

Schedule of Estimated Avoided Cost

Consistent with WAC 480-107-055, this Schedule of Estimated Avoided Costs is intended to provide only general information to potential bidders about the cost of new power supplies. It does not provide a guaranteed contract price for electricity or capacity.

The two tables below show two estimated avoided costs for 2019-2038: avoided energy costs (Table No. 1) and avoided capacity costs (Table No. 2).

- Table No. 1: 2019-2038 Avoided Energy Costs as Projected as the Estimated Monthly Prices for Mid-C Market in PSE's 2019 Integrated Resource Plan to Be Filed on July 15, 2019.
- Table No. 2: 2019-2038 Avoided Capacity Costs as Estimated in PSE's 2017 Integrated Resource Plan by Resource Type with the January 12, 2018 Correction filed with the Washington Utilities and Transportation Commission under Docket Nos. UE-160918 and UG-160919.

Table No. 1 of this Schedule of Estimated Avoided Cost below provides the nominal price forecast of monthly prices at the Mid-Columbia ("Mid-C") power trading market on a monthly basis for flat load. As provided for in WAC 480-107-055(2)(b), the avoided energy costs in this Schedule are based upon Puget Sound Energy's ("PSE") most recent market power price projection that is consistent with PSE's 2019 Integrated Resource Plan ("IRP") under the "Base + No CO₂ price" scenario. These forecasted prices are PSE's estimates for Mid-C market prices derived using PSE's AURORA forecast model and do not include system integration, shaping, or transmission costs. System integration, shaping, or transmission costs can be applied to decrement these prices. Currently, integration costs can range between \$3.02/MWh (OATT Schedule 13) and \$3.15/MWh (PSE 2017 IRP, page D-43) for a wind resource. This "Base + No CO₂ price" scenario in the 2019 IRP includes all existing CO₂ regulations and policies, but does not include a forecast of potential CO₂ prices or regulations in the future. This estimated avoided energy cost information is not a guaranteed contract price but only provides general information to potential bidders.

Table No. 2 of this Schedule of Estimated Avoided Cost contains an estimated capacity value for combined heat and power systems that are dispatchable by PSE consistent with RCW 19.280.070(2). The estimated capacity value is not a guaranteed contract price but rather provides general information to potential bidders. The estimated capacity costs in Table No. 2 are consistent with PSE's corrected 2017 IRP forecast, along with the different market price forecasts from PSE's AURORA forecast model. Avoided resource costs are directly related to avoiding acquisition of new capacity resources. The timing and costs of avoided capacity resources are tied directly to the 2017 IRP. These costs represent the average costs of capacity additions (or average incremental costs) not marginal costs. System integration, shaping, or transmission costs can be applied to decrement these prices.

- The estimated capacity value for 2019-2021 is based on PSE's avoided capacity costs associated with firming up short-term market purchases during the time period before PSE's need to add capacity resources in 2022. This estimate was derived from data used to set the proposed rates in PSE's 2017 general rate case.

- For the year 2022, the estimated capacity costs reflect the cost of acquiring more firm transmission to the Mid-C market.
- For the time period of 2023-2024, the estimated capacity costs are based on PSE's levelized cost of a battery storage project as shown in PSE's 2017 IRP.
- The 2025-2037 estimated capacity costs include the levelized cost of new peaking plants built during the period as indicated in the 2017 IRP Appendix N.

Table No. 1: 2019-2038 Avoided Energy Costs as Projected as the Estimated Monthly Prices for Mid-C Market in PSE's 2019 Integrated Resource Plan to Be Filed on July 15, 2019.

