

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**In the Matter of the Petition of
PUGET SOUND ENERGY
For Approval of its April 2019 Power
Cost Adjustment Mechanism Report**

DOCKET UE-19_____

**SECOND EXHIBIT (NONCONFIDENTIAL) TO THE
PREFILED DIRECT TESTIMONY OF**

RONALD J. ROBERTS

ON BEHALF OF PUGET SOUND ENERGY

APRIL 30, 2019

Colstrip Unit 3 MATS PM Compliance Tests 2016 - 2018													
Date	Time (MST)	Load (GMW)	Reference Method 5B				%ISO	%CO ₂	%O ₂	%H ₂ O	%OP	Flow Rates	
			lb/mmBtu	gr/DSCF	gr/ASCF	lb/HR						DSCFh	ACFh
8/9/2016	07:39-09:00	793	0.025	0.0115	0.0098	196	101.1	12.0	7.5	14.9	14.0	119,573,743	201,028,606
8/9/2016	9:48-11:12	792	0.022	0.0100	0.0085	171	100.9	11.9	7.7	15.2	14.5	119,687,944	201,680,891
8/9/2016	11:58-13:21	789	0.021	0.0097	0.0082	164	100.8	11.9	7.4	15.5	14.5	117,957,644	199,147,029
10/11/2016	06:36-08:04	794	0.017	0.0079	0.0068	133	96.3	12.2	7.5	14.0	14.7	118,383,497	195,236,647
10/11/2016	08:49-10:19	796	0.031	0.0144	0.0123	243	97.6	12.1	7.4	14.4	15.9	118,102,907	195,569,730
10/11/2016	11:00-12:21	796	0.018	0.0084	0.0072	142	96.4	12.4	7.2	14.2	14.0	118,996,255	196,089,105
1/25/2017	09:08-10:30	769	0.019	0.0082	0.0070	135	100.1	11.6	8.0	13.8	14.8	115,987,507	190,594,115
1/25/2017	11:15-12:39	770	0.021	0.0091	0.0078	150	98.7	11.7	8.0	14.1	15.6	116,202,237	191,412,727
1/25/2017	13:44-15:08	769	0.020	0.0087	0.0075	145	99.5	11.8	7.9	14.1	15.0	116,687,081	192,605,491
4/25/2017	07:41-09:02	752	0.020	0.0091	0.0078	148	102.9	11.8	7.8	14.1	12.2	114,173,453	189,724,016
4/25/2017	09:42-11:02	753	0.021	0.0095	0.0082	155	102.0	11.5	7.9	14.1	12.5	114,192,809	188,960,919
4/25/2017	11:37-12:57	752	0.022	0.0097	0.0083	157	104.1	11.5	8.1	14.3	12.3	114,225,282	189,623,087
7/25/2017	07:29-08:50	744	0.024	0.0107	0.0092	173	102.0	11.7	7.9	14.5	13.7	112,627,502	186,304,930
7/25/2017	09:33-10:53	745	0.022	0.0096	0.0082	154	100.3	11.8	7.8	14.6	13.8	111,983,548	185,324,314
7/25/2017	11:35-12:55	744	0.022	0.0097	0.0083	154	99.8	11.7	7.8	14.7	13.6	111,461,985	184,494,810
10/24/2017	07:54-09:16	750	0.021	0.0095	0.0082	153	99.5	11.7	7.9	13.9	11.8	112,701,980	183,736,117
10/24/2017	10:01-11:22	752	0.025	0.0112	0.0096	181	99.9	11.9	7.8	14.2	11.3	113,129,798	185,263,812
10/24/2017	12:03-13:25	753	0.023	0.0104	0.0089	166	98.6	11.8	7.8	14.4	11.8	111,868,108	183,811,180
2/7/2018	0836-1027	790	0.029	0.0130	0.0110	214	101.6	12.1	7.6	15.0	13.9	115,413,438	194,497,787
2/7/2018	1109-1230	761	0.028	0.0129	0.0110	208	100.3	12.2	7.5	14.9	13.8	113,354,664	190,038,607
2/7/2018	1305-1427	761	0.023	0.0105	0.0089	169	100.4	12.1	7.7	15.1	14.4	112,449,934	189,117,785
6/21/2018	09:31-10:51	733	0.042	0.0180	0.0153	292	100.9	11.3	8.3	15.1	13.6	113,774,347	190,494,817
6/21/2018	11:32-12:53	734	0.041	0.0180	0.0153	293	99.8	11.5	8.1	15.2	13.8	114,193,328	191,811,355
6/21/2018	13:32-14:54	733	0.045	0.0195	0.0166	319	100.0	11.6	8.1	15.2	14.0	114,325,667	192,602,793
9/11/2018	06:41-08:02	759	0.024	0.0107	0.0091	176	99.2	11.5	8.0	15.0	14.8	115,093,796	192,038,278
9/11/2018	08:41-10:02	759	0.023	0.0101	0.0086	165	100.2	11.6	8.0	15.1	13.9	114,236,013	190,657,074
9/11/2018	10:42-12:03	760	0.025	0.0107	0.0091	175	99.6	11.4	8.1	15.2	13.7	114,194,967	190,928,067
11/13/2018	08:07-09:28	757	0.019	0.0083	0.0072	137	99.9	11.6	8.1	14.2	13.4	114,949,263	188,792,406
11/13/2018	10:05-11:24	756	0.018	0.0079	0.0068	130	99.2	11.6	8.0	14.4	13.7	114,815,767	188,886,727
11/13/2018	12:06-13:27	757	0.019	0.0084	0.0072	138	100.4	11.6	8.0	14.5	13.5	115,008,999	189,783,269
12/11/2018	08:24-09:44	756	0.018	0.0081	0.0070	132	96.3	11.5	8.0	14.0	13.5	113,877,566	187,197,078
12/11/2018	10:19-11:39	755	0.017	0.0076	0.0065	123	100.3	11.7	8.0	14.3	14.7	113,369,164	186,908,841
12/11/2018	12:14-13:34	756	0.017	0.0072	0.0062	117	98.9	11.6	8.1	14.3	14.7	112,870,945	186,485,353

