XEnergy

Empalme I Combined Cycle Plant (Sonora, Mexico)

SENER XENERGY / XTHERMAL GENERATION / XCCGT - COMBINED CYCLE GAS TURBINES / MEXICO

EMPALME I COMBINED CYCLE PLANT (SONORA, MEXICO)

Cliente: Comisión Federal de Electricidad de México

País: Mexico

Empalme I Combined Cycle Plant, Empale, Sonora, Mexico.

The Empalme ICombined-Cycle Power Plant Project consists in building, within 31 months, a plantwith a capacity of 770 MW under the EPC or turnkey modality, which includes performing the Basic and Detail Engineering, Supply and Procurement of all equipment and materials, Construction, and the Testing and Commissioning of the power plant.

- The Power Plant includes the Gas turbine»s (Joule or Bryton) and the Steam turbine»s (Rankine) thermodynamic cycles, and its main equipment consists of two Gas Turbines, two Heat Exchangers linked to the gas turbines, a Steam Turbine, a Steam Condenser, Condensate Pumps and a high-pressure supply.
- Steam condensation is achieved by refrigeration with seawater, using a main refrigeration circuit (water circulation system) that includes a submerged and underground marine inlet at 1,204 metres below sea level; a water inlet channel; a

pumping sump with filtering systems and operating gates; water circulating pumps; underground piping; a discharge channel; and an underwater outfall with a length of 1,012 metres in order to return the water. The marine works performed to lay the intake and discharge pipes buried under the seabed is, due to its magnificence, one of a kind. The pipes are made of coated carbon steel with a diameter of 3 metres.

- The process water used in the steam cycle is obtained by evaporation -compressing seawater, which produces distilled water- and subsequently applying a demineralisation treatment. The Plant has auxiliary systems for electrochlorination, generating compressed air for service and instrumentation, water treatment and fire protection and detection.
- The site preparation required 188,406 m3 of compacted fill, and the Civil Works included 678 piles, 80,000 m3 of concrete and 2,900 tons of metal structure. The Marine Work involved 355,900 m3 of dredging and the laying of more than 3,000 m of carbon steel pipes with a diameter of 3 m.
- The Electro-Mechanical Works included the assembly of over 10,000 t of equipment, the laying of 160,000 inches diameter of piping and 748,000 m of cable, and the installation of 2,400 instruments.
- Sener is carrying out this Project as a joint venture with a 50% participation.