




Generation Directorate

Current Status of PREPA Generation Fleet

REV: December 8, 2022

Power Station	Unit	Capacity (MW)	Available Capacity	Condition	Date of last major maintenance	Date of last major maintenance	Person in charge of attending	NME (Million)	FY 2021-22 Available Budget	FY22	FY23	Currents Status / Action Plan / Comments	
<b>PREPA's Base Generation</b>													
San Juan	CT 5	160	0	Not Available	June 30 2022		Eng. Victor Ortiz Plant Manager	\$45.00	\$38.00	\$45.00		Minor Outage from dec 7 to dec 21 2022. Unit affected by Huracane Fiona. Major overhaul begining January 15, 2022 until jun 30 2022; Approximate cost \$45 millions including LTSA (Long Term Services Agreement).	
	STM 5	60		Not Available	June 30 2022								Unit affected by Huracane Fiona.Forecast december 2022 Major overhaulbegining January 15, 2022 until june 30 2022.. Verifying delivery of steam turbine parts is a critical path.Forecast January 2023
	CT 6	160	0	Not Available					\$33.00			\$33.00	Combustion inspection for december 1 to december 31 2022. Problems with turbine control valves in steam units cause a limitation on combustion units. Planning short outage in december 2022, Unit Major overhaul; Proposed date: February 2023; Approximate cost \$33 millions.
	STM 6	60	0	Not Available	Sep-13	Jun-10							Forecast unit on line january 2023. Generator Rotor Inspection October 27, 2021; Generator Instrumentation Problems (field ground). Unit online January 30, 2022. Unit off line on april 30 2022 ,problems with turbine control valves. Forecast January 2023. Major overhaul Proposed date: February 2023.
	7	100	0	Not Available	Aug-08	Aug-08			\$18.00			\$18.00	Short Outage from dec 7 to decc 21 2022. Boiler Faulure feb 12 2022; Boiler repair finish March 17 2022; Valve inspection and repair finish january 5 2022; Turbine rotors have expired hours for major repair (over 70K hours). Approximate repair cost \$5 millions. Boilers Repairs (\$10 millions) needed. Major inspection date to be determined. Unit in limited use (8%) according to EPA MATS (Mercury and Air Toxic Standards). Total Outage cost aproximate \$18 millions.
	8	100	0	Not available	Nov-10	Nov-10			\$18.00			\$18.00	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, \$18 millions including new boiler piping.
	9	100	95	Available	Nov-19	Aug-12			\$2.00			\$2.00	Unit affected by Hurace Fiona. Limitation cause for problems BFP; repair finish july 25 2022. Unit have problem with excitation system on december 30 2021; Luma working from january 2 to january 3 2022. Unit Star up january 4 2022. Programmed outage finished: 7 days (October 28 - November 3, 2021): coolers replacement, BFP 9-1 and 9-2 inspection, condenser cleaner, etc. 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	0	Not available	Sep-09	Sep-09			\$17.00		\$17.00		Low pressure turbine fault. Unit not available since the end of 2015. Returning the unit to service entails an approximate investment of \$17 millions and an estimated duration of the works, 6 months. Forecast Unit Online June 30 2023. Epa requirement re-activation policy.
Palo Seco	1	85	0	Not available	Apr-08	Apr-08	Eng. Antonio Kalil Plant Manager	\$10.00			\$10.00	Limited use unit EPA (MATS). Boiler air leaks, requires replacement of boiler piping. Generator has major stator failure and requires turbine work.	
	2	85	0	Not available				\$15.00			\$15.00	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	200	Available	Nov-09	Nov-09		\$9.00			\$9.00	Several Forced Outage between October 31 - December 16, 2021: Economizer (boiler) tubes failure, condenser tubes failure, front standard problems. Forecast Unit return online for December 17, 2021. It is required to purchase boiler tube and economizer panels for approximately \$5 millions and repair auxiliary equipments, for march 2023-may 2023	
	4	216	210	Available	May-09	Jun-19		\$3.00	\$3.00	\$3.00		Forced Outage beginning september 3 to december 2022 . Problems with DC Pump; turbine bearing inspection. Environmental outage beginning january 23 2022 until march 21 2022; Work will be carried out on the boiler and replacement of the air pre-heater baskets. Unit online BFP 4-1 repair finished December 12. Forced outage on september due to oil leak through control wiring and high pressure differential on the air preheaters. Unit return to service on Sunday, October 10, 2021. Work will be carried out on the boiler and replacement of the air pre-heater baskets.	
Aguirre Steam Plant	1	450	0	Not Available	Feb-12	Dec-08	Eng. Alexis Cruz Plant Manager	\$20.70	\$16.00	\$19.00	\$1.70	Forced outage : Do a reinspection in generator area. Forecast february 2023. Major repair beginning on March 16 2022 until july 30 2022. Major works, environmental outages, boiler tubes replacement and turbine rotors replacement for an approximate \$19 millions.	
	2	450	350	Available	Mar-10	Dec-19		\$2.35			\$2.35	Unit affected by Huracane Fiona. Unit on line by october 13 2022. Last inspection begining march 2 until march 11 2022. Repair airheater seals and boilers air infiltration. This action eliminated at least 50 mw limitation. Beginnig the procurement process to repair the Excitation System next fiscal year.	
Costa Sur	5	410	220	Available	Jul-13	Jul-13	Eng. Miguel Beauchamp Plant Manager	\$21.80	\$2.80	\$2.80	\$19.00	Unit limited to 222 mw for BFP problems until january 2023.. Forced Outage between may 12 to may 24 2022 to replace the generator hydrogen seals. Forced Outage November 30 - December 5, 2021. BFP 5-1 and BFP 5-2 motors failure. Main steam piping failure on September 13, 2021. Unit return service on Wednesday, October 6, 2021. Major outage ( boiler, environmental maintenance and replacement of turbine rotors) scheduled for January 2023. Approximate cost \$19 millions.	
	6	410	350	Aavailable	Sep-12	Feb-21		\$6.70	\$3.00	\$5.00	\$1.70	Unit off line for boiler backpass cleaning until nov 4. Unit online january 5 2022. Last summer Low pressure turbine failure (LP turbine failure) after major unit repair including these rotors for \$20 millions. Rotors were shipped to the US workshop by ship during the week of September 20-27. Findings report and repairs beggining october and finished on December 2, 2021. Rotor shipped to Puerto Rico on December 6, 2021. Unit on test December 30 2021; Turbine balance works from januart 1 to january 7 , 2022 an approximate cost of replacement of damaged parts of \$5 millions.	
<b>Total PREPA Base Generation</b>		<b>3162</b>	<b>1425</b>	<b>45.07%</b>				<b>\$221.55</b>	<b>\$62.80</b>	<b>\$91.80</b>	<b>\$129.75</b>	<b>Available</b>	

