

Response to Draft IRP

Lake Hills Transmission Line

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1. Executive summary

Chapter 8 of PSE's Draft Integrated Resource Plan lists various transmission projects that PSE intends to build to increase the capacity or reliability of our electric grid. The list includes the controversial "Lake Hills – Phantom Lake transmission line," which CENSE hoped would be described in some detail in the IRP. Instead, it is summarized in two sentences and specifies an inaccurate date of operation (construction won't start until 2018):¹

6. Lake Hills – Phantom Lake New 115 kV Line¹⁰

Estimated Date of Operation: 2017

This project will improve *reliability*, which involves building a new line from Lake Hills to Phantom Lake. This line is necessary to eliminate a radial-only feed to two existing substations such that they can be served during outage conditions.

Two transmission engineers who worked for PSE for decades confirm that an alternative solution using remotely controlled switches and sensors (known as "SCADA") would provide better overall reliability for this area at lower cost and less environmental impact.

PSE has not studied this SCADA solution, saying that reliability is already "good enough" in these neighborhoods, and such remedies are not needed or feasible. Over a thousand residents have signed a petition asking for a SCADA study.² When the City of Bellevue refused to fund the study, residents donated thousands of dollars to procure an independent study.

Is a transmission line the most prudent use of ratepayer funds? This will remain an open question until the costs and the pros and cons of a SCADA solution are known.

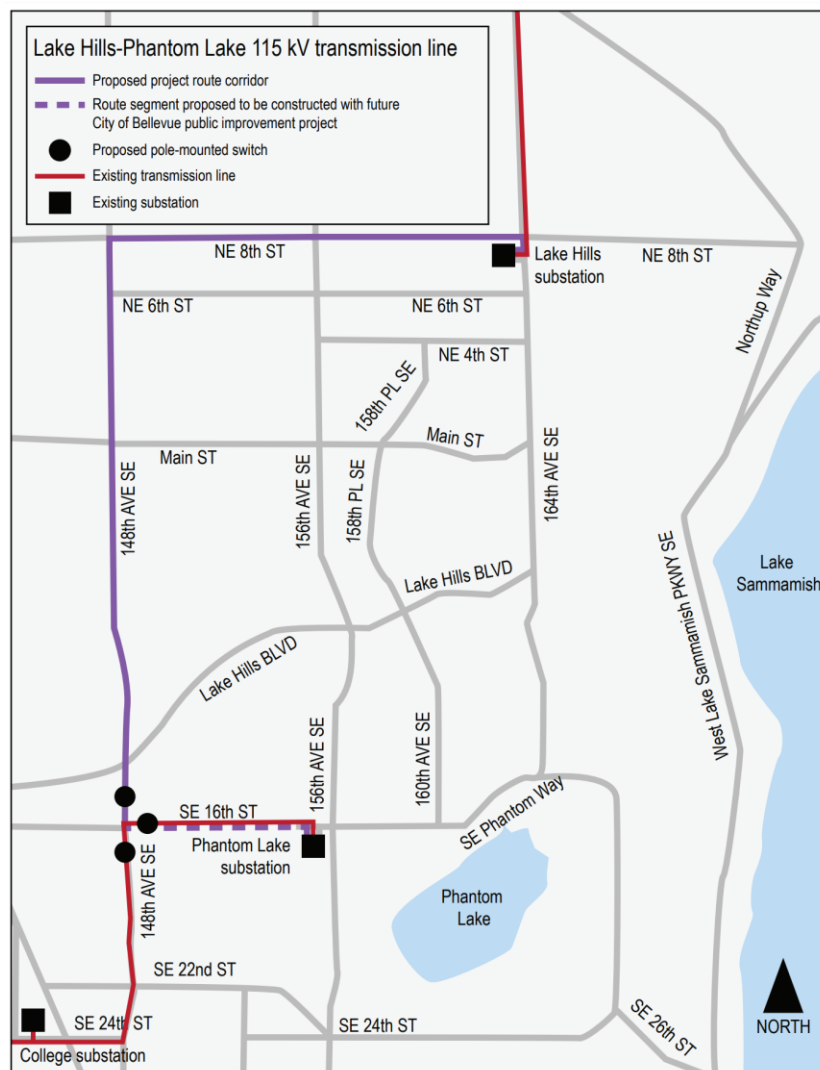
¹ https://pse.com/aboutpse/EnergySupply/Documents/IRP17_Ch8.pdf, p. 8-27

