



Introduction

cense

Coalition of Eastside Neighborhoods for Sensible Energy CENSE

INTRODUCTION

Overview of Notebook

Puget Sound Energy, the electrical utility serving the technologically-innovative communities on the eastside of Lake Washington, claims the region's electrical demand is rapidly increasing and will soon stress the local electrical grid. PSE originally insisted that the best way to meet the alleged increased demand was to build a new substation and double the voltage on 18-miles of existing transmission lines.

However, in the August of 2017, PSE submitted an application limited to the South Bellevue Segment of the project, stating that the application for the North Bellevue Segment would follow within several months.

At present (March 2019), PSE claims it has no idea when it will submit an application for the North Bellevue Segment, giving the appearance that the entire North Segment of the project has been abandoned completely. Therefore the documents in this notebook evaluate the smaller project, the Talbot Hill-Lakeside Transmission Line (THLTL) Project.

The Coalition of Eastside Neighborhoods (CENSE) argues that studies cited by Puget Sound Energy to verify predictions of rapidly increasing demand are based on flawed load flow studies using unverifiable assumptions and do not prove the need for the project.

Given that the five-year-old load flow studies used to justify the entire Energize Eastside project are now out of date and were not designed to confirm the need for the THLTL project currently under evaluation (the transmission line from the Talbot Hill substation to a new 230 kV Richard's Creek substation), it is even more important to conduct new load flow studies to verify the need for the reconfigured project.

CENSE contends that even if Energize Eastside is reduced to just the Southern Segment, it would still be a project that limits planning flexibility and is vulnerable to reliability issues and security risks. Should future peak demand stress the existing grid, ratepayer dollars would be more prudently invested in decentralized, resilient 21st century technologies that could be added incrementally where needed.

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1. Coalition of Eastside Neighborhoods for Sensible Energy (CENSE)

Who is CENSE?

CENSE, the Coalition of Eastside Neighborhoods for Sensible Energy, is an all-volunteer, grassroots organization representing thousands of Eastside residents. Its goal is to be the voice of the community that ensures important questions about PSE's projects are answered. Members come from many backgrounds, but all agree that PSE's "Energize Eastside" is a fundamentally flawed project and share serious concerns about its need, safety, cost and environmental impacts.

The name, Coalition of Eastside Neighborhoods for Sensible Energy (CENSE), reflects the desire of neighborhoods to advocate for energy solutions that benefit our communities and the environment.

Origins of CENSE

CENSE was incorporated as a 501-c4 non-profit organization in May, 2014. The organization is directed by an 18-member board with representation from diverse neighborhoods in Bellevue, Newcastle, and Renton.

CENSE was formed in reaction to the manipulations of PSE's Community Advisory Group (CAG). PSE organized the CAG to gather feedback on several proposed routes for the transmission lines. The CAG membership, selected by PSE, included neighborhood representatives, city officials, and civic organizations.

After the first few meetings of the CAG, the neighborhood representatives became increasingly alarmed that the company wasn't listening to their questions and concerns. Meetings of the CAG continued after the formation of CENSE, but no alternatives other than an overhead transmission line were ever considered by the group. During a contentious final meeting in

December 2014, the CAG selected two possible route options. However, when PSE could not acquire a majority of member signatures on the final report, PSE ignored precedent and published the document without any signatures. By contrast, the dissenting "Minority Report"¹ was signed by eight members, including the representative from the City of Newcastle. PSE never addressed the criticisms included in the Minority Report.

Accomplishments

Thanks to generous donations from fundraising efforts, CENSE has retained land use attorney, Rick Aramburu and industry experts to prepare a strong legal case case objecting to PSE's project, based on City of Bellevue land use codes.

CENSE convinced the Washington Utilities and Transportation Commission (WUTC) to require PSE to document transmission projects in long-range plans, and encouraged the Commission to require PSE to analyze energy storage, such as batteries, as an alternative for all transmission projects.

CENSE hired energy experts to submit papers documenting the inadequacies of the Environmental Impact Study (EIS) and engaged hundreds of residents to submit written comments or testify at public hearings.

CENSE has joined with the Sierra Club, 350 Eastside, Protectors of the Salish Sea, Citizens' Climate Lobby, East Shore Unitarian Climate Action Ministry, Somerset Community Association, and Olympus Homeowners Association to support environmentally sound energy solutions for the State as well as Eastside.

¹ <https://energizeeastside.com/documents>

2. What is PSE's Proposed Transmission Line and Substation Project?



Figure 1
Route of proposed 230 kilovolt transmission line through 3.28 miles of South Bellevue.

