The auxiliary power system is fed by the GT generator buses and separated into A and B trains with each being supplied by the associated GT generator bus through 18:6.9kV transformers. Each 6.9kV bus supplies power to a 480V Motor Control Center (MCC) with redundant loads and a third 480V MCC with non-redundant loads.

6.9kV Medium Voltage power is supplied to the Air-Cooled Condenser (ACC) power centers. Transformers lower the voltage to 480V for use in operating the fans on the associated unit.

The technical specifications for the generators at the EVM II site can be seen in Table 4-6 below.

Table 4-6: EVM II Generator Specifications

Parameter	GT Generator	ST Generator
Model	GE H53	GE H53
Rated Power (MVA)	328 MVA	380 MVA
Cooling System	Hydrogen-cooled	Hydrogen-cooled
Power factor	0.9	0.9
Voltage	18 kV	18 kV

There are three generator step-up transformers ("GSU") at the EVM II site; two for the GT generators and one for the ST, shown in Figure 4-6. The GSU takes the generator voltage and raises it up to the associated transmission voltage level. All three GSUs at the EVM II site are oil forced air forced ("OFAF"). This means that the transformers are cooled by forced air and oil, where the forced flow is caused by fans and pumps. Transformer specifications are shown in Table 4-7 below.

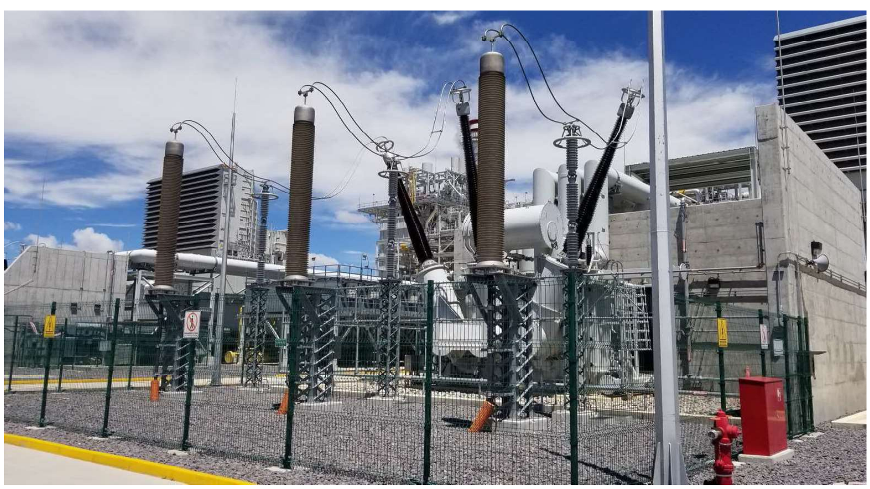


Figure 4-6: EVM II Transformer

Table 4-7: EVM II Transformer Specifications

Unit	Manufacturer	Phases	Cooling	MVA	Voltage (kV)
GT1 Main	PROLEC -GE	3	OFAF	320	400/18
GT2 Main	PROLEC -GE	3	OFAF	320	400/18
ST Main	PROLEC -GE	3	OFAF	390	230/18

4.2.8 Control System

EVM II utilizes the General Electric Mark VIe Speedtronic™ Turbine Control System. The control system in place at the EVM II site is fully integrated across all major systems and controls the HRSGs and the Balance of Plant equipment. The system utilizes three communication buses. The Management Data Highway (MDH) provides business information to the management team without connecting to high level control networks. The Plant Data Highway (PDH) shares data between the operations terminals, historian and controllers. The Unit Data Highway (UDH) shares control specific data between the operations terminals, process controllers, excitation system and static starting system. The UDH is the highest-level network within the system. Data communications from third party equipment is shared with the control system on the PDH for high level control and parameter monitoring. Figure 4-7 shows the high-level architecture of the system Figure 4-8 shows a display screen for one of the gas turbine units as well as a trip log display screen in the EVM II control room.

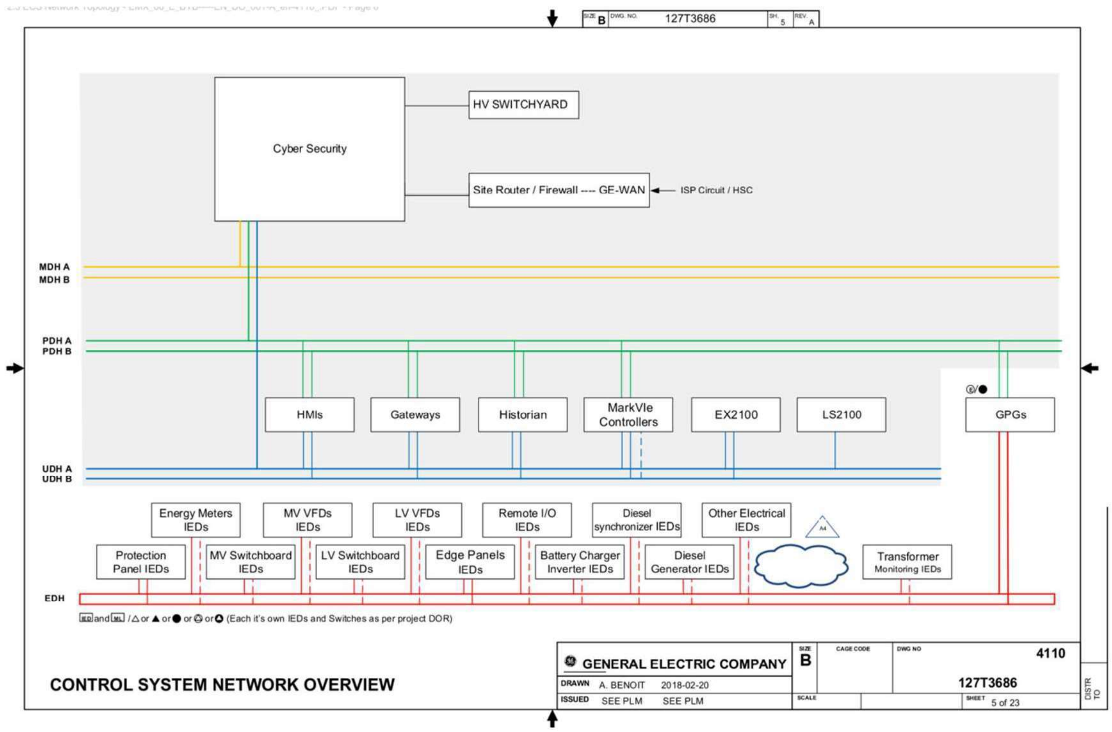


Figure 4-7: Control System Architecture

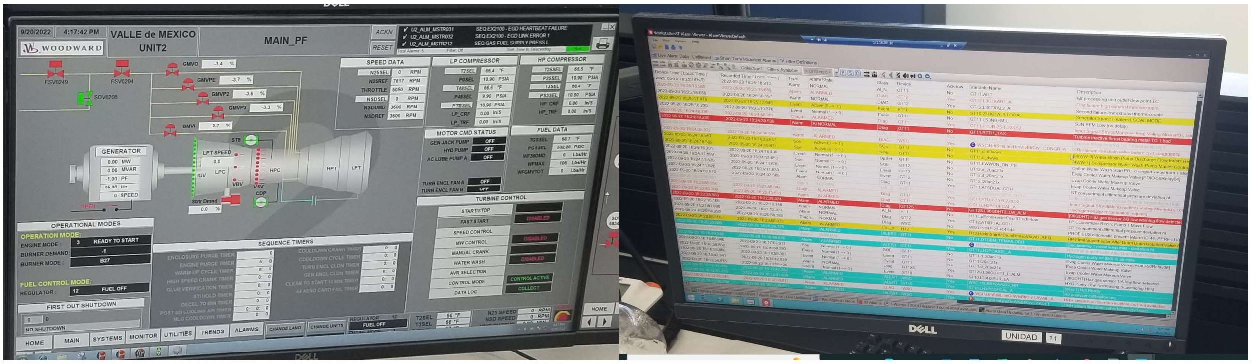


Figure 4-8: Gas Turbine Screen (left) and Trip Display Screen (right), EVM II Control Room

4.2.9 Fire Protection

This site uses water mist for the GE 7HA.02 gas turbine fire protection, as well as water to reduce flames throughout the rest of the plant via fire hydrants and firehose boxes. Figure 4-9 shows the protection systems in place near a GT unit.

The fire fighting system consists of two pumps, one electric and one diesel engine driven which can be used in the event of a power outage. An electric jockey pump maintains pressure in the piping system.

The fire water for the fire fighting skid is drawn from water tank. The tank is used for both raw water and firefighting. The tank volume is 1700 m3 with 1350 m3 dedicated for fire fighting. The raw water is drawn high from the tank to ensure reserve firewater is secure.

Figure 4-9: EVM II Gas Turbine Fire Protection

4.2.10 Emergency Diesel Generator

The diesel generator is rated for 1,000 kW and 480 V. The diesel supply in the day tank will allow for 8 hours of operation of the emergency diesel generator at 100% capacity.

4.2.11 Summary

Hatch considers that the equipment selected is consistent with the desired performance, availability, and operational requirements of the plant. The GE 7HA.02 gas turbines have a growing asset base and are accumulating run hours rapidly. GE is focused on the equipment and has proven to work aggressively to resolve issues that are identified as the fleet of turbines matures. The steam turbine, HRSGs, air-cooled condenser and other BOP equipment are industry standard offerings that are deployed worldwide. The overall design and redundancy philosophy of the plant is consistent with industry standard.

4.3 Operations Review

4.3.1 Equivalent Unplanned Outage Factor

The monthly equivalent unplanned outage factor (EUOF) of the plant from January 2021 to November 2023 is shown in Figure 4-10. The average EUOF for EVM II is 3.09%. The increased EUOF in May 2021, August 2021, October 2021, January 2022, May 2022, October 2022, and March 2023 aligns with the outages that have been reported by the plant outlined in Appendix B. The increasing trend for EUOF is due to Gas Turbine parts life related issues that are being addressed by the OEM. GE is known for aggressively addressing performance issues with thorough investigation and root cause determination and resolution. Hatch considers the current lowering performance to be temporary based on past OEM performance.

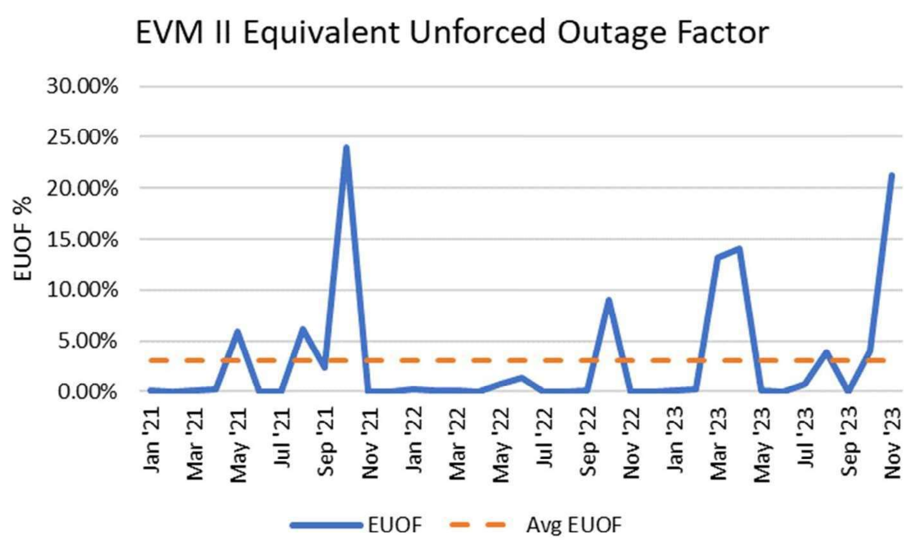


Figure 4-10: Monthly EUOF for EVM II from January 2021 - November 2023

4.3.2 Heat Rate

The monthly heat rate (HHV, kJ/kWh) of the plant from January 2021 to November 2023 is shown in Figure 4-11. The average heat rate for EVM II during this period is 6749 kJ/kWh. Changes in plant heat rate are caused by outages leading to increased costs and limited run time to overcome energy usage. Throughout the operating life of the facility, it has performed better than the requirements of the PPA. This performance supports the model assumptions and is consistent with the finding provided from reviewing the 5-minute data shown in Figure 4-12. The current heat rate is consistent with expectations and analysis.

