

## September 2014 Public Communications Summary

10/22/14

The following is a summary of feedback received by Puget Sound Energy (PSE) between Sept. 1 and Sept. 30, 2014 regarding the Energize Eastside project. During this period the project received 84 communications from the public. The communications were submitted via the project email address, the project voicemail, paper comment forms, or the project website. Communications address a range of topics and often discuss more than one topic and/or segment; therefore, many communications are categorized and discussed under multiple topics.

### Feedback Frequency by Topic

The following table indicates the frequency with which various topics were discussed (total) and where a specific segment(s) or route(s) was mentioned when discussing this topic.\* In September 2014, 17 comments mentioned specific segments or route options.



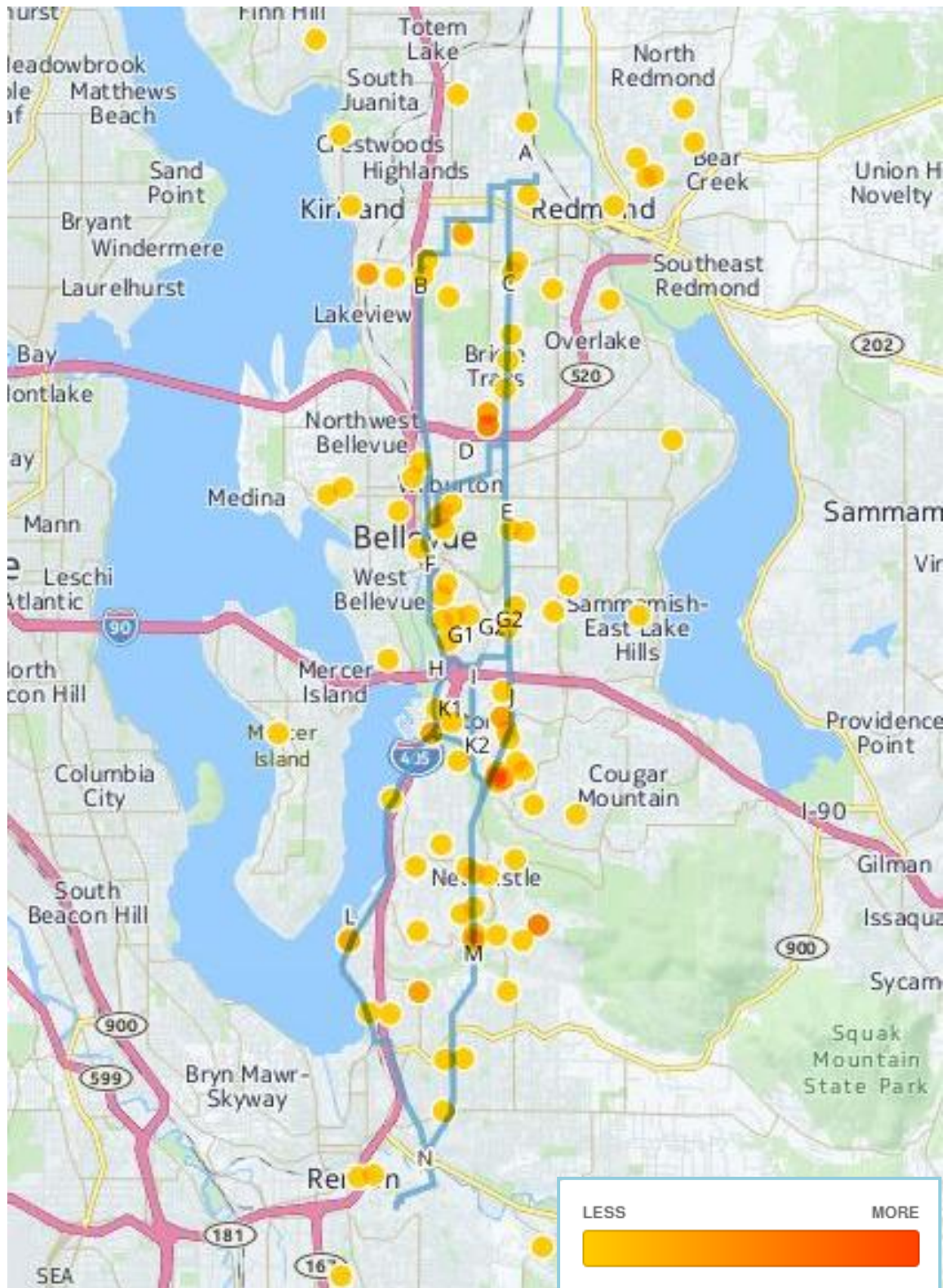
Table and map colors increase in intensity from yellow to red based on the frequency of occurrence.

