

Emerson's PlantWeb® Improves Performance and Increases Revenue Potential at EDF's Porcheville Power Plant



RESULTS

- Improved performance of secondary (ancillary) control by 50%
- Increased ability to win ancillary service contracts and gain additional revenue
- Contributed to maintaining grid stability during swings in demand, frequency, and voltage
- Replaced each control system within aggressive 18-day schedules
- Assisted with successful startup of units 1 and 2 after a decade of decommissioned status



APPLICATION

2,400-megawatt oil-fired thermal power generating plant consisting of 4 x 600-megawatt units. Units 1 & 2 operate with Babcock & Wilcox boilers; Units 3 & 4 operate with Stein boilers. All four units are equipped with ALSTOM (Rateau) steam turbines.

CUSTOMER

EDF Group, Porcheville thermal power plant located in the Yvelines Region along the Sienne River, roughly 30 miles west of Paris, France

CHALLENGE

Fossil-fired power plants, such as EDF's Porcheville station, play a major role in balancing the French power system. The four-unit oil-fired Porcheville plant went into service in 1968. More than a decade ago, units 1 and 2 were taken out of service due to the high cost of fuel and surplus capacity in France's power generation market.

In response to growing demand for electricity, EDF embarked on an ambitious renovation program at the Porcheville power plant. The main project goal was to increase the plant's capacity and improve maneuverability, or the ability to swiftly and accurately ramp the units up and down. Successful project completion would give EDF the opportunity win more ancillary service contracts, thus increasing their ability to gain more revenue and avoid financial penalties. Part of the project was to modernize the plant's obsolete Control Data analog control system. EDF's challenge was to enhance Porcheville's performance to ensure reliable power production when called upon to meet generation demands.

"The increased demand for power production capacity is our greatest concern given the current energy context. Even after being out of service for over a decade, Emerson's automation solution enabled us to put the Porcheville units back online in record time. We are now confident that we can reliably produce power when called upon during peak demand periods. This capability has translated into increased revenue potential for our company."

Jean-Marc Brehon
Project Manager, Engineering
EDF Group
Porcheville Thermal Power Plant



OVATION®

For more information:
www.EmersonProcess-PowerWater.com



EMERSON
Process Management

SOLUTION

After a thorough investigation of various modernization options, EDF contracted Emerson Process Management (Emerson) to provide a comprehensive PlantWeb® digital architecture solution consisting of Ovation® expert technology, AMS® Suite: Intelligent Device Manager, Scenario® simulation, Smart Wireless technology, and SureService® customer support programs.

The renovation program began with replacing Porcheville's outdated analog systems with Emerson's Ovation expert controls. Use of Ovation has contributed to improved unit performance, enhanced speed and power regulation of the turbines, pumps, and boilers, and better diagnostics. Each unit's Ovation system consists of a dedicated controller to manage individual turbine operations and three additional controllers for monitoring critical data associated with boiler and balance of plant operations. Emerson was able to install, test, and startup the control systems within aggressive 18-day periods, thus avoiding financial penalties associated with project delays.

Prior to the upgrade, EDF was only able to swing the Porcheville units by +/- 60 MW. Since commissioning, Ovation has improved Porcheville's maneuverability +/- 90 MW, an increase of 50%. The result has provided EDF the opportunity to gain more secondary control, or ancillary service contracts, thereby increasing the opportunity to gain additional revenue. Use of Ovation at Porcheville has also contributed to maintaining France's grid stability during swings in demand, frequency, and voltage.

Emerson's predictive maintenance application, AMS Intelligent Device Manager, works with the Ovation system to manage the plant's smart field devices, resulting in improved production reliability. Maintenance personnel can access predictive diagnostics on all HART instruments, including Emerson Micro Motion® Coriolis mass flow meters, Rosemount OXYMITTER™ 4000 transmitters, and Fisher® DVC 6000 digital valve controllers installed throughout the plant. EDF also uses valve signature performance diagnostics from AMS Device to identify valve issues and restrict disassembling on damaged equipment.

As part of the comprehensive solution, EDF purchased an Emerson Smart Wireless network to provide additional measurements in areas that are physically or economically out of reach on the boiler and turbine, as well as Scenario simulation using high-fidelity models. Scenario will be used to train new and existing operators on how to best operate the plant for effective management during peak production.

Furthermore, to help ensure that the plant continues to take full advantage of the latest technologies, EDF uses Emerson's SureService customer support program, which offers access to technical support and Ovation software upgrades for five years.

“After more than two years of operation, our experience is very positive. We appreciate the flexibility, ease of use, and capabilities of Emerson’s technologies. We have vastly improved plant performance and increased the safety of our equipment.”

Vincent Dietler
Automation Manager
EDF Group
Porcheville Thermal Power Plant



Emerson's Ovation technology directly controls critical plant processes at the Porcheville station, including the Alstom turbines.



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