

## 2016 IRP Update

### Supply Side Resource Summary

The table below provides an updated snapshot of the supply side resource assumptions, which incorporate the Fall 2017 supply side studies and the December 2017 financial parameters.

Updated Resource Assumptions -- COD 2021										
2018\$	Update or 2016 IRP	New & Clean Nameplate MW	Degraded Nameplate MW	Degraded Heat Rate Btu / kWh	Expected Availability % <sup>1</sup>	Economic Life Years <sup>2</sup>	Overnight Capital Cost \$/ kW <sup>3</sup>	Fixed O&M \$/ kW-yr <sup>4</sup>	Variable O&M \$/ MWh <sup>5</sup>	Real Levelized Fixed Cost \$/ kW-yr <sup>6</sup>
<b>Renewable Resources</b>										
Central Station Solar Tracking PV	Updated 2016 IRP	103 103	103 103	N/A N/A	23% 24%	20 25	\$1,471 \$1,911	\$8.57 \$10.61	\$0.87 \$0.87	\$152 \$176
Wind Plant PNW	Updated 2016 IRP	332 338	332 338	N/A N/A	35% 34%	30 27	\$1,475 \$1,664	\$44.88 \$47.75	\$0.87 \$0.87	\$188 \$222
Wind Plant Montana	Updated 2016 IRP	240 236	240 236	N/A N/A	42% 42%	30 27	\$1,493 \$1,713	\$44.88 \$47.75	\$0.87 \$0.87	\$190 \$225
<b>Thermal Resources</b>										
Natural Gas CCCT-H	Updated 2016 IRP	424 400	400 387	6,450 6,503	90% 95%	38 35	\$1,370 \$1,125	\$8.00 \$9.06	\$3.37 \$2.76	\$172 \$164
Wärtsilä Reciprocating Engine	Updated 2016 IRP	110 110	107 110	8,470 8,437	98% 96%	38 30	\$1,364 \$1,508	\$11.53 \$3.57	\$7.34 \$9.48	\$175 \$193
SCCT - Frame 1x0 GE 7F.05	Updated 2016 IRP	231 230	218 224	10,170 9,981	96% 98%	38 30	\$648 \$648	\$7.24 \$3.41	\$7.04 \$9.86	\$124 \$126

**Notes:**

- 1) Expected Availability is expected capacity factor for Wind and Solar PV. For 2016 IRP Thermal Resources, Expected Availability is capacity adjusted for scheduled maintenance and the forced outage rate. For the updated Thermal Resources, Expected Availability is capacity adjusted for scheduled maintenance and forced outage during periods of demand.
- 2) Economic life assumptions updated to PGE's depreciation study filed in UM 1809.
- 3) Capital Costs include OEFSC payments to Climate Trust of Oregon. Carbon Offset cost updated to the 2017 schedule.
- 4) Based on degraded MW.
- 5) Variable O&M includes integration costs from the Variable Energy Integration Study.
- 6) Includes fixed capital carrying and operating costs, which include fixed O&M, fixed gas transpiration, wheeling, ongoing capital additions, and land lease payments as applicable. Updated costs incorporate BPA wheeling rates from the BP-18 rate case, with later years escalated at the inflation rate. The Montana Wind resource includes the cost of one segment of BPA wheeling, but does not include any additional transmission expenses.