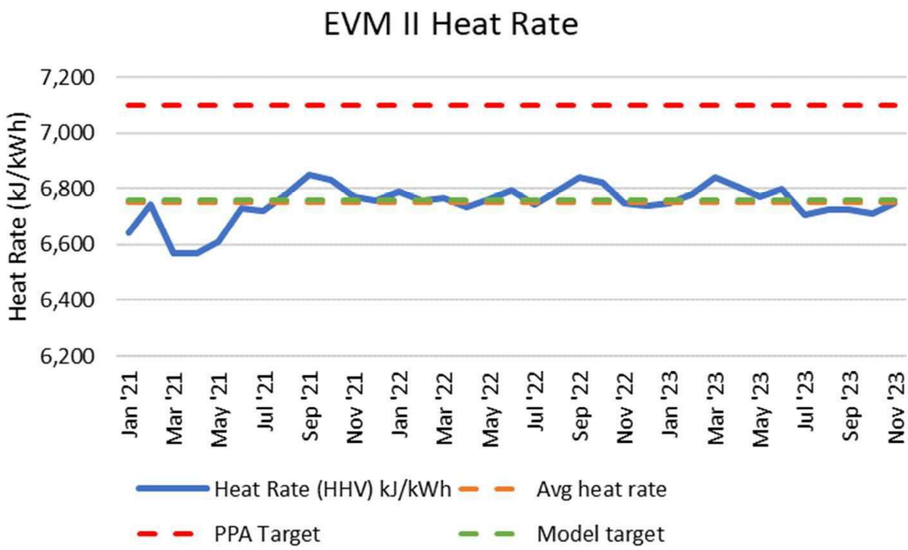
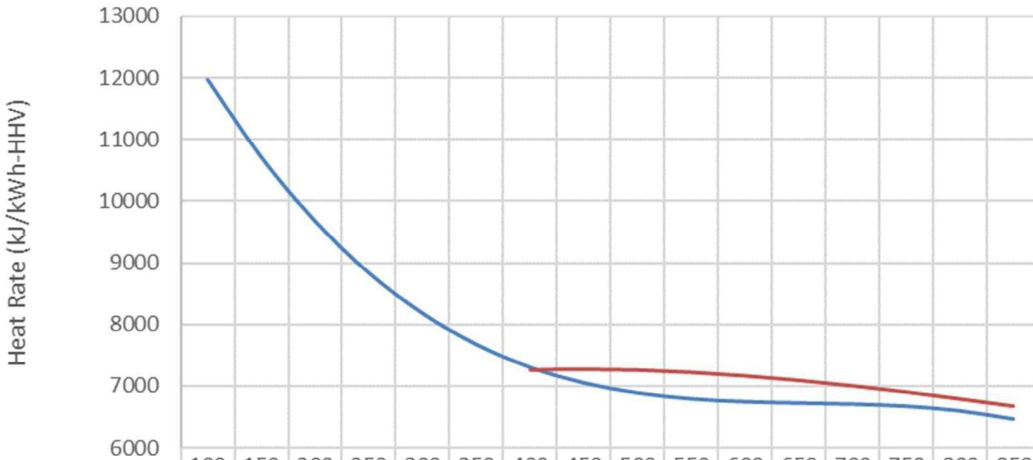


Figure 4-11: Monthly HHV Heat Rate (kJ/kWh) for EVM II from January 2021 - November 2023

Heat rate was evaluated over the life of the facility by analyzing 5-minute data from the control system. Fuel burn for the gas turbines and the duct burners was taken from the permanent metering systems. A scatter plot and regression curves were developed based on the data. Figure 4-12 shows the graphs for unfired and fired conditions. As shown, operations above 750MW has a heat rate that is projected to be 6907 kJ/kWh-HHV or lower based on fired conditions. This performance exceeds the requirements of the PPA and performance over 800MW meets or is better than the current model assumptions.



	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
HR DB Off	1197	1071	9677	8839	8179	7676	7306	7050	6885	6790	6742	6720	6703	6669	6596	6462
HR DB On							7270	7282	7268	7231	7174	7099	7009	6907	6796	6677

Figure 4-12: Plant HR vs. Net Output

The use of duct burners at loads below 800MW limits the heat rate benefits that can be attained by the plant. Historical data indicates EVM has operated the facility with duct burners in service at lower loads. This was discussed with the operations team, and they advised the control system does not back out duct burners as a priority overload control. A control logic and operating practice review is being completed to determine if changes can be made in each area to improve the heat rate performance and therefore improve margin at lower loads.

4.3.3 Generation

The monthly power generated (GWh) of the plant from January 2021 to November 2023 is shown in Figure 4-13. The average net power generated for EVM II during this period is 522 GWh per month. Power output fluctuations are caused by reduced availability due to outages.

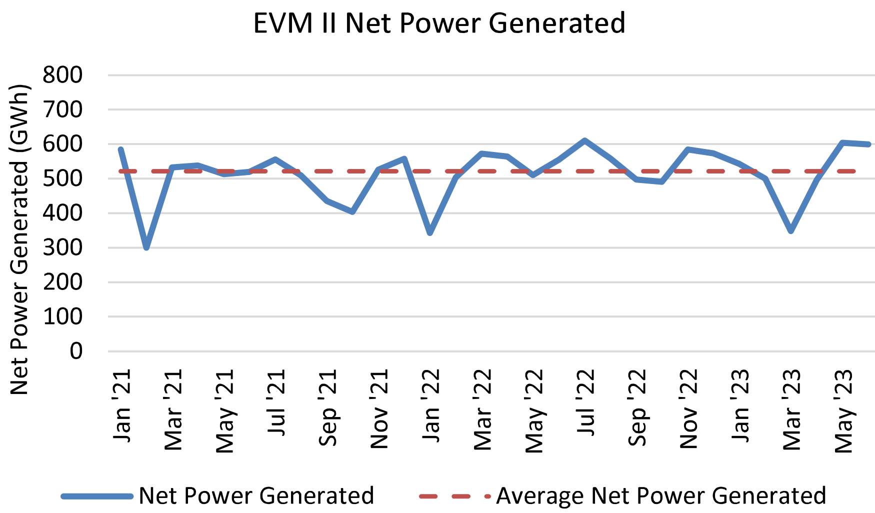


Figure 4-13: Monthly Net Power Generation from January 2021 - November 2023

4.4 Maintenance Review

4.4.1 Spare Parts Inventory

EVM-II maintains an inventory of all hot gas parts for the gas turbines. These parts are available for emergent repairs of the gas turbines. The CSA provider will coordinate with the owner regarding the use of these parts during routine maintenance. It is advisable to rotate these parts into the fleet spare pool when revised parts have been released from the manufacturer.

Spares for the other areas of the plant are also kept in the warehouse with critical parts for HRSG and steam system valves as well as the Air-Cooled Condenser and other major equipment on site. Based on the inventory list provided by the Client, parts are available in the warehouse with few outstanding parts on order.

4.4.2 Maintenance Programs

Refer to the maintenance programs for EVM I as they are the same for EVM II, apart from those items noted within this section listed below.

4.4.2.1 Water Chemistry Program

Boilers of all types require high quality water to avoid corrosion of the pressure parts and transport of corrosion materials to other parts of the steam cycle. The water chemistry program monitors the critical parameters of the steam cycle water and steam and provide information to the operating team to adjust water conditions to maximize steam cycle component life. EVM utilizes industry standard practices and processes to control water chemistry on the cycle for protection of the power generation equipment.

4.4.2.2 High Energy Piping Program

Modern combined cycle power plants utilize piping systems that are maximized for capital investment and operate with little margin between operating and design conditions. This low margin design makes the piping system vulnerable to poor operating conditions that could overheat the piping systems or operate with water chemistry control that is less than ideal. The Client is utilizing a high energy piping program that monitors the health of the steam lines with routine inspections to check for cracking and creep. The program also monitors feedwater piping for flow accelerated corrosion. These failure mechanisms are known issues in high energy piping in thermal power plants. Utilizing these programs is considered an industry best practice.

4.4.2.3 Turbine and Generator Technical Information Letters (TIL)

Currently there are a total of 82 individual TILs for the plant that are open. The TILs are issued against the Gas Turbine/Generators, Steam Turbine/Generator, HRSGs and Balance of Plant. All TILs are planned to be addressed at the next outage.

Table 4-8 Active TIL Status Table

Active/Open Planning Status TILs		
Status	**TIL Category**	**# of TIL's**
Planning	Alert	3
Planning	Compliance	40
Planning	Maintenance	25
Planning	Safety	16
		84

4.5 O&M Staffing

EVM-II is staffed with a full complement of support staff through the O&M Contractor NAES. The staff complement is shown in Figure 4-14. The staffing model meets industry best practices, with some additional leadership roles that are not common in competitive or regulated plants.

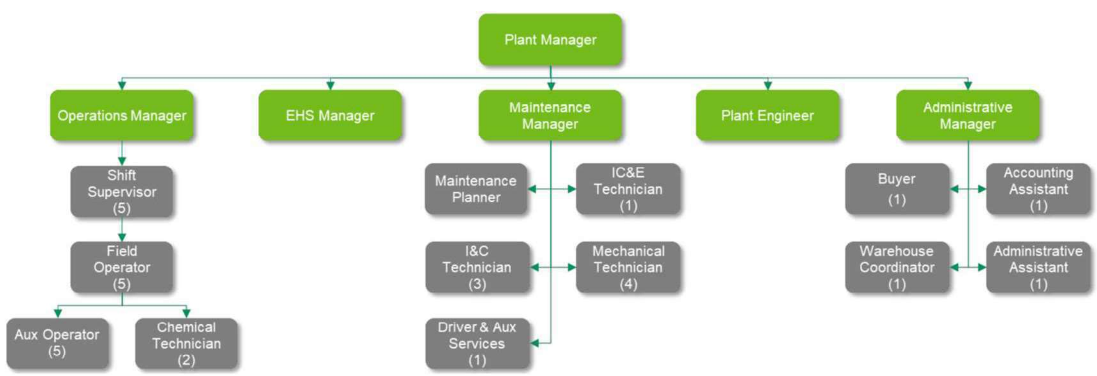


Figure 4-14: EVM II O&M Staffing

Plant management is consistent with industry best practices with one Plant Manager, one Operations Manager, one Maintenance Manager, one Plant Engineer and one independent EHS Manager. The Administrative Manager is an additional leadership role that often is covered by the Maintenance Manager and Plant Manager with Warehouse responsibilities taken by the Maintenance Manager and Business responsibilities taken by the Plant Manager.

The Operations Staff has 5 crews of operators with 2 operators and 1 supervisor per shift working 12-hour shifts. This arrangement provides for a relief shift during weekdays. The relief shift provides the opportunity to train, support maintenance or cover absences during weekday operation. This is considered a best practice in operations. The staffing method is often sacrificed for lower O&M costs; however, the loss of training and additional overtime and worker fatigue often create operating events with costs that exceed the O&M savings. Two Water Chemistry Technicians are typical for this type of facility with a Water Plant and HRSG Water Chemistry monitoring and control. The Operations Staffing model provides and progression path for less experienced employees to learn the operations of the plant and advance into more technical roles with higher levels of responsibility.

The Maintenance Staff has one planner, one electrician, three I&C technicians, four mechanics and one expediter. This is an industry best practice staffing complement with dedicated plant resources for each craft discipline and planning. The planner is a required to ensure online planning is completed as work requests are converted to work orders. This service in connection with a proper asset management system prevents a surge of work planning leading into scheduled outages.