Puget Sound Energy (PSE) originally proposed “Energize Eastside” to replace two 18-mile long power lines operating at 115,000 volts (115 kV), shown in Fig. 1. The new lines will operate at twice the voltage (230kV), with capacity to carry four to five times as much power.

However, as of the fall of 2017, it appears that Energize Eastside may be limited to the higher-voltage lines that would run from the Talbot Hill substation in the city of Renton to a new 230 kV-to-115 kV transformer(Richards Creek) located next to the existing 115 kV Lakeside substation. These lines would pass through or near 15 densely-populated residential neighborhoods, as well as commercial/light industrial areas. The lines would be close to 10 schools and daycare centers, 5 parks or rec-clubs, and 4 churches. In Bellevue, the power lines would cross 42 wetlands and 36 streams. For much of their route, the lines are located within feet of the aging Olympic Pipeline, which daily transports 13 million gallons of refined liquid petroleum products.

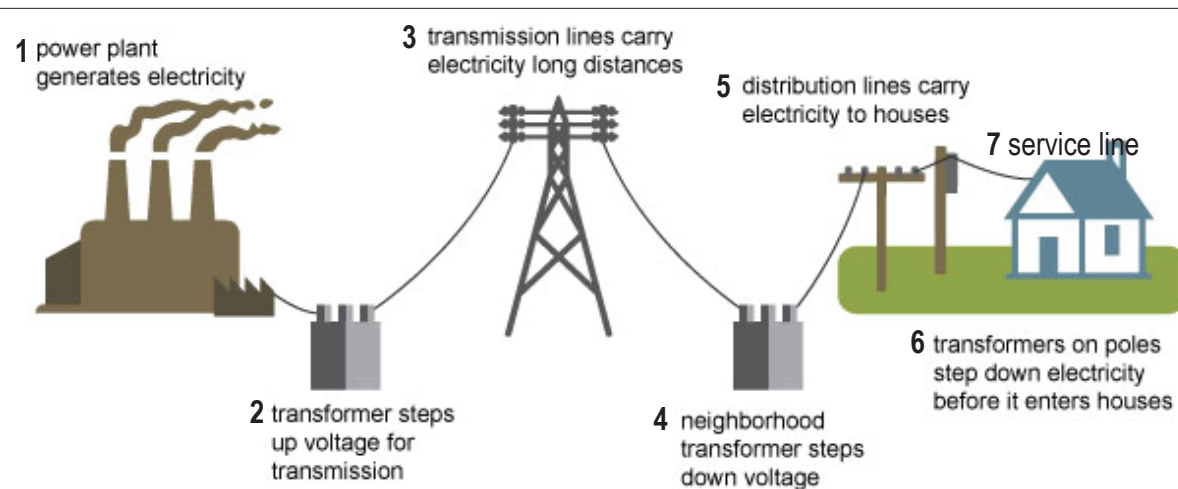
Higher voltage requires taller poles and wider safety margins. Existing 60’-75’ wooden poles would be replaced with 70’-100’ metal monopoles (higher in some locations). To minimize the danger of tree fires or storm damage, PSE would remove between **380² - 442³** valuable urban trees.

Ratepayers would not only bear higher rates for the **\$100 - \$300 million** cost to build the project, but also be charged an additional **\$1 billion** for the cumulative 30-50 year 9.8% return on investment permitted by state law.

3. Electrical Transmission 101

How is electricity delivered to a customer?

Industry experts retained by CENSE evaluated how well PSE analyzed the **need for** and **alternatives to** a 230kV transmission line. To better understand their reports, it is helpful to have an overview of the infrastructure required to generate, transmit, transform and distribute electricity to customers.



Source: Adapted from National Energy Education Development Project (public domain)

- 1 Generation Source** - A power plant generates electricity.
- 2 Step-up Transformer** - Electricity passes through a step-up transformer to increase the voltage to many hundreds of thousands of volts.
- 3 Transmission Lines** - Electricity flows from step-up transformers through high-voltage transmission lines to substations that are located long distances from the power plant.
- 4 Substation** - At a substation, the electricity in high-voltage transmission lines passes through step-down transformers where the voltage is lowered to 12.5 kV.
- 5 Distribution Lines** - Mid-voltage distribution lines carry electricity to many different local destinations, such as homes and businesses.
- 6 Transformer** - Step-down transformers, located either in green boxes seen in front yards or in barrel-like canisters on utility poles, reduce distribution voltage to 120-240 volts.
- 7 Service Line** - A lower-voltage service line carries electricity from a step-down transformer to a home or business. The service line is the last connection between a utility and a customer's electric meter.

