

Gross Avoidable Costs for Existing Generation in PJM

PRESENTED BY

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PJM MARKET IMPLEMENTATION
COMMITTEE

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Gross Costs Estimates for Existing Generation

Resource Type	Representative Low-Cost Plant \$/MW-day	Representative Plant \$/MW-day	Representative High-Cost Plant \$/MW-day
Multi-unit nuclear	476	537	552
Single-unit nuclear	-	591	-
Coal	88	94	142
Natural gas CC	94	113	160
Simple-cycle CT	43	52	69
Steam oil & gas	53	64	102
Onshore wind	140	147	204
Large-scale solar PV	65	70	74

All values shown are in Mid-2022 Dollars per Nameplate MW per Day

Nuclear

	Units	Single-Unit Nuclear Plant	Multi-Unit Nuclear Plant		
			Representative Low-Cost Plant	Representative Plant	Representative High-Cost Plant
Capacity	<i>Nameplate MW</i>	1,200	2,400	2,400	2,400
Gross Costs	<i>\$/MW-day</i>	\$591	\$476	\$537	\$552
Capital Costs	<i>\$/MW-day</i>	\$77	\$72	\$69	\$69
Fixed Operating Costs	<i>\$/MW-day</i>	\$491	\$381	\$445	\$460
Property Taxes	<i>\$/MW-day</i>	\$23	\$23	\$23	\$23
Non-Fuel Variable Costs	<i>\$/MWh</i>	\$2.44	\$2.22	\$2.19	\$2.20
Operating Costs	<i>\$/MWh</i>	\$0.33	\$0.25	\$0.30	\$0.31
Major Maintenance	<i>\$/MWh</i>	\$2.11	\$1.96	\$1.89	\$1.90

Shifting Major Maintenance to the gross costs would add \$48/MW-day to Single-Unit Nuclear and \$43/MW-day to Multi-Unit Nuclear plants.

Coal

		Coal Plant		
	Units	Representative Low-Cost Plant	Representative Plant	Representative High-Cost Plant
Capacity	<i>Nameplate MW</i>	1,800	1,500	100
Gross Costs	<i>\$/MW-day</i>	\$88	\$94	\$142
Labor	<i>\$/MW-day</i>	\$38	\$41	\$60
Fixed Expenses	<i>\$/MW-day</i>	\$48	\$51	\$79
Property Taxes	<i>\$/MW-day</i>	\$0.5	\$0.5	\$0.5
Insurance	<i>\$/MW-day</i>	\$1.5	\$1.5	\$1.5
Non-Fuel Variable Costs	<i>\$/MWh</i>	\$10.47	\$10.92	\$9.61
Operating Costs	<i>\$/MWh</i>	\$5.00	\$5.45	\$5.62
Maintenance Adder	<i>\$/MWh</i>	\$5.47	\$5.47	\$3.99

Natural Gas-Fired Combined Cycles

		Natural Gas Combined Cycle Plant		
		Representative Low-Cost Plant	Representative Plant	Representative High-Cost Plant
	Units			
Capacity	<i>Nameplate MW</i>	1,100	750	400
Gross Costs	<i>\$/MW-day</i>	\$94	\$113	\$160
Labor	<i>\$/MW-day</i>	\$17	\$21	\$32
Fixed Expenses	<i>\$/MW-day</i>	\$52	\$72	\$120
Property Taxes	<i>\$/MW-day</i>	\$6	\$5	\$2
Insurance	<i>\$/MW-day</i>	\$19	\$15	\$6
Non-Fuel Variable Costs	<i>\$/MWh</i>	\$2.36	\$2.71	\$2.60
Operating Costs	<i>\$/MWh</i>	\$0.75	\$0.52	\$0.94
Maintenance Adder	<i>\$/MWh</i>	\$1.61	\$2.19	\$1.66

Simple-Cycle Combustion Turbines

		Simple Cycle Combustion Turbine Plant		
		Representative Low-Cost Plant	Representative Plant	Representative High-Cost Plant
	Units			
Capacity	<i>Nameplate MW</i>	640	320	100
Gross Costs	<i>\$/MW-day</i>	\$43	\$52	\$69
Labor	<i>\$/MW-day</i>	\$6	\$10	\$23
Fixed Expenses	<i>\$/MW-day</i>	\$8	\$12	\$28
Property Taxes	<i>\$/MW-day</i>	\$16	\$16	\$3
Insurance	<i>\$/MW-day</i>	\$13	\$13	\$16
Non-Fuel Variable Costs	<i>\$/MWh</i>	\$4.29	\$4.29	\$5.39
Operating Costs	<i>\$/MWh</i>	\$0.42	\$0.42	\$0.97
Maintenance Adder	<i>\$/MWh</i>	\$3.88	\$3.88	\$4.43

Steam Turbine Oil and Gas

		Oil and Gas-Fired Steam Turbine Plant		
	Units	Representative Low-Cost Plant	Representative Plant	Representative High-Cost Plant
Capacity	<i>Nameplate MW</i>	1,300	900	350
Gross Costs	<i>\$/MW-day</i>	\$53	\$64	\$102
Labor	<i>\$/MW-day</i>	\$21	\$26	\$43
Fixed Expenses	<i>\$/MW-day</i>	\$26	\$32	\$53
Property Taxes	<i>\$/MW-day</i>	\$1.6	\$1.6	\$1.6
Insurance	<i>\$/MW-day</i>	\$4.8	\$4.8	\$4.8
Non-Fuel Variable Costs	<i>\$/MWh</i>	\$5.51	\$5.81	\$16.26
Operating Costs	<i>\$/MWh</i>	\$1.19	\$1.19	\$1.19
Maintenance Adder	<i>\$/MWh</i>	\$4.32	\$4.62	\$15.07

Onshore Wind

		Onshore Wind Plant		
	Units	Representative Low-Cost Plant	Representative Plant	Representative High-Cost Plant
Capacity	<i>Nameplate MW</i>	300	200	30
Gross Costs	<i>\$/MW-day</i>	\$140	\$147	\$204
Labor	<i>\$/MW-day</i>	\$26	\$27	\$50
Fixed Expenses	<i>\$/MW-day</i>	\$95	\$99	\$126
Property Taxes	<i>\$/MW-day</i>	\$12	\$13	\$17
Insurance	<i>\$/MW-day</i>	\$8	\$8	\$11
Non-Fuel Variable Costs	<i>\$/MWh</i>	\$0.00	\$0.00	\$0.00
Operating Costs	<i>\$/MWh</i>	\$0.00	\$0.00	\$0.00
Maintenance Adder	<i>\$/MWh</i>	\$0.00	\$0.00	\$0.00

Solar PV

					Large Scale Solar Photovoltaic Plant		
		Representative	Representative	Representative			
		Low-Cost Plant	Plant	High-Cost Plant			
		Units					
Capacity	<i>Nameplate MW</i>	80	10	2			
Gross Costs	<i>\$/MW-day</i>	\$65	\$70	\$74			
Labor	<i>\$/MW-day</i>	\$20	\$22	\$25			
Fixed Expenses	<i>\$/MW-day</i>	\$30	\$33	\$36			
Property Taxes	<i>\$/MW-day</i>	\$5	\$4	\$4			
Insurance	<i>\$/MW-day</i>	\$10	\$10	\$10			
Non-Fuel Variable Costs	<i>\$/MWh</i>	\$0.00	\$0.00	\$0.00			
Operating Costs	<i>\$/MWh</i>	\$0.00	\$0.00	\$0.00			
Maintenance Adder	<i>\$/MWh</i>	\$0.00	\$0.00	\$0.00			

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