The EHS Manager is a key role that is independent of the Operations and Maintenance organizations and reports directly to the plant manager. This independence is critical to ensure personnel and environmental safety oversite is not mixed with the goals of operating and maintaining the facility.

The Plant Engineer role is a key role to provide technical direction for the Operations and Maintenance organizations. The role should have command of all plant maintenance programs and ownership of the plant risks and associated mitigations.

4.6 Project Agreements

This section provides an overview of the project agreements for EVM II. A summary of the contract deadlines is shown in Table 4-9 below.

Table 4-9: EVM II Project Agreements Summary

Agreement	Contract End Date
Power Purchase Agreement	January 1, 2041
Contractual Service Agreement	December 27, 2042
Interconnection Agreement	November 16, 2047
Market Participant Agreement	Remains in effect unless terminated by either party.
Gas Supply Agreement	January 1, 2041
Operations & Maintenance Agreement	Ten (10) year term till 2031 with auto-renewal for increments of one (1) year.

4.6.1 Power Purchase Agreement

There are two PPAs in place for EVM II. The first PPA is for 750 MW and the second more recent PPA is for 90 MW. The original PPA in place between the CFE Calificados S.A. de C.V ("Supplier") and EVM Energía del Valle de México Generador S.A.PI. de C.V ("Generator") was signed on November 2016. The purpose of the agreement was for the sale of the guaranteed power, contracted electric power, and related services by the Generator in accordance with the terms and conditions of the contract. The term of the 750 MW CFEC PPA is 20 years from the commercial effective date of January 1, 2021, unless terminated earlier under the terms of the agreement. The term of the up to 90 MW CFEC PPA is 18 years from the date of execution of the agreement.

The guarantees under the 750MW PPA include the following:

- The Generator undertakes to make available to the Supplier and the Supplier undertakes to acquire from the Generator the amount of 750MW of Power year-round.
- The Generator is obliged to transmit to the Supplier and the Supplier is obliged to purchase from the Generator up to 6,077,250 MWh per calendar year.
- The Generator guarantees a heat rate based on HHV of 7,100 GJ/MWh
- The Generator guarantees the supplier an availability of the plant equal to 92.5% per year.

The Power Charges consist of a Fixed Capacity Charge, Fixed O&M Charge, and a fixed charge for fuel reserve capacity. The fixed fuel reserve charge is a passthrough cost based on the guaranteed heat rate for the capacity reserve on fuel supply. The Energy Charges consist of a Variable Fuel Charge based on the Guaranteed Heat Rate and transferable fees consisting of transmission services charges and market operation fees charged by CENACE related to the wholesale electricity market. The variable fuel charge reimburses the Company for natural gas at the commodity price of gas charged by CFEnergía under the GSA.

On August 1, 2022, EVM Energía del Valle de México Generador, S.A.P.I. de C.V., as generator, entered into a master power purchase agreement with CFEC, as supplier, for the purchase and sale of surplus power and electricity (the "Surplus EVM II PPA") in order to establish the general terms for the allocation of EVM II power plant's incremental capacity of up 90 MW, which will be allocated through individual "purchase orders". The incremental capacity will be released in three different blocks: 20 MW in 2022, 50 MW in 2023 and 20 MW in 2024. The contracted capacity under the first purchase order is of 20 MW and is valid from August 1, 2022 to July 31, 2025. Also, a second purchase order which is valid from May 1 2023 to April 30 2026

EVM II is registered with CENACE hourly for each day a bilateral financial transaction in the short-term energy market ("TBFin") for the lesser of (1) the delivered energy supplied to CFE Calificados, subject to dispatch by CENACE, and (2) the energy associated with Contracted Capacity times the guaranteed monthly availability set forth in the CFEC PPAs (the "Contracted Electric Energy"). The TBFin is not registered in the energy market if the Company's guaranteed cost of generation exceeds the local marginal price in the energy market. If during any month the delivered energy supplied to CFE Calificados is lower than the Contracted Electric Energy for reasons other than force majeure or if the Guaranteed Cost of Generation exceeds the local marginal price, the Company is to pay CFE Calificados a penalty as set forth in the PPA.

The Station is well suited to meet the requirements of the PPA.

4.6.2 Contractual Service Agreement

A contractual service agreement has been entered into by GE Global Parts & Products GMBH, GE International Inc, GE Global Services GMBH, and EVM Energía del Valle de México Generador S.A.PI. de C.V ("Owner"). The contract became effective on December 27, 2017, and will remain in effect until first of; a) the all the units have reached their Performance End Dates or b) 25 years from the COD which takes the contract beyond the PPA term.

For each unit, the Performance End Date is the later of:

- 160,000 Factored Fired Hours of operation of each unit from the Maintenance Start Date.
- Completion of the two (2) Planned Major Inspections performed under this agreement.

This leaves potential for early expiration if the units reach the performance end date prior to the PPA expiry date of 2041.

The equipment covered under this agreement are two (2) GE gas turbines model GE 7HA.02 together with the associated generator(s) and one (1) steam turbine model D650 and its associated generator as inspection only. all together with the related General Electric Mark Vle Speedtronic™ Turbine Control System. GE Power Services is required to provide monthly reports and asset performance management.

The CSA follows Condition-Based Maintenance which involves inspections, techniques, monitoring, analysis, testing or replacement of components of a covered unit to extend or optimize outage intervals, parts usage, and maintenance activities. The terms of the CSA are customary in the power industry and include incentives for the provider to exceed target requirements of the PPA.

Availability

GE Power Services guarantees that the power island (defined in the CSA as two CTs and one ST and three associated generators, together the "CSA Power Island") shall achieve an equivalent availability factor ("EAF") over the availability guarantee period of one-year period (the "AGP") commencing upon the date the GE Power Services Availability Guarantee is effective, which is 120 calendar days after the Maintenance Start Date of the last Covered Unit. The EAF for the first AGP is 97.5 %, 91.92 % for a HGPI, 90.01 % for a MI, and 98.5% for all other AGP.

$$EAF = \frac{PH - FOH - EDOH}{PH} + OAF$$

- Period Hours" or "PH" shall be the number of hours in the Availability Guarantee Period

- "Full Outage Hours" or "FOH" shall be the Chargeable Outage Hours in a period when all Covered Units in the CCPI are not capable of producing power due to a forced Outage, unplanned Outage, or Covered Maintenance Outage. Outage hours will only be charged during periods when the CCPI was otherwise scheduled to be dispatched on-line
- OAF is the Operational Adjustment Factor
- Equivalent Derated Outage Hours or "EDOH" is calculated as follows:

$$EDOH = \frac{MWbefore - MWduring}{MW\ before} * Event\ Duration$$

For the first year, for each percentage point, rounded to the nearest one-hundredth of a percent where the actual EAF exceeds the guarantee EAF, the Company is to pay GE Power Services a bonus equal to US $166,667 per percentage point up to a maximum cap of US $1,000,000. For the first year, for each percentage point, rounded to the nearest one-hundredth of a percent where the actual EAF is less than the guaranteed EAF, GE Power Services is to pay the Company LDs equal to US $166,666 per percentage point up to a maximum cap of US $1,000,000. Starting on the second year from the Commercial Operations Date, as defined in the CSA, bonus and LDs are reduced to US $66,667 per percentage point up to a maximum cap of US $200,000.

Heat Rate

The following formula is used to determine the corrected guaranteed heat rate under the CSA:

*Corrected Guaranteed Heat Rate = Guaranteed Heat Rate *(1- HRdeg%/100)*

The Heat Rate Degradation (HRdeg%) is based on Table X in Exhibit C and depends on the fired hours since major inspections as well as a Heat Rate MI Recovery Factor of 0.096.

Owner shall pay GE for each positive percentage point of Net Heat Rate Improvement, rounded to the nearest one-hundredth of a point, a bonus equal to $33,333.33 up to a maximum cap of $100,000.00 per Heat Rate Performance Test. GE shall owe Owner for each negative percentage point of Net Heat Rate Improvement, rounded to the nearest one-hundredth of a point, a liquidated damage equal to $33,333.33 up to a maximum cap of $100,000.00 per Heat Rate Performance Test.

Output

The following formula is used to determine the corrected guaranteed output under the CSA:

*Corrected Guaranteed Output = Guaranteed Output *(1- Odeg%/100)*

Where the Guaranteed Output is based on the guaranteed level of performance for the plant. The Output Degradation (Odeg%) is based on Table X in Exhibit C and depends on the fired hours since major inspections as well as an Output MI Recovery Factor of 0.167.

Owner shall pay Contractor for each positive percentage point of Net Output Improvement, rounded to the nearest one-hundredth of a point, a bonus equal to $50,000.00 up to a maximum cap of $150,000.00 per Output Performance Test. Contractor shall owe Owner for each negative percentage point of Net Output Improvement, rounded to the nearest one-hundredth of a point, liquidated damages equal to $50,000.00 up to a maximum cap of $150,000.00 per Output Performance Test.

If any Net Heat Rate Improvement or Net Output Improvement is less than minus two percent (-2.0%), GE shall be given the opportunity to shut down the Covered Unit(s) and perform corrective actions at its discretion and retest the plant.

The maximum bonus Owner shall pay Contractor in the first (1st) calendar year, or liquidated damages Contractor shall credit Owner in the first (1st) calendar year for Contractor's total contractual guarantees (Availability and Degradation) shall not exceed $1,250,000.00 for this Agreement. The maximum bonus Owner shall pay Contractor in any other calendar year, or liquidated damages Contractor shall credit Owner in any other calendar year for Contractor's total contractual guarantee (Availability and Degradation) shall not exceed $450,000.00 for the Agreement.

Payment

Each monthly fee consists of a fixed monthly fee and a variable monthly fee.

a) Fixed Monthly Fee: The Fixed Fee is fifty thousand ($50,000.00) Dollars per each calendar month or any portion of a Quarter
b) Variable Fee: Based on Factored Fired Hours

EVM II must pay GE $15,000,000 US for the initial spare parts. The first US$1,000,000 of the price for Parts and Services required for correction of each Unplanned Maintenance Outage for each Covered Unit shall be borne by Contractor, up to a maximum of US$3,000,000 for Unplanned Maintenance in any one calendar year. Except in the case of additional required maintenance or elective maintenance, GE Power Service's liability is not to exceed the price paid for performing such additional required maintenance or elective maintenance.

Limitation of Liability

The total liability of GE Power Services on all claims of any kind accruing during any calendar year, arising out of, or related to the performance or breach of the agreement is not to exceed US $5,000,000. GE Power Service's maximum liability for warranty claim is not to exceed the price of the parts and services of the warranty repair. GE Power Service's liability for its indemnity obligations is not to exceed the CSA price.

Warranties

The following warranties apply:

a) in the case of Parts, except for Initial Spare Parts, the earlier of one (1) year after Contractor's installation of a Part in the Covered Unit(s); or eighteen (18) months after the date of delivery of the Part; and
b) in the case of Repair Services, one (1) year after the performance of the Repair Service; and
c) in the case of any other Services, thirty (30) days after the performance of the Service; and
d) in the case of Initial Spare Parts, conditioned upon proper storage, preservation, and maintenance, one (1) year after Contractor's installation of the Initial Spare Part in the Covered Unit(s)

4.6.3 Gas Supply Agreement

A gas supply agreement is in place between the CFEnergia S.A. de C.V. and EVM Energía del Valle de México Generador S.A.PI. de C.V ("Customer"). The contract signed on June 29, 2017, refers to a "Test Period" that will begin on June 1, 2019, and will end on the "Supply Period" Start Date which is no later than September 1, 2020. The term of the agreement is 20 years from January 1, 2021, to December 31, 2040, which matches the PPA term.

CFEnergía is obligated to deliver pipeline quality gas to the Facility at a daily maximum amount of 134,600 MMBTU on an HHV basis of natural gas with compression to the point of distribution. Assuming the Facility operates at full load conditions of 850,000 kW and an average heat rate of 6759 kJ/kWh-HHV which is the PPA maximum, we estimate the daily natural gas consumption is 130,688 MMBTU per day which is lower than the daily maximum amount in the GSA. The terms of the GSA allows the Company to nominate additional gas volumes above the daily maximum amount.

