



Generation Directorate
Current Status of PREPA Generation Fleet

REV: OCT 4, 2021

Power Station	Unit	Capacity (MW)	Available Capacity	Condition	Person in charge of attending findings	NME (Million)	Currents Status/ Action Plan / Comments
PREPA's Base Generation							
San Juan	CT 5	160	150	Available	Eng. Alejandro Castillo / Plant Manager	\$40	Major overhaul; Proposed dates: November 15, 2021; Alternative: January 15, 2022; taking moderate risks. Approximate cost \$40 million including LTSA (Long Term Services Agreement).
	STM 5	60	51	Available			Major overhaul; Proposed dates: November 15, 2021; Alternative: January 15, 2022. Verifying delivery of steam turbine parts is a critical path.
	CT 6	160	150	Available		\$30	Major overhaul; Proposed date: February 2023; Approximate cost \$30 million.
	STM 6	60	49	Available			Major overhaul; Proposed date: February 2023.
	7	100	0	Not available		\$5	Unit with low vacuum problems due to the crossover joint; Return to service on September 30, 2021. It goes out of service on October 2 to correct vacuum problems and boiler inspections; must return to service on October 8, 2021. Turbine rotors have expired hours for major repair (over 70K hours). Approximate repair cost \$5 millions. Major inspection date to be determined. Unit in limited use (8%) according to EPA MATS (Mercury and Air Toxic Standards).
	8	100		Not available		\$10	Boiler pipe breakage problems, steam leaks and feedwater heater #6 problems. Limited use unit (8%) according to EPA (MATS). Boiler air leaks. Approximate cost of boiler repairs and auxiliary equipment, \$10 million including new boiler piping.
	9	100	96	Available			DEMI (Demineralized) water production problems. Temporary water production plant of the Central (RO) faces operational problems. In the process of completing the installation of a new permanent DEMI plant.
	10	100		Not available		\$15	Low pressure turbine fault. Unit not available since the end of 2015. Returning the unit to service entails an approximate investment of \$15 million and an estimated duration of the works, 6 months.
Palo Seco	1	85		Not available	Eng. Antonio Kalil / Plant Manager	\$10	Limited use unit EPA (MATS). Boiler air leaks, requires replacement of boiler piping. Generator has major stator failure and requires turbine work.
	2	85		Not available		\$15	Limited used unit EPA (MATS). Faulty unit generator; The unit's Main Power Transformer is used as an output transformer for new MPA FT-8.
	3	216	216	Available		\$5	Major repair completed June 2021. Unit returned to service on October 2, 2021, after forced departure due to boiler failure. It is required to purchase boiler tube and economizer panels for approximately \$5 million, for fiscal year 2022-2023.
	4	216	0	Not available		\$2	Forced outage due to oil leak through control wiring. High pressure differential on the air preheaters. Unit expected to return to service on Sunday, October 10, 2021. Environmental outage rescheduled for January 2022, after Costa Sur 6 return to service. Work will be carried out on the boiler and replacement of the air pre-heater baskets.
Aguirre Steam Plant	1	450	375	Available	Eng. Alexis Cruz / Plant Manager	\$18	Boiler air in leakages. Major repair rescheduled for January 2022, after the entry of Costa Sur 6. Major works, environmental outages, boiler work and replacement of turbine rotors for an approximate \$18 millions.
	2	450	121	Available		\$0.35	Feed water control valve issues. In addition, it is necessary to correct boiler air in leakages and air preheaters cleaning. It is recommended to shutdown the unit for five days to address problems with the feed water system. This action eliminated actual limitation. Unit outage is scheduled once Costa Sur 5 returns to service.



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South Coast	5	410	0	Not available	Eng. Miguel Beauchamp/ Plant Manager	\$15	Main steam piping failure on September 13, 2021. Unit expected to return service on Wednesday, October 6, 2021. Major outage (boiler, environmental maintenance and replacement of turbine rotors) scheduled for October 2022. Approximate cost \$15 million.
	6	410	0	Not available		\$5	Low pressure turbine failure (LP turbine failure) after major unit repair including these rotors for \$20 million. Rotors were shipped to the US workshop by ship during the week of September 20-27. Findings report is expected for October 18, 2021. Unit expected delivery unit January 15, 2022 at an approximate cost of replacement of damaged parts of \$5 million.
Total PREPA Base Generation		3162	1208	38.20%		\$170.35	Available



