

EXHIBIT NO. _____ (AML-8)
DOCKET NOS. UE-170033/UG-170034
2017 PSE GENERAL RATE CASE
WITNESS: AMANDA M. LEVIN

BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

DOCKETS UE-170033 and UG-170034
(Consolidated)

EXHIBIT AML-8 TO PREFILED RESPONSE TESTIMONY

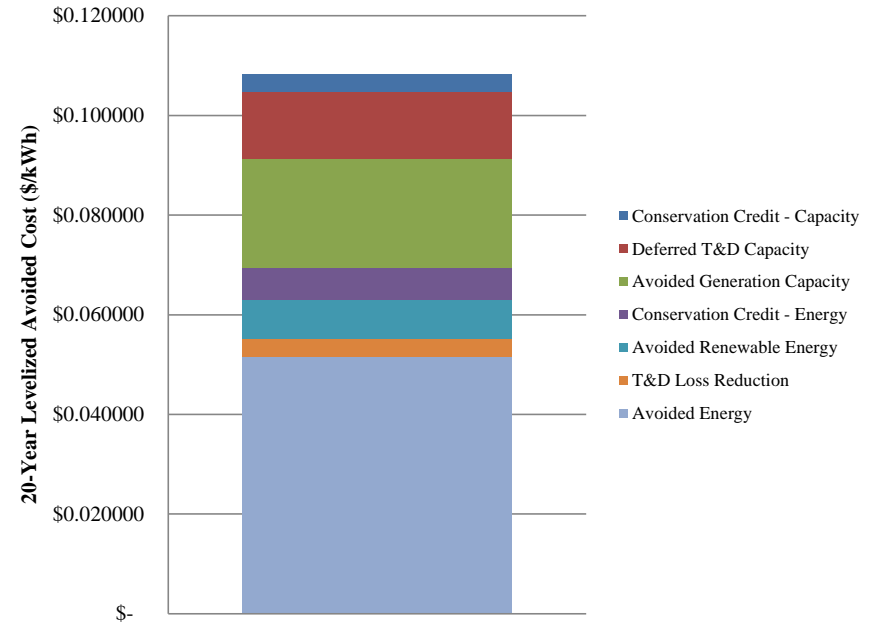
(NON-CONFIDENTIAL) OF AMANDA M. LEVIN

ON BEHALF OF NW ENERGY COALITION

JUNE 30, 2017

	25-Year	20-Year	15-Year
Avoided Cost (25-Year)	\$/kWh	\$/kWh	\$/kWh
Avoided Energy	\$ 0.055467	\$ 0.051509	\$ 0.046331
T&D Loss Reduction	\$ 0.004049	\$ 0.003760	\$ 0.003382
Avoided Renewable Energy	\$ 0.007775	\$ 0.007775	\$ 0.007775
Conservation Credit - Energy	\$ 0.006729	\$ 0.006304	\$ 0.005749
Avoided Generation Capacity	\$ 0.021964	\$ 0.021964	\$ 0.021964
Deferred T&D Capacity	\$ 0.013900	\$ 0.013425	\$ 0.012896
Conservation Credit - Capacity	\$ 0.003586	\$ 0.003539	\$ 0.003486
Total	\$ 0.113471	\$ 0.108277	\$ 0.101584

Long-Run Avoided Cost - Residential (\$0.108277/kWh)



Avoided Residential Energy Costs

Residential T&D Losses:	7.30%
Nominal Discount Rate:	7.74%
GDP Inflation:	2.5%
Conservation Credit:	10.0%