Natural gas is required to meet NOM 001 SECRE-2010 and the GSA requires the natural gas to meet this specification. The supplier agrees to deliver the natural gas at the delivery point within a pressure range of 650 psi and 790 psi.

EVM II must pay the following monthly charges:

1. Capacity reservation charge for the MDQ (US$0.84/MMBtu per day + SISTRANGAS fixed charge)
2. Fuel supply charge for estimated fuel delivery at each estimation period (generally, US$0.08 + Houston Ship Channel)

The charges increase 2.16% per year. The Supplier's liability for breach of its obligations under the agreement and similarly the customer's liability towards the supplier shall at no time exceed US$31,370,855.

In the event CFEnergía fails to deliver or delivers less than the amount of gas requested by the Company (the "Gas Shortfall"), CFEnergía is to pay the Company as a penalty, the amount of:

(a) in the event that the Company cannot acquire replacement gas (the "Shortfall Replacement Gas") for the Gas Shortfall in the market on the day of the shortfall, the quantity of the Shortfall Replacement Gas multiplied by 30 percent of the Houston Ship Channel highpoint price; and

(b) in the event that the Company can acquire replacement of the Gas Shortfall in the market on the day of the shortfall, the Shortfall Replacement Gas multiplied by the difference of the price of: (1) the Shortfall Replacement Gas; and (2) the Houston Ship Channel highpoint price on the day the shortfall occurred, with the limit of the amount resulting from the calculation indicated in section (a) above.

The gas supply agreement is sufficient to meet the requirements of the PPA.

4.6.4 Operations & Maintenance Agreement

An operations & maintenance agreement has been entered into by NAES Energía, S. de R.L. de C.V. ("NAES") and EVM Energía del Valle de México S.A.PI. de C.V ("Owner"). The Amended & Restated (A&R) Agreement Effective Date is September 1, 2021, and the renewal date is December 31, 2031, with auto-renewal for increments of one year until a party notifies their decision to end the contract with at least one-years notice.

The O&M Agreement requires NAES Energía to provide competent services consistent with prudent operating and maintenance practices. These include, but are not limited to: procure goods and services; manage waste; operate the Facility at rated capacity pursuant to the requirements of the O&M Agreement; perform services in accordance with the standards for performance of services set forth in the O&M Agreement; retain qualified personnel to perform the service; prepare annual budgets and plans; manage inventory; assist the Company in complying with all environmental permits; comply with all applicable laws; conform with Facility agreements; maintain operating records and reports; review and provide recommendations for changes to the O&M manuals; manage Facility outages; and support and manage contractors.

In compensation for its services under the Agreement, Owner shall pay NAES all Site Costs, Home Office Costs, Site Services Costs, and the Services Fee plus, to the extent earned by NAES, the Bonus. The Site Costs, Home Office Costs and Site Services Costs are paid on a cost reimbursable basis. The annual service fee is $322,503.43 during the agreement period, with a maximum bonus/liquidated damages are $268,752.86 per year. The Services Fee, Maximum Bonus and Maximum Liquidated Damages shall be escalated based on the US Consumer Price Index with 2022 as the Base year.

The Bonus/Liquidated Damages for each year depends on the following:

- Health and Safety Indicators
- Environmental Permit Compliance
- Equivalent Forced Outage Factor
- Equivalent Availability Factor
- Starting Reliability
- Heat Rate
- Completion of Scheduled PMs
- Budget Management
- Employee Training
- Owner Evaluation of Operator Performance

The O&M agreement is structured to provide industry standard care for the station and includes incentives for the provider to exceed the requirements of the PPA.

5. Saltillo Power Plant

5.1 Plant Overview

Central Saltillo, S. A. de C.V. ("CSO") is located in the city Ramos Arizpe which is a part of the Coahuila state in Mexico. The plant operates in a combined cycle mode on a 1x1x1 configuration with one gas turbine (GT), one heat recovery steam generator (HRSG) and one steam turbine. The location of the asset can be seen in Figure 5-1. The plant has a guaranteed summer design condition capacity of 247.5 MW under the power purchase agreement ("PPA") The plant has dual fuel capabilities with natural gas as its primary fuel and diesel oil as the alternate fuel.

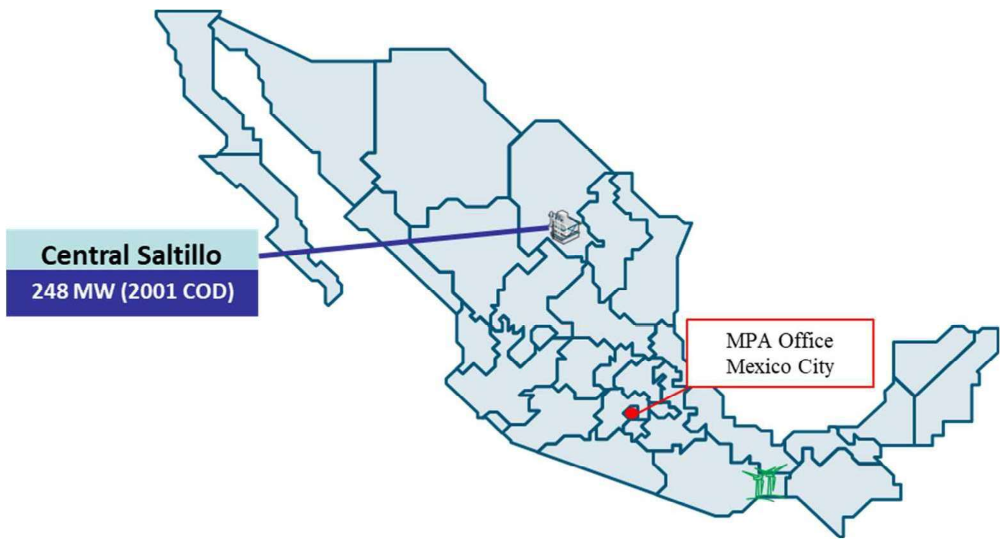


Figure 5-1: CSO Location

A summary of the CSO asset is shown in Table 5-1:

Table 5-1: CSO Asset Overview

Parameter	Value
Contracted Capacity	247.5 MW
Location	Ramos Arizpe, Coahuila state in Mexico
Commercial Operation Date	November 18, 2001
Technology and Configuration	CCGT, 1x1x1
Fuel	Gas/Diesel
Off taker	CFE
PPA Expiry	November 2026
Gas Supplier	CFE
FSA Expiry	November 2026

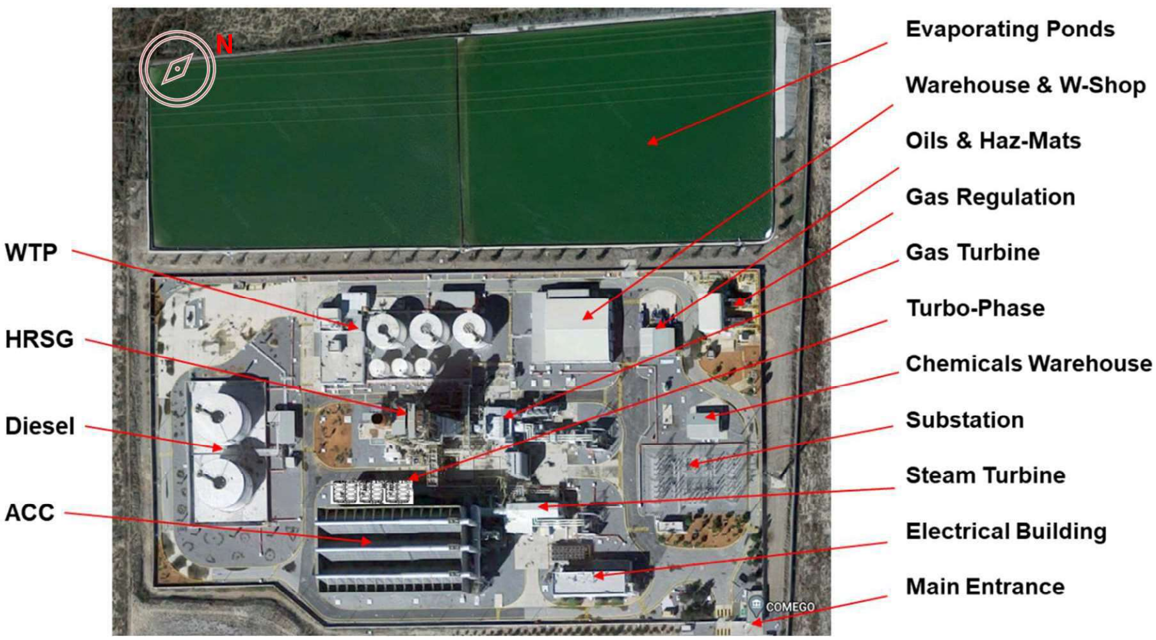


Figure 5-2: CSO Plant Layout

The plant layout is shown in Figure 5-2. The combustion turbine along with its corresponding HRSG is located at the center of the plant. The switchyard is located beside the plant which can be described as northeast of the substation. The latest addition of the TurboPhase system is also shown in this layout.

5.2 Major Equipment Overview

This section covers the technology and major equipment overview of the Saltillo site. It details the specific equipment and their function in the plant. The process consists of a gas turbine and a steam turbine that are both connected to a generator. These generators are connected to transformers which connects to the national grid via the 115 kV CFE substation. The low-pressure steam from the steam turbine passes through the air-cooled condensers and is returned to a HRSG. Saltillo is also equipped with a steam bypass system to facilitate full load simple cycle operations when the steam turbine is not available.

A summary of the major equipment at CSO along with details of the manufacturer and model are shown in Table 5-2.

Table 5-2: Saltillo Principal Equipment List

Equipment	Manufacturer	Model/Serial Number
Combustion Turbine (CT)	Siemens Westinghouse	W501FD2 / 37A8079-1
CT Generator	Siemens Westinghouse 190MVA	94P0120 / 37A8079-1
CT Generator Exciter	Cutler Hammer/Westinghouse	WDR 2000
CT Transformer	Alstom (180 MVA)	TFU 6341
HRSG (Boiler)	Nooter/Eriksen (141,35,4 bar)	Saltillo Project 17F805
Steam Turbine (ST)	Alstom (Siemens) (98.4,22.5,3 bar/ 537,516,242 C)	VAX HP16 / MP ATP4 #B2513
ST Generator	ABB (Alstom) 110 MVA	GTL 1530EY
ST Generator Exciter	ABB (Advant)	AC110 / PM633
ST Transformer	Alstom (130 MVA)	TFU 6141
Air Cooled Condenser	Hamon Thermal Europe (551 km2)	HBC 5462
Turbophase	PowerPhase Generation Smart	Turbophase System, Gas Skid, TPEE & Air Cooler

5.2.1 Gas Turbine

The gas turbine technology at the Saltillo plant is a Siemens Westinghouse W501FD2 gas turbine. Siemens acquired the Westinghouse Power Generation Business Unit in 1998. For the first five years after the acquisition, the Orlando operation was called "Siemens Westinghouse". As Siemens developed new gas turbine products, the new offerings incorporated features of both Westinghouse and Siemens technology and design. Currently, this technology now falls under the SGT6-5000F heavy-duty gas turbine series under the Siemens naming convention.

Some notable characteristics of this fleet include the following:

- More than 380 turbines have been sold.
- The installed fleet has accumulated more than 15 million equivalent operating hours (EOH).
- The fleet has a reliability of more than 99%.
- Fast start-up and load changing capabilities.

Figure 5-3: Gas Turbine at the Saltillo Site

The gas turbine specifications are in Table 5-3 below. The specifications are rated using ISO standards. ISO conditions are 15°C, 60% Relative Humidity, and 101.3 kPa.