Colstrip Unit 4 MATS PM Compliance Tests 2016 - 2018													
Date	Time (MST)	Load (GMW)	Reference Method 5B				%ISO	%CO ₂	%O ₂	%H ₂ O	%OP	Flow Rates	
			lb/mmBtu	gr/DSCF	gr/ASCF	lb/HR						DSCFh	ACFh
8/11/2016	07:38-09:02	791	0.027	0.0118	0.0101	192	104.0	11.7	7.8	14.8	16.2	113,706,989	189,093,801
8/11/2016	09:57-11:21	791	0.026	0.0118	0.0100	191	104.7	11.8	7.6	14.7	14.7	113,698,443	188,993,258
8/11/2016	12:05-13:29	791	0.026	0.0119	0.0101	190	103.3	11.8	7.7	14.9	15.0	112,124,733	186,652,416
10/12/2016	07:33-09:01	796	0.019	0.0091	0.0078	147	103.9	12.5	7.1	13.8	15.6	113,307,004	184,408,014
10/12/2016	09:37-10:59	790	0.019	0.0090	0.0078	143	103.7	12.4	7.1	14.1	16.1	111,241,759	182,112,733
10/12/2016	11:31-12:51	781	0.022	0.0100	0.0086	162	102.4	12.0	7.5	14.1	15.1	113,333,400	185,594,759
2/1/2017	08:25-09:49	797	0.019	0.0088	0.0076	145	104.1	12.4	7.3	13.9	16.1	116,150,275	186,166,094
2/1/2017	10:37-12:00	797	0.022	0.0104	0.0090	173	103.7	12.6	7.2	13.9	16.4	115,870,899	185,710,988
2/1/2017	12:49-14:13	797	0.019	0.0092	0.0079	154	103.0	12.9	6.7	14.1	16.4	117,594,520	188,705,417
4/26/2017	07:38-08:58	759	0.031	0.0137	0.0117	229	97.8	11.7	7.7	14.6	15.8	116,786,807	193,543,775
4/26/2017	09:36-10:57	750	0.030	0.0135	0.0115	228	100.6	11.6	7.9	14.6	17.0	118,330,453	196,136,653
4/26/2017	11:32-12:53	749	0.027	0.0120	0.0102	201	99.5	11.5	7.9	14.7	16.3	117,649,447	196,318,476
5/16/2017	07:40-09:00	752	0.025	0.0111	0.0095	177	103.2	11.6	8.0	14.6	13.4	111,896,863	184,199,733
5/16/2017	09:39-11:00	752	0.022	0.0097	0.0083	154	104.6	11.7	7.8	14.8	14.1	111,500,038	184,098,611
5/16/2017	11:38-12:58	752	0.024	0.0108	0.0092	171	104.2	11.7	7.9	14.7	14.0	111,196,843	183,692,838
7/27/2017	07:26-08:49	747	0.025	0.0110	0.0093	170	100.8	11.8	7.8	15.4	15.2	108,298,412	180,569,582
7/27/2017	09:29-10:49	746	0.027	0.0120	0.0101	188	102.2	11.6	7.9	15.6	14.3	109,708,048	183,369,487
7/27/2017	11:30-12:51	746	0.025	0.0114	0.0096	179	103.4	11.8	7.8	15.4	14.0	110,347,103	184,202,021