Topic	Total	Segments					Route options										
		B	E	F	J	M	Ash	Cedar	Cottonwood	Elm	Laurel	Oak	Pine	Redwood	Sycamore	Willow	
<b>Total by segment/route</b>	<b>84</b>	1	1	1	1	3	1	1	1	1	1	1	1	1	2	1	
Route segments/options	17	1	1	1	1	3	1	1	1	1	1	1	1	1	2	1	
Project need	13																
Design structure type/appearance	8				1				1						1		
Visual	5		1			2											
Property value	5					1											
Safety	5					1	1	1		1	1	1		1			
Community character	3																
Alternative technology	3																
EMF	4						1	1		1	1	1		1			
Environmental	3			1		1	1	1		1	1	1		1			
Health	3																
Underground	2																
Cost	1		1														
Vegetation	1		1														
Geology/soils/steep slopes	1						1	1		1	1	1		1			

\*Segments or routes that were not specifically mentioned in a communication are not included in this table. Please note that communications often reference more than one topic and/or segment. As a result, totaling columns or rows will produce results that exceed the total number of communications received.

### Feedback Frequency by Address

The following map indicates the frequency of communications based on the addresses of individuals and organizations providing communications during this period.



## Summary of Most Frequent Topics

Below is a summary of the topics (in order from most to least common) with key examples provided of the comments or questions received and a response from PSE. Communication excerpts are verbatim (including typographical errors) and reflect feedback from individuals who have contacted PSE about the Energize Eastside project. Please note that many communications received are statements and not questions. PSE makes every effort to respond to questions individually and has included general responses below by topic; general statements of fact or opinion do not typically receive detailed responses.

Multiple communication topics may be referenced in the same or an individual communication. Where appropriate, those topics have been combined in the summaries below.

The inclusion of the excerpts is to maintain a record of the information and feedback received by PSE and is not a reflection of PSE's concurrence or disagreement with any statements in whole or in part. The communications summary reflects PSE's public outreach process to assist the Community Advisory Group in gathering feedback that will be used to inform a recommendation about route selection.

### Route segments/options

Feedback has been received regarding which specific routes should be chosen for the new transmission lines.

#### **Excerpts:**

- *It is recommended by the [committee] of [organization] That section F be deleted from any consideration.*
- *The existing, Willow, route seems to be the best option.*
- *I have reviewed the committee route recommendations and think Pine and Sycamore look tortuous but Ash through Willow look reasonable.*
- *I am not in favour of creating new power lines on streets that currently do not have them. (specifically the portion of route B) that takes the power lines east on 70th)*
- *My initial analysis of the routes narrowed the field to six options Ash, Cedar, Laurel, Elm, Oak, and Redwood.*

#### **Puget Sound Energy Response:**

PSE believes it is important to complete a thorough analysis of all feasible route options in the project area so when the time comes to select a preferred route, the company is confident that the route is the best option for both the community and PSE. To simply build in the existing corridor without looking at other options, PSE felt, would be shortsighted.

During the solution identification process, PSE's engineers and third-party experts looked for the best solutions to deliver electricity to the Eastside. Solutions included conservation, local electricity generation and new infrastructure. The analysis determined that the best solution to ensure the area's electric transmission system will reliably meet growing demand is a combination of continued, aggressive conservation efforts and building new infrastructure – specifically, a new substation and higher capacity transmission lines.

Next, engineers used a computer-based modeling tool, called the Linear Routing Tool (LRT), to analyze, weight and score key criteria such as geographic barriers, land uses and effects on the environment.

