

BPA I-5 Corridor Reinforcement Project

Maintaining reliability with non-wires

December 2011

What non-wires measures is BPA considering for the I-5 Corridor Reinforcement Project?

The I-5 Corridor Reinforcement Project would address the risk of overloading BPA's existing, high-voltage electrical transmission system along the I-5 corridor. The 500-kilovolt lines in this area, which are the backbone of BPA's transmission grid in the Longview/Vancouver/Portland metro region, are becoming increasingly congested, especially when large amounts of electricity are flowing to meet high demand during the summer.

For more than two decades, BPA has used non-wires measures to maintain transmission system reliability and has explored non-wires solutions when potential

transmission lines such as the I-5 Corridor Reinforcement Project are proposed. Non-wires solutions can often postpone the need for proposed transmission lines, but are different from the "no-build" alternative always considered in the environmental review process.

BPA has determined that non-wires measures cannot eliminate the need for the I-5 project, but if the non-wires measures are found feasible, and if BPA can implement them, the date the line needs to be operational could be postponed by two to five years. If the measures are not feasible, BPA would face tight deadlines to make the new line operational in time to ensure reliable electrical service. For this reason, we will continue our environmental review and analysis of the I-5 project.

What are "non-wires" solutions?

Non-wires solutions are measures that may relieve congestion on electrical transmission corridors without constructing new transmission lines. Some examples of non-wires measures include:

- Energy efficiency measures using insulation and more efficient appliances and cooling systems
- Demand response at the local level, such as thermostat controls, to better regulate energy use during peak demand hours
- Small-scale power generation technology, such as backup generators at hospitals and local government sites, to serve loads at a local level and reduce demands on the transmission system during peak load times
- Pricing strategies that use competitive pricing to encourage consumers, such as industrial operations or irrigators, to shift demand for power to off-peak times
- Generation redispatch and remedial action schemes that require BPA contracts with power plant operators to shut down and ramp up their generation to reduce transmission congestion during peak electricity use. (Summer is the relevant peak for the I-5 project, but these measures can be applied during any period when there is congestion.)

Most non-wires solutions would require participation by owners of power generators and local utilities to be successful. BPA is already using energy efficiency measures and remedial action schemes in the I-5 project area.



I-5 Corridor Reinforcement Project Non-Wires Screening Study

At BPA's request, Energy and Environmental Economics (E3), a firm that specializes in electricity markets, has spent several months exploring potential non-wires measures that could extend electrical reliability in the I-5 project area.

In January 2011, E3 delivered a preliminary screening study of non-wires measures for the project. The study included updated electricity demand forecasts for the Longview/Vancouver/Portland area and determined that non-wires measures could likely help maintain system reliability for a few years, but could not replace the need for the line. It also suggested that generation redispatch would provide the most electrical relief on the I-5 system of the non-wires measures considered.

A second, more detailed study will be completed in the first quarter of 2012, and will further examine the technical feasibility of non-wires measures, including adding some equipment to BPA's existing Pearl Substation, to help delay the I-5 project's operational date.

Non-Wires Solutions Round Table

BPA has also reconvened a panel of external industry experts to provide an independent review of the I-5 project non-wires studies. The Round Table includes experts in transmission issues and planning, electricity demand, regional power operations, and natural resource advocates. The Round Table is tasked with reviewing the preliminary Non-Wires Screening Study and the subsequent, more detailed report for the I-5 Corridor Reinforcement Project.

The Non-Wires Solutions Round Table met in April 2011 to review the preliminary Non-Wires Screening Study. The group discussed:

- The five primary steps of the screening study process.
- The preliminary conclusions and recommendations of the Non-Wires Screening Study (Phase 1).
- Observations and recommendations for a Phase 2 study, including methods to further refine the forecasts and analyses.

The Round Table met again in November 2011 to review the methodology and preliminary findings of the Phase 2 study, which included:

- Evaluating the cost and feasibility of potential upgrades to BPA's Pearl Substation that could provide some additional system capacity.
- The potential for generation redispatch to defer the project. However, further assessment is needed to learn how generation redispatch would affect operational flexibility and be incorporated into BPA's operational protocols, as well as the willingness of regional generators to participate.
- Suggestions that BPA should explore the potential for longer-term contributions to summer peak reductions from energy efficiency, demand response and distributed generation, including information coordination by regional utilities for this purpose.

Energy and Environmental Economics will address the Round Table's comments on the Phase 2 study and issue a final non-wires report in early 2012.

Could non-wires measures postpone the project?

If BPA finds that the non-wires measures are feasible, those measures could be implemented to maintain system reliability in the I-5 project area, allowing two to five more years before the line would need to be operational. Regardless, we will continue our environmental review and analysis of the I-5 project.

Where can I learn more?

Information about the Non-Wires Solutions Round Table and summaries of recent meetings can be found at http://transmission.bpa.gov/PlanProj/Non-Wires_Round_Table.

Information about the I-5 Corridor Reinforcement Project can be found at www.bpa.gov/go/i5.