

PROJECT NARRATIVE



Owner: AES

Plant Name: Ras Laffan Power and Desalination Plant

Product Type: Ovation

A/E Firm: Enelpower For Power Plant, Fisia Italimpianti for Desalination Plant

Unit size (MW): 760 MW Combined Cycle Power, 50 MIGD Water

Location: Qatar

Boiler/Plant Type: 4 x 100MW GE Frame 9E Gas Turbines, 4 x HSRGs Doosan, 2 x 200 MW Franco Tosi Steam Turbines, 4 x MSF Cross Flow Desalination Plants (Total capacity 50 MIGD)

Contract Initiation: March 2002

Ship Date: Dec 2002

Operational Date: March 2003 – Open Cycle, Dec 2003 – Combined Cycle, Dec 2003 – Desalination Plant

Major System Components:

Power Plant

- 1 Redundant Fast Ethernet Network
- 13 Redundant Controllers
- 1 Database Server
- 1 Engineering Workstation
- 9 Operator Stations
- 1 eDB Historian
- 1 GPS
- 4 Interface links to GE Mark VI
- 30 Additional 3rd party communication links
- 16 Marshalling Cabinets

Desalination Plant

- 1 Redundant Fast Ethernet Network
- 1 Database Server/Engineering Workstation
- 1 eDB Station
- 6 Operator Stations
- 10 Redundant Controllers
- 11 Marshalling Cabinets

Distributed Control System I/O Point Count:

15,400 Total I/O points



Photo courtesy of www.industcards.com

AES - RAS LAFFAN Ras Laffan Power and Desalination Plant Located in Ras Laffan, Qatar

FISIA/Italimpianti and Enelpower, the EPC contractors for the Ras Laffan Power Company (RLPC), developed a new 800MW combined cycle power plant and desalination plant, which produces 50 million imperial gallons of potable water per day (MIGD). The plant was built on a build-operate-transfer basis with the electricity generating capacity expected to increase to 1,400MW and water capacity to 80 MIGD over the project's 25-year life span. This was the first private power project in Qatar.

Since the control systems for both the power and desalination plants were to be common, FISIA and EnelPower jointly chose the systems. Ovation[®] expert control system was selected for its capability to easily integrate large quantities of I/O, its vast experience with power plant applications, and its cost-effective solution. Competitors included Siemens Teleperm XP, Foxboro IAS, and ABB Bailey Infi90.

The power plant system, which consists of two trains of 2x1 combined cycles, is seamlessly integrated with the four desalination plants, resulting in a large amount of hardwired I/O of over 15,000 points. Software interfaces integrate four GE Mark VI turbine controllers with two Franco Tosi DEH systems.

Emerson provided the project management, functional design, system software design, start-up, commissioning, and engineering services. The scope also included Ovation unit coordinated control, which optimizes the entire power generation process by selecting an operating mode that most effectively meets current power demands and steam demands for the desalination units.

Other features of the Ovation installation included communication via Ethernet or Serial ports over 30 communication links, as well as implementation of an emergency control panel. At project completion, the Ovation control systems at the power plant and desalination unit were enterprised into one large Ovation network.

Key Benefits

- An optimized plant operation through a new control strategy and ergonomically designed control room
- Faster communication using Fast Ethernet
- Realization of set management goals through increased reliability, availability, and maintainability
- Reduced maintenance cost
- An enterprise-wide solution that connects the power plant with the desalination plant
- Integration of multiple systems from a variety of third-party suppliers through communication links