Based on this analysis, the LRT generated hundreds of possible routes before identifying the best possible route options, including two general north/south route paths – one along PSE’s existing corridor and one along a combination of roadway and rail corridor – with multiple crossover points. These two route paths were broken into 16 constructible route segments that could be configured into 18 potential route options. PSE is now gathering public feedback on the potential route options.

PSE generally prefers to site projects along public rights of way or existing utility corridors wherever possible. This was reflected in the route selection process, as existing corridors were deemed “opportunity areas” and weighted more highly in the LRT. About 70 percent of the route options we’re considering have existing lower voltage transmission lines along them.

Additionally, we have approached Seattle City Light requesting to share its existing utility corridor for the Energize Eastside project. If rebuilt, this corridor could work to meet the Eastside’s energy needs. However, Seattle City Light has been clear with PSE that the corridor is a key component of its own transmission system that is necessary to meet current and future operating Seattle City Light needs, and is not available for PSE. While PSE has eminent domain authority from the state, it does not extend to condemning property from a public agency that serves a public use.

Upgrading an existing transmission system in a dense urban and suburban area poses unique challenges, and there is no route option that completely avoids effects to Eastside communities. As a result, PSE is committed to engaging the community to better understand and address those challenges.

PSE is currently engaged in a year-long public outreach and route selection process, which includes working with a Community Advisory Group to consider community values when evaluating route options. PSE anticipates selecting a preferred route in early 2015 that balances the needs of customers, the local community and PSE. To explore the routes currently recommended by the Community Advisory Group for further evaluation, please visit the online [interactive project map](#).

Because the Community Advisory Group is still working to evaluate route options, PSE doesn’t yet have a preferred route or detailed design. However, once a preferred route has been selected, PSE will notify property owners, residents and businesses along the route about the project’s next steps. PSE’s Energize Eastside team is committed to working with property owners, businesses and residents on pole locations and design, access and other issues, and to provide mitigation when appropriate and/or necessary.

## **Project need**

Questions and comments have been submitted regarding whether the project is needed, specifically regarding the load forecast.

### **Excerpts:**

- *NO. I don't believe so many of the information you present. Sometimes completely - sometimes just a bit. I don't believe we need Energize Eastside.*
- *We will not take a huge financial hit so that PSE can meet FERC requirements for regional power redundancy.*
- *It also seems to me that the real growth is east of Newcastle Lakemont-Issaquah. It would also seem that east Kent -Auburn is a growth area. If that is the target area develop a plan from the South!*
- *I'm hoping you can help me out with a question I'm getting from my neighbors. It has to do with the projected increase in energy load in the coming years on the Eastside. I've referred people to*



*the graph provided by PSE showing the expected increase, but I'm wondering if PSE has specific data to show how those increases were determined.*

- *Why can't PSE just show the actuals for 2012 and 2013 for eastside load demand on the PSE Eastside Customer Demand curve that justifies need, rather than showing forecasts?*

**Puget Sound Energy Response:**

The existing transmission system serving the Eastside was built in 1960. Much has changed on the Eastside since then. Not only have communities grown and prospered, but the way we use electricity has changed – we plug in more and larger devices, most of which didn't exist many years ago. We also build larger homes than we used to, which requires more energy for lighting, heating, and air conditioning. Despite improvements in energy efficiency and aggressive conservation efforts, demand for electricity has grown dramatically, and it's time for PSE's infrastructure to catch up.

Economic development, job growth and associated population growth on the Eastside depend on a robust electrical transmission system. Eastside population has grown by eight<sup>1</sup> times since 1960, and recent growth trends are expected to continue – in fact, the Puget Sound Regional Council recently predicted that the Eastside population will grow by more than a third between 2010 and 2040, with population in the Bellevue central business district growing by more than 280 percent by 2040.<sup>2</sup>

At the same time, this economic growth is straining our region's existing electric system. Growth studies project that demand for reliable power will exceed capacity as early as winter 2017-2018. PSE has essentially outgrown the electric system that serves its communities. Without substantial electric infrastructure upgrades, tens of thousands of residents and businesses will be at risk of more frequent and longer outages.