2019-2038 Avoided Energy Costs as Projected as the Estimated Monthly Prices for Mid-C Market in PSE's 2019 Integrated Resource Plan (Nominal \$/MWh)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. Annual
2019	24.48	24.62	21.02	18.25	14.08	15.99	20.62	23.25	24.50	23.77	23.48	24.55	21.55
2020	23.55	24.10	21.53	18.95	14.95	16.22	21.27	23.84	24.73	24.49	23.75	25.52	21.91
2021	24.08	23.97	20.59	18.35	13.97	16.19	21.56	24.12	25.33	26.09	24.50	25.53	22.02
2022	24.63	24.34	21.00	18.52	14.28	16.40	22.42	24.79	25.98	26.00	24.67	26.12	22.43
2023	25.12	24.83	21.37	20.16	15.81	17.29	22.91	24.98	26.65	26.48	25.61	26.90	23.18
2024	26.66	27.23	23.38	22.19	15.98	19.29	24.77	28.07	30.08	28.98	28.23	29.17	25.34
2025	28.23	29.31	25.55	23.75	17.20	21.17	26.69	30.70	32.66	31.36	30.25	31.15	27.34
2026	30.03	31.63	27.03	26.31	20.62	23.02	28.80	32.99	34.91	34.33	32.80	32.82	29.61
2027	33.59	35.11	29.86	27.98	21.17	24.76	32.27	36.13	38.77	38.88	36.95	36.86	32.69
2028	35.63	37.11	30.29	29.09	21.73	26.29	34.17	37.56	41.55	40.62	39.08	39.58	34.39
2029	37.73	39.71	31.99	31.43	23.60	27.60	35.43	40.48	44.88	42.14	40.55	42.05	36.47
2030	39.48	41.51	32.88	30.75	22.13	27.92	36.72	42.83	46.65	44.40	43.66	43.95	37.74
2031	41.72	42.99	34.99	32.16	24.04	29.34	38.83	45.10	48.52	46.19	45.04	46.57	39.63
2032	43.79	44.94	36.63	34.79	29.08	31.68	42.03	47.51	50.95	49.15	48.77	49.81	42.43
2033	47.78	49.55	40.21	38.12	29.97	35.65	46.60	51.95	56.19	55.06	53.78	54.01	46.57
2034	51.02	53.37	43.29	40.85	32.37	38.71	50.46	55.30	60.39	57.74	56.59	57.83	49.82
2035	54.29	57.21	45.72	45.29	35.49	40.24	51.78	59.35	65.21	59.58	58.00	60.55	52.73
2036	58.49	60.54	49.36	46.48	36.31	44.79	57.77	66.63	69.28	65.18	64.47	65.40	57.06
2037	61.93	63.53	52.04	47.33	39.19	45.35	59.59	68.56	71.01	67.65	66.45	68.43	59.25
2038	64.76	66.98	54.15	50.87	44.06	46.77	62.50	71.78	74.16	70.96	70.28	72.17	62.45

Table No. 2: 2019-2038 Avoided Capacity Costs as Estimated in PSE’s 2017 Integrated Resource Plan by Resource Type with the January 12, 2018 Correction Filed with the Washington Utilities and Transportation Commission under Docket Nos. UE-160918 and UG-160919

2019-2038 Avoided Capacity Costs as Estimated in PSE’s 2017 Integrated Resource Plan by Resource Type with the January 12, 2018 Correction filed with the Washington Utilities and Transportation Commission under Docket Nos. UE-160918 and UG-160919			
(Nominal \$/kw-year)			
	Firm Resource	Wind Resource	Solar Resource
2019	\$0.10	\$0.02	\$0.00
2020	\$0.10	\$0.02	\$0.00
2021	\$0.10	\$0.02	\$0.00
2022	\$3.26	\$0.52	\$0.07
2023	\$93.00	\$14.88	\$1.86
2024	\$93.00	\$14.88	\$1.86
2025	\$80.00	\$12.80	\$1.60
2026	\$80.00	\$12.80	\$1.60
2027	\$80.48	\$12.88	\$1.61
2028	\$80.48	\$12.88	\$1.61
2029	\$80.48	\$12.88	\$1.61
2030	\$80.48	\$12.88	\$1.61
2031	\$84.16	\$13.47	\$1.68
2032	\$84.16	\$13.47	\$1.68
2033	\$84.16	\$13.47	\$1.68
2034	\$88.31	\$14.13	\$1.77
2035	\$88.31	\$14.13	\$1.77
2036	\$91.09	\$14.57	\$1.82
2037	\$91.09	\$14.57	\$1.82
2038	\$91.09	\$14.57	\$1.82