

# Attaka Thermal Power Plant Extension (Unit IV - 300 MW)

## Client

Egyptian Electricity Holding Company

## Scope of Work

Construction management  
Construction supervision  
Testing  
Commissioning and start-up services

## Location

Suez, Egypt

## Types of Activities

Civil works  
Mechanical

With a construction cost of US\$ 300 million, the extension of Ataka Thermal Power Plant comprises a 300 MW steam turbine generator set, a 1,032 ton/h steam generator with auxiliaries 220 kV switchyard, new seawater intake and pump house, water treatment plant, chlorination plant, hydrogen generating plant, mazout storage tanks, mazout transfer station, high pressure heating station, natural gas reducing station, and industrial/sewage wastes treatment plants.

The turbine of the plant extension is of a condensing type, seawater cooled and consists of three cylinder reaction turbines. The process is regenerative cycle with high and low-pressure extraction. The turbo-alternator is two-pole

50 Hz, with 420 MVA rated output, 21 kV rated voltage and directly cooled by hydrogen. The steam generating plant has a controlled circulation boiler with a pressurized firebox and it contains a steam reheating system. The burners are designed for tangential firing and are of tilting type. The production of steam at MCR is 1,032 tons per hour of 54°C.

The boiler is capable of burning heavy fuel, light fuel and natural gas. The feed water plant is composed of one steam turbine-driven pump with 110% rated capacity and two electric motor pumps each with 60% rated capacity. The main cooling water for the power plant is sea water led from the Gulf of Suez into an underground



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intake culvert then to an intake structure containing inlet screening racks with scraper, fine bank screens and the cooling water pumps.

The plant also contains a closed water system using demineralized water as coolant, which in turn is cooled by seawater. The auxiliary plants consist of:

- Two train demineralization plants for the preparation of make-up water from utility raw water.
- Two train condensate polishing plants consisting of an ionic and a mixed bed exchanger for removal of dissolved solids entering into the condensate main steam.
- A chlorination plant to produce active chlorine from hypochlorite solution.
- A hydrogen generating plant to produce the hydrogen required for cooling the generator.
- A storage farm complete with pumping facilities and a heating plant for the storage of heavy and light fuel oil.
- Facilities for the supply of natural gas at the required pressure are included.
- A wastewater treatment plant to treat all industrial wastewater produced from Ataka Station is provided as an environmental feature meeting the standards required for the effluent, before the release into the Gulf of Suez.

- A sewage treatment is also provided with Unit IV extension for the sanitary sewer of the whole station.

Out of generated power 300 MW is stepped up from 21 kV to 220 kV with the generator transformer and fed into the national grid through a switchyard provided for Unit IV extension. This switchyard consists of two main busbards of 2,000 A each connected by a coupler. These busbars are also connected to the existing two busbars via a longitudinal coupler. The transfer busbar composed of four feeders is linked to the national grid. The switchyard includes pantograph isolators, SF-6 circuit breaker, rotating isolators, current transformers, potential transformers, surge arresters and insulators.