Because PSE's studies show that at the current rate of projected demand growth, the Eastside customer demand will exceed the Eastside's electric transmission system capacity in winter 2017-2018, the company plans to have portions of Energize Eastside in service in 2017, with the project fully operational by 2018. Increased operating procedures are being put into place to deal with unusual conditions in order to mitigate much of the increased risk for 2017 until construction is complete. However, this method of operations is not sustainable and won't work as the Eastside demand continues to grow. If the project is delayed, then PSE would have to implement corrective action plans to meet demand on a more frequent basis; however, these actions mean up to 60,000 customers are at an increased risk of power outages. The number of customers at risk of a significant outage will only increase as demand grows.

Some have asked specific questions about how PSE develops their projections for future need on the Eastside. PSE's need and solutions studies were performed in late 2012 and 2013. The forecasts available at that time incorporated historical data through 2011. Forecasting load for transmission purposes is a complex undertaking that takes into account not just historical data but a variety of other inputs, such as information about regional and national economic growth, demographic changes, weather, prices, seasonality, and other customer usage and behavior factors. The next major forecast revision is being performed now and will be available for review during the environmental review process for the project. PSE is adhering to the planned load forecast release schedule; our spot checks of growth

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<sup>1</sup> Source: Puget Sound Regional Council 2013 Land Use Baseline: Maintenance Release 1 (MR1) Update  
<sup>2</sup> In April 2014, the Puget Sound Regional Council updated their growth forecasts from 275 percent to 280 percent by 2040.

patterns on the Eastside show us that no significant revisions need to be made to the projected Need Assessment based on these more recent data points.

The forecast makes significant assumptions regarding the amount of conservation PSE customers will achieve. Forecast load levels – which PSE is required to consider by regulation – are very sensitive to achieving projected levels of conservation. The conservation assumptions for the Eastside are very aggressive according to [E3's Non-Wires study](#). PSE has assumed that 100 percent of conservation targets will be met. If that 100% projected conservation doesn't materialize, the load growth could be much higher. Many utilities would assume that conservation at rates less than 100 percent would be achievable.

The forecast also contains significant weather uncertainty. The planning criteria used by PSE use a 23-degree day as the average temperature, which occurs at least one out of every two years. Many utilities would plan to coldest weather in 1 in 5 years, 1 in 10 years, or even extreme weather conditions for their system planning criteria. If the Eastside area had an extreme winter temperature of 13 degrees, the load growth would be more pronounced and the system demands would be significantly higher.

PSE's corporate load forecast process has been performed for many years and the results have served PSE customers well. The process utilizes historic data and the latest information available at the time the forecast is prepared. Peak load forecasts are reviewed by a public review committee, and are developed using econometric equations that relate observed monthly peak loads to weather-sensitive delivered loads. The Eastside-area load forecast is sensitive to conservation and weather. Due to these risks, different conservation targets were studied as part of the Needs Assessment.

Operating an existing electric system is fundamentally different than planning for future load growth. Planning is looking into the future to meet all customers' electric demand, while operating is keeping the lights on 24/7/365 – it is real time. No utility uses only actual loads to plan for the future. Looking backward to plan for what's ahead is not only a poor planning practice, but it does not meet the federal standards PSE is required to follow. These standards require that PSE plans to forecasted loads. Historic data, or actuals, are one data point for load forecasts. Other data points include: weather, economic growth, population, building permits, employment, large customers, historical data, impacts of conservation programs, etc. Looking at one data point independently of the others does not tell the full story.

Planning to meet our customers' electric loads is a risk-averse venture. PSE isn't just solving a peak-hour problem that could occur once every few years. The system is already stressed and operating at an elevated level of risk. The Energize Eastside project, combined with continued aggressive conservation, is the only way to alleviate that risk. The risk of building a project ahead of the unavoidable need pales in comparison to the risk of being too late. Electricity is a necessity that is at the foundation of the community's health and welfare, and delaying the project or relying on new, untested technology poses a health and safety risk to our communities.

For more information, please see the [Eastside Need](#) page of the Energize Eastside project website as well as the [Needs Assessment Report](#).

### **Visual, Design structure type/appearance, and Community character**

Concerns have been raised about the potential for pole designs to block views and affect unique community characteristics.