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PREPA's Reserve Generation Fleet							
Aguirre Combined Cycle	I-1	50	48	Available CC	Eng. Harry Velázquez / Plant Manager	\$1	Hot gas path inspection \$1M, April 2022.
	I-2	50	48	Available SC		\$1	Inlet filters Clogged. Hot gas path inspection scheduled for June 2022.
	I-3	50	48	Available		\$2.5	Major inspection scheduled for January 2022. \$2.5M
	I-4	50	45	Available			
	ST-1	96	38	Available			Condenser fouling and air in leakages. Available with HRSRG 1-1 & 1-3.
	II-1	50		Not available			MPT 2-1, 2-2 failure.
	II-2	50		Not available			MPT 2-1, 2-2 failure. Start up tests.
	II-3	50	50	Available			
	II-4	50		Not available			\$1.7
	ST-2	96		Not available			MPT 2-1, 2-2 failure. Start up tests.
Total Aguirre CC		592	277	46.79%		\$6.2	Availability
DAGUAO	1-1	21	18	Available	Eng. José Vázquez HG Head Division / Eng. José Pagán Operation Manager		
	1-2	21	19	Available			
AGUIRRE	2-1	21		Not available		\$8	Unit requires major turbine repair and a complete generator assembly. Estimate \$8 million.
	2-2	21	21	Available			
PALO SECO	1-1	21	18	Available			
	1-2	21		Not available		\$0.3	Generator breaker failure.
	2-1	21	21	Available			
	MPA 1	23		Not available		\$0.1	Environmental air permit. Contract awarded to perform environmental acceptance tests. Waiting for EPA approval of emission testing.
	MPA 2	23		Not available		\$0.1	Environmental air permit. Contract awarded to perform environmental acceptance tests. Waiting for EPA approval of emission testing.
	MPA 3	23		Not available		\$0.1	Environmental air permit. Contract awarded to perform environmental acceptance tests. Waiting for EPA approval of emission testing.
COSTA SUR	1-1	21		Not available			Unit reached full speed not load with excitation. Phasing tests schedule for October 17.
	1-2	21		Not available		\$2	Turbocompressor replacement.
JOBOS	1-1	21	20	Available			
	1-2	21	20	Available			Due for major inspection (August 2020) and speed reduction gearbox replacement.
YABUCOA	1-1	21		Not available			Alignment process. Startup testing scheduled for October 8.
	1-2	21		Not available			Alignment process. Startup testing scheduled for October 22.
VEGA BAJA	1-1	21		Not available		\$0.10	Voltage regulator repair unit expected in service on October 15, 2021
	1-2	21		Not available		\$2	Turbocompressor major failure.
Total 18 Peaking Units		384	137	35.68%		\$12.7	Availability



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MAYAGÜEZ	1A	27.5		Not available	Eng. José Vázquez / Eng. Waldo Córdoba Plant Manager	\$17	Gas generator and power turbine (1B) in critical condition. Repair Cost estimate \$17 million for both units 1A an 1B.
	1B	27.5		Not available			
	2A	27.5	27.5	Available			
	2B	27.5	27.5	Available			
	3A	27.5	25.5	Available			
	3B	27.5	25.5	Available			
	4A	27.5		Not available		\$0.8	Combustor casing crack failure. First stage nozzle issues. Pending proposal evaluation. Repair cost Estimate \$800K.
	4B	27.5	25	Available			
Total Mayagüez		220	131			\$17.8	
CAMBALACHE	1	82.5		Not available	Eng. Herminio Arroyo / Plant Manager	\$18	Unit out of service since 2011; Combustion turbine failure; Proposal \$18 million and six months.
	2	82.5	77	Available			
	3	82.5	77	Available			
Total Cambalache		247.5	154			\$18	
VIEQUES	1	3	3	Available	Eng. José Vázquez / Eng. Waldo Córdoba Plant Manager		
	2	3	0	Not available			Troubleshooting control system issues.
Culebra	1	2	2	Available			
	2	2	2	Available			
	3	2	2	Available			
Total Vieques and Culebra		12	9				
Total Peaking & Emergency Units		1,455.5	708.0	48.64%		\$55	Availability



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HYDROELECTRICS							
Toro Negro	1-1	1.5	1.5	Available	Eng. José Vázquez / Head Division		
Toro Negro	1-2	1.5	1.5	Available			
Toro Negro	1-3	1.5	1.5	Available			
Toro Negro	1-4	4.5	4.5	Available			
Toro Negro	2	2		Not Available			
Yauco	1	25		Not Available		\$8	Turbine inlet main valve replacement. Phasing test pending.
Yauco	2-1	4.5	2	Available			Pending turbine and generator major overhaul. Federal restoration funding allocation for \$8M.
Yauco	2-2	4.5	4.3	Available			Limited pending relay protection system modifications.
Garzas	1-1	3.6	4	Available			
Garzas	1-2	3.6		Not Available			
Garzas	2	5		Not Available			Generator bearing repair. Expected in-service on October 2021.
Caonillas	1-1	9		Not Available			Transmission line failure due to Hurricane Maria. Federal restoration funding approved.
Caonillas	1-2	9		Not Available		\$5	Station flooding failure due to Hurricane Maria. In preparation of specifications and bid process documents. Federal restoration funding allocation for \$5M.
Caonillas	2	3.6		Not Available			Pending major restoration budget approvals.
Dos Bocas	1	5		Not Available			Restored generator in coordination for transportation to site.
Dos Bocas	2	5	5	Available			
Dos Bocas	3	5	5	Available			
Patillas	1-1	0.8		Not Available			Downstream flow risk concerns.
Patillas	1-2	0.6		Not Available			Downstream flow risk concerns.
Río Blanco	1	2.5		Not Available			Penstock major failure. Federal restoration funding approved.
Río Blanco	2	2.5		Not Available		Penstock major failure. Federal restoration funding approved.	
Total Hydro		100.2	29.3	29.24%		\$13	

NME (necessary maintenance expenses)