Table 5-3: Gas Turbine Specifications

Description	Quantity
ISO Rating (MW)	186.5
Pressure Ratio	16:1
ISO Heat Rate (kJ/kWh)	9130
Turbine Exhaust temperature (°C)	593
Fuel Natural	Gas and Distillate Fuel oil
Rotor speed (min-1)	3600
Air flow (kg/s)	459
NOx Control	Dry low NOx combustion

Today, Siemens and MHI both advertise original equipment manufacturer ("OEM") services on these gas turbines. PSM, a third party to the technology, has developed their own technologies to provide Long Term Service Agreement (LTSA) services on these machines

GE also has an offering to service these machines through support contracts or LTSA. The Saltillo LTSA contracts are currently with Power Systems, Manufacturing, LLC (PSM).

During the MI conducted in 2020 for Saltillo, PSM installed GTOP package in the gas turbine which included the following:

- Control modification to open IGV to increase mass flow.
- 16th stage compressor blade replacement.
- Upgraded turbine blades (1st, 2nd, and 4th stage), vanes (1st and 2nd stage) and ring segment.
- Improved isolation ring design.

The GTOP package improves the gas turbine output and heat rate for Saltillo.

5.2.2 Heat Recovery Steam Generator

At the Saltillo site, the steam generated by the HRSG is fed to a steam turbine in combined cycle configuration.

The Saltillo site has a horizontal HRSG where the exhaust gas flows horizontally over vertical tubes. For a triple pressure system like the one at Saltillo, there are three steam drums. The HRSG has three sections: low pressure (LP), intermediate pressure (IP), and a high pressure (HP) section. The steam is later passed through a super heater to raise the temperature beyond the saturation point.

The superheated steam is fed into the steam turbine. Saltillo equipment is designed and constructed by Nooter/Eriksen, an established and well known HRSGs technology provider based in Missouri, USA. Since 1987, Nooter and Eriksen has sold over 1000 HRSGs. Some pictures of the HRSG at the Saltillo site can be seen below. Hatch considers Nooter/Eriksen to be a reputable OEM of HRSGs with a proven track record.

Figure 5-4: Heat Recovery Steam Generator at the Saltillo Site

Table 5-4 below shows the HRSG specifications for the Saltillo site.

Table 5-4: Heat Recovery Steam Generator Specifications

Parameter	High Pressure	Intermediate Pressure	Low Pressure
Pressure (bara)	146.63	33.12	4.16
Temperature (°C)	567	565	301
Mass flow (kg/s)	70.7	75.95	6.10

5.2.3 Steam Turbine

The steam turbine (ST) at the Saltillo site is manufactured by Alstom (now part of General Electric). Alstom designs, manufacturers, and supplies power generation equipment for the power generation and industrial market. Hatch considers Alstom to be a reputable OEM for the ST with a proven track record for the manufacture and supply of steam turbines.

Figure 5-5: Steam Turbine at the Saltillo Site

The table below highlights the technical specifications of the steam turbine at the Saltillo site.

Table 5-5: Steam Turbine Specifications

Description	Value
ST Model:	ABB
Type:	Condensing and reheat Steam Turbine. Triple pressure design. Dual casing design with a high-pressure casing plus a common intermediate pressure and low-pressure casing.
Rated Power (MW):	110
Turbine Inlet Temperature (°C):	565
Turbine Inlet Pressure (MPa- Absolute):	14.75
Rotor Speed (min-1):	3600

5.2.4 Steam Turbine Condenser

The cooling system at Saltillo is a direct dry cooling system by an air-cooled condenser (ACC). The steam from the steam turbine exhaust flows into the ACC where it condenses. The steam condenses through the finned tubes as cool ambient air flows outside the finned tubes. After the steam condenses, it returns as condensate to the HRSG. The air-cooled condenser at the Saltillo site is manufactured by Hamon Thermal Europe.

At the Saltillo site, there is 15 fan ACC unit with 3 distribution headers and 5 cells in each header. The fans sit below the heat exchange surfaces. The turbine exhaust steam first flows through the three main steam ducts to the fin tube bundles inlet. The lower steam ducts collect condensate from there the condensate is carried to the main condensate tank using drain pumps beneath the ducts for the dry cooling systems. The ACC unit at the Saltillo site can be seen below.

Figure 5-6: Air Cooled Condenser at Saltillo Site

5.2.5 Turbophase System

The Saltillo CT has been retrofitted with a Turbophase system provided by PowerPHASE to increase power output from the power plant which should increase the excess capacity that can be sold.

The Turbophase Module (TPM) compresses ambient air through a multi-staged, inter-cooled compressor driven by a turbocharged reciprocating engine and a heat-recovery system. The latter is used to capture exhaust heat from the reciprocating engine and raise the temperature of the compressed air to match the GT's compressor discharge temperature before the additional air is injected into the gas turbine discharge chamber. Each TPM module is designed to deliver up to 350°C, 20 bara air to the gas turbine.

The Turbophase System consists of the following:

- Turbophase modules.
- Fin / Fan cooling system.
- Fuel regulation skid.
- Turbophase electronic enclosure.
- Control Valves and Instrument Package.

The guaranteed Base Power Output 12,750 KW of incremental baseload combined cycle net power output at all ambient conditions. On the contractual front, PowerPHASE initially did not meet its minimum acceptable guarantees.

A performance test in June 2020 was conducted and the test reported an average incremental plant power of 11.72 MW Net with a combined cycle heat rate increase of 115 BTU/kWh when the Firing Temperature is maintained constant with no test tolerances added which is 92% of the 12.75 MW target. The test also reported an average incremental plant power of 12.44 MW Net with a combined cycle heat rate increase of 56 BTU/kWh when the Firing Temperature is maintained constant with contract specified test tolerances added. This is 98% of the 12.75 MW target.

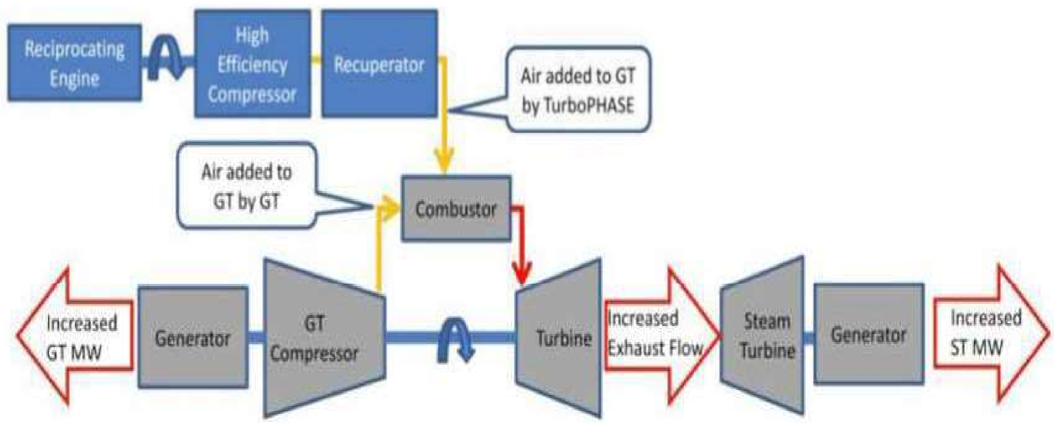


Figure 5-7: Turbophase Process

Figure 5-8: Turbophase at Saltillo

5.2.6 *Fuel Systems*

Natural gas is the primary fuel at the Saltillo Plant. A standard Fuel Supply Agreement (FSA) issued with CFE legacy PPAs and provides provisions on the selling and buying of natural gas between the parties at a specified delivery point. The site has a compressor station to ensure that the gas pressure reaching the turbine is sufficient. The natural gas received on site goes through the process of removing entrained liquids and is then reduced in pressure and distributed to the gas turbines.

Figure 5-9: Compressor Station on Left and Gas Receiving Station on Right

At the Saltillo site there is also diesel storage. There is a total of 2 x 6,100 m^3 diesel tanks on site. The diesel tanks are filled through diesel delivery to site by truck. The requirement to have diesel on site is set out by the PPA. Hatch noted that the Saltillo has not reported any previous operational restrictions due to the unavailability of diesel in the past. The diesel storage at site can be seen in the figure below.

Figure 5-10: Diesel Storage at Saltillo Site

5.2.7 *Water Treatment System*

As steam is lost through the steam cycle, high-quality make-up water is required. This high-quality water which is demineralized is provided by the water treatment plant.

The Saltillo asset receives its raw water from Comisión Nacional del Agua ("CONAGUA") through a water supply permit between CSO and CONAGUA.

The water treatment process at Saltillo is a three-step process. The first is an initial filtration system followed by use of reverse osmosis and electrode ionization (EDI).

Makeup water will be taken from the water storage tank and passes through an initial filtration process to remove suspended solids from the water. The service water is then fed directly to the cartridge filters by two RO feed pumps. Saltillo has a two stage RO system. Water from the RO first stage second skid is stored in a 2,300 cubic meter on site before water is pumped into the second stage RO. The permeate from the RO modules are stored briefly in a RO surge tank before being pumped to the EDI system.

The EDI system uses ion exchange membranes and resins to deionize water. Saltillo has two EDI systems operating in parallel.

Figure 5-11: Water Treatment Plant Equipment

5.2.8 *Electrical*

The Gas Turbine generator is manufactured by Siemens-Westinghouse. The Steam Turbine generator is manufactured by Alstom.

The technical specifications for the generator at the Saltillo site can be seen in the table below.

Table 5-6: Saltillo Generator Specifications

Parameter	GT Generator	ST Generator
Model	Siemens-Westinghouse	Alstom
Rated Power (MVA)	193	126.2
Cooling System	Hydrogen-cooled	Air-cooled
Power factor	0.9	0.9
Voltage	13.8kV	18kV

Figure 5-12: GT Generator Enclosure on Left and ST Generator Enclosure on Right

There are two generator step-up transformers ("GSU") at the Saltillo site which can be seen in the figures below; one is for the gas turbine generator, and one is for the steam turbine. The GSU takes the generator voltage and levels it up to the suitable transmission voltage level. Both GSUs at the Saltillo site are oil natural air natural ("ONAN") and oil forced air forced ("OFAF"). This means that the transformers are cooled by both natural air and oil as well as forced air and oil where the forced flow is caused by fans and motors.

Figure 5-13: Steam Turbine GSU on Left and the Gas Turbine GSU on the Right

The specifications for the transformers at the Saltillo site are included below.

Table 5-7: Transformer Specification

Unit	Manufacturer	Phases	Cooling	MVA	Voltage (kV)
GT1 Main	Alstom	3	ONAN/OFAF	180	13.8/115
ST Main	Alstom	3	ONAN/OFAF	130	18.0/115

After voltage is stepped up by the GSU, the power goes to the high voltage switchyard which collects the power from the gas turbine and steam turbine at 115kV. The switchyard is a 115 kV air insulated switchgear ("AIS"). This power is then transmitted to a CFE substation which connects to Mexico's electricity grid. The CFE substation is located East of the switchyard at the Saltillo plant.

Figure 5-14: CFE Substation on Left and Saltillo Switchyard on Right

5.2.9 *Control Systems*

The distributed control system ("DCS") consists of sensors, controllers, and associated computers. Together these items take part in data acquisition, process control, data storage and graphical display. The DCS makes automated decisions based on production trends as it sees them in real-time. The DCS can also be user controlled.

The DCS system at Saltillo was changed in March 2017 to Ovation which is supplied by Emerson. Ovation is an established DCS system from a well-known supplier.

