

Appendix D: Electric Resources



Figure D-20: Generic Renewable Resource Cost Assumptions – Note, this table includes corrections for typos in the November 14, 2017 IRP filing.

2016 \$	UNITS	WA WIND	MT WIND	BIOMASS	SOLAR	OFFSHORE WIND
ISO Capacity Primary	MW	100	300	15	25	100
Winter Capacity Primary	MW	9	192	0	0	
Capacity Credit	%	9%	64%	0%	1%	
Operating Reserves	%	3%	3%	3%	3%	3%
Capacity Factor	%	30%	46%	85%	27%	35%
Capital Cost ¹	\$/kW	\$1,936	\$3,950 2,065 ⁶	\$7,150 3,950	\$2,171 2,040	\$7,150 ⁷
O&M Fixed	\$/kW-yr	\$27.12	\$33.79	\$113.70	\$10.00	\$77.30
O&M Variable ²	\$/MWh	\$3.15	\$3.50	\$5.66	\$0.00	\$3.15
Degradation	%/year				0.5%	
Location		SE WA	Montana	Western WA	PSE - Central WA	Coast of WA
Fixed Transmission ³	\$/kW-yr	\$35.88	\$72.94	\$21.48	\$0.00	\$35.88
Variable Transmission ⁴	\$/MWh	\$1.85	\$1.85	\$0.35	\$0.00	\$1.85
Loss Factor to PSE	%	1.9%	7.3%	1.9%	0.0%	1.9 5 %
Heat Rate – Baseload (HHV)	Btu/kWh			13,500		
Emissions:						
NO _x	lbs/MMBtu			0.00		
SO ₂	lbs/MMBtu			3.152		
CO ₂	lbs/MMBtu			195.0		
First Year Available ⁵		2020	2022	2021	2020	2022
Economic Life	Years	25	25	35	25	25
Greenfield Dev. & Const. Leadtime	years	3	3	4	3	5

NOTES

- Solar PV cost for AC installed
- Idaho Solar includes Spin and Supplemental from Idaho Power. WA Wind includes wind integration cost from BPA. MT Wind includes wind integration cost from NWMt. WA solar includes a solar integration charge from BPA as a placeholder.
- BPAT variable cost includes spin, supplemental and imbalance. Idaho solar includes solar integration cost from Idaho Power.
- MT wind includes generation tax and WET tax.
- First year available for MT wind is 2022 to correspond to retirement of Colstrip 1 & 2.
- Includes \$52 Million of transmission upgrades. If the resource were only 100 MW, then the capital cost would be higher since the transmission upgrades are \$52 million regardless of size of plant.
- Offshore wind capital cost does not include the cost of the marine cable.