 <span style="float: right;"> <b>Generation Directorate</b>  <b>Current Status of PREPA Generation Fleet</b>  REV: December 8, 2022 </span>														
Power Station	Unit	Capacity (MW)	Available Capacity	Condition	Date of last major maintenance	Date of last major maintenance	Person in charge of attending	NME (Million)	FY 2021-22 Available Budget	FY22	FY23	Currents Status / Action Plan / Comments		
<b>PREPA's Reserve Generation Fleet</b>														
Aguirre Combined Cycle	I-1	50	0	Not Available		(4,000)	Eng. William Rios Mera Plant Manager	\$1.00	\$1.00	\$1.00		Mayor inspection 11 July to 10 January 2023; Repair and inspect collector rings. Until March 5 2022; Hot		
	I-2	50	50	Available SC		(2,841)		\$1.00	\$1.00	\$1.00		Unit affected by Hurricane Fiona. Inlet filters clogged. Hot gas path inspection scheduled for June 2022.		
	I-3	50	0	Not Available		(11,392)		\$2.50	\$1.00	\$2.50		Major inspection scheduled for 2/14/22 until 12/29/2022. Repair cost \$2.5 millions		
	I-4	50	0	Not Available		(1,574)		\$2.00			\$2.00	Unit affected by Hurricane Fiona. Inspect generator rotor. PT Repair; Minor outage October 20 - return unit online for November 5 2021		
	ST-1	96	17	Available				\$2.00	\$1.00	\$1.00	\$1.00	Unit affected by Hurricane Fiona. Unit off line October 19 2021 ; water line repair to cooling tower; condenser fouling and air in leakages. Unit on line May 2022.		
	II-1	50	0	Not available				\$2.00			\$2.00	MPT 2-1, 2-2 failure; in process to replacement until December 2022		
	II-2	50	0	Not available				\$2.00			\$2.00	MPT 2-2 failure; in process to replacement until December 2022; Mayor inspection		
	II-3	50	50	Available		(1,307)		\$1.00			\$1.00	Unit affected by Hurricane Fiona. Repair coolers fan radiators		
	II-4	50	50	Available		(3,637)		\$1.70			\$1.70	Unit affected by Hurricane Fiona. Stand by Transformer fail. Hot gas path inspection and spare rotor \$1.7 millions.		
ST-2	96	0	Not available			\$2.00			\$2.00	Steam Tube Failure and generator rings problems				
<b>Total Aguirre CC</b>		<b>592</b>	<b>167</b>	<b>28.21%</b>				<b>\$17.20</b>	<b>\$4.00</b>	<b>\$5.50</b>	<b>\$11.70</b>	<b>Availability</b>		
DAGUAO	1-1	21	20	Available			Eng. Jaime Umpierre Hidro Gas Head Division	\$2.00	\$1.00	\$2.00		Unit affected by Hurricane Fiona. Mayor Outage Repair planned April 2022		
	1-2	21	17	Available				\$2.00	\$1.00	\$2.00		Unit affected by Hurricane Fiona. Generator Ground Inspection from Dec 20 2021; Mayor Outage Repair for 2022		
AGUIRRE	2-1	21	0	Not available				\$4.00			\$4.00	Unit requires major turbine repair and a complete generator assembly.		
	2-2	21	20	Available				\$2.00	\$1.00	\$2.00		Mayor Outage Repair		
PALO SECO	1-1	21	20	Available				\$2.00	\$1.00	\$2.00		Mayor Outage Repair 2022		
	1-2	21	0	Not available				\$2.30			\$2.30	Mayor Outage Repair and Generator breaker replacement		
	2-1	21	20	Available				\$2.00	\$1.00	\$2.00		Mayor Outage Repair 2022		
	MPA 1	28	28	Available				\$0.10	\$0.10	\$0.10		Environmental air permit. Contract awarded to perform environmental acceptance tests. EPA approve emission testing. Emission test between July-August 2022.		
	MPA 2	28	28	Available				\$0.10	\$0.10	\$0.10		Environmental air permit. Contract awarded to perform environmental acceptance tests. EPA approve emission testing. Emission test between July-August 2022		
