

Exh. JL-16
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**

Staff's Revised Centralia PPA Equity Adder

November 22, 2019

Equity Return Calculation for Coal Transition PPA

Assumptions Used to Find an Equity Return on an Equivalent Plant

- 346 Capacity of an Equivalent Plant (MW)
- \$110 Capital Cost Equivalent Plant \$MM
- 31-Dec-14 Start Date
- 31-Dec-25 Stop date
- 133 PPA Term months 11.08333333 Yrs
- 7.80% WACC and Discount Rate
- 9.80% Equity Cost
- 48.0% Equity Ratio
- 4.70400% Weighted Equity Return (Revenue Required) - Net of Taxes

Summary of Pre-Tax Equity Return Results

A	\$28.67	Nominal Total \$MM						
B	\$22.20	PV Total \$MM @7.8%						
C	\$0.25	Levelized \$MM Monthly						
D	\$2.94	Levelized \$MM Annual						
E	346	MW						
F	\$0.71	Levelized Monthly \$/kW						
G	\$8.51	Levelized Annual \$/kW						
H	\$0.97	Levelized \$/MWh						

FIT Before Jan 1	35%	7.24%
FIT From Jan 1,	21%	5.95%

Levelized \$/MWh		
Net of Tax	\$	0.97
With 35% Tax	\$	1.49
With 21% Tax	\$	1.23

	A	B	C	D	E	F	G	E
	Month	Year	PPA Volume	Net Plant \$MM	Depreciation \$MM	Avg. Net Plant \$MM	Net of Tax Equity Return	PPA Interger Value
0				110.0	133.0 mo		4.70%	
1	Dec-14	2014	180	109.2	\$ 0.8	109.6	0.43	1.00
2	Jan-15	2015	180	108.3	\$ 0.8	108.8	0.43	1.00
3	Feb-15	2015	180	107.5	\$ 0.8	107.9	0.42	1.00
4	Mar-15	2015	180	106.7	\$ 0.8	107.1	0.42	1.00
5	Apr-15	2015	180	105.9	\$ 0.8	106.3	0.42	1.00
6	May-15	2015	180	105.0	\$ 0.8	105.5	0.41	1.00
7	Jun-15	2015	180	104.2	\$ 0.8	104.6	0.41	1.00
8	Jul-15	2015	180	103.4	\$ 0.8	103.8	0.41	1.00
9	Aug-15	2015	180	102.6	\$ 0.8	103.0	0.40	1.00
10	Sep-15	2015	180	101.7	\$ 0.8	102.1	0.40	1.00
11	Oct-15	2015	180	100.9	\$ 0.8	101.3	0.40	1.00
12	Nov-15	2015	180	100.1	\$ 0.8	100.5	0.39	1.00
13	Dec-15	2015	280	99.2	\$ 0.8	99.7	0.39	1.00
14	Jan-16	2016	280	98.4	\$ 0.8	98.8	0.39	1.00
15	Feb-16	2016	280	97.6	\$ 0.8	98.0	0.38	1.00
16	Mar-16	2016	280	96.8	\$ 0.8	97.2	0.38	1.00
17	Apr-16	2016	280	95.9	\$ 0.8	96.4	0.38	1.00
18	May-16	2016	280	95.1	\$ 0.8	95.5	0.37	1.00