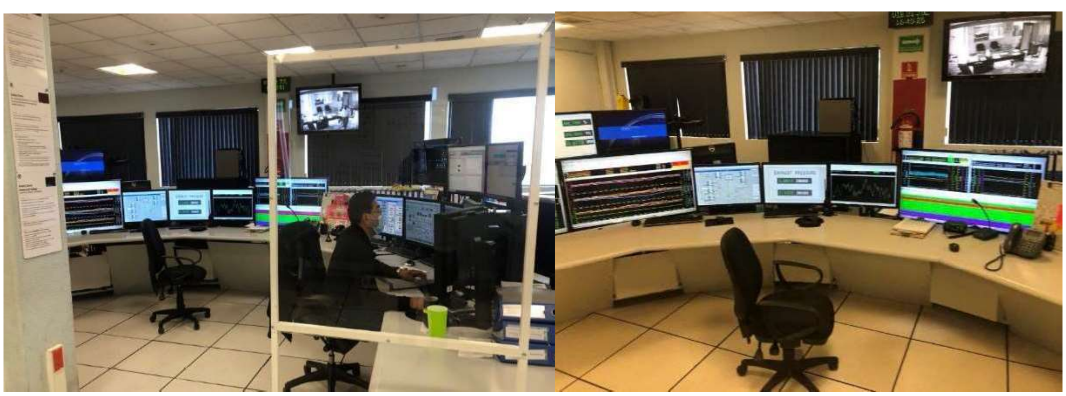


Figure 5-15: Saltillo Control Room

5.3 Operations Review

5.3.1 Equivalent Unplanned Outage Factor

The monthly equivalent unplanned outage factor (EUOF) for Saltillo from January 2020 to November 2023 is shown in Figure 5-16. the average EUOF for this plant is 7.53%, which is elevated due to events that have since been resolved. The increased EUOF in certain months aligns with the major events outlined in Appendix A. It is noted that the EUOF has been consistently below average with a rise in November 2023 due to a Generator Protection relay failure, which has been resolved.

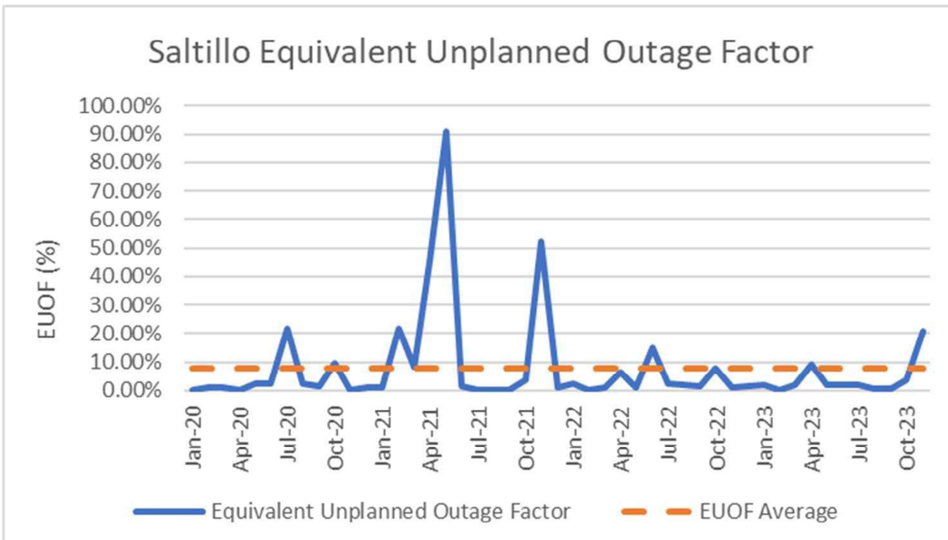


Figure 5-16: Monthly EUOF for Saltillo from January 2020 – November 2023

5.3.2 *Heat Rate*

The historical heat rate for Saltillo from January 2020 – November 2023 is provided in Figure 5-17. The weighted average heat rate during this period was 7,324 kJ/kWh. Note there are months where the respective heat rate was higher than the PPA target. This is due to periods of low generation or forced outages.

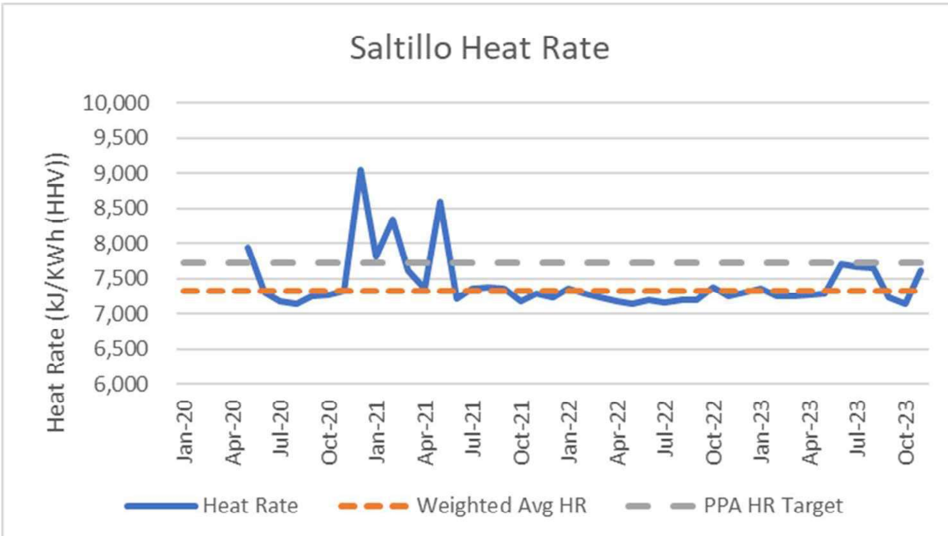


Figure 5-17: Monthly Reported Heat Rate for Saltillo for January 2020 - November 2023

5.3.3 *Generation*

The monthly power generated (GWh) by the plant from January 2020 to November 2023 is shown in Figure 5-18. The average net output of the plant during this period is 89 GWh. Power output fluctuations are caused by variations in system demand, with some impact caused by maintenance outages.

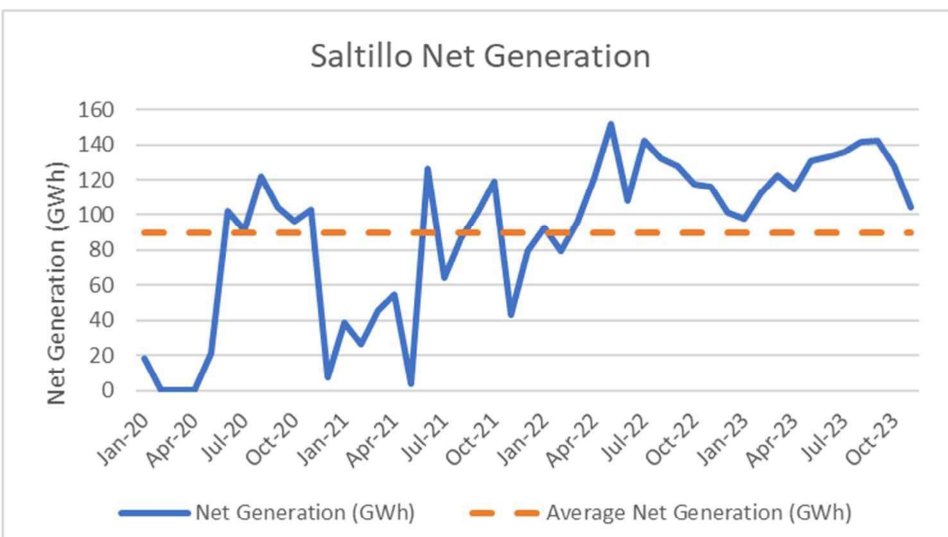


Figure 5-18: Monthly Net Power Generated for Saltillo for January 2020 - November 2023

5.4 Maintenance Review

The Saltillo plant utilizes the services of Power Systems Manufacturing (PSM) for scheduled and emergent services on the gas turbines. The Steam Turbine and Generators utilize ad hoc services for inspections and repair. The plant utilizes the Valia Maintenance Program for all major, scheduled, and emergent maintenance services.

5.4.1 Spare Parts Inventory

Inventory for the Saltillo site includes emergency spares and routine replacement parts. Gas Turbine spares are not part of the warehouse materials. The Client relies on the response time under the LTSA to have gas turbine parts delivered to the site within 48 hours otherwise the LTSA contractor will face a liquidated damage penalty and the owner has the ability to purchase third party parts and back charge the LTSA provider. Hatch considers the spare parts inventory and contracting strategy for the plant to be reasonable to mitigate unavailability.

5.4.2 Maintenance Plan

Figure 5-19 shows the maintenance plan for the prime equipment from 2023-2035. The gas turbines are on 32,000-hour intervals after the installation of the GTOP upgrade by PSM.

Steam Turbine service intervals are matched with major inspections on the gas turbines.

Maintenance Schedule		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Saltillo	CT	BI	BI	HGPI	BI	BI	BI	MI	BI	BI	BI	HGPI	BI	BI
	STG	-	-	O	-	-	-	-	-	-	-	O	-	-

Figure 5-19: Maintenance Plan of the Saltillo Power Plant

5.5 O&M Staffing

The Saltillo site is staffed with 38 personnel that support overall site with administration and technical services.

The staffing at Saltillo has 17 permanent positions that are dedicated to the operations of the unit. Operation teams are comprised of one shift lead, one operations specialist and one field technician. This level of shift staffing is consistent with industry standards.

Maintenance staffing includes 9 staff with a chemist and mechanical, electrical, and I&C maintenance teams.

Hatch considers the staffing to be adequate for Saltillo.

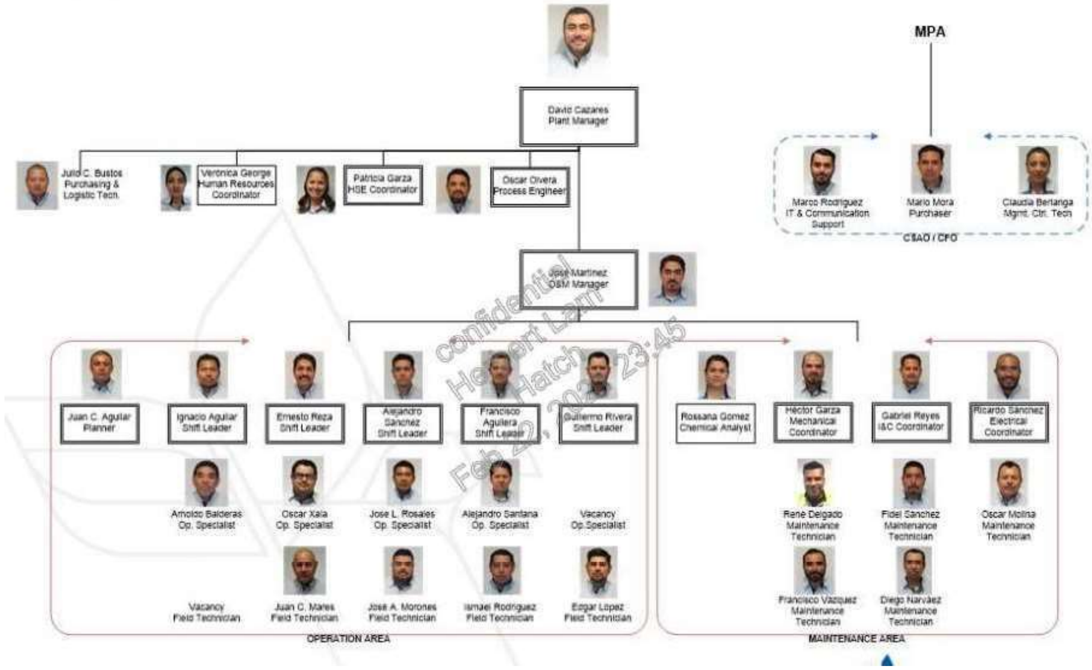


Figure 5-20: Saltillo's O&M Organization Chart

5.6 Project Agreements

This section provides an overview of the asset material agreements for Saltillo. The analysis is limited to providing a summary of the contract assessing the technical related aspects and providing an opinion on scope, gaps, and risks with regard to ongoing and future operations of the asset.

