

**A** new automated control system is being installed at the big power dams of the Federal Columbia River Power System. It's called GDACS. GDACS stands for Generic Data Acquisition And Control System, but it means reliability – with a capital “R.”

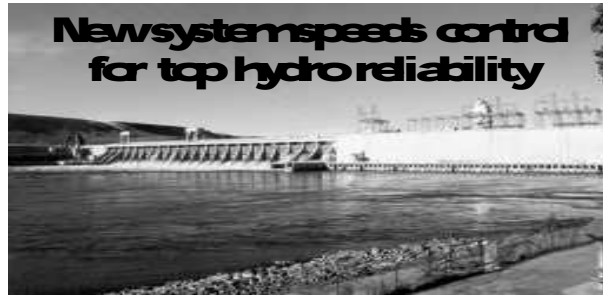
The new system will make command and control decisions faster than you can say “voltage instability.” This warp-speed process will allow the FCRPS to automatically avert system operators’ worst nightmares: region-wide disturbances.

“Basically, we’ve re-invented the design for hydro-generator control systems,” says Mike Berger of BPA’s Power Business Line, who managed the project for BPA. “There were countless challenges. But the attitude of every team member from the beginning to the end was, ‘there is a solution.’ The results speak for themselves.”

GDACS uses state-of-the-art equipment – sensors, control hardware, redundant systems, software and operator stations – to automatically control and operate large hydro generators. The system is always “on” and provides the structure for data collection as well as command and control.

GDACS puts in place a significant shield that will help increase overall reliability. The system will improve the reliability of any project that uses it by giving the operators a better picture of the plant operation and by providing a better tool for controlling generating units.

A multi-agency team of representatives from the FCRPS operating agencies – the Bureau of Reclamation, U.S. Army Corps of Engineers and BPA – installed, tested and dedicated the system at McNary Dam this summer. McNary was the first dam to get GDACS because it is significant to maintain voltage stability in the Northwest transmission grid. It was also the only lower Columbia plant that did not have a data acquisition and control system.



McNary Dam and power house reach across the Columbia River between Oregon and Washington near Umatilla, Ore. Only Bonneville and Grand Coulee Dams on the main river pre-date McNary. It was completed in November 1953 and has 1,120 megawatts generation capacity.

Photo by Jack Odgaard

After the successful 1,000-hour test at McNary, the new system was to be installed at John Day, The Dalles, Bonneville and Chief Joseph dams. The price tag for all five plants is \$24.5 million.

Black Saturday for the West Coast – Aug. 10, 1996 – may not have been a day that will live in infamy. But it certainly was a day that had many BPA employees burning the midnight oil. Overloaded and sagging BPA power lines dipped into a filbert orchard that day setting

off a series of events that left millions of people in the dark all along the West Coast. The news covered traffic snarls and air conditioning shut downs in the California heat.

Fact finding hearings followed blue ribbon panels that were convened to examine what happened. While no single cause was identified, the Corps of Engineers and BPA developed lists of recommendations to keep history from repeating itself. Everyone agreed that creating a new data acquisition and control



Roy Fox (right foreground), manager of BPA’s federal hydro projects gives a plaque to Dave Coleman, McNary Project chief of operations for the U.S. Army Corps of Engineers. Many of the Corps McNary staff surround the two. Fox congratulated the Corps staff for its excellent work to develop a new high-tech data and control system for the hydro operations.

Photo by Sherry Lind

system was the best way to avoid future Black Saturdays. Thus GDACS was born.

Berger says the Corps gets a large chunk of credit for GDACS.

“The GDACS software is a product of Corps know-how,” he says. “These guys produced something in-house that will not only fit the need, but it can be modified, upgraded and maintained easily.”

Corps employees at McNary played a vital role. Since McNary had no data and control system before, additional infrastructure had to be installed. Trying to schedule unit outages to do the work added to the time-consuming process.

“It was difficult to schedule time to do the work because McNary is a pinch point on the river,” Berger says. “That means that all of the turbines there are needed to pass water during much of the year. So getting outages is very difficult and that made scheduling work difficult.”

BPA funded the project, procured some of the time-critical hardware, and took part in the design process.

Paul Norman, BPA’s senior vice president for power, thanked the GDACS project team at a June 14 dedication ceremony at McNary Dam. “BPA, the Corps and, especially, McNary project personnel overcame numerous hurdles to bring this project online,” he said. “This system paves the way for us to optimize the operation of the Federal Columbia River Power System under the Asset Management Strategy.”

GDACS arrived on the scene none too soon. Some existing systems have begun to fail. Others are so old, keeping them running has often meant using super glue and paper clips because replacement parts are no longer readily available.

According to Berger, the new system will let FCRPS handle the ever-increasing complexity of the new, deregulated energy markets. He says it’s timely and it works.

— by Perry Gruber, formerly of the communications group, now at Intel

## Power puts put CFC in the green

**T**wo teams and several individuals took to the BPA greens in early November to putt for folding green to benefit the Combined Federal Charities campaign.

Bryan Crawford and Kelly Otis, who co-chaired the CFC drive for the lower Columbia area of BPA, came up with ideas for a shorter but concerted effort for the CFC this year. Each week would have a different event to support one of the mini-themes of nurturing.

Besides the miniature golf tournament, the CFC drive included a bowling tournament at Vancouver, candy and flower sales, a business line quiz show, a Santa letter and gift baskets day, and a silent Web auction throughout the five weeks. Weekly raffles and a flower pot change collection were other small fund raisers for the drive.

Each week also had a specific item for folks to donate. Canned food collections went to the food banks in the Portland-Vancouver metro area. Clothing drives benefited local elder care centers and the needy. Books went to S.M.A.R.T. and Books for Kids. Blankets and coats went to local shelters.

The CFC at BPA headquarters and Vancouver began the last week of October and ended the last week in November. The Nov. 7 golf challenge and putt-off at headquarters was to benefit Northwest Medical Teams. The team challenge



had twosomes from power, transmission and one representing all other groups. Other individuals paid to play.

John Pynch and Paul Krueger putted for power and won the challenge. However, fans challenged their win because they were the only players who brought their own putters. While the outcome may be tied up in court for weeks, the money won for CFC won't be tied up.

Randy Ridenhour, Chuck Nellis and Mike Johns played for transmission – the only threesome in the challenge, but they still couldn't beat the pro putters of power. Jim Curtis and Pam Marshall did respectably well playing for everyone else – the between-the-business lines group (BBL).

The lowest score for the day was 15 (for nine greens), by Mike Johns of transmission. Cherie Long of the power trading floor scored the low for women at 17. More than 20 people had holes in one. John Pynch made 5, Mike Johns made 4 and Terry Esvelt made 3. But only one person aced the toughest hole on the course. Cherie Long putted perfectly to sink the hole-in-one on No. 7.

The final CFC results should be available sometime in December. Watch for them in *This Week* and on the Web.

Power putter Paul Krueger sends his ball toward the hole on No. 9 as teammate John Pynch coaxes him on. The golf challenge and play was in the second week of the 2000 CFC drive for BPA.

Photo by Jack Odgaard