



## Infrastructure Program Update

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**June 2004**

The Bonneville Power Administration's Transmission Business Line is building transmission lines in the Pacific Northwest as a part of its essential infrastructure program to improve reliability and shore up the region's transmission system.

TBL passed a major milestone in its infrastructure program when it energized the Kangley-Echo Lake 500-kilovolt transmission line on Dec. 31, 2003. This is the first transmission line TBL has built in 16 years. Construction is also underway on the Grand Coulee-Bell 500-kV transmission line project and the Schultz-Wautoma 500-kV transmission line project.

### **The Infrastructure Program**

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BPA owns and operates 75 percent of the Pacific Northwest's electrical system. The system includes more than 15,000 miles of transmission line and 285 substations. The lines network across 300,000 square miles in Oregon, Washington, Idaho, Montana and sections of Wyoming, Nevada, Utah and California. BPA's transmission system delivers an annual usage of about 30,000 megawatts and generates more than \$700 million a year in revenues from the sale of transmission services.

### **Congested Pathways**

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Today, critical paths on the Northwest transmission grid are congested and the system is near or at capacity. As demand increases, BPA's system may also no longer be able to meet national and regional reliability standards. Some parts of the Northwest transmission system are currently operating so close to the edge of reliability standards that contingency plans have been put in place.

### **BPA's Infrastructure Plan**

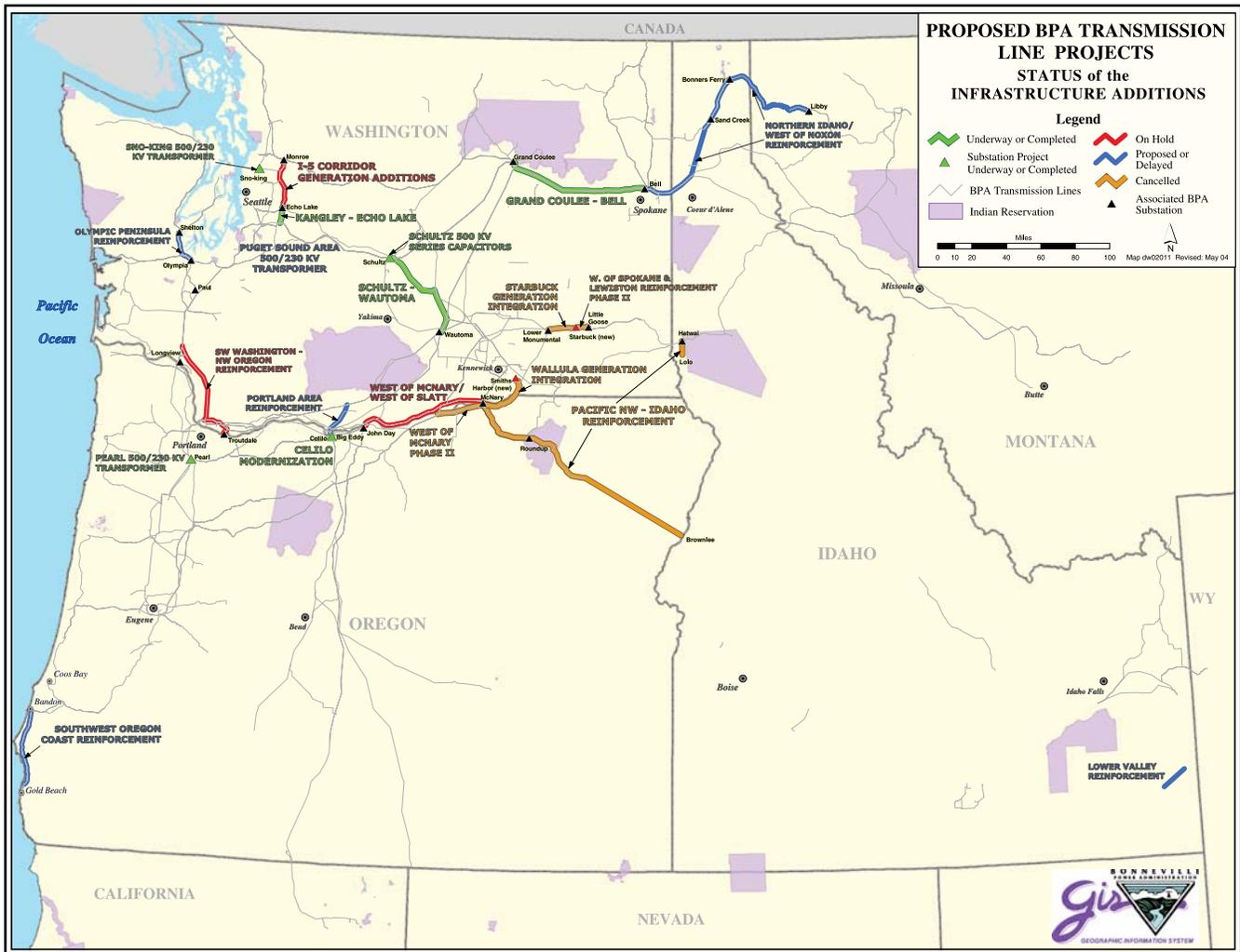
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To address the region's transmission needs, BPA developed a transmission infrastructure program in 2001 to focus on:

