with firm option (85T)	85T	66,610	92,452	36,322	58,460	61,873	58,032	55,414	66,199	49,933	65,717	59,117	61,358	731,486
Trans. limited interrupt w/ firm option (86T)	86T	24,672	21,631	23,999	10,286	14,447	8,399	8,178	6,788	9,461	18,444	15,224	9,412	170,938
Trans. non-exclus inter w/firm option (87T)	87T	862,102	1,210,235	624,234	824,820	836,544	767,663	861,847	869,281	768,501	887,674	626,851	904,360	10,044,113
Interruptible with firm option	85	78,830	12,625	69,740	34,665	37,193	53,780	33,838	39,593	26,715	55,217	70,267	57,229	569,692
Limited interrupt w/ firm option	86	5,820	4,604	4,772	4,233	2,971	2,040	1,014	932	1,387	3,094	4,179	6,601	41,646
Non-exclus interrupt/firm option	87	616,486	216,418	832,468	25,660	432,135	356,737	276,471	330,671	260,891	455,962	422,879	440,631	4,667,408
Contracts	SC	437,860	517,582	254,416	327,471	265,515	224,232	181,724	124,290	277,193	400,010	244,528	450,822	3,705,643
Total		197	180	155	121	84	68	50	58	61	110	149	202	1,434
<b>Weather Normalized Volumes - System Level Summary (Therms)</b>														
Firm		134,484,059	116,944,837	108,088,901	79,099,916	46,437,189	35,099,710	21,301,645	26,226,987	31,424,874	65,480,746	102,274,970	142,370,685	909,234,519
Interruptible		6,695,419	2,498,016	7,272,782	2,098,814	3,913,587	3,752,580	2,558,880	2,972,587	2,366,038	4,525,129	5,013,737	5,251,108	48,918,678
Transportation		21,820,187	29,588,801	13,248,706	19,147,377	19,041,730	17,384,861	17,368,647	18,653,674	17,064,866	21,392,288	16,970,748	21,469,193	233,151,079
Total adjustment		162,999,665	149,031,654	128,610,390	100,346,107	69,392,506	56,237,152	41,229,173	47,853,248	50,855,778	91,398,163	124,259,455	169,090,987	1,191,304,276
<b>Actual Volumes - System Level Summary (Therms)</b>														
Firm		120,619,530	124,635,869	107,685,692	76,054,269	37,027,062	33,530,031	21,301,645	26,226,987	30,410,885	63,486,008	90,308,062	128,643,848	859,929,888
Interruptible		6,261,056	2,734,972	7,258,794	1,978,634	3,485,430	3,718,736	2,558,880	2,972,587	2,349,141	4,455,426	4,654,302	4,847,342	47,275,301
Transportation		21,206,449	29,904,806	13,229,362	18,988,544	18,448,264	17,247,641	17,368,647	18,653,674	17,026,375	21,294,508	16,467,593	20,898,692	230,734,556
Total adjustment		148,087,035	157,275,647	128,173,849	97,021,447	58,960,756	54,496,409	41,229,173	47,853,248	49,786,401	89,235,942	111,429,957	154,389,883	1,137,939,745

