

PGE 2019 IRP Draft Supply Side Option Summary Information

Source: HDR

Updated: 10/5/2018

Notes: Thermal unit size, heat rate, and overnight capital cost reflect new and clean values. Thermal Minimum Output and Fixed O&M Cost reflect degraded values.

Resource	Technology Specifications:	Performance Specifications:	Location	Overnight Capital Cost (2018\$/kW)	Fixed O&M Cost (2018\$/kW-yr)	Non-Fuel Variable Costs (2018\$/MWh)
Ione Wind	Turbine Type: Vestas V136-3.6 Turbine Size: 3.6MW Hub Height: 105m	Capacity Factor: 32.7%	Ione, OR	\$1,508	\$37	\$1.70
Gorge Wind	Turbine Type: Vestas V136-3.6 Turbine Size: 3.6MW Hub Height: 105m	Capacity Factor: 40.8%	Columbia Gorge, OR	\$1,539	\$37	\$1.70
Washington Wind	Turbine Type: Vestas V136-3.6 Turbine Size: 3.6MW Hub Height: 105m	Capacity Factor: 42.9%	Southeast Washington	\$1,531	\$37	\$1.70
Montana Wind	Turbine Type: Vestas V136-3.6 Turbine Size: 3.6MW Hub Height: 105m	Capacity Factor: 42.9%	Loco Mountain, MT	\$1,520	\$37	\$1.70
Central Oregon Solar	Single -axis tracking	Capacity Factor: 24.8%	Christmas Valley, OR	\$1,510	\$22.20	\$4.22
Biomass	Wood	Capacity Factor: 92%		\$5,935	\$110.84	\$5.28
Geothermal		Capacity Factor: 93%		\$6,216	\$119.53	\$2.39
Pumped Storage		Round-trip efficiency: 80% Min/Max Pumping (per unit): 401/517 MW Min/Max Generating (per unit): 111/400 MW Max Ramp Rate (per unit): 255 MW/min		\$2,252	\$11.31	\$0.37
2-hr Batteries	Li-Ion	Round-trip efficiency: 82%		\$916	\$23.50	\$0
4-hr Batteries	Li-Ion	Round-trip efficiency: 87%		\$1,554	\$31.07	\$0
6-hr Batteries	Li-Ion	Round-trip efficiency: 89%		\$1,902	\$42.63	\$0
CCCT	1x1 GE 7HA.02	Unit size: 517MW Minimum Output: 38% Maximum Ramp Rate: 50MW/min Full Load Heat Rate: 6233 Btu/KWh-HHV		\$906	\$6.57	\$3.57
SCCT	1x0 GE 7HA.02	Unit size: 356MW Minimum Output: 30% Maximum Ramp Rate: 50MW/min Full Load Heat Rate: 9135 Btu/KWh-HHV		\$531	\$2.10	\$9.69
LMS100	1x0 GE LMS100	Unit size: 96MW Minimum Output: 50% Maximum Ramp Rate: 50MW/min Full Load Heat Rate: 8931 Btu/KWh-HHV		\$1,154	\$5.61	\$5.20
Reciprocating Engines	6x0 Wartsila 18V50SG	Unit size: 109MW (6 units) Minimum Output: 30% Maximum Ramp Rate: 95 MW/min (6 units) Full Load Heat Rate: 8453Btu/KWh-HHV		\$1,265	\$5.15	\$5.42