

Permanent Rate

PROMOD Capacity Assumptions

In response to questions from the Energy Bureau, LUMA provides the following supplemental information to describe assumptions related to PROMOD inputs for the FCA-PPCA factors calculation.

Assumed Effective Available Capacity

LUMA utilizes industry-practice, probabilistic production cost modeling to simulate how the Bulk Electric System will operate during a given future period. Below is a table of the current effective available capacity for each generation unit utilized for modeling of the future dispatch of the generation fleet. The effective capacity is determined by utilizing the nameplate capacity of each unit, then adjusting that number downward for the maximum output that the unit has historically been able to generate. The effective capacities are used as the starting point for all resource analyses, including FCA-PPCA and Resource Adequacy. The forced outage rate is provided for each unit for information because it is also an important input for each unit. LUMA models the future dispatch utilizing the effective available capacity and the historic rate of unplanned outages, also called forced outages. Forced outages are modeled based on a probabilistic analysis.

Generator Name	Start of Operations	Fuel	Nameplate Capacity (MW)	Effective Available Capacity (MW)	Historic Forced Outage Rate (%)
AES 1	2002	Coal	227	227	5
AES 2	2002	Coal	227	227	5
Aguirre Combined Cycle 1 ¹	1977	Diesel	296	220	40
Aguirre Combined Cycle 2 ¹	1977	Diesel	296	100	30
Aguirre Steam 1 ²	1971	Bunker	450	350	20
Aguirre Steam 2	1971	Bunker	450	330	15
Costa Sur 5	1972	Natural Gas	410	350	12
Costa Sur 6	1973	Natural Gas	410	350	15
EcoEléctrica	1999	Natural Gas	535	535	2
Palo Seco 3	1968	Bunker	216	190	12
Palo Seco 4	1968	Bunker	216	190	18
San Juan 7	1965	Bunker	100	70	30
San Juan 9	1968	Bunker	100	90	8
San Juan Combined Cycle 5	2008	Diesel / Natural Gas	220	200	12
San Juan Combined Cycle 6	2008	Diesel / Natural Gas	220	200	12
Cambalache 2	1998	Diesel	82.5	75	10
Cambalache 3	1998	Diesel	82.5	75	10
Mayagüez 1	2009	Diesel	55	50	30

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Generator Name	Start of Operations	Fuel	Nameplate Capacity (MW)	Effective Available Capacity (MW)	Historic Forced Outage Rate (%)
Mayagüez 2	2009	Diesel	55	25	30
Mayagüez 3	2009	Diesel	50	50	30
Mayagüez 4	2009	Diesel	50	50	30
Palo Seco Mobile Pack 1-3	2021	Diesel	27 each (81 total)	81	9
7 Gas Turbines (Peakers) ³	1972	Diesel	21 each (147 total)	147	40
Total			4,976	4,182	—

Adjustments for Maintenance Schedules

LUMA updates the available capacity based upon the planned maintenance schedules proposed by each generator and approved by System Operations. The Maintenance Schedule may affect the effective available capacity and the periods of time when a unit will be available or will be offline (not available for dispatch).

For the most recent analysis, Genera confirmed there were no fuel limitations at San Juan and Costa Sur, but did identify the following limitations. These were utilized in modeling the system for analyzed time period.

1. Palo Seco 4 – Out of service for the whole period.
2. San Juan 5 outage – 3 weeks outage (Last 2 weeks of October and first week of November).