**Temperature Adjustment of Test Year Gas Sales by Rate Schedule (Therms)**

Month	Residential (Sch.23)			General service - commercial (Sch.31)			Large volume - commercial (Sch.41)			Trans. large volume - commercial (Sch.41T)		
	Actual	Normalized	Adjustments	Actual	Normalized	Adjustments	Actual	Normalized	Adjustments	Actual	Normalized	Adjustments
Jan-18	83,071,705	93,421,351	10,349,646	27,989,361	30,714,888	2,725,527	6,599,656	7,138,484	538,828	1,471,846	1,517,291	45,445
Feb-18	86,567,686	80,765,757	(5,801,929)	28,605,540	27,144,296	(1,461,244)	6,429,198	6,136,791	(292,407)	1,934,626	1,910,099	(24,527)
Mar-18	73,286,416	73,588,981	302,565	25,864,335	25,940,244	75,909	6,128,539	6,145,774	17,235	531,568	533,209	1,641
Apr-18	51,889,130	54,225,391	2,336,261	17,343,069	17,867,564	524,495	4,918,737	5,051,833	133,096	1,106,687	1,117,711	11,024
May-18	21,907,808	29,283,079	7,375,271	11,029,986	12,415,942	1,385,956	3,084,159	3,577,705	493,546	1,080,705	1,112,297	31,592
Jun-18	18,640,336	20,073,082	1,432,746	9,889,010	9,889,010	0	3,441,638	3,556,045	114,407	1,009,103	1,009,103	0
Jul-18	13,034,137	13,034,137	0	7,348,912	7,348,912	0	583,132	583,132	0	793,591	793,591	0
Aug-18	12,666,894	12,666,894	0	7,861,745	7,861,745	0	4,086,516	4,086,516	0	1,218,757	1,218,757	0
Sep-18	17,832,486	18,783,606	951,120	8,768,265	8,768,265	0	2,686,687	2,733,322	46,635	972,013	972,013	0
Oct-18	42,653,292	44,226,801	1,573,509	15,189,133	15,495,368	306,235	3,974,477	4,055,491	81,014	1,159,407	1,167,508	8,101
Nov-18	62,320,884	71,485,048	9,164,164	20,797,136	22,959,287	2,162,151	4,984,768	5,428,804	444,036	1,464,773	1,502,370	37,597
Dec-18	87,384,504	97,694,107	10,309,603	29,951,875	32,627,450	2,675,575	7,219,455	7,725,769	506,314	1,116,201	1,162,624	46,423
Test Year	571,255,277	609,248,233	37,992,956	219,638,368	219,032,972	8,394,604	54,136,963	56,219,667	2,082,704	13,859,277	14,016,573	157,296

  

Month	Trans. interrupt with firm option - com (Sch.85T)			Trans. non-exclus inter w/ firm option - com (Sch.87T)			Interruptible with firm option - com (Sch.85)			Limited interrupt w/ firm option - com (Sch.86)		
	Actual	Normalized	Adjustments	Actual	Normalized	Adjustments	Actual	Normalized	Adjustments	Actual	Normalized	Adjustments
Jan-18	2,118,113	2,198,772	80,659	1,951,460	2,092,826	141,366	2,022,941	2,152,175	129,234	1,176,540	1,308,849	132,309
Feb-18	3,064,456	3,033,224	(31,232)	3,913,159	3,843,765	(69,394)	314,036	241,960	(72,076)	1,109,413	1,031,269	(78,144)
Mar-18	1,047,684	1,050,110	2,426	(94,622)	(90,488)	4,134	1,880,143	1,884,447	4,304	1,068,008	1,072,534	4,526
Apr-18	1,933,917	1,952,322	18,405	1,599,861	1,632,570	32,709	880,345	917,598	37,253	902,261	941,064	38,803
May-18	1,694,365	1,770,146	75,781	1,278,690	1,411,925	133,235	865,804	994,071	128,267	513,347	662,987	149,640
Jun-18	1,745,325	1,764,808	19,483	1,168,041	1,194,260	26,219	1,329,275	1,329,275	0	419,393	453,237	33,844
Jul-18	1,681,239	1,681,239	0	1,014,528	1,014,528	0	813,027	813,027	0	221,023	221,023	0
Aug-18	2,528,863	2,528,863	0	1,093,444	1,093,444	0	957,935	957,935	0	203,131	203,131	0
Sep-18	798,919	798,919	0	1,127,082	1,127,082	0	646,293	646,293	0	286,646	303,543	16,897
Oct-18	2,066,029	2,078,625	12,596	1,863,753	1,880,988	17,235	1,378,666	1,398,584	19,918	646,158	670,172	24,014
Nov-18	1,868,268	1,929,301	61,033	1,113,764	1,223,162	109,398	1,762,986	1,865,317	102,331	795,638	912,227	116,589
Dec-18	2,155,724	2,234,039	78,315	1,913,417	2,052,132	138,715	1,309,763	1,426,505	116,742	1,021,112	1,141,555	120,443
Test Year	22,702,900	23,020,366	317,466	17,942,576	18,476,193	533,617	14,161,213	14,627,186	465,973	8,362,671	8,921,592	558,921

