



Department of Energy

Bonneville Power Administration
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TRANSMISSION BUSINESS LINE

December 20, 2004

In reply refer to: T-DITT-2

Subject: BPA's Infrastructure Program

To: **Our Valued Customers and Constituents in the Region**

Four years ago, Bonneville Power Administration embarked on a vigorous infrastructure program to improve reliability, adequacy and availability of the Northwest's high-voltage transmission system. To address these needs, BPA, with help from various regional transmission owners and customers, developed a challenging transmission infrastructure investment program in 2001. The program will help meet future power requirements, relieve congested transmission paths, meet growing energy demands and accommodate open-access service requests. These critical investments are intended to minimize the possibility of catastrophic events such as the East Coast blackout in August 2003 and the Western energy crisis of 2000-2001. Our program focuses on:

- Maintaining reliable transmission service to meet regional electricity demands.
- Restoring or enhancing transfer capability across key paths.
- Replacing aging infrastructure.
- Evaluating and investing in non-wires solutions.

Since the beginning of fiscal year 2001, BPA has invested over \$1 billion in transmission infrastructure projects. Almost half of these investments were for major projects that improved both transmission reliability and availability. They were made possible through Energy Northwest debt optimization program and support from Pacific Northwest customers and constituents who helped BPA secure additional borrowing authority. With this support, BPA completed:

Kangley-Echo Lake 500-kV Transmission Line located in northwest Washington is nine miles long and was built next to an existing 500-kilovolt (kV) line. It was needed to improve Puget Sound area reliability and to reduce the risk of blackouts during severe weather events. The line was energized on Dec. 31, 2003; just a day ahead of an arctic surge and the line along with the other Puget Sound Area Addition projects cost \$84 million.

Pearl Transformer located in northwest Oregon added a second 500/230-kV transformer. It increased load service and reliability to the Portland area. The project was completed on Dec. 18, 2003 and cost \$16.3 million.

Schultz Series Capacitors located in central Washington to enhance transmission capacity into the Puget Sound area. The capacitors were placed into service on Oct. 30, 2003, and cost \$16 million.

Celilo Modernization Project located in northern Oregon is the northern end of the 846-mile Pacific Direct-Current Intertie that ends in Los Angeles. It replaced 30-year old mercury-arc valves with new solid-state thyristor valves. The upgrades kept the capacity at 3100 MW, without them it would have dropped to 1100 MW. The benefits of these investments will be realized for the next 35 years. The project was completed on April 12, 2004, and cost \$65.1 million.

Albany-Eugene 115-kV Transmission Line located in Oregon's Willamette Valley replaced 18 miles of the 1939 wood pole structures with new double-circuit steel structures. It provides more reliable service to industrial loads in the area and capacity for load growth. The line was energized on Sept. 30, 2004, and cost \$7.4 million.

Raymond-Cosmopolis 115-kV Transmission Line located in southwest Washington was built in the 1930s and had one of the highest outage rates on the BPA system. It was replaced with a new galvanized single steel pole transmission line, which significantly improves reliability for utility customers in southwest Washington. The line was energized on Nov. 2, 2004, and cost \$11.2 million.

Grand Coulee-Bell 500-kV Transmission Line located in eastern Washington replaced about 84 miles of existing 115-kV wood pole transmission line with a new higher capacity 500-kV steel lattice line. It relieves congestion on the West of Hatwai flow gate, maintains system reliability and increases capacity across this key path from 2800 to about 4300 megawatts (MW). The line was energized on Dec. 1, 2004, and it along with associated substation projects cost \$159 million.

Replacement Program enhances and assures continued reliability of the aging transmission system. These projects include system replacements based on performance, age, maintenance cost and availability of spare parts for transformers, circuit breakers, communications and control equipment and wood poles (about 1,300 wood poles were replaced last year). In 2004, BPA spent \$55 million on the replacement program. In 2005, BPA is accelerating the replacement of aging facilities.

Substantial Work Remains

Aging lines and transmission constraints continue today and BPA is committed to addressing these issues. The Anderson Ranch-Mountain Home transmission line located in southwest Idaho is an 18-mile line that has extensive damage from area wildfires and aging poles. Wood poles will be replaced with new steel poles. Insulators and hardware will be upgraded to meet current industry standards in December 2004 at an estimated cost of \$4.6 million. The Schultz-Wautoma 500-kV transmission line located in central Washington is currently under construction and will be completed in December 2005. It will add 600 MW of capacity to the heart of BPA's grid, relieve some congestion on the I-5 corridor and is estimated to cost \$174 million. BPA is also working to maintain system reliability by keeping right-of-ways clear of structures and vegetation.

In addition, BPA is launching the environmental process to address transmission limitations on the Olympic Peninsula and the Lower Valley system in Idaho and Wyoming. Planning is under way to replace the deteriorating Libby-Troy 115-kV wood pole line in northwestern Montana. BPA and Puget Sound area utilities are examining fixes to avoid curtailments under outage conditions. Supporting the development of renewable resources throughout the region is a high priority. BPA is working closely with wind developers to meet critical timelines for each wind facility seeking interconnection to BPA's transmission system. Exploration into non-wire solutions such as demand-reducing strategies, strategic placement of generators and pricing continues. A successful demand-response pilot program was demonstrated on the Olympic Peninsula. There will be new pilot projects in 2005.

BPA continues to look for ways to cost-effectively accomplish its mission. For example, the Grand Coulee-Bell project was completed a month ahead of schedule and \$16 million under budget. Innovative reverse-auctions are used to reduce equipment costs. The entire plan, design and build process is being reviewed for efficiencies.

Today BPA is faced with the challenge of balancing reliability, economic, environmental and other public purpose objectives to optimize our transmission system and ensure adequate resources for meeting the region's transmission needs. BPA is moving forward with asset performance management to ensure that cost effective services are provided to our customers. Another challenge is BPA's limited borrowing authority and the rate impacts from these substantial capital expenditures. In an effort to lend transparency to our planning process and ensure that our assessment of transmission needs is correct, BPA is engaging regional stakeholders in the development of transmission adequacy standards to find a better way to determine how much transmission is needed, the solutions to be deployed and the criteria to be applied to guide prudent investment decisions. The goal is to have these standards applied to the Federal transmission system by January 2006.

For More Information

Information is available on line [http://www.transmission.bpa.gov/PlanProj/Transmission Projects/](http://www.transmission.bpa.gov/PlanProj/Transmission%20Projects/) or by BPA at 1-888-276-7790. Thank you for working with BPA to provide safe, reliable and low-cost transmission service.

Sincerely,

/s/ Vickie VanZandt, Dec. 20, 2004

Vickie VanZandt
Senior Vice President
Transmission Business Line

Enclosure ([Infrastructure Fact Sheet](#))