

# Modernizing Annunciation Systems

As part of an ongoing modernization, design and operation staff at the U.S. Army Corps of Engineers' 43-MW hydro plant at the Albeni Falls Dam decided to upgrade the existing annunciation system. The system alerts operators and maintenance staff to changes in plant operating conditions.

The hydro plant on the Pend Oreille River, about 60 miles northeast of Spokane, Wash., in the Idaho panhandle, generates enough electricity for 15,000 homes. The Bonneville Power Administration markets this electricity to customers primarily in the Pacific Northwest.

For the modernization, design and operation staff identified requirements for the new system. It had to be flexible and expandable to allow easy addition of new points and allow for intelligent grouping of alarm points by function (e.g., bearing temperatures) and by generating unit. The approach to install, as well as modify and add to the system, should be quick and easy. The components should be low cost and commercially available now and in the future. And the system should allow remote viewing.

Particularly because of its expandability and compatibility with other systems in the Albeni Falls plant, the staff chose an annunciation system consisting

of three commercial, off-the-shelf components: a real-time controller and embedded Web server from SoftPLC, SNAP IO from Opto-22, and SoftPanel Annunciator software from ACSI.

The real-time controller and Web server is one of hundreds of SoftPLC programmable logic controllers (PLCs) the Corps uses to control hydro operations and power production in the Pacific Northwest. The Corps began installing equipment manufactured by SoftPLC, headquartered in Spicewood, Texas, in the late 1990s and continues with new installations today. SoftPLC products are "open architecture," which means they can be easily adapted to work with products from other vendors. SoftPLC is exhibiting at the HydroVision 2008 conference.

The Opto-22 SNAP IO component includes analog, digital, and serial communication modules.

ACSI (Automated Control Systems Inc. in Vancouver, WA) developed the SoftPanel Annunciator software which turns a personal computer into an annunciation viewer. Multiple computers can be added at any time to increase usability. The computers can be located anywhere, including remote sites. Each viewer has the ability to acknowledge and clear system alarms. Albeni Falls

currently has more than 200 points wired into eight Opto-22 SNAP racks with three SoftPanel viewers.

"Our maintenance personnel are very comfortable with the SoftPLC platform and Snap Opto," says Joseph L. Summers, operations project manager. "We benefit from reduced maintenance costs, and we have spares available from other systems."

The system also offers a fast, easy, Windows-based configuration tool. Web-based technologies in the SoftPLC controller enable SoftPanel annunciation software to be used at any location. SoftPanel software distribution is enabled from the SoftPLC controller via a Web browser to any SoftPanel viewer. Its built-in firewall capability allows secure communication.

The system is easy to maintain, because all configuration is done via the software that automatically updates all SoftPanel viewers. In addition, the system is scalable from small to large applications, and the same user interface and training can be used for all control needs in the facility. Hundreds of points can be configured and IO can be located at the remote site to lower installation costs. Each SoftPanel window can have multiple inputs associated with it. The tabbed viewing for annunciation points allows for hundreds of annunciation points per viewer while still allowing for readable text on each of the windows.

The Corps can add redundant viewers at any time, a feature that works well for displaying annunciation system data from a remote site. And, traditional annunciation outputs can still be wired to other systems or connected to existing annunciation displays.

The SoftPanel systems were installed in 2006. "The system is functioning as anticipated with no failures to date," Summers says. "We would purchase the system again." ■

For more information about ACSI's SoftPanel Annunciator software, contact ACSI at 360-737-6654.

For more information about SoftPLC controllers, contact SoftPLC at 800-SoftPLC (1-800-763-8752).



The U.S. Army Corps of Engineers' 43-MW Albeni Falls hydro plant on the Pend Oreille River in Idaho features a new annunciation system for alerting operators and maintenance staff to changes in plant operating conditions.