Table 5-8: Saltillo Project Agreements Summary

Agreement	Contract End Date
Power Purchase Agreement	November 17, 2026
Long Term Service Agreement	November 17, 2026
Gas Interconnection Agreement	October 16, 2030
Fuel Supply Agreement	November 17, 2026
Water Supply Agreement	November 14, 2031

5.6.1 Power Purchase Agreement

A Power Purchase Agreement (PPA) has been entered into by Comisión Federal de Electricidad ("Commission") and Central Saltillo S.A de C.V. ("Producer") in March 1999. The PPA is a CFE legacy template that has been used numerous times to procure thermal generation through Independent Power Producers (IPPs) in Mexico. The term of the agreement is 25 years from the Commercial Operation Date of November 18, 2001. Capacity Guarantees in Summer Design Conditions with Base Fuel is 247.5 MW and 202.6 MW with alternate fuel.

The contract payments consist of two components, capacity charges and energy charges. The Fixed Capacity Charge is denominated in United States Dollars and payment for operation and maintenance is denominated in Mexican Pesos and adjusted for escalation in accordance with the terms of the PPA.

If the asset is not capable of meeting the guaranteed heat rate, the fuel cost will not fully pass through to the Commission. The asset will be penalized for not being able to meet the guaranteed heat rates by having to pay the additional cost of fuel. This can have significant financial implications. Furthermore, unavailability will reduce the Capacity Charge Payments received from the Commission.

The station is well suited to meet the requirements of the PPA but may have some periods of decreased pass through during extreme summer temperature.

5.6.2 Contractual Service Agreement

A Long-Term Service Agreement (LTSA) exists between Central Saltillo, S.A. DE C.V. ("Purchaser") and Power Systems MFG. LLC ("Supplier") for the Saltillo Combined Cycle Power Plant. The Term of the contract is until November 17th, 2026. The original contract was with SIEMENS which was terminated in 2019.

LTSA ends when the PPA ends in November 2026 to coincide with the expiration of the PPA. The LTSA lists guarantees for reliability, output, heat rate recovery guarantee, outage durations and response times.

The contract payments include Fixed and Variable Fees as well as Milestone Fees:

(a) Monthly fixed fee of US $12,500/month.

(b) Variable Fee: When the Covered Unit has accrued 6000 EBH (Equivalent Base Hours) after the 2020 MI, the Variable Fee shall equal US$214.67/EBH.

Purchaser only will be charged for 26,000 EBH under this rate. If the 2024 HGPI occurs before the Covered Unit has accrued 32,000 EBH after the 2020 MI, Purchaser shall pay Supplier a true-up amount equal to the amount of Variable Fees that Purchaser would have paid had the Covered Unit accrued 32,000 EBH after the 2020 MI. Hatch noted that this payment will only apply if the Client would elect to conduct the outage earlier or bring the outage forward to address an critical item.

1. Variable Fee: US $126.67/EBH from the earlier to occur of the 2024 HGPI or the time when the Covered Unit has accrued 32,000 EBH after the 2020 MI, The Variable Fee will apply until the Covered Unit has accrue 20,000 EBH after the 2024 HGPI.
2. Milestone Payments for the Exhaust Cylinder, GTOP Initiation, Rotor Exchange, and Used Compressor Blades and Diaphragms apply in accordance with the LTSA.

The fees under the LTSA are part the maintenance costs of the plant that are recovered under the PPA through the energy charge.

The LTSA also include guarantee for reliability of the Covered Unit, output, and heat rate recovery after planned inspections, outage durations and response times to mobilize staff and deliver parts to the site.

The terms of the LTSA are customary within the power industry and provide incentive for the service provider to exceed the performance conditions in the PPA.

5.6.3 Fuel Supply Agreement

The agreement between Pemex Gas y Petroquímica Básica (PGPB) and Central Saltillo S.A. de C.V. (CSO) was signed on May 31, 2001, and will remain in full force and effect until the revocation or termination of the CSO Self-Use Gas Transportation Permit (October 16, 2030). CSO may terminate the agreement by written notice to PGPB at least 30 days in advance to the intended termination date. The contract defines the gas interconnection point and provides the responsibilities of both parties. PGPB to design, build and test the interconnection facilities in accordance with the agreement. PGPB will operate, maintain, and repair the interconnection facilities as per the contract.

The fuel supply agreement is entered into by Comisión Federal de Electricidad (CFE) and Central Saltillo S.A. de C.V. (CSO). The agreement was signed on March 2, 1999, and remains effective until November 2026, which is 25 years from the plant's COD. The fuel specified in the fuel supply agreement is Natural Gas. Diesel may be supplied as an alternate fuel under the Saltillo fuel supply agreement. The expected quantity of fuel to be supplied is set as a base of 9,919.2 Gcal/ per day. Hatch noted that the quantity of gas is sufficient for continuous baseload operation of Saltillo without duct firing. If continuous duct firing is required, additional capacity maybe required if continuous duct firing was anticipated at full capacity.

The gas supply agreement is sufficient to meet the operating requirements of the station.

5.6.4 Water Supply Agreement

The water supply agreement is between Comision Nacional del Agua ("CONAGUA") and Saltillo (CSO). The concession is a permit to take water for groundwater. The water is sourced from the Ramos Arizpe aquifer. The permit was renewed a few times. Current permit is dated November 15, 2021, and valid for 10 years, will expire November 14, 2031. The concession states the annual maximum volumes for water extraction and consumption (168,000 m3/yr, equal). There is no permit for discharge of wastewater in this concession. No contract payments mentioned as this is a concession agreement to extract water.

The water supply agreement is sufficient to meet the operating requirements of the station.

6. Rio Bravo II Power Plant

6.1 Plant Overview

Central Anahuac, S. A. de C.V. ("CAC"), also known as "Rio Bravo II" is located in the city Valle Hermoso which is a part of the Tamaulipas state in Mexico. The plant is located 18 meters above sea level and operates in a combined cycle mode with a 2x2x1 configuration with two gas turbines (GT), two heat recovery steam generators (HRSG) and one steam turbine. The geographic location of the asset within Mexico can be seen in Figure 6-1, and the unit location within the site can been seen in Figure 6-2. The plant has a guaranteed summer design condition capacity of 495 MW under the power purchase agreement ("PPA") when using gas and 454.3 MW corrected to summer conditions when on diesel. The plant has dual fuel capabilities with natural gas as its primary fuel and diesel oil as the alternate fuel.

Figure 6-1: Rio Bravo II Location

A summary of the CAC asset is shown in Table 6-1 below.

Table 6-1: Rio Bravo II Asset Overview

Parameter	Value
Contracted Capacity	495 MW
Location	Valle Hermoso, Tamaulipas, Mexico
Commercial Operation Date	January 18, 2002
Technology and Configuration	CCGT, 2x1
Fuel	Gas/Diesel
Off taker	CFE
PPA Expiry	Jan 2027
Gas Supplier	CFE
FSA Expiry	January 2027

The Rio Bravo II Plant site is located right next to Rio Bravo III and Rio Bravo IV as can be seen in Figure 6-2. The Comisión Federal de Electricidad (CFE) switchyard is located east of the plants. CFE is the state-owned electric utility of Mexico.

Figure 6-2: Rio Bravo II Site

The plant layout is shown in Figure 6-3. The two combustion turbines and HRSG's are located at the east side of the plant. The 230 kV substation is located east of the turbines. The secondary backup fuel is contained in the diesel tanks located on site. The evaporating ponds are north of the three sites.

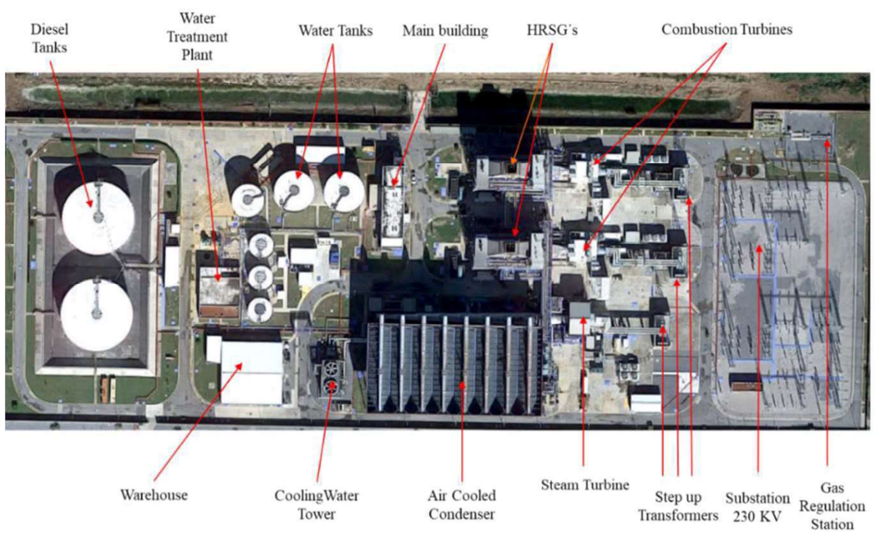


Figure 6-3: Rio Bravo II Plant Layout

6.2 Major Equipment Overview

This section covers the technology and major equipment overview of the Rio Bravo II site. It details the specific equipment and their function in the plant. The process consists of two gas turbines and a steam turbine that are each connected to a generator. These generators are connected to transformers which connects to the national grid via the 230 kV CFE substation. The low-pressure steam from the steam turbine passes through the air-cooled condensers and is returned to a HRSG. The plant is also equipped with a steam bypass system to facilitate full load simple cycle operations when the steam turbine is not available.

The site employs an air-cooled condenser, which is also equipped with a supplemental wet cooling tower that was added later to improve the system efficiency.

A summary of the major equipment at Rio Bravo II along with details of the manufacturer and model are shown in Table 6-2.

Table 6-2: Rio Bravo II Principal Equipment

Name	Manufacturer	Model / Serial Number
Combustion Turbine	Siemens Westinghouse	W501FD2
CT Generator	Siemens Westinghouse 193MVA	SN: 1-S-10458
CT Generator Exciter	Cutler Hammer / Westinghouse	WDR 2000
CT Transformer	PROLEC-GE (230MVA)	G51401 / G51402
HRSG(Boiler)	CMI Vertical Type with Burners	Lomas de Real Project 66067
Steam Turbine	Alstom (140, 31.3, 5.22 bar / 565, 565, 292 °C)	One combined HP/IP/LP Turbine Module
ST Generator	Alstom (208MVA)	60WY21Z-085LLT
ST Generator Exciter	ABB	Unitrol 5000
ST Transformer	PROLEC-GE (230MVA)	G51403
Air-Cooled Condenser (ACC)	Balcke Dürr (32 fans)	SRB Project P3043 RJ3101

6.2.1 Gas Turbine

The gas turbine technology used at Rio Bravo II are Siemens Westinghouse W501FD2. Both gas turbines at Rio Bravo II are of this technology. An overview of this technology and how it works is further described under Section 5.2.1.

The exhaust gases from each of the gas turbines are directed towards their respective Heat Recovery Steam Generators (HRSG) which then recovers the heat to fuel the steam turbine.

The Rio Bravo II LTSA contracts are with Mitsubishi Power Systems (MPS).

The gas turbine specifications for Rio Bravo II are in Table 6-3 below. The specifications are rated using ISO standards. ISO conditions are 15°C, 60% Relative Humidity, and 101.3 kPa.

Table 6-3: Rio Bravo II Gas Turbine Specifications

Description	Quantity
ISO Rating (MW)	186.5
Pressure Ratio	16:1
ISO Heat Rate (kJ/kWh)	9130
Turbine Exhaust temperature (°C)	593
Fuel Natural	Gas and Distillate Fuel oil
Rotor speed (min-1)	3600
Air flow (kg/s)	459
NOx Control	Dry low NOx combustion

Photos of the gas turbines at the Rio Bravo II site can be seen below.

Figure 6-4: Gas Turbine at Rio Bravo II Site

6.2.2 *Heat Recovery Steam Generator*

The Rio Bravo II site has two triple pressure HRSGs manufactured by CMI of the vertical orientation. In 2019 CMI changed its name to John Cockerill. CMI Energy has supplied more than 550 horizontal and vertical HRSGs to combined cycle and cogeneration facilities worldwide. Hatch considers CMI to be a reputable OEM of HRSGs with a proven track record.