- Maintaining reliable transmission service to population centers.
- Evaluating and investing in non-construction alternatives.
- Restoring or enhancing transfer capability across key paths.
- Preparing for the integration of new generation when it is ready to come on line.

Following is a short status report on the critical infrastructure projects currently under way to enhance both the reliability and availability of transmission throughout the Northwest.





## Grand Coulee-Bell Project

BPA continues to make great progress in its two-year effort to replace 84 miles of existing 115-kV wood-pole transmission line with a new higher capacity 500-kV steel lattice line. Most of the foundations have been installed, and towers are being assembled and erected. The major effort to start stringing conductor (wire) between the towers has begun. The line will run from BPA's Bell Substation near Spokane to Grand Coulee Dam and is scheduled to be complete and energized in November 2004.

## Schultz-Wautoma Project

This 63-mile transmission line will add 600 megawatts of capacity to the heart of BPA's grid in central Washington. The new five terminal 500-kV substation is nearly halfway completed near Sunnyside, Wash.

and is scheduled to be energized in November 2005. Line and fiber construction began in January 2004 and will be completed in November 2005.

## Celilo Modernization Project

BPA and the Los Angeles Department of Water and Power have been working since 2001 to modernize the converter stations at both ends to maintain the DC line's reliability and capacity. Work is now complete and all mercury-arc AC-DC converters have been replaced with new solid-state thyristor valves. The original mercury arc valves were installed nearly 33 years ago and were approaching the end of their design life. The modernization will maintain the 3,100-megawatt capacity of the line for another 30 years. Without the upgrade, DC capacity would be 1,100 megawatts. Construction began in 2001 and was completed in June 2004.

<b>Active Projects</b>		
<b>Project</b>	<b>Start Date</b>	<b>Energization Date</b>
Grand Coulee-Bell 500-kV Transmission Line Project	April 2003	December 2004
Schultz-Wautoma Area 500-kV Transmission Line Project	January 2004	November 2005

<b>Completed Projects</b>		
<b>Project</b>	<b>Start Date</b>	<b>Completed Date</b>
Celilo Modernization Project	Winter 2001	June 2004
Kangley-Echo Lake 500-kV Transmission Line Project	July 2003	December 2003
Schultz Series Capacitors	March 2003	November 2003
Pearl Transformer Project	December 2002	December 2003

<b>Proposed Projects</b>	
McNary-John Day 500-kV Transmission Line Project	Pacific NW-Idaho (Phase I)
Lower Monumental-Starbuck Project	Pacific NW-Idaho (Phase II)
Wallula-Smith Harbor 500-kV Transmission Line Project	West of Noxon Reinforcement Project
Southwest Washington/Northwest Oregon Reinforcement (formerly Paul-Troutdale) 500-kV Transmission Line Project	North of John Day/Portland Area Reinforcement Project
Monroe-Echo Lake 500-kV Transmission Line Project	Olympic Peninsula Reinforcement Project

### **Line Rebuild Projects**

BPA has been building transmission lines for decades and overtime our transmission lines endure wear and tear from weather and usage. There are two rebuild projects underway: the Albany-Eugene 115-kV and the Raymond-Cosmopolis 115-kV rebuild projects.

Construction on phase one of the Albany-Eugene 115-kV rebuild project was completed Oct. 17, 2003. Phase one consisted of replacing the 1939 wood pole structures with new steel structures, and stringing the conductor and a better suited fiber. Phase two began in June 2004 and the entire project is scheduled to be complete in fall 2004.

Just north near the Olympic Peninsula awaits the Raymond-Cosmopolis 115-kV transmission line rebuild project. This transmission line was built in the 1930s, acquired by BPA in the 1940s and upgraded in 1952. Today, the structures and conductor show

signs of damage from trees falling on the line and normal deterioration due to their age. The existing single-circuit 115-kV transmission line will be replaced with a new galvanized single steel pole 115-kV transmission line. Construction on this 18-mile project began June 15 and is scheduled to be complete in November 2004.

### **For More Information**

For more information on the Transmission Business Line, please visit TBL's Web site at [www.transmission.bpa.gov](http://www.transmission.bpa.gov) or call toll free 1-888-276-7790.



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