

# Ovation® Helps Mirant's Pagbilao Power Plant Increase Reliability by More Than 1%

## RESULTS

- Improved system architecture prevents forced outages and load restrictions, potentially avoiding an energy loss of 16,800 MW hours per day
- Increased plant reliability by more than 1%
- Significantly improved data acquisition, alarm monitoring, and report management

## APPLICATION

Two 375-megawatt, coal-fired power plant units with Mitsubishi Heavy Industry steam turbines and boilers and Westinghouse generators.

## CUSTOMER

Mirant, Pagbilao Power Station Units 1 & 2, located in Quezon, Philippines

## CHALLENGE

Mirant's Pagbilao Power Station architecture consisted of two primary control systems — Emerson's WDPF distributed control system for boiler and turbine control, and a DIASYS-UP system for burner management. Although the plant operated reliably, by 2005, Mirant wanted to unify the control system architecture to make it easier and less expensive to obtain spare parts. In addition, having two disparate control systems was causing problems, such as forced outages and load limit reductions.



***“One of the many good things about the new Ovation system is that our operators have the opportunity to view and understand the SAMA-built control logic of individual operations. This feature, when thoroughly used, can prevent a major outage which both directly and indirectly impacts the cost of maintenance and operations.”***

**Juanito M. Sainz, Jr.**  
Technical Specialist  
Mirant Pagbilao Power Plant



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### SOLUTION

Mirant had two options for upgrading the Pagbilao plant. They could replace both existing systems with an entirely new control system, or they could migrate their existing WDPF system to Emerson's latest technology, the Ovation® expert control system, and replace the existing burner management controls with the new Ovation technology.

Mirant made its decision in consideration of four criteria: 1) reliability of the control system, 2) after-sales support, 3) existing capabilities of Mirant's technical personnel, and 4) availability of spare parts. Emerson's WDPF-to-Ovation migration solution met these criteria.

Mirant chose a WDPF-to-Ovation migration because of the successful history and reliability with the existing WDPF system, and because Emerson maintains a long-term system lifecycle plan. Mirant was particularly satisfied with Emerson's commitment of long-term support for the Q-Line I/O, which continues to be classified as a current product. By migrating to Ovation, the total cost impact of the project was reduced. Also, much of the existing inventory of spare parts stocked at the plant could continue to be used with the Ovation system.

#### Reduced Costs & Enhanced Functionality

With a WDPF-to-Ovation migration, many of the existing graphics were reused, which offered savings in engineering costs and reduced the need for operator retraining. With the new Ovation system, Mirant control operators can conveniently maneuver control graphics, and the technical personnel already have a thorough knowledge of system diagnostics and can easily make system modifications when required. Basically, migrating to Ovation enhanced the plant's reliability with lesser effort than a new system would have required.

#### Improved Historical Data

Pagbilao's new Ovation eDB Historian provides flexible data presentation and enables process data to be copied to a report or communicated to several other plant systems via OPC-based connectivity.

With the OPC server, process data from the historian is sent to Mirant's eDNA system, which, in turn, broadcasts process data to remote stations and Mirant's headquarters in Manila, Philippines and Atlanta, Georgia, USA. The OPC server also exchanges information with the plant's Bently Nevada system, which is used for the turbine vibration monitoring system. Data can be extracted from the Bently Nevada system and converted into an eDB report. Finally, the OPC server is also connected to a Wonderware system, which is used for data acquisition of the Continuous Emission Monitoring System (CEMS). This connection allows the exchange of data between the Ovation and Wonderware systems.



***“Unifying our plant controls with Ovation has been a great benefit. Data communication between two distinct control systems had increased the level of risk involved in operation because of too many communication devices and protocols. Nothing is better than having a single brand of control system. Now, operating the units is a lot easier.”***

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