

Riyadh, Saudi Arabia

1296 MW



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Riyadh PP9, Saudi Arabia | 4 x 324 MW

Combined Cycle Blocks for S.C.E.C.O. Central Saudi Arabia

Totalizing 24 John Cockerill HRSGs installed in Saudi Arabia

Project description

The Saudi Consolidated Electricity Company for the Central Region is responsible for power supply to the capital, Riyadh. Because its service area is in the middle of the Arabian Desert, it has traditionally relied on simple cycle gas turbines burning treated crude oil. However with the price of oil at its lowest for many years at that time, hence with the consequent loss of export income, energy efficiency was an important factor in planning the new power station. With three years operating experience of a combined cycle burning crude oil near Jeddah, it was decided to build Riyadh PP9 as four combined cycle blocks each with four MS7001EA gas turbines, a steam turbine, and an air condenser. Feedwater is taken from the public supply. The initial development was for 16 gas turbines in four blocks, but the site plan allows for addition of another two blocks.

The Contract

Saudi-American GE, in consortium with the Bin Lading Group were awarded a contract in September 1995 for sixteen gas turbines and four steam turbines. Raytheon Ebasco Overseas Ltd were given the balance of plant and awarded a subcontract to John Cockerill for sixteen boilers in April 1996, with option for another eight units. The boilers were fabricated in Belgium and erected by Raytheon under John Cockerill supervision.

Plant Operation

Base load, over 7000 hours/year.

Gas Turbine

- GE Type MS7001EA
- ISO rated 82.5 MW on gas
- Site rated 56 MW at 50°C on treated crude oil
- Steam injection for NOx abatement

Heat Recovery Steam Generator

- John Cockerill Vertical, assisted circulation design, unfired
- Single high pressure output to steam turbine
- LP section, with mild superheat, forms preheater loop through common deaerator to maintain high inlet temperature
- Soot blowers to clean HP superheater and evaporator tubes

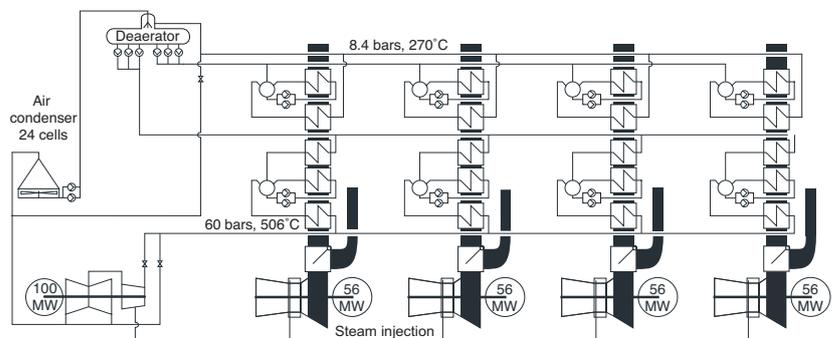


Performances

GAS	°C	kg/s	
Inlet	530		527
Outlet	130		296
STEAM	°C	barA	t/h
HP	506	60	108
LP	207	8.4	16

Schedule

- Contract award for boilers April 1996
- Gas turbines 1-4 in simple cycle March 1997
- First steam to Block 1 turbine September 1997
- Commercial operation of Block 1 December 1997
- Commercial operation of Block 2 December 1998
- Commercial operation of Block 3 December 1999
- Commercial operation of Block 4 December 2000



CMI becomes John Cockerill

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