

Amercoeur, Belgium

420 MW



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First John Cockerill vertical 3 wide boiler operating with a cold casing design

420 MWe Repowering Combined Cycle Power Station

Project definition

Originally commissioned in 1968 as a coal fired power station, the Amercoeur 1 unit, located in Belgium, about 60 km south of Brussels, was dismantled in 2000. In 2006, Electrabel, a fellow member of the Suez-Tractebel group and owner of the power plant, decided to repower Amercoeur 1 and to transform it into a natural gas fired combined cycle plant. This repowering project was undertaken through an EPCM contract between Tractebel Engineering and Electrabel.

The key objective of this plant repowering was to make maximum use of existing site facilities, including cooling system and cooling tower, steam turbine building and grid connections. The 127 MWe coal unit at site remains operational. The repowering deliver a flexible mid-merit unit at an estimated cost around 30% below that of an equivalent greenfield project.

The Contract

John Cockerill supplied a coal fired boiler to Amercoeur in the early sixties and revamped the existing fuel/gas boilers into pulverized coal combustion boilers. In 1986, John Cockerill transformed the boiler of Amercoeur 2. Its specialists designed, supplied and installed coal crushers equipped with rotating classifiers. John Cockerill also modified both boilers in order to reduce NOx emissions in the air.

In 2006, Electrabel entrusted John Cockerill with the conversion of the Amercoeur 1 power station into a combined cycle (420 MW). John Cockerill worked on the pre-engineering until the contract was put into force in February 2007. The scope of the contract was the design and supply of one Heat Recovery Steam Generator triple pressure plus reheat to be installed behind a GE 9FB gas turbine. This vertical boiler is also equipped with a SCR provision, and installed inhouse building. John Cockerill's scope also included the supply of piping and piperack between the boiler and the steam turbine, as well as steam piping, high pressure by-pass and all the chemical injection skids, dosing skids and sampling skids, as well as an important electrical part including, among others, the Boiler Management System.

The installed capacity increased from 130 MWe to 420 MWe with efficiency rising from 38% to 57%. The installation has been in operation since 1st August 2009, at the entire satisfaction of the Customer, Electrabel.

Plant Operation

The plant is designed for cycling and two shifting operation.

4,000 hours per year.

Gas Turbine

- GE 9FB type
- ISO rated 260 MW
- Fuel: natural gas

Heat Recovery Steam Generator

- One John Cockerill vertical HRSG with natural circulation
- Three output pressures to steam turbine with reheat
- SCR Provision
- Pipe rack with all by-pass until the steam turbine limit of supply

Performances

GAS	°C	kg/s	
Inlet	628.9		660
Outlet	90.86		660
STEAM	°C	barA	t/h
HP	565	122.8	297.7
IP	363	29	56
LP	182	3.6	33
REHEAT	565.4	27	348

Schedule

- Contract Award May 2006
- Notice To Proceed January 2007
- Start of erection October 2007
- First Firing November 2008
- PAC August 2009

CMI becomes John Cockerill

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