19	Jun-16	2016	280	94.3	\$ 0.8	94.7	0.37	1.00
20	Jul-16	2016	280	93.5	\$ 0.8	93.9	0.37	1.00
21	Aug-16	2016	280	92.6	\$ 0.8	93.0	0.36	1.00
22	Sep-16	2016	280	91.8	\$ 0.8	92.2	0.36	1.00
23	Oct-16	2016	280	91.0	\$ 0.8	91.4	0.36	1.00
24	Nov-16	2016	280	90.2	\$ 0.8	90.6	0.36	1.00
25	Dec-16	2016	380	89.3	\$ 0.8	89.7	0.35	1.00
26	Jan-17	2017	380	88.5	\$ 0.8	88.9	0.35	1.00
27	Feb-17	2017	380	87.7	\$ 0.8	88.1	0.35	1.00
28	Mar-17	2017	380	86.8	\$ 0.8	87.3	0.34	1.00
29	Apr-17	2017	380	86.0	\$ 0.8	86.4	0.34	1.00
30	May-17	2017	380	85.2	\$ 0.8	85.6	0.34	1.00
31	Jun-17	2017	380	84.4	\$ 0.8	84.8	0.33	1.00
32	Jul-17	2017	380	83.5	\$ 0.8	83.9	0.33	1.00
33	Aug-17	2017	380	82.7	\$ 0.8	83.1	0.33	1.00
34	Sep-17	2017	380	81.9	\$ 0.8	82.3	0.32	1.00
35	Oct-17	2017	380	81.1	\$ 0.8	81.5	0.32	1.00
36	Nov-17	2017	380	80.2	\$ 0.8	80.6	0.32	1.00
37	Dec-17	2017	380	79.4	\$ 0.8	79.8	0.31	1.00
38	Jan-18	2018	380	78.6	\$ 0.8	79.0	0.31	1.00
39	Feb-18	2018	380	77.7	\$ 0.8	78.2	0.31	1.00
40	Mar-18	2018	380	76.9	\$ 0.8	77.3	0.30	1.00
41	Apr-18	2018	380	76.1	\$ 0.8	76.5	0.30	1.00
42	May-18	2018	380	75.3	\$ 0.8	75.7	0.30	1.00
43	Jun-18	2018	380	74.4	\$ 0.8	74.8	0.29	1.00
44	Jul-18	2018	380	73.6	\$ 0.8	74.0	0.29	1.00
45	Aug-18	2018	380	72.8	\$ 0.8	73.2	0.29	1.00
46	Sep-18	2018	380	72.0	\$ 0.8	72.4	0.28	1.00
47	Oct-18	2018	380	71.1	\$ 0.8	71.5	0.28	1.00
48	Nov-18	2018	380	70.3	\$ 0.8	70.7	0.28	1.00
49	Dec-18	2018	380	69.5	\$ 0.8	69.9	0.27	1.00
50	Jan-19	2019	380	68.6	\$ 0.8	69.1	0.27	1.00
51	Feb-19	2019	380	67.8	\$ 0.8	68.2	0.27	1.00
52	Mar-19	2019	380	67.0	\$ 0.8	67.4	0.26	1.00
53	Apr-19	2019	380	66.2	\$ 0.8	66.6	0.26	1.00
54	May-19	2019	380	65.3	\$ 0.8	65.8	0.26	1.00
55	Jun-19	2019	380	64.5	\$ 0.8	64.9	0.25	1.00
56	Jul-19	2019	380	63.7	\$ 0.8	64.1	0.25	1.00
57	Aug-19	2019	380	62.9	\$ 0.8	63.3	0.25	1.00
58	Sep-19	2019	380	62.0	\$ 0.8	62.4	0.24	1.00
59	Oct-19	2019	380	61.2	\$ 0.8	61.6	0.24	1.00
60	Nov-19	2019	380	60.4	\$ 0.8	60.8	0.24	1.00
61	Dec-19	2019	380	59.5	\$ 0.8	60.0	0.24	1.00