The vertical HRSGs at the Rio Bravo II site where the exhaust gas flows vertically over horizontal tubes. Vertical HRSGs have hotter sections located at the bottom and cooler sections at the top near the stack exit.

The HRSG at the Rio Bravo II site is a triple pressure system with three steam drums. The HRSG has three sections: low pressure (LP), intermediate pressure (IP), and a high pressure

(HP) section. The steam is later passed through a super heater to raise the temperature beyond the saturation point. The super heated steam from both HRSGs is then combined and sent to the steam turbine.

Both HRSGs at Rio Bravo II have duct firing capabilities with natural gas where supplemental firing takes place in the HRSG and can increase the power output by the steam turbine.

The technical specifications of the HRSGs at the Rio Bravo II site is listed in

Table 6-4 below.

Table 6-4: Heat Recovery Steam Generator Specifications

Parameter	High Pressure	Intermediate Pressure	Low Pressure
Pressure (bara)	134.8	33.75	5.07
Temperature (°C)	565	565	291.5
Mass flow (kg/s)	52.5	61	10.15

Figure 6-5: Heat Recovery Steam Generator at the Rio Bravo II Site

6.2.3 Steam Turbine

The steam turbine (ST) at the Rio Bravo II site is manufactured by Alstom (now part of General Electric). Alstom designs, manufacturers, and supplies power generation equipment for the power generation and industrial market. Hatch considers Alstom to be a reputable OEM for the ST with a proven track record for the manufacture and supply of steam turbines.

Figure 6-6: Steam Turbine at Rio Bravo II Site

The technical specifications for the steam turbine at Rio Bravo II are listed in the table below.

Table 6-5: Steam Turbine Specifications

Description	Value
ST Model:	Alstom
Type:	Tandem compound, single flow high pressure
Rated Power (MW):	187
Turbine Inlet Temperature (°C):	558
Turbine Inlet Pressure (MPaA):	12.7
Rotor Speed (min-1):	3600

6.2.4 Steam Turbine Condenser

The cooling system at Rio Bravo II consists of an air-cooled condenser system (ACC) and supplemental condenser and wet cooling tower.

The ACC is manufactured by Balcke Dürr and consists of a 32 fan unit in a forced draft design with the fans underneath the heat exchange services. The arrangement is 8 distribution headers with 4 fan units each. The ACC units at Rio Bravo II site can be seen in the figure below.

Figure 6-7: Air Cooled Condenser at Rio Bravo II

A parallel cooling system exists at Rio Bravo II which consists of a condenser and corresponding cooling tower to provide additional cooling to improve steam cycle performance.

Figure 6-8: Cooling Tower at Rio Bravo II Site

6.2.5 Fuel Systems

The fuel system at the Rio Bravo II site consists of receiving natural gas and on-site diesel storage. Natural gas is used as fuel for the gas turbines as well as supplemental firing in the HRSGs. Rio Bravo II is the only plant of the three Rio Bravo sites that receives natural gas from a self-purpose pipeline connected to the Brasil Station. The Brasil station is connected to CENAGAS and the GDR pipeline. On site, the natural gas is cleaned to remove entrained liquids and distributed through the gas pipeline at the site.

Figure 6-9: Gas Receiving Station on Rio Bravo II Site

The Rio Bravo II site is able to operate on diesel as the back-up fuel. The diesel tanks on site are required to store on-site ten (10) days worth of alternate fuel. The diesel is delivered to site via trucks.

Figure 6-10: Diesel Storage at Rio Bravo II Site

6.2.6 Water Treatment System

The water treatment plant treats the raw water received from Comisión Nacional del Agua ("CONAGUA") through a ground water supply permit. The main function of the water treatment plant is to supply make-up water to the steam cycle which requires high quality demineralized water. Maintaining high water quality is paramount to the long-term operation of the plant and to maintain equipment performance.

The water treatment process at Rio Bravo II is a three-step process. The first is an initial filtration system followed by use of reverse osmosis and electro-deionization.

Makeup water will be taken from the water storage tank and passes through an initial filtration process to remove suspended solids from the water. The service water is then fed directly to the cartridge filters by two RO feed pumps. Rio Bravo II has a two stage RO system. Water from the RO first stage second skid is stored on site before water is pumped into the second stage RO. The permeate from the RO modules are stored briefly in a RO surge tank before being pumped to the electro-deionization (EDI) system.

The EDI system uses ion exchange membranes and resins to deionize water. Rio Bravo II has three EDI systems operating in parallel.

Figure 6-11: Water Treatment Plant Equipment and Water Storage Tank at Rio Bravo II Site

6.2.7 *Electrical*

The generators at the Rio Bravo II site converts mechanical energy of the Gas Turbine and Steam Turbine to electrical energy. Generators consist of a rotor which is directly connected to the turbine shaft of either the steam or gas turbine and a stator.

The Gas Turbine generator is manufactured by Siemens-Westinghouse. The Steam Turbine generator is manufactured by Alstom. Both generators have a power factor of 0.9. The GT generator has a voltage of 13.8 kV and a rated power of 193 MVA, while the steam turbine generator has a voltage of 18 kV and a rated power of 207.8 MVA.

Table 6-6: Generator Specifications

Parameter	GT Generator	ST Generator
Model	Siemens-Westinghouse	Alstom (ABB)
Rated Power (MVA)	193	207.8
Cooling System	Hydrogen-cooled	Air-cooled
Power factor	0.9	0.90
Voltage	13.8kV	18kV

Figure 6-12: CT Generator on the Left ST Generator on the Right at Rio Bravo II

There are three generator step-up transformers (“GSU”) at the Rio Bravo II site; one for each of the gas turbine generators and one is for the steam turbine. The GSU takes the generator voltage and levels it up to the suitable transmission voltage level. They must be built to withstand extreme thermal loading without ageing prematurely. All GSUs at the Rio Bravo II site are oil natural air natural (“ONAN”) and oil forced air forced (“OFAF”). This means that the transformers are cooled by both natural air and oil as well as forced air and oil where the forced flow is caused by fans and motors.

All three GSUs at the Rio Bravo II site are manufactured by Prolec GE. The specification for the transformers on site are provided in Table 6-7 and the transformers at the Rio Bravo II site can be seen in Figure 6-13:.

Table 6-7: Rio Bravo II Step-Up Transformer Specifications

Unit	Manufacturer	Phases	Cooling	MVA	Voltage (kV)
GT1 Main	PROLEC GE	3	ONAF/OFAF	230	13.8/230
GT2 Main	PROLEC GE	3	ONAF/OFAF	230	13.8/230
ST Main	PROLEC GE	3	ONAF/OFAF	230	18.0/230

Figure 6-13: GSU Transformer at Rio Bravo II

After being stepped up at the three GSUs, the power goes to the high voltage switchyard which collects the power from the gas turbine and steam turbine at 230kV. The switchyard is a 230 kV air insulated switchgear ("AIS"). This power is then transmitted to a CFE substation which connects to Mexico's electricity grid. Figure 6-14 shows the switchyard at the Rio Bravo II site.

Figure 6-14: Rio Bravo II AIS Switchyard

6.2.8 *Control System*

The Control Systems at Rio Bravo II are divided between the gas turbines, the steam turbine, and the balance of plant. The systems are as follows:

- Gas Turbines – Siemens SPPA-T3000
- Steam Turbine – Siemens SPPA-T3000/Foxboro (Invensys)
- Balance of Plant – Foxboro (Invensys)

All systems are co-located in the control room for a single operator to access all plant equipment from one location.

In Rio Bravo II, the DCS system has been upgraded to FoxBoro Invensys, from Schneider electric company. In 2012 the TXP (gas turbine control system), Simadyn (gas turbine governor control system) and Woodward (steam turbine governor control system) were migrated to Siemens T3000 control system.

Figure 6-15: Control Room at Rio Bravo II

6.3 Operations Review

6.3.1 Equivalent Unplanned Outage Factor

The monthly equivalent unplanned outage factor (EUOF) for Rio Bravo II from January 2020 to November 2023 is shown in Figure 6-16. The average EUOF for RBII is 9.02%. Major increases in February 2022, are highlighted in Appendix A.

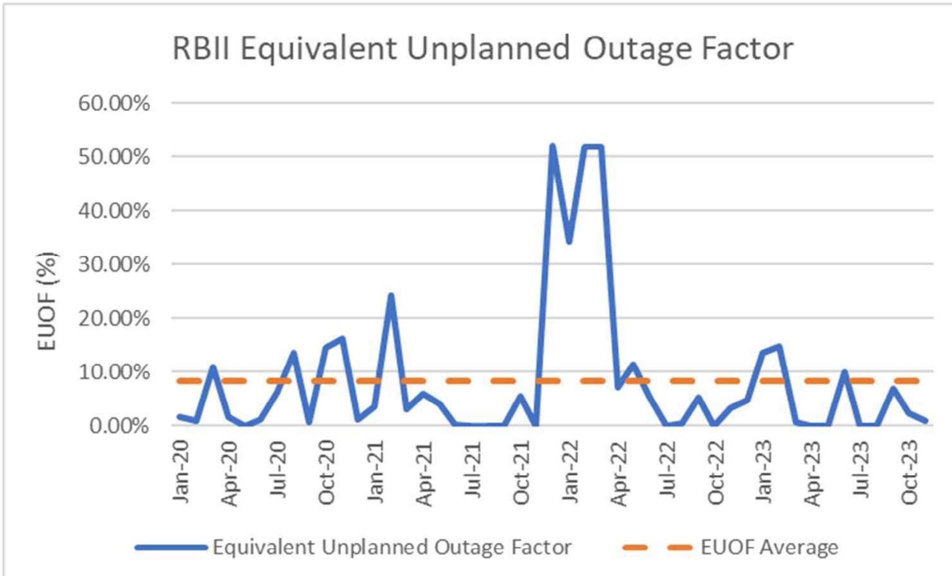


Figure 6-16: Monthly Availability for RBII from January 2020 – November 2023

6.3.2 Heat Rate

The monthly heat rate of the plant from January 2020 to November 2023 is shown in Figure 6-17. The plant has a weighted average heat rate of 7,403 kJ/kWh during this period and demonstrates consistent performance. The peak in heat rate for January 2021 is due to a forced outage and limited generation.

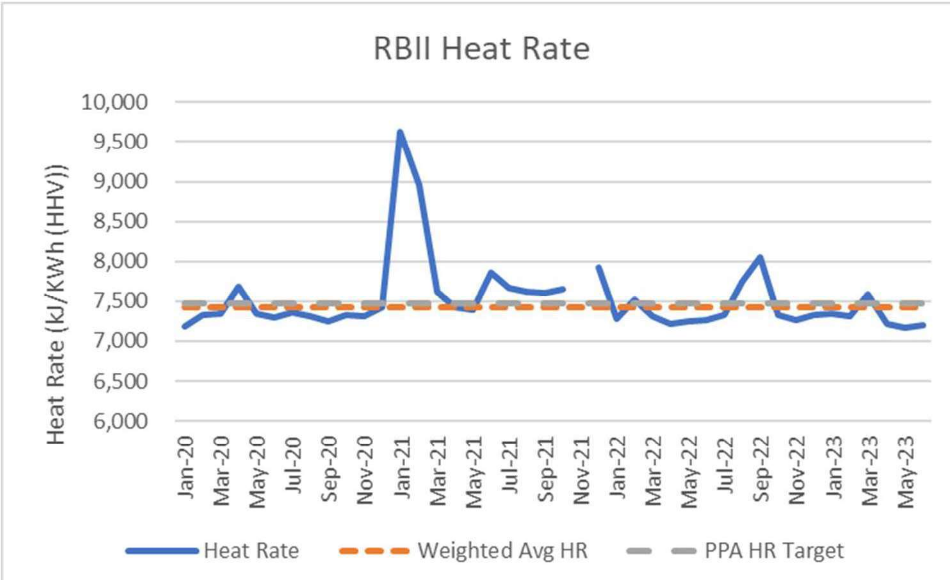


Figure 6-17: Monthly Heat Rate for RBII from January 2020 – November 2023