10/31/2017	07:23-08:42	811	0.022	0.0104	0.0088	172	100.3	12.6	7.1	14.9	15.8	116,202,729	196,709,805
10/31/2017	09:35-10:55	809	0.020	0.0094	0.0080	156	100.9	12.6	7.0	14.8	15.9	116,204,310	196,577,837
10/31/2017	11:57-13:18	810	0.024	0.0114	0.0097	191	99.1	12.5	7.1	15.0	15.2	117,207,355	199,655,702
2/14/2018	08:53-10:14	761	0.033	0.0146	0.0125	237	102.1	11.6	8.0	14.4	14.2	113,636,568	189,488,299
2/14/2018	11:05-12:26	762	0.033	0.0144	0.0122	233	101.2	11.5	8.1	14.9	14.0	113,539,954	190,839,149
2/14/2018	13:15-14:35	762	0.035	0.0153	0.0130	246	102.1	11.7	8.0	15.0	13.9	112,809,796	189,848,932
6/26/2018	09:35-10:56	741	0.048	0.0214	0.0180	352	102.3	11.9	7.7	16.1	14.5	114,906,038	195,662,174
6/26/2018	11:37-13:00	741	0.049	0.0221	0.0185	359	96.3	11.9	7.7	16.1	15.3	113,925,915	193,841,303
6/26/2018	13:43-15:06	741	0.058	0.0260	0.0217	422	101.6	11.9	7.7	16.3	16.7	113,919,919	194,520,057
9/6/2018	07:42-09:05	760	0.021	0.0093	0.0078	157	99.9	11.4	8.1	15.6	14.4	118,399,981	197,168,496
9/6/2018	09:53-11:14	760	0.022	0.0095	0.0080	161	101.7	11.5	8.0	15.8	13.8	118,382,593	197,577,139
9/6/2018	11:55-13:19	761	0.019	0.0085	0.0072	143	98.4	11.6	8.0	16.0	14.5	117,942,349	197,348,737
9/26/2018	07:22-08:43	760	0.026	0.0112	0.0096	191	102.5	11.0	8.0	14.2	13.7	118,960,528	196,014,741
9/26/2018	09:22-10:43	759	0.024	0.0101	0.0087	174	99.9	11.1	8.4	14.6	14.2	120,324,120	199,110,140
9/26/2018	11:23-12:44	761	0.026	0.0111	0.0095	191	98.3	11.0	8.4	14.6	13.9	120,272,708	199,498,961
11/15/2018	08:26-09:48	761	0.019	0.0081	0.0069	138	95.8	11.5	8.1	14.7	14.8	119,366,066	198,561,532
11/15/2018	10:29-11:50	760	0.015	0.0066	0.0057	113	98.8	11.4	8.2	14.4	14.3	120,001,876	198,682,685
11/15/2018	12:23-13:44	761	0.016	0.0067	0.0057	114	98.4	11.4	8.3	14.7	14.2	119,221,558	198,465,821
12/13/2018	0733-0854	760	0.019	0.0085	0.0074	146	97.7	11.3	8.1	13.4	14.8	119,822,181	195,772,096
12/13/2018	0930-1051	760	0.020	0.0087	0.0075	147	97.7	11.4	8.1	13.8	15.4	118,435,501	194,577,971
12/13/2018	1129-1250	760	0.023	0.0101	0.0087	171	98.1	11.4	8.0	14.1	14.9	118,071,781	194,548,459