	A	B	C	D	E	F	G	E
	Month	Year	PPA Volume	Net Plant \$MM	Depreciation \$MM	Avg. Net Plant \$MM	Net of Tax Equity Return	PPA Interger Value
62	Jan-20	2020	380	58.7	\$ 0.8	59.1	0.23	1.00
63	Feb-20	2020	380	57.9	\$ 0.8	58.3	0.23	1.00
64	Mar-20	2020	380	57.1	\$ 0.8	57.5	0.23	1.00
65	Apr-20	2020	380	56.2	\$ 0.8	56.7	0.22	1.00
66	May-20	2020	380	55.4	\$ 0.8	55.8	0.22	1.00
67	Jun-20	2020	380	54.6	\$ 0.8	55.0	0.22	1.00
68	Jul-20	2020	380	53.8	\$ 0.8	54.2	0.21	1.00
69	Aug-20	2020	380	52.9	\$ 0.8	53.3	0.21	1.00
70	Sep-20	2020	380	52.1	\$ 0.8	52.5	0.21	1.00
71	Oct-20	2020	380	51.3	\$ 0.8	51.7	0.20	1.00
72	Nov-20	2020	380	50.5	\$ 0.8	50.9	0.20	1.00
73	Dec-20	2020	380	49.6	\$ 0.8	50.0	0.20	1.00
74	Jan-21	2021	380	48.8	\$ 0.8	49.2	0.19	1.00
75	Feb-21	2021	380	48.0	\$ 0.8	48.4	0.19	1.00
76	Mar-21	2021	380	47.1	\$ 0.8	47.6	0.19	1.00
77	Apr-21	2021	380	46.3	\$ 0.8	46.7	0.18	1.00
78	May-21	2021	380	45.5	\$ 0.8	45.9	0.18	1.00
79	Jun-21	2021	380	44.7	\$ 0.8	45.1	0.18	1.00
80	Jul-21	2021	380	43.8	\$ 0.8	44.2	0.17	1.00
81	Aug-21	2021	380	43.0	\$ 0.8	43.4	0.17	1.00
82	Sep-21	2021	380	42.2	\$ 0.8	42.6	0.17	1.00
83	Oct-21	2021	380	41.4	\$ 0.8	41.8	0.16	1.00
84	Nov-21	2021	380	40.5	\$ 0.8	40.9	0.16	1.00
85	Dec-21	2021	380	39.7	\$ 0.8	40.1	0.16	1.00
86	Jan-22	2022	380	38.9	\$ 0.8	39.3	0.15	1.00
87	Feb-22	2022	380	38.0	\$ 0.8	38.5	0.15	1.00
88	Mar-22	2022	380	37.2	\$ 0.8	37.6	0.15	1.00
89	Apr-22	2022	380	36.4	\$ 0.8	36.8	0.14	1.00
90	May-22	2022	380	35.6	\$ 0.8	36.0	0.14	1.00
91	Jun-22	2022	380	34.7	\$ 0.8	35.2	0.14	1.00
92	Jul-22	2022	380	33.9	\$ 0.8	34.3	0.13	1.00
93	Aug-22	2022	380	33.1	\$ 0.8	33.5	0.13	1.00
94	Sep-22	2022	380	32.3	\$ 0.8	32.7	0.13	1.00
95	Oct-22	2022	380	31.4	\$ 0.8	31.8	0.12	1.00
96	Nov-22	2022	380	30.6	\$ 0.8	31.0	0.12	1.00
97	Dec-22	2022	380	29.8	\$ 0.8	30.2	0.12	1.00
98	Jan-23	2023	380	28.9	\$ 0.8	29.4	0.12	1.00
99	Feb-23	2023	380	28.1	\$ 0.8	28.5	0.11	1.00
100	Mar-23	2023	380	27.3	\$ 0.8	27.7	0.11	1.00
101	Apr-23	2023	380	26.5	\$ 0.8	26.9	0.11	1.00
102	May-23	2023	380	25.6	\$ 0.8	26.1	0.10	1.00
103	Jun-23	2023	380	24.8	\$ 0.8	25.2	0.10	1.00
104	Jul-23	2023	380	24.0	\$ 0.8	24.4	0.10	1.00
105	Aug-23	2023	380	23.2	\$ 0.8	23.6	0.09	1.00
106	Sep-23	2023	380	22.3	\$ 0.8	22.7	0.09	1.00
107	Oct-23	2023	380	21.5	\$ 0.8	21.9	0.09	1.00
108	Nov-23	2023	380	20.7	\$ 0.8	21.1	0.08	1.00
109	Dec-23	2023	380	19.8	\$ 0.8	20.3	0.08	1.00
110	Jan-24	2024	380	19.0	\$ 0.8	19.4	0.08	1.00
111	Feb-24	2024	380	18.2	\$ 0.8	18.6	0.07	1.00
112	Mar-24	2024	380	17.4	\$ 0.8	17.8	0.07	1.00
113	Apr-24	2024	380	16.5	\$ 0.8	17.0	0.07	1.00
114	May-24	2024	380	15.7	\$ 0.8	16.1	0.06	1.00
115	Jun-24	2024	380	14.9	\$ 0.8	15.3	0.06	1.00
116	Jul-24	2024	380	14.1	\$ 0.8	14.5	0.06	1.00
117	Aug-24	2024	380	13.2	\$ 0.8	13.6	0.05	1.00
118	Sep-24	2024	380	12.4	\$ 0.8	12.8	0.05	1.00
119	Oct-24	2024	380	11.6	\$ 0.8	12.0	0.05	1.00
120	Nov-24	2024	380	10.8	\$ 0.8	11.2	0.04	1.00
121	Dec-24	2024	380	9.9	\$ 0.8	10.3	0.04	1.00
122	Jan-25	2025	300	9.1	\$ 0.8	9.5	0.04	1.00
123	Feb-25	2025	300	8.3	\$ 0.8	8.7	0.03	1.00
124	Mar-25	2025	300	7.4	\$ 0.8	7.9	0.03	1.00
125	Apr-25	2025	300	6.6	\$ 0.8	7.0	0.03	1.00
126	May-25	2025	300	5.8	\$ 0.8	6.2	0.02	1.00
127	Jun-25	2025	300	5.0	\$ 0.8	5.4	0.02	1.00
128	Jul-25	2025	300	4.1	\$ 0.8	4.5	0.02	1.00
129	Aug-25	2025	300	3.3	\$ 0.8	3.7	0.01	1.00
130	Sep-25	2025	300	2.5	\$ 0.8	2.9	0.01	1.00
131	Oct-25	2025	300	1.7	\$ 0.8	2.1	0.01	1.00
132	Nov-25	2025	300	0.8	\$ 0.8	1.2	0.00	1.00
133	Dec-25	2025	300	(0.0)	\$ 0.8	0.4	0.00	1.00