

Grati, Indonesia

545 MW



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 **John
Cockerill**

Grati, Indonesia | 545 MW

Combined Cycle for P.L.N.

Third order totalizing 18 John Cockerill's HRSG's in Indonesia

Project Description

In 1991, the rapid growth in electricity demand led the state utility company PLN to plan for a series of combined cycle power stations mainly to be based on multiple blocks of 500-550 MW in a 3-3-1 arrangement. Following the completion of the first four stations in 1993-1994, PLN ordered three more stations, each consisting of three gas turbines in simple cycle and three in a single combined cycle block. Contracts were awarded to the same developers as for the first round. In the case of Grati, located in eastern Java, about 90 km east of Surabaya, the contract was awarded to the consortium, which was completing the 1578 MW Gresik power station. As in that plant, the combined cycle block has three MW701D gas turbines with a single steam turbine. Three other gas turbines of the same type run in simple cycle mode but could be converted to combined cycle in the future.

The contract

In June 1994, a turnkey contract was awarded to a consortium of Mitsubishi and Siemens who in turn placed a contract with John Cockerill for three heat recovery boilers. The same Indonesian subcontractors that had worked with John Cockerill at Gresik were taken on to fabricate and erect the boilers. The high pressure parts were fabricated in Belgium.

Plant operation

HRSG is designed for semi base load and cycling operation (two shift duty with daily start-up)

Gas turbines

- Mitsubishi MW701 D
- ISO base load rated at 136 MW on gas
- Site rated 128 MW at 35°C
- Fuel: high-speed diesel oil. Natural gas supply expected
- to reach site in the second year of commercial operation

Heat recovery steam generators

- John Cockerill Vertical, Assisted Circulation type
- Unfired
- Dual pressure output to steam turbine
- Full flow steam by-pass to condenser at each pressure level
- Boilers can accept hot gas turbine exhaust from cold
- By-pass stack only to isolate boilers during erection and for maintenance.

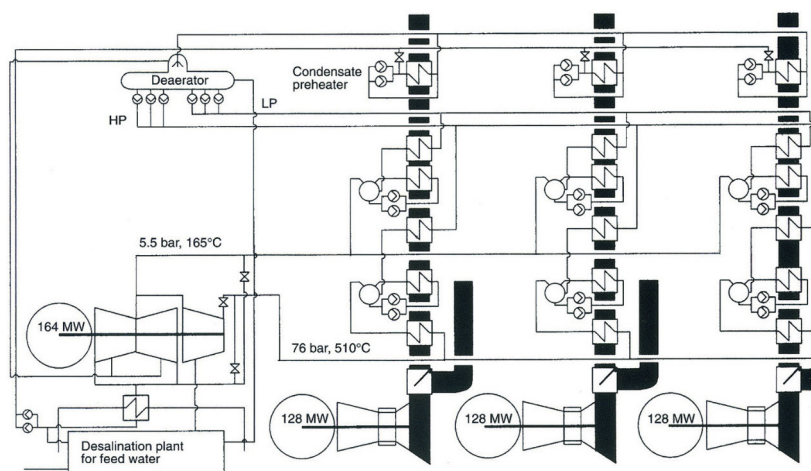
Performances

GAS		°C	kg/s	
Inlet	530		296	
Outlet	130		296	
STEAM		°C	barA	t/h
HP	510	76		182
LP	165	5,5		49

Schedule

- Contract award
- First gas turbine synchronization
- Second gas turbine synchronization
- First steam to steam turbine
- Full combined cycle operation
- Full commercial operation

July 1994
September 1996
October 1996
November 1996
November 1996
January 1997



CMI becomes John Cockerill

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