**Excerpts:**

- *I just want to let you know that I am 100% Against your proposal to erect taller towers for your increased power lines.*
- *If the Cottonwood or Sycamore routes are used, what type and height of replacement poles are being proposed at the [location] site?*
- *If Ash, Cedar, or Laurel are chosen will the existing power lines remain in section M? If the answer is no, then would splitting the load between the two routes reduce visual/aesthetic impacts along the lake, create more flexibility during power outages, and create more options for expansion in the future?*
- *Views in Segment M would be impacted by new lines. I find it ironic I am not allowed a TV antenna or clothes lines because it might affect someones view People who bought homes in Somerset did so because of the western exposure + views.*
- *I cannot imagine placing powerlines along Lake Washington. The beautiful views we enjoy are the main reason for living here.*

**Puget Sound Energy Response:**

Delivering a project like Energize Eastside in a dense urban and suburban area is challenging, but PSE is committed to working with the communities involved to minimize effects to the maximum extent practicable.

Aesthetics and views could not be included in the initial route screening effort because there is no publically available data for these factors. However, visual effects will be considered during the environmental review process that will be conducted to comply with the State Environmental Policy Act (SEPA). Additionally, photo simulations have been developed as a part of the ongoing public outreach process. To view the photo simulations, please visit the [Energize Eastside Photo Simulations webpage](#). PSE will not build lattice towers for this project.

The placement or “spotting” of pole structures will be dependent upon factors such as available right of way width, location of access routes, and obstacle avoidance. PSE typically has some flexibility when it comes to where poles are placed on a property. Whenever possible, PSE will work with property owners to identify the option for pole placement with fewer potential effects. In some cases, strategic planting of vegetation, such as trees with larger spreading crowns, can be used to diffuse and mitigate view effects. In turn, the height, loading and overall size of each structure will be greatly affected by location. Additionally, recognized areas of environmental significance will be identified and avoided where practicable.

The route options that follow all or part of the existing corridor running along Segments A, C, E, J, M and N allow more for future expansion because of the configuration of the lines and the upgrades we would need to do along the corridor. There are currently two 115 kV lines along the corridor. If all or part of that corridor is chosen as the preferred route, PSE would need to rebuild one 115 kV line to 230 kV, and the other 115 kV line would be rebuilt to a higher capacity 115 kV line constructed to 230 kV standards. This means that the wooden H-frame poles carrying the 115 kV lines would be removed and replaced with steel monopoles because the 230 kV transmission lines require a higher clearance and more robust structures to support the increased wire size, weight and tension of the lines. Additionally, the next time a future 230 kV line is needed in the area, we could upgrade the 115 kV line along the corridor to 230 kV without needing to do any additional construction.

While PSE does not have the preferred route or final design yet, the use of steel monopoles made of galvanized or weathering steel is anticipated. The exact measurements of poles and foundations will not be known until after a final route is selected and detailed design has been completed. The poles are generally estimated to be between 85 feet and 130 feet, with diameters between 3 feet and 7 feet, but they could be taller or shorter depending on specific circumstances. Note that the pole diameter estimate refers to the diameter of the pole itself; if poles require a foundation, the overall footprint of the pole would increase. PSE will be asking for community feedback on various pole options during the design phase of the project. Pole height will depend on several factors such as topography and obstacles, wire tension, and the distance between poles, which could range from 200 feet to 1,000 feet. In general, taller poles allow for longer distances between them.

In an urban area like the Eastside, there are unfortunately no corridors running north/south that completely avoid effects to residential neighborhoods. There is no easy way to connect the substations in Redmond and Renton; there are challenges with each option. PSE knows that it will be bringing changes to any of the neighborhoods where lines are installed. For that reason, PSE and the Energize Eastside team are actively engaging the public to discuss routing, impacts, and potential design considerations to reduce these effects while the company moves forward with this project that is vital to maintaining reliable power for all of the customers in the area.

PSE actively encourages all potentially affected community members to participate in ongoing community events and provide feedback on the various route options. In March and April, PSE hosted a series of Sub-Area Workshops for neighborhoods to provide feedback on the proposed transmission line segments and to discuss the evaluation factors most important to their communities. In April and July the community has had the opportunity to share their questions and comments at Question and Answer Sessions. The public has also had opportunities to participate in an Online Open House, in-person Open Houses and online surveys to provide feedback on the possible route options.

