

## 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 types of estimated avoided cost information for 2018-2037, avoided energy costs and avoided capacity costs. Both types of estimated avoided costs are discussed throughout Puget Sound Energy's ("PSE") 2017 Integrated Resource Plan ("IRP") and in details in the section 4 of Appendix N: Electric Analysis to the 2017 IRP ("Appendix N"). 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: 2018-2037 Avoided Energy Costs as Projected as the Estimated Monthly Prices for Mid-C Market in PSE's 2017 Integrated Resource Plan
- Table No. 2: 2018-2037 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. These prices are based upon PSE's estimates of currently projected market prices for electricity as provided for in WAC 480-107-055(2). These forecasted prices are consistent with the "Base + CAR only" estimated monthly prices 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 + CAR Only" scenario in the 2017 IRP removes federal clean power plan compliance for the electric portfolio in the context of the base scenario assumptions but incorporating the compliance of Washington State's Clean Air Rule ("CAR"). This estimated avoided energy cost information is not a guaranteed contract price but just to provide 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 2018-2021 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: 2018-2037 Avoided Energy Costs as Projected as the Estimated Monthly Prices for Mid-C Market in PSE's 2017 Integrated Resource Plan**

2018-2037 Avoided Energy Costs as Projected as the Estimated Monthly Prices for Mid-C Market in PSE's 2017 Integrated Resource Plan (Nominal \$/MWh)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. Annual
2018	31.15	30.89	28.82	24.41	21.65	21.62	27.89	30.19	29.94	28.71	27.51	28.55	27.61
2019	29.74	29.29	27.64	24.91	22.72	22.27	28.21	30.56	30.94	30.06	27.69	28.56	27.71
2020	29.43	29.29	27.73	24.87	22.28	22.85	28.93	31.15	32.15	32.05	29.66	29.67	28.34
2021	31.21	31.27	28.91	26.02	23.36	23.82	30.12	32.71	33.52	32.18	30.92	31.16	29.60
2022	32.93	33.33	30.47	28.53	26.57	27.44	33.04	35.96	36.82	35.98	34.72	33.90	32.47
2023	35.13	35.81	32.66	30.36	29.13	29.90	35.64	38.62	39.51	40.79	38.79	36.94	35.27
2024	37.01	38.62	35.08	32.71	31.51	31.58	37.99	41.65	42.97	42.20	39.46	39.45	37.52
2025	40.60	41.97	38.71	36.91	35.43	34.92	42.20	45.57	46.80	45.86	43.18	43.15	41.27
2026	44.87	46.21	43.40	39.90	37.40	38.11	45.93	49.72	50.61	51.14	47.81	46.97	45.17
2027	47.85	49.28	46.31	42.70	40.10	40.75	48.68	52.68	53.42	52.98	50.37	49.78	47.91
2028	50.87	51.89	48.99	46.13	44.44	43.97	51.72	56.10	56.36	56.78	54.59	52.87	51.23
2029	53.83	55.67	51.83	48.25	45.85	45.23	54.83	59.55	60.06	60.20	57.05	55.80	54.01
2030	56.83	58.50	53.86	50.80	47.73	46.09	57.40	61.82	63.06	62.38	59.30	59.14	56.41
2031	59.84	61.59	56.73	54.49	51.47	49.09	60.71	65.32	66.79	65.83	63.11	62.63	59.80
2032	63.34	64.33	60.11	56.58	52.37	52.84	63.69	69.04	70.32	70.13	68.21	66.37	63.11
2033	66.96	67.97	62.83	60.23	56.59	55.91	66.95	72.51	73.42	72.30	70.45	69.25	66.28
2034	69.65	70.23	64.08	61.88	59.32	56.67	68.85	74.71	75.56	74.83	73.17	71.72	68.39
2035	72.45	73.49	67.78	64.22	59.37	57.05	71.53	78.53	80.06	78.72	76.81	75.44	71.29
2036	75.00	76.00	69.85	66.30	60.46	58.88	73.76	80.59	83.10	80.47	78.50	78.47	73.45
2037	77.57	78.09	71.78	68.66	63.78	60.56	75.52	82.63	85.24	82.37	81.49	81.18	75.74

**Table No. 2: 2018-2037 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**

2018-2037 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
2018	\$0.10	\$0.02	\$0.00
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