

Consumers Energy Uses Emerson's Scenario[®] Simulation at its J.H. Campbell Complex

RESULTS

- Provides a simulation system to train and test plant engineers, operators, and technicians before they work on a live system
- Enables Consumers Energy to fully test system software and software updates prior to implementation
- Allows personnel to experiment with various operating techniques for improved plant efficiency, without affecting plant operations



APPLICATION

Unit 1: 250-megawatt drum-type CE boiler, Allis-Chalmers turbine

Unit 2: 350-megawatt once-through B&W boiler, Westinghouse turbine

Unit 3: 820-megawatt drum-type FW boiler, GE turbine

CUSTOMER

J.H. Campbell Complex - Units 1, 2, 3 & Coal Handling, located in West Olive, Michigan

CHALLENGE

In 2000, Consumers Energy updated the control systems for Units 1, 2, 3, and coal handling for the J.H. Campbell Complex with Ovation[®] expert controls. The Campbell plant has a number of constraints that make training on the new systems challenging. First, all three units have unique configurations. Second, with its own dedicated staff, Unit 3 operates separately from Units 1 and 2. Third, operators from Units 1 and 2 must fully understand the various software applications and equipment for each unit, and be able to work on both concurrently. Consumers' training objectives include:

- Increasing internal operator training capabilities to ensure plant personnel fully understand the Ovation[®] control system
- Implementing a tool that tests new software updates and patches prior to implementation to ensure safety and continued operation
- Simulating realistic critical situations to instruct plant personnel to react to abnormal operations



SOLUTION

A year after implementing their new Ovation systems, Consumers opted to install Scenario[®] simulation for each system. Units 1, 2, and 3 received Scenario high-fidelity solutions, which operate with real Ovation Controllers and plant software.

Although Unit 3 runs as a disparate entity from Units 1 and 2, all three units share the same simulation room, which includes several workstations with big-screen monitors for alarms and trending. The simulation control room offers a high degree of flexibility, as the facility can shift between Units 1, 2, and 3 simulations quickly and easily.

Consumers Energy's Scenario simulations are used to train new hires and to keep existing experts fresh. They also play a role in Consumers' annual recertification process. Once a year, Consumers simulates plant trips and other operational challenges to ensure that operators are prepared for even the most unlikely event.

Consumers Energy chose Unit 2 for the first simulation because it has a once-through boiler, which makes it a more complex operation due to valves that need to open at the right time to go through the reheat and superheat processes.

Consumers Energy updates their plant software regularly to maintain efficient operation. With Scenario simulation, they can access their modeling software to make changes within the plant simulator before they're made on the actual plant. This provides Consumers with an accurate testing process that can minimize problems that can occur with plant changes.

**Emerson Process Management
Power & Water Solutions, Inc.**

200 Beta Drive
Pittsburgh, PA 15238
1(412) 963-4000
1(800) 445-9723
www.EmersonProcess-PowerWater.com

