

Sousse C, Tunisia

400 MW



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 **John
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Sousse C, a vertical modular John Cockerill design with the first Boiler Stress Evaluator (BSE) designed by John Cockerill

A 400 MW Combined Cycle Power Plant for STEG (Société Tunisienne de l'Electricité et du Gaz)

Project Description

This project consists in the construction of a 400 MW combined cycle power plant (single shaft) located in Sousse (Tunisia).

The objectives of this investment are to upgrade electricity generating capacity in order to meet the country's growing demand, ensuring the network's balance and supporting Tunisia's economic development. The aim of this new construction is also to deploy a combined-cycle technology (gas turbine with steam cycle) to increase the thermal efficiency of the system by improving the power output and reducing greenhouse gas emissions and pollutants.

The Contract

The STEG (Société Tunisienne de l'Electricité et du Gaz) has awarded the contract to a consortium of two companies : Ansaldo Energia (Italy), in charge of the engineering and equipment supply on site and SNC-Lavalin (Canada) in charge of the erection.

In November 2010, John Cockerill Energy was awarded a contract by Ansaldo Energia for the design and supply of one vertical HRSG. This is an outdoor boiler in a corrosive environment with high salinity (sea side). The John Cockerill HRSG is a three pressure levels with reheat, equipped with condensate preheater pumps and an integral vertical deaerator on LP drum. The stack, in corten steel, is 85m high, and the boiler was designed with a cold casing, BDT extraction pumps, a BSE (Boiler Stress Evaluator), acoustical shroud (due to very near houses) and roof cladding.

John Cockerill's particular vertical modular design was a prominent advantage for the construction on the site of Sousse. It enables a quick erection and construction process.

This HRSG is equipped with a Boiler Stress Evaluator (BSE) designed by John Cockerill. The BSE consists of a program that calculates on-line the boiler's remaining life (calculating fatigue and creep) according to EN 12952-3 and EN 12952-4. This technology particularly suits the heavy cycling of this combined cycle power plant.

Plant Operation

The plant of Sousse is designed for heavy cycling.

Gas Turbine

The John Cockerill HRSG recovers the heat of the exhaust gas from an Ansaldo Energia AE94.3A4 gas turbine in order to produce steam going to an Ansaldo steam turbine.

Heat Recovery Steam Generator

- One vertical John Cockerill three pressure HRSG with reheat
- Condensate preheater
- Integral deaerator
- Boiler Stress Evaluator
- 85m high corten steel stack

Performances

GAS	°C	kg/s	
Inlet	590	2473	
STEAM	°C	barA	t/h
HP	567	132	190
IP	330	39	29
LP	245	6	22
Reheater	567	36	214

Schedule

- Contract Award November 2010



CMI becomes John Cockerill

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