

NRG's Dunkirk Power Plant Achieves Cost Savings and Operating Efficiency with an Ovation® Migration

RESULTS

- Saved an estimated \$2.5 million through the reuse of cabling and WDPF I/O and controller cabinets
- Enabled smooth implementation and transition to new equipment technologies
- Implemented a multi-networked architecture, allowing operators at any unit to view all four units

APPLICATION

Two 200-megawatt and two 100-megawatt tangential, coal-fired units with CE boilers and GE steam turbines

CUSTOMER

NRG Energy, Dunkirk Power Plant, Units 1, 2, 3, & 4, located in Dunkirk, New York

CHALLENGE

NRG Energy's Dunkirk station is located on Lake Erie, 55 miles southwest of Buffalo, in Dunkirk, New York. The 600-megawatt plant consists of four coal-fired units, including two 100-megawatt units that have been running since 1950, and two 200-megawatt units that went into service in 1959 and 1960.

Since beginning its operations, the Dunkirk facility has been well maintained and continuously updated with the latest technologies, including state-of-the-art control systems, high-efficiency electrostatic precipitators, a water treatment system, and fish screens to ensure that the plant is as considerate to the environment as possible.

Recently, NRG initiated a 15-month process to improve Dunkirk's overall operations through enhanced system capabilities and increased capacity. To accomplish this, NRG turned to Emerson Process Management to provide a cost-effective solution that offered state-of-the-art technology and accurate control within the required time frame.



“Great service, teamwork, and cooperation are the benchmarks of your organization, but I believe that the Emerson field engineering team at Dunkirk exceeded even those expectations on a daily basis.”

Bill Vogel

Instrument & Control Supervisor
NRG
Dunkirk Power Plant



For more information:
www.EmersonProcess-PowerWater.com



SOLUTION

NRG implemented plant-wide equipment modifications to enable all four Dunkirk units to burn low-sulfur Powder River Basin coal. While the units operated more efficiently with the Powder River Basin coal, the plant now required a more powerful control system with wide expansion capabilities to handle the new equipment. NRG needed to significantly increase the capacity of Dunkirk's control system, and it needed to do so in an extremely limited time frame.

NRG opted to migrate their existing WDPF controls equipment to the Ovation® expert control system. The new Ovation system is fully expandable, and offers a larger point capacity to handle Dunkirk's new equipment.

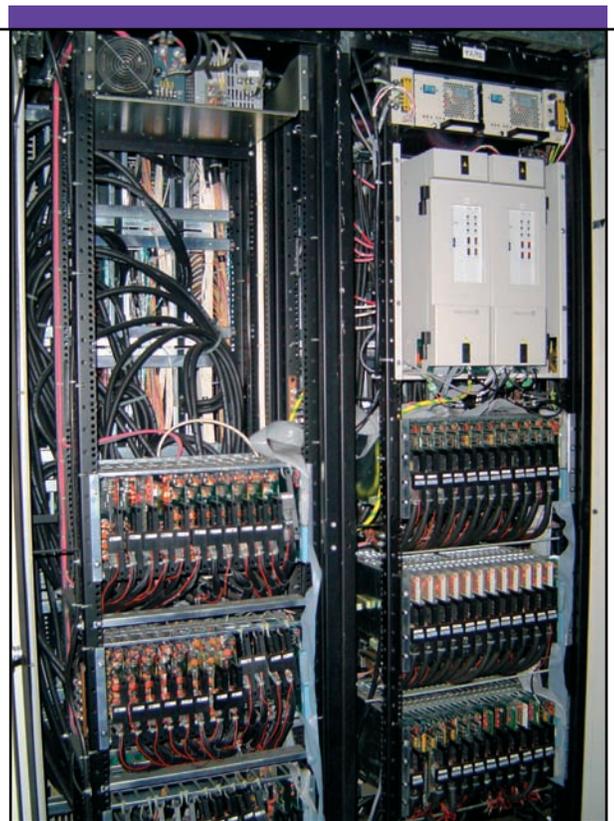
Migrating to Advanced Technology

In addition to increasing control system capacity, NRG also needed to meet tight budget and time constraints — the first unit was set to go online just 16 weeks after the project commenced. An Ovation migration was a good choice because it allowed NRG to maintain the integrity of the existing system by reusing existing cabinets, I/O, and cabling. Not only did this offer a cost savings of close to \$2.5 million, but it allowed NRG to avoid a rip-and-rebuild scenario, which would have significantly impacted the length of the outage.

NRG also realized cost efficiencies with software. Dunkirk's control graphics had started out as circa 1982 WDPF Classic graphics for data acquisition. Since the initial WDPF Classic installation, NRG had implemented several upgrades and expanded the system to encompass boiler control, so that the pre-migration workstation graphics were at WDPF WEstation Level 8. This meant that Emerson engineers only needed to provide a few new graphics. Many of the existing graphics were simply reworked to make them more Windows®-friendly.

The new and revised graphics offer high levels of functionality — to the point where the operators don't even need a keyboard with the workstations. All workstation functionality is mouse-enabled for click-and-go processing. The graphics offer digital entry, the ability to raise and lower setpoints, start/stop and open/close functionality, and other control panel capabilities.

The NRG Energy Dunkirk Units 1, 2, 3, & 4 migration to Ovation was achieved through a re-engineering process. The project includes multiple networks, which allow operators to see all four units from any unit's control station. The system also includes WAVE Web Viewer and NetDDE connectivity. The entire project fell within a tight time frame with Unit 4 completed in December 2004, Unit 3 in May 2005, Unit 2 in December 2005, and Unit 1 scheduled for completion by spring 2006.



By migrating the existing WDPF system to Ovation, NRG maintained existing I/O cards, field terminations and cabinets, control logic, graphics, and the database.



For more information:
www.EmersonProcess-PowerWater.com