Figure 4 How electricity is delivered to a customer

Electricity used in homes and businesses is generated at a power plant and then moved to customers over a grid of transmission lines, transformers, and lower-voltage distribution lines.

How is electricity use measured?

To interpret the graphs and understand the arguments presented in this document, it is useful to know the difference between **electrical consumption** and **electrical demand** and the units used to measure each.

Electrical Consumption

Electrical consumption is measured as an amount of electricity used over a period of time. For example, a customer's electric bill indicates the total consumption during a billing cycle, usually measured in "kilowatt hours." Utilities measure large energy resources (like hydro projects) and regional consumption in "megawatt hours."

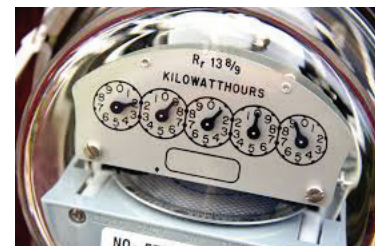
Electrical Demand (also known as Load)

Electrical demand measures the amount of electricity that a customer or a region needs at any instant of time. Utilities must match demand with generation resources almost exactly on a continual basis.

For example, if a customer turns on a light, an energy provider somewhere on the grid must ramp up a generation resource. That might require increased flow of water through a water-powered turbine, increased combustion of fossil fuel in a thermal plant, or faster release of electricity stored in a battery.

Electrical demand fluctuates depending on the time of day and the ambient temperature. For a "winter-peaking" utility like PSE, the highest demand of the year occurs in the morning or early evening of a very cold workday. Such a scenario drives the need for the Talbot Hill-Lakeside Transmission Line (THLTL) project, according to PSE. It is important to understand the difference between consumption and demand, because THLTL addresses demand, not consumption. In other words, there is plenty of capacity to serve consumption on the Eastside throughout the year without risk of blackouts.

There is also enough capacity to serve peak demand in the most punishing circumstances, such as a failure of multiple transformers during an arctic cold snap. To justify THLTL, PSE added questionable assumptions like huge flows of electricity to Canada and the sidelining of half a dozen generation plants that could help to relieve stress on the remaining transformers. We will explore these assumptions in greater detail in the following briefs.



4. Overview of Notebook Contents

Expert witness reports describe how PSE's application for a Conditional Use permit fails to meet sections of Bellevue's land use codes LUC 20.20.255, 20.30B.140.B and D. These reports are supplemented by technical papers compiled by CENSE.

- **Section 2 Notebook Summary Memorandum**

Summarizes CENSE's response to PSE's application for the South Bellevue Segment of Energize Eastside as written by CENSE attorney Rick Aramburu.

- **Section 3 Description of the Applicant**

Describes PSE as a private monopoly with 100 percent foreign ownership and its regulation by the Washington Utilities and Transportation Commission.

- **Section 4 Cost of the Project**

Compares the life-cycle cost of the proposed transmission line project with other alternatives rejected by PSE.

- **Section 5 Rebuttal of Project Need**

Examines PSE's claims for why the project is needed.

Includes Lauckhart-Schiffman Load Flow Study.

Explores the many agencies involved in the origins and evolution of Energize Eastside.

Discusses how PSE used inflated demand forecasts and misrepresented federal reliability regulations to create load flow studies "proving" the project is required for grid reliability

Includes the Dissenting Report submitted to the Community Advisory Group (CAG) Final Report.

Details PSE's major advertising campaign to sell the project to the public and elected officials.

- **Section 6 Alternative Solutions**

Discusses PSE's failure to adequately evaluate energy conservation, demand response, or distributed energy resources.

Includes commentary on Supreme Court decision on Demand Response ruling it appropriate to remunerate large electrical users who agree to conserve during peak-load events at the same rate utilities would have charged to provide electricity.

Describes BPA's decision to cancel the I-5 Corridor 500 kV transmission line project

Addresses PSE's misrepresentation of its request to Seattle City Light (SCL) for use of SCL's 230kV transmission line.

- **Section 7 Environmental Impacts**

Details the impact of proposed tree removal on the environment and how this contradicts the City's goal of 40% tree canopy.

- **Section 8 Visual Impacts**

Examines the failure of the EIS Visual Impact Analysis to adequately assess impacts to scenic and visual resources.

- **Section 9 Zoning and Land Use**

Discusses land use codes related to transmission lines, the impact of lines on residentially-zoned land use districts and public right of ways.