Year	Measure Life (years)	Annual Weighted Average of Hourly Price (\$/MWh)	T&D Line Loss Reduction (\$/MWh)	Avoided Renewable Benefits (\$/MWh)	Energy-Related Conservation Credit (\$/MWh)	Present Value- Energy (\$/MWh)	Cumulative Present Value - Energy (\$/MWh)	Levelized Cost Effectiveness Standard- Energy (\$/kWh)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
2017	1	32.20	2.35	7.78	4.23	43.21	43.21	\$0.047
2018	2	33.61	2.45	7.78	4.38	41.54	84.75	\$0.047
2019	3	35.26	2.57	7.78	4.56	40.11	124.86	\$0.048
2020	4	37.00	2.70	7.78	4.75	38.76	163.62	\$0.049
2021	5	39.68	2.90	7.78	5.04	38.16	201.77	\$0.050
2022	6	41.98	3.06	7.78	5.28	37.14	238.92	\$0.051
2023	7	44.57	3.25	7.78	5.56	36.29	275.21	\$0.052
2024	8	47.29	3.45	7.78	5.85	35.46	310.66	\$0.054
2025	9	51.28	3.74	7.78	6.28	35.31	345.98	\$0.055
2026	10	58.03	4.24	7.78	7.00	36.56	382.54	\$0.056
2027	11	60.53	4.42	7.78	7.27	35.23	417.77	\$0.058
2028	12	63.63	4.65	7.78	7.61	34.20	451.96	\$0.059
2029	13	67.49	4.93	7.78	8.02	33.47	485.43	\$0.061
2030	14	71.98	5.25	7.78	8.50	32.93	518.36	\$0.062
2031	15	74.71	5.45	7.78	8.79	31.62	549.98	\$0.063
2032	16	79.27	5.79	7.78	9.28	30.98	580.96	\$0.065
2033	17	83.24	6.08	7.78	9.71	30.07	611.03	\$0.066
2034	18	86.24	6.30	7.78	10.03	28.84	639.87	\$0.067
2035	19	90.19	6.58	7.78	10.45	27.90	667.76	\$0.068
2036	20	92.44	6.75	7.78	10.70	26.49	694.26	\$0.069
2037	21	94.75	6.92	7.78	10.94	25.16	719.41	\$0.070
2038	22	97.12	7.09	7.78	11.20	23.89	743.31	\$0.071
2039	23	99.55	7.27	7.78	11.46	22.69	766.00	\$0.072
2040	24	102.04	7.45	7.78	11.73	21.55	787.55	\$0.073
2041	25	104.59	7.64	7.78	12.00	20.47	808.02	\$0.074
NPV	25	605.49	44.20	84.87	73.46		808.02	
Levelized	25	55.47	4.05	7.78	6.73			\$0.074
NPV	20	515.66	37.64	77.84	63.11		694.26	
Levelized	20	51.51	3.76	7.78	6.30			\$0.069
NPV	15	402.95	29.42	67.62	50.00		549.98	
Levelized	15	46.33	3.38	7.78	5.75			\$0.063

Avoided Residential Capacity Costs

Deferred T&D Cost Credit (\$/kw-yr):	\$61.35
NW Power Act Regional Credit:	10.0%
Nominal Discount Rate:	7.74%
GDP Inflation:	2.5%
Peak Use Per Year	0.01819%