² <https://www.change.org/p/brad-miyake-save-300-trees-in-east-bellevue>

2. History

On December 14, 2006, western Washington was lashed by a powerful wind storm known as the “Hanukkah Eve Wind Storm.” In its wake, almost 1.5 million people were left without power.³

PSE has cited this storm as motivation for infrastructure projects to improve the reliability and resiliency of the electric grid. Since customers in the East Bellevue neighborhood of Lake Hills were especially impacted by storm outages during 2006, PSE proposed a new transmission line in 2007 that would connect two substations in the area that are served by radial transmission lines. The “Lake Hills/Phantom Lake transmission line,” shown in this diagram from PSE’s website, would maintain power if the radial transmission lines providing power to the Lake Hills or Phantom Lake substation fail.⁴



³ <http://www.historylink.org/File/8042>

⁴ https://pse.com/inyourcommunity/pse-projects/system-improvements/Documents/LakeHills_PhantomLake_routemap_revisedFeb2013.pdf

PSE’s solution does not directly address the outages of 2006, because the new transmission line would not have prevented any of the outages experienced in the Lake Hills area during that difficult year. Ironically, the project as it was originally proposed cannot be completed in the foreseeable future. The segment of the line on SE 16th Street must be built in conjunction with a City of Bellevue street improvement project that is not included in the city’s list of capital improvements to be undertaken in the next seven years (this is indicated by a dashed line on SE 16th Street in the map on page 3).

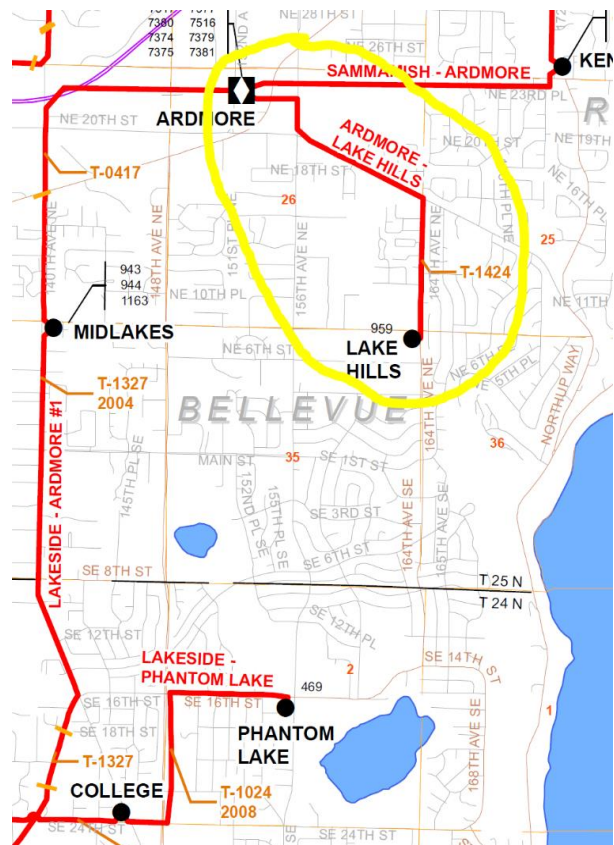
According to PSE, the partial project will still provide some reliability improvements. However, that claim is not supported by the company’s records of power outages. In the decade since the Hanukkah Eve Wind Storm, the Lake Hills substation has lost power only once. In October 2014, an outage lasting less than 15 minutes occurred when PSE crews deenergized the transmission line to remove a tree branch.