	MPA 3	28	28	Available				\$0.10	\$0.10	\$0.10		Environmental air permit. Contract awarded to perform environmental acceptance tests. EPA approve emission testing. Emission test between July-August 2022		
COSTA SUR	1-1	21	0	Not available				\$2.00	\$2.00	\$2.00		Unit reached full speed not load with excitation. Phasing tests schedule for July 2022. Mayor Outage Repair		
	1-2	21	0	Not available				\$4.00			\$4.00	Turbocompressor replacement. Mayor Outage Repair		
JOBOS	1-1	21	20	Available				\$2.00	\$1.00	\$2.00		Unit affected by Hurricane Fiona. Mayor Outage Repair 2022		
	1-2	21	20	Available				\$2.00	\$1.00	\$2.00		Unit affected by Hurricane Fiona. Due for major inspection (August 2020) and speed reduction gearbox replacement.		
YABUCOA	1-1	21	0	Not available				\$2.00	\$1.00	\$2.00		Unit affected by Hurricane Fiona. Alignment process.		
	1-2	21	0	Not Available				\$2.00	\$1.00	\$2.00		Unit affected by Hurricane Fiona. Alignment process finish ;		
VEGA BAJA	1-1	21	0	Not available				\$2.10	\$0.00	\$2.10		Voltage regulator repair unit expected in service on April 2022		
	1-2	21	0	Not available				\$4.00			\$4.00	Turbocompressor major failure.		
<b>Total 18 Peaking Units</b>		<b>399</b>	<b>221</b>	<b>55.39%</b>					<b>\$36.70</b>	<b>\$11.30</b>	<b>\$22.40</b>	<b>\$14.30</b>	<b>Availability</b>	
MAYAGÜEZ	1A	27.5	27.5	Available				Eng. Jaime Umpierre Hidro Gas Head Division Eng. Waldo Córdoba Plant Manager	\$18.00	\$8.00	\$18.00		Unit on line ; August 15 : Voltaje Regulator Control failed ; replacement on September 2022. Unit Repair Cost estimate \$18 millions for both units 1A an 1B. Mayor outage finished on May 22 2022 (ahead	
	1B	27.5	27.5	Available									Turbine Failure; Do a assetment to repair the unit; forecast finish September 14 2022	
	2A	27.5	27.5	Available										
	2B	27.5	27.5	Available										
	3A	27.5	27.5	Available										
	3B	27.5	0	Not Available									Problem with Gear box	
	4A	27.5	27.5	Available			\$0.80		\$0.80	\$0.80			Combustor casing crack failure. First stage nozzle issues. Repair cost estimate \$800 K. Unit online February 5 2022	
4B	27.5	27.5	Available											
<b>Total Mayagüez</b>		<b>220</b>	<b>192.5</b>	<b>87.50%</b>				<b>\$18.80</b>	<b>\$8.80</b>	<b>\$18.80</b>	<b>\$0.00</b>			
CAMBALACHE	1	82.5		Not available			Eng. Herminio Arroyo Plant Manager	\$20.00	\$0.00	\$18.00	\$2.00	Unit out of service since 2011; Combustion turbine failure; Proposal \$18 millions and six months.		
	2	82.5	82	Available				\$8.90	\$4.00	\$6.90	\$2.00	Outage beginind April 19 2022 until Jun 15 2022; New Automatic Voltaje Regulator; Control System and Maintenance Services HTS.		
	3	82.5	82	Available				\$8.90	\$4.00	\$6.90	\$2.00	Outage LTSA with GE ;Unit until August 14 2022 New Automatic Voltaje Regulator; Control System and Maintenance Services HTS		
<b>Total Cambalache</b>		<b>247.5</b>	<b>164</b>	<b>66.26%</b>				<b>\$37.80</b>	<b>\$8.00</b>	<b>\$31.80</b>	<b>\$6.00</b>			
VIEQUES	1	3	3	Available			Eng. Jaime Umpierre Hidro Gas Head Division							
	2	3	0	Not Available									Troubleshooting control system issues.	
Culebra	1	2	2	Available										
	2	2	2	Available										
	3	2	0	Not Available										
<b>Total Vieques and Culebra</b>		<b>12</b>	<b>7</b>	<b>58.33%</b>										
<b>Total Peaking &amp; Emergency Units</b>		<b>1,470.5</b>	<b>751.5</b>	<b>51.11%</b>				<b>\$110.50</b>	<b>\$32.10</b>	<b>\$78.50</b>	<b>\$32.00</b>	<b>Availability</b>		