Year	Measure Life (years)	Total Annual Capital & Fixed Costs of Capacity (\$/kW-yr)	Deferred T&D (\$/kW-yr)	Capacity-Related Conservation Credit (\$/kW-yr)	NPV - Capacity (\$/kW-yr)	Cumulative Present Value CES-Capacity (\$/kW-yr)	Levelized Cost Effectiveness Standard-Capacity (\$/kW-yr)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
2017	1	\$120.74	\$61.35	\$ 18.21	\$ 186	\$ 186	\$200.30
2018	2	\$120.74	\$62.88	\$ 18.36	\$ 174	\$ 360	\$201.11
2019	3	\$120.74	\$64.45	\$ 18.52	\$ 163	\$ 523	\$201.91
2020	4	\$120.74	\$66.06	\$ 18.68	\$ 153	\$ 675	\$202.71
2021	5	\$120.74	\$67.71	\$ 18.85	\$ 143	\$ 818	\$203.50
2022	6	\$120.74	\$69.41	\$ 19.02	\$ 134	\$ 952	\$204.27
2023	7	\$120.74	\$71.14	\$ 19.19	\$ 125	\$ 1,077	\$205.04
2024	8	\$120.74	\$72.92	\$ 19.37	\$ 117	\$ 1,194	\$205.80
2025	9	\$120.74	\$74.74	\$ 19.55	\$ 110	\$ 1,304	\$206.55
2026	10	\$120.74	\$76.61	\$ 19.74	\$ 103	\$ 1,407	\$207.29
2027	11	\$120.74	\$78.53	\$ 19.93	\$ 97	\$ 1,504	\$208.01
2028	12	\$120.74	\$80.49	\$ 20.12	\$ 90	\$ 1,594	\$208.73
2029	13	\$120.74	\$82.50	\$ 20.32	\$ 85	\$ 1,679	\$209.43
2030	14	\$120.74	\$84.57	\$ 20.53	\$ 80	\$ 1,759	\$210.12
2031	15	\$120.74	\$86.68	\$ 20.74	\$ 75	\$ 1,833	\$210.80
2032	16	\$120.74	\$88.85	\$ 20.96	\$ 70	\$ 1,903	\$211.46
2033	17	\$120.74	\$91.07	\$ 21.18	\$ 66	\$ 1,969	\$212.12
2034	18	\$120.74	\$93.35	\$ 21.41	\$ 62	\$ 2,030	\$212.76
2035	19	\$120.74	\$95.68	\$ 21.64	\$ 58	\$ 2,088	\$213.38
2036	20	\$120.74	\$98.07	\$ 21.88	\$ 54	\$ 2,142	\$214.00
2037	21	\$120.74	\$100.52	\$ 22.13	\$ 51	\$ 2,193	\$214.60
2038	22	\$120.74	\$103.04	\$ 22.38	\$ 48	\$ 2,241	\$215.19
2039	23	\$120.74	\$105.61	\$ 22.64	\$ 45	\$ 2,286	\$215.76
2040	24	\$120.74	\$108.25	\$ 22.90	\$ 42	\$ 2,328	\$216.32
2041	25	\$120.74	\$110.96	\$ 23.17	\$ 40	\$ 2,367	\$216.87
NPV	25	\$1,318.05	\$834.12	\$ 215.22		\$ 2,367	
Levelized	25	\$120.74	\$76.41	\$ 19.72			\$216.87
NPV	20	\$1,208.76	\$738.82	\$194.76		\$ 2,142	
Levelized	20	\$120.74	\$73.80	\$19.45			\$214.00
NPV	15	\$1,050.11	\$616.54	\$166.66		\$ 1,833	
Levelized	15	\$120.74	\$70.89	\$19.16			\$210.80

Year	Measure Life (years)	Total Annual Capital & Fixed Costs of Capacity (\$/kWh)	Deferred T&D (\$/kWh)	Capacity-Related Conservation Credit (\$/kWh)	NPV - Capacity (\$/kWh)	Cumulative Present Value CES-Capacity (\$/kWh)	Levelized Cost Effectiveness Standard-Capacity (\$/kWh)
Levelized	25	\$0.0220	\$0.0139	\$0.0036			\$0.0395
Levelized	20	\$0.0220	\$0.0134	\$0.0035			\$0.0389
Levelized	15	\$0.0220	\$0.0129	\$0.0035			\$0.0383

Market Prices
Embedded in
Schedule 91 +
Mid CO2

2017	32.20
2018	33.61
2019	35.26
2020	37.00
2021	39.68
2022	41.98
2023	44.57
2024	47.29
2025	51.28
2026	58.03
2027	60.53
2028	63.63
2029	67.49
2030	71.98
2031	74.71
2032	79.27
2033	83.24
2034	86.24
2035	90.19
2036	92.44
2037	94.75
2038	97.12
2039	99.55
2040	102.04
2041	104.59
2042	107.21
2043	109.89
2044	112.63
2045	115.45
2046	118.33

CapacityCosts	Sch 91 Levelized \$/Kwyr	\$ 120.74	Per KW Capacity Costs beginning in 2022
	Avoided Renewable Benefits	\$ 194,088,768	Divide this number by total MWh saved to get per MWh enviro Benefit
	\$/ MWh Saved	\$ 9.32	Per MWh adder
PlanningAdjustment	Planning Adjustment per MWH	\$ (1.55)	Per MWh adder
AvoidedRenewables	Avoided Renewables per MWh	\$7.78	Per MWh adder