  

Month	Non-excl interrupt w/ firm option - com (Sch.87)			General service - industrial (Sch.31)			Large volume - industrial (Sch.41)			Special contracts - ind (Sch.SC)		
	Actual	Normalized	Adjustments	Actual	Normalized	Adjustments	Actual	Normalized	Adjustments	Actual	Normalized	Adjustments
Jan-18	2,909,610	3,082,430	172,820	1,920,071	2,137,751	217,680	1,037,876	1,070,724	32,848	4,032,428	4,378,599	346,171
Feb-18	1,168,827	1,082,091	(86,736)	1,982,697	1,862,293	(120,404)	1,049,930	1,034,882	(15,048)	5,366,620	5,175,822	(190,798)
Mar-18	4,157,183	4,162,341	5,158	1,693,868	1,700,074	6,206	711,737	713,031	1,294	2,533,019	2,544,159	11,140
Apr-18	84,174	128,298	44,124	1,161,580	1,205,184	43,604	740,955	749,146	8,191	3,178,038	3,274,714	96,676
May-18	2,010,425	2,160,675	150,250	550,449	678,724	128,275	453,863	480,942	27,079	2,302,353	2,655,154	352,801
Jun-18	1,783,685	1,783,685	0	530,333	552,859	22,526	1,027,916	1,027,916	0	2,150,808	2,242,316	91,508
Jul-18	1,382,354	1,382,354	0	295,184	295,184	0	39,510	39,510	0	1,817,240	1,817,240	0
Aug-18	1,653,355	1,653,355	0	380,155	380,155	0	1,230,859	1,230,859	0	1,242,901	1,242,901	0
Sep-18	1,304,457	1,304,457	0	453,865	470,099	16,234	668,754	668,754	0	2,733,436	2,771,927	38,491
Oct-18	2,254,037	2,279,808	25,771	899,599	926,760	27,161	768,841	775,660	6,819	3,940,248	4,000,096	59,848
Nov-18	1,973,878	2,114,393	140,515	1,335,917	1,505,409	169,492	868,549	895,614	27,065	2,150,157	2,445,284	295,127
Dec-18	2,036,573	2,203,154	166,581	3,185,945	3,392,696	206,751	901,357	929,951	28,594	4,201,168	4,508,216	307,048
Test Year	22,718,559	23,337,042	618,483	14,389,663	15,107,188	717,525	9,500,149	9,616,991	116,842	35,648,418	37,056,430	1,408,012



Month	Trans. General Service - Industrial (Sch.31T)			Total weather normalized portion of volume		
	Actual	Normalized	Adjustments	Actual	Normalized	Adjustments
Jan-18	4,410	4,507	97	136,306,017	151,218,647	14,912,630
Feb-18	2,531	2,477	(54)	141,508,719	133,264,726	(8,243,993)
Mar-18	3,906	3,909	3	118,811,784	119,248,325	436,541
Apr-18	2,821	2,840	19	85,741,575	89,066,235	3,324,660
May-18	1,981	2,038	57	46,773,933	57,205,683	10,431,750
Jun-18	623	633	10	43,135,487	44,876,230	1,740,743
Jul-18	0	0	0	29,023,877	29,023,877	0
Aug-18	0	0	0	35,124,555	35,124,555	0
Sep-18	0	0	0	38,278,904	39,348,281	1,069,377
Oct-18	0	0	0	76,793,641	78,955,862	2,162,221
Nov-18	0	0	0	101,436,719	114,266,217	12,829,498
Dec-18	0	0	0	142,397,094	157,098,198	14,701,104
Test Year	16,272	16,404	132	995,332,306	1,048,696,837	53,364,531