

factsheet

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BPA to automate transmission curtailment procedure for the Puget Sound Area

The Puget Sound area has experienced periodic transmission congestion over the last decade. This has resulted from population growth and changes in transmission line use into and through the area, including changes resulting from the United States' treaty obligation to return power to Canada.

One of the techniques BPA has used to manage the congestion affecting the Puget Sound Area and Northern Intertie (PSANI) is curtailing transmission schedules. This means reducing the amount of energy allowed to cross the congested area.

The curtailment method BPA has used in the past was manually operated — it required operators to use spreadsheets to make calculations and then to make telephone calls to utilities. It was a slow and clumsy process.

BPA has now developed a way to automate the curtailment process and will implement it as of Oct. 15, 2007.

Why is curtailment needed?

Much of the need for the new curtailment methodology arises from the requirement to return what is called the Canadian Entitlement.

Under the Columbia River Treaty of 1964 between the U.S. and Canada, Canada built three large storage dams that provided 15.5 million acre-feet of storage for power generation and flood control. That storage provided increased downstream power benefits in the U.S. that was divided equally between the U.S. and Canada. The Canadian half is called the Canadian Entitlement and is owned by the province of British Columbia.

For the first 30 years after each dam was completed, British Columbia sold its share of the power in the U.S. That agreement expired in stages from 1998

through 2003. In other agreements initially agreed to in 1992 and finalized in 1999, the U.S. and Canada agreed that eleven-fourteenths of the Canadian Entitlement would be returned to British Columbia at Blaine, which is north of Seattle, while three-fourteenths would be returned to a point near Nelway, B.C., which is east of the Cascade Mountains (Treaty Agreements).

Over the years, increased congestion in the Puget Sound area has made return of the entitlement difficult. Several times through 2000, British Columbia did not receive its full entitlement. As a result, BPA developed a manual curtailment procedure, the original PSANI. The process was clumsy and complex. When curtailment was needed, it was difficult to reconstruct how to implement the process.

BC Hydro, the British Columbia provincial utility, has grown increasingly concerned about BPA's ability to deliver the Canadian Entitlement because it is using that energy to serve firm winter load. Currently, the Canadian Entitlement is about 1,240 average megawatts of capacity. It is expected to reach a maximum of about 1,314 aMW in 2012.

In particular, BC Hydro is concerned that, if a curtailment is necessary, the curtailment should affect deliveries to Canada and BPA's Puget Sound customers equally. BC Hydro does not want to have schedules returning the Canadian Entitlement over the Northern Intertie curtailed while BPA's schedules to Puget Sound area utilities are not curtailed. In fact, this requirement is part of the treaty.

BPA has developed and is implementing the automated PSANI curtailment calculator that should assure that any curtailments are equitable.



How will the automatic curtailment calculator work?

BPA has two challenges in the Puget Sound area: south-to-north transmission into and out of the area on the federal system and out of the area on the Northern Intertie, which runs from the Bellingham area to British Columbia. Without the PSANI procedure, the only option BPA has to manage congestion in the Puget Sound area is to curtail nonfirm and, if necessary, firm south-to-north schedules on the Northern Intertie while continuing to allow firm and nonfirm schedules to flow to loads in the Puget Sound area. This does not conform to the treaty agreement, which states that curtailments shall be on the same basis; that is, affect all customers equally.

The curtailment calculator will allow BPA to determine which schedules are causing BPA to exceed the federal system's operational transfer capability and to curtail those schedules equally.

The curtailment will apply to hour-ahead schedules. The current procedure of implementing within-hour curtailments south-to-north on the Northern Intertie will continue. If the current PSANI procedure proves successful, it will be expanded to include within-hour schedules.

When will it be operational?

The automated system will be put into use on Oct. 15, 2007. BPA began training its personnel early in September and its utility customers' personnel in October.

This doesn't mean that it will be used on Oct. 15, just that it will be available for use. It will be used when circumstances dictate.

Will the lights go out when schedules are curtailed?

It is unlikely anyone's lights will go out when the automated curtailment system is used. This is for a couple of reasons. For one, BPA will alert utilities in the affected area when the system looks as though a curtailment will be needed. All affected utilities

need to know in order to shift some generation and transmission patterns to avoid the need for the curtailment.

For another, once a curtailment is announced, the utilities have the same options of shifting generation or transmission to assure that they have sufficient energy.

Is this the ideal solution to congestion?

In a perfect world, BPA and the regional utilities would determine if additional transmission lines would alleviate the PSANI congestion. Many people, however, oppose having transmission lines in their neighborhoods, and BPA and the regional utilities would have to sort out who is responsible for the new transmission lines and would have to make arrangement for financing the upgrades. This may happen, but it will be a long time in the future.

In the meantime, BPA is testing a redispatch methodology to relieve constraints on the I-5 corridor and north-of-John Day corridor in Washington. Redispatch is a way of managing generation patterns to relieve congestion on transmission lines. The pilot has successfully dealt with several real-world redispatches this summer. It will be evaluated in October 2007. It holds promise for providing a better solution to congestion, a solution that we may be able to expand to other areas, including Puget Sound.

Training

BPA will begin training representatives of the affected utilities in October. Other customers who are interested in the procedure are also welcome to participate. The training is Web-based. It will be offered at the times listed below.

Oct. 2	1 p.m. – 2 p.m.	Oct. 9	4:30 p.m. – 5:30 p.m.
Oct. 3	1 p.m. – 2 p.m.	Oct. 15	1 p.m. – 2 p.m.
Oct. 4	1 p.m. – 2 p.m.	Oct. 18	1 p.m. – 2 p.m.

To learn more or to participate in the training, call Diana Scoggins at (503) 230-7630 or send an e-mail to drscoggins@bpa.gov.