



Northwest Public Power Association
BULLETIN
NOVEMBER 2004

**OPALCO Puts Finishing Touches
on Underground Cable Project**

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OPALCO PUTS FINISHING TOUCHES ON UNDERGROUND CABLE PROJECT

by Marcia Gillingham



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1. Construction crews reload a pipe into the vault.
2. Crews work on the drilling portion of the project.
3. Saying goodbye aboard the CMI barge. From left to right: Terry Turner (OPALCO), Mark Tilstra (OPALCO), Jim Applegate (CMI), Dave Smith (CMI), and Adam Brown (CMI).
4. The CMI barge being moved around the islands by a tug boat.

After a two-and-a-half year permit and planning process, Orcas Power & Light Cooperative (OPALCO) completed its 2004 Submarine Cable Project over the last two months.

The project was under the supervision of Project Manager Terry Turner, Project Engineer Mark Tilstra, and Contract Administrator Marcia Gillingham. Caldwell Marine International, Inc. (CMI) of Toms River, New Jersey provided the cables and was the marine contractor.

Cost for the entire project was \$2.4 million, and replaced a cable that went bad between a 53-year old one that was beginning to deteriorate.

The project consisted of the installation of four new submarine cables; two J-Power Systems composite 69 kilovolt 350 MCM copper conductors with a 64-strand fiber optics cable; and two Ericsson 48-strand fiber optics single armor submarine cables, and the removal of two other cables.

At the same time, and in the same area, a fiber optic project was done by CenturyTel, and it allowed the company to improve its ability to provide telephone and Internet service in the islands. The fiber network gives CenturyTel its own cable to provide service over. Until the new cable was installed, the company was leasing fiber optic cable from Bonneville Power Administration (BPA).

Utmost importance and care was paid to the environmental issues of the project. Marine surveyors and biologists and an archaeologist were consulted at

length during the planning process and were on site at defined sensitive areas during cable installation. Different installation techniques were implemented in different crossings to affect as little impact as possible for each unique area.

Preparing the sites for the new cables was a major project in itself. During the week of August 23, Armadillo Underground, Inc. (Salem, Ore.) successfully completed the installation of two 150-foot runs of steel duct through the steep slope on the south end of Blakely Island. The 10-inch diameter steel pipe was directionally drilled under the cliff in 10-foot sections and welded together piece-by-piece. These two ducts are to accommodate the new composite cable and a future 69 kilovolts cable installation. OPALCO crews and many local contractors were involved with the installation of concrete vaults that will anchor the cables on the shore end.

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OPALCO Puts Finishing Touches ... Continued



Caldwell Marine International's barge was trucked to the West Coast in pieces and put together at the Port of Tacoma. It was then transferred by water to Orcas Landing.

Retrieval of the two cables occurred September 12-15, when CMI picked up a failed 25 kilovolt US Steel cable between Decatur and Blakely which was to be taken to Seattle and scrapped. Also retrieved from the Shaw/Orcas Crossing was a 25 kilovolt Pirelli cable, which will be warehoused at OPALCO for future distribution use.

The Orcas Landing was alive with activity on September 16 with the start of the installation of the first fiber optics cable for the 4,275-foot Shaw to Orcas, Harney Channel crossing. Using advanced technology, OPALCO crews pulled the cable from the barge up the 800-foot Orcas hill slope to their termination site. After testing by the marine biologist to assure the shore was free of evidence of spawning activity, a low impact plow technique was used for approximately 70-feet at the shoreline to protect the eelgrass habitat.

The second fiber cable was installed in the 6,500-foot Lopez crossing in Upright Channel September 19-21. CMI then headed to Tacoma where they loaded 230 tons of composite cable and retooled the barge with a

deep water plow and the equipment needed for the installation of the composite cable. During this time, OPALCO crews and local contractors worked relentlessly to prepare the beach areas at Deer Point on Orcas, the Blakely north and south submarine cable terminals, and the Decatur submarine cable terminal for landfall of the cables. Some of the work took place during the wee hours of the night when the tides were right.

The CMI barge returned to the waters of San Juan County on October 1 and the next day proceeded with the installation of 6,425 feet of composite cable in the crossing from north Blakely Island to Deer Point on Orcas, which took two days.

The 4,000-foot crossing in Thatcher Pass from north Decatur to south Blakely took place October 4-6. This crossing was the deepest and most arduous due to the number of large rocks and uneven sea bottom. At south Blakely, the cable was gently and slowly pulled up the steep slope into the previously installed 150-foot steel duct to the termination site.

The installations of the two composite cables are an essential part of OPALCO's plan to convert the entire transmission system from 25-69 kilovolts in the future. The installation of the two fiber optics cables, along with the composite cables, completes OPALCO's intercommunications network and fiber optics backbone project.

Due to excellent planning and coordination on the part of OPALCO and CMI, and the assistance of many local businesses, the project finished ahead of schedule and without a single hitch.

The next item on the schedule is the termination (connecting the new cables to our existing system) of the cables. Currently the fiber optics cables are being terminated and should be operational by the end of the year. The composite cables will be terminated in 2005, as new terminal sites need to be remodeled at each landing site.

The project didn't come without some needed financial help. OPALCO borrows from Rural Utilities Service (RUS), for capital improvement programs. Because RUS is a division of the U.S. Department of Agriculture, OPALCO must turn in board approved three-year work plans every year.

The current work plan includes direction for nearly \$9 million in improvements to the electric system already in place. The submarine cable project is among the different projects approved within the 2003-06 work plan. Other projects include replacing 12.5 miles of underground cables, more than 200 poles, and various pieces of equipment throughout the system. **NWPPA**

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More photos of the project are available online at www.opalco.com/news/cables.