Generation Directorate

Current Status of PREPA Generation Fleet

REV: December 8, 2022

Power Station	Unit	Capacity (MW)	Available Capacity	Condition	Date of last major maintenance	Date of last major maintenance	Person in charge of attending	NME (Million)	FY 2021-22 Available Budget	FY22	FY23	Currents Status / Action Plan / Comments	
<b>HYDROELECTRICS</b>													
Toro Negro	1-1	1.5	1.5	Available			Eng. Jaime Umpierre Hidro Gas 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	0	Not available									
Toro Negro	2	2	0	Not available									Turbine inlet main valve replacement. Phasing test pending.
Yauco	1	25	0	Not available					\$8.00	\$2.00	\$4.00	\$4.00	Pending turbine and generator major overhaul. Federal restoration funding allocation for \$8 millions.
Yauco	2-1	4.5	2	Available									Unit out of Service December 31 2021 General Inspection ; Limited pending relay protection system modifications.
Yauco	2-2	4.5	0.5	Available									
Garzas	1-1	3.6	3.6	Available									
Garzas	1-2	3.6	0	Not available									Generator bearing repair. Expected in-service on October 2021.
Garzas	2	5	0	Not available									Transmission line failure due to Hurricane María. Federal restoration funding approved.
Caonillas	1-1	9	0	Not available									Station flooding failure due to Hurricane María. In preparation of specifications and bid process documents. Federal restoration funding allocation for \$5 millions.
Caonillas	1-2	9	0	Not available					\$5.00		\$1.00	\$4.00	Pending major restoration budget approvals.
Caonillas	2	3.6	0	Not available									Restored generator in coordination for transportation to site.
Dos Bocas	1	5	0	Not Available									
Dos Bocas	2	5	5	Available									
Dos Bocas	3	5	0	Not Available									
Patillas	1-1	0.8	0	Not available									Downstream flow risk concerns.
Patillas	1-2	0.6	0	Not available									Downstream flow risk concerns.
Río Blanco	1	2.5	0	Not available									Penstock major failure. Federal restoration funding approved.
Río Blanco	2	2.5	0	Not available								Penstock major failure. Federal restoration funding approved.	
<b>Total Hydro</b>		99.7	15.6	15.65%				\$13.00	\$2.00	\$5.00	\$8.00		
<b>Total NME (Necessary Maintenance Expenses)</b>								\$345.05	\$96.90	\$175.30	\$169.75		