



Celilo Modernization Project

Bonneville Power Administration is committed to providing reliable and cost-effective power to the Northwest region. BPA is proposing to build new transmission infrastructure projects to improve the distribution of power to meet existing and future power needs. The Celilo converter station is at the northern end of the direct-current Intertie to Los Angeles, Calif. The Celilo Modernization project is needed to maintain the DC Intertie's transfer capacity at 3,100 megawatts (MW) instead of degrading it to 1,100 MW.

Project Description

The Celilo converter station ties down the northern end of the 846-mile Pacific high-voltage direct-current Intertie that ends at the Sylmar converter station in Los Angeles. Both stations convert alternating current into direct current and send it on its way with nearly no line losses to the other station where it is converted back into AC. The capacity of the DC Intertie is determined by the ratings of both Sylmar and Celilo. If either converter station is decreased, the total DC capacity is decreased.

Today Celilo sends south up to 3,100 MW of direct current energy. But, when it was built in 1970 at a cost of \$65 million, its capacity was half that amount. Technology and innovation have more than doubled Celilo's capacity over the 30 years of its existence.

The Celilo converter station has been extensively modified over the years. The original equipment installed in 1970 is still in service even though it was only expected to last 15 years. Consequently, some of the original mercury arc converters still in service are

now in need of replacement. A mercury arc converter is a huge vacuum tube, a giant cousin of the tubes found in old radios and television sets. The Celilo maintenance crews have been able to extend the life span of the mercury arc valves by finding sources for parts and by making some of the components.

Retiring the mercury arc converters at Celilo converter station without replacement would reduce DC Intertie capacity from 3,100 MW to 1,100 MW. Without the Intertie, California would have to burn more fossil fuels to make electricity. In addition, consumers in the Northwest and California would lose the economic benefits of shipping power south in the summer and north in the winter.

Working With the Community

BPA is committed to working with public agencies, regional customers, constituents and interest groups to minimize design and construction impacts. BPA's Transmission Business Line (TBL) has completed a public process to obtain input from such groups.

Public involvement meetings were held in the fall of 2002. The meetings provided an overview of the economic study and gave participants the opportunity to comment on the project.

Environmental Planning

As BPA began designing this project, special attention was focused on minimizing disruption to service, people and business operations. Two studies were prepared to evaluate economic and societal benefits.

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■ Economic and Societal Studies.

The economic study examined future surpluses in the Pacific Northwest and proposed new resource development in both the Northwest and Southwest. The study determined, based on historical precedent, how much of the 3,100 MWs of capacity might be used on a long-term basis.

It suggested several alternatives, however it looked closely at two basic alternatives:

- Maintain the DC Intertie at its current rating of 3,100 MW.
- Retire the current mercury arc converters over time and make some additional investment on existing thyristor converters to bring the remaining system to a 1,650 MW level.

It also found that the DC Intertie gets heavy use during the peak marketing season - May through August - when the Pacific Northwest historically sells its lower cost surplus power to California.

A second study looked at societal benefits and costs. Using the regionally accepted AURORA model, the study considered benefits and costs from three perspectives: BPA customers, Northwest customers and West Coast customers. It compared the net benefits for a 20-year period of maintaining the DC Intertie at 3,100 MW to the 1,100 MW projected capacity once the mercury arc converters reach the end of their lives.

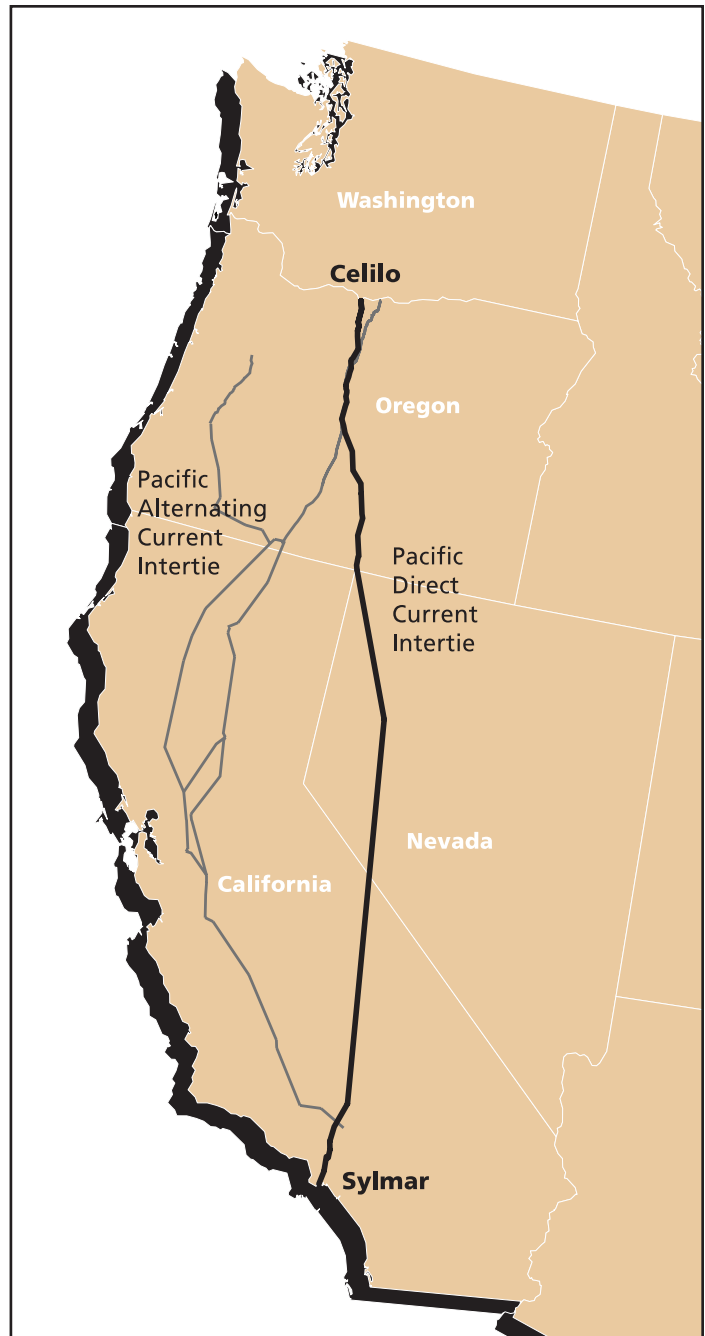
Decision

Based on the environmental studies, additional technical analysis and public feedback, BPA decided in January 2001, to proceed with plans to modernize the Celilo converter station. TBL is committed to maintaining its end of the DC Intertie at the current 3,100 MW capacity for the next 30 years.

Funding and Schedule

BPA is funding this project, which is estimated to cost \$48 million.

Construction began in 2001 and so far TBL has completed two of six mercury arc converter groups, two cooling plants and extensive modification of the Celilo switchyard. The project is scheduled to be complete by June 2004.



Questions or Comments

If you have question or would like more information about this project, please contact BPA Project Manager Wayne Litzenberger toll free at 1-888-276-7790 or visit TBL's Web site at www.transmission.bpa.gov/projects.