Power outages due to transmission line failure have been rare because the radial lines that serve these substations are relatively short and do not pass through high-risk terrain. For example, the “Ardmore-Lake Hills” transmission line that serves the Lake Hills substation is only 1.5 miles in length, as shown in this diagram of Bellevue transmission lines and substations.

These facts raise an important question.

Will the project deliver reliability benefits commensurate with its costs, including impact to the community, destruction of hundreds of valuable urban trees, and months of congested traffic caused by the closure of a major thoroughfare during project construction?

Is there an alternative that could deliver reliability improvements at a lower cost to residents and ratepayers?



3. SCADA alternative

PSE has experience with SCADA technology. In a report titled "Overview of 2015 Electrical System Reliability," Bellevue's independent analyst praised the reliability benefits that a new PSE-installed SCADA system is delivering to downtown Bellevue:

Installation of SCADA switches in the Bellevue Downtown [allowed] for better visibility and control of the system. This effort is a major distribution automation improvement.⁵

CENSE, a non-profit organization promoting prudent and environmentally sound energy solutions, became interested in SCADA after it was mentioned as a potential alternative in a 2012 report on electrical reliability by Bellevue's independent analyst:

*...the loss of the single, radial line to Lake Hills would cause a loss of power to those connected to the substation, **unless power can be provided via a looped 12.5 kV distribution circuit that can be fed from another 115 kV substation.**⁶*

To understand the pros and cons of a "looped 12.5 kV distribution circuit," CENSE asked the city to engage an independent consultant to study this alternative. The city refused. More than 1,000 residents signed an online petition posted by CENSE, asking the city to perform the study. The city manager declined, saying it would be a waste of taxpayer money.

However, two transmission and distribution experts who worked for PSE for over 20 years each (Richard Lauckhart and CV Chung) advised CENSE that such a system is frequently used in densely populated areas where there are other substations nearby. Instead of being an inferior alternative, a SCADA system allows rapid reconfiguration of the distribution grid to address a host of outage scenarios. In addition to recovery from a transmission line failure, a SCADA system could also address outages caused by failures of lower-voltage distribution lines (the primary cause of storm-related outages in East Bellevue) as well as failures of substation transformers. PSE's transmission line is unlikely to improve year-round reliability as much as a SCADA system.

CENSE's experts attest that SCADA is a mature technology used for over 40 years in situations like the one in East Bellevue. For example, this YouTube video from South Carolina utility Santee Cooper describes the reliability advantages of their SCADA system when strong winds threaten the electric grid: <https://www.youtube.com/watch?v=oV8eCAIGSbg>

⁵ https://planning.bellevuewa.gov/UserFiles/Servers/Server_4779004/File/pdf/PCD/2015_reliability_review.pdf, page 12

⁶

https://planning.bellevuewa.gov/UserFiles/Servers/Server_4779004/File/pdf/PCD/Final_Electrical_Reliability_Study_Phase_II_Report_2012.pdf, page 49

4. Conclusion

Three facts are beyond dispute:

1. PSE and other utilities have proven that SCADA technology can improve reliability when storms and other unforeseen circumstances damage the distribution grid.
2. The SCADA alternative is a solution that appears to be less expensive and more environmentally responsible than a transmission line. We believe SCADA would preserve hundreds of valuable urban trees and reduce the average duration of power outages more than a new transmission line. This alternative has not been studied.
3. The community is united against the transmission project that PSE proposes to build in East Bellevue. The East Bellevue Community Council voted unanimously to reject the project.

We ask that PSE include more details about this project in its IRP, including technical information that shows why a SCADA solution would be infeasible.

We ask that the Washington Utilities and Transportation Commission consider this information when PSE asks permission to include this project in its rate base.