### **Property value**

Concerns have been raised about the potential for significant impacts to private property values and suggestions have been submitted that the transmission lines should be located in areas where property values are lower.

#### **Excerpts:**

- *To say that income and house values were not considered is also revealing. You say it wouldn't be fair to other homeowners of lower income brackets to base routes on that consideration, yet we know that taxes are paid and harvested by the most valued properties.*
- *Somerset on west side will be markedly impacted with respect to view and this will directly affect property values.*
- *Please do not further reduce our property values by adding bigger powerlines, please don't force us to sell by putting these in.*
- *I believe that running the proposed new lines will be detrimental to our community. Not only will it be invasive but could possibly lower home values.*

#### **Puget Sound Energy Response:**

When evaluating possible locations to site utility infrastructure, property values of the adjacent community are not taken into consideration because it is socially inequitable to make infrastructure siting decisions based on income-related considerations such as high-end, moderate or low-value housing. Similarly, a project's potential effects on surrounding property values are excluded from consideration of impacts to



the environment under Washington's State Environmental Policy Act (SEPA), [Ch. 43.21C RCW](#). Property values are comprised of many factors, including economic outlook and location, as well as proximity to jobs, schools, transportation, parks and other amenities. Out of fairness to and in consideration for customers of all income levels, PSE does not use property values as a factor when selecting routes.

Attempting to determine the impact of a transmission line on property values outside of the context of a purchase and sale transaction requires a certain degree of speculation. Due to the unique qualities of each property, there's no "one size fits all" formula. PSE does not compensate nearby property owners for perceived loss of property value due to the installation of energy infrastructure. In this respect, PSE is no different than any other public or private developer. This approach is consistent with Washington law.

If new easements are required to site PSE's facilities on private property, PSE will compensate the affected property owners based on fair market value.

### **Health, Safety, and Electric and magnetic fields**

Concerns have been presented about the potential for negative health and safety effects caused by the presence of high voltage transmission lines.

#### **Excerpts:**

- *You are going to have A LOT of trouble bringing that dangerous power line up Monroe Ave in Renton so why don't you use the same route that you use now?*
- *Please do not increase the doungh of large powerlines and the gas lines. Please do not expose our homes to the additional electromagnetic fields.*
- *The WHO says that EMF radiation is not a safety concern, however, epidemiology study results are inconclusive...Has the design team reviewed the size of the EMF field and are there routes with fewer impacts regarding EMF radiation?*
- *There are proofs of children who died in one neighborhood after this was installed. They became extremely ill...I don't want to die. So I would say this is a way to get rid of populations, to make them sick, and to benefit the healthcare system which is so expensive in this country.*
- *I do not believe these higher power lines should go near anyone's house...we already have the old lines which are low enough (magnetic field) that although I don't like them, I don't believe they propose that much danger The proposed lines ARE DANGEROUS.*

#### **Puget Sound Energy Response:**

At PSE, safety is always the top priority. Many customers have questions about electric and magnetic fields (EMF) and the team works to provide access to information on EMF in a few different ways.

Specifically, we:

- Follow all applicable federal, state, county and city rules, regulations and standards when constructing power facilities for the safe and reliable delivery of electric service;
- Remain informed about important developments in EMF research from reputable, international and national scientific and public health organizations and agencies that have reviewed the research on EMF; and
- Share accurate and objective information about EMF with PSE's customers.

Over the past 45 years, there have been many scientific studies conducted to determine if EMF from transmission lines (called "power frequency EMF") has any effect on human health. To date, this large body of research does not show that exposure to power frequency EMF causes adverse health effects.

Additionally, PSE understands that you, and other local residents, may have more questions about electric and magnetic fields. PSE has hired Drew Thatcher – an independent, board-certified health physicist – to address more specific EMF questions. If you or your neighbors would like to ask questions of Drew, the Energize Eastside team would be happy to connect you with him for more information.

Also, PSE is expecting to have information on EMF measurements in the existing utility corridors (what magnetic field measurements exists today) and modeling numbers with the new transmission line in late 2014. Once the EMF modeling study is complete, it will be posted on the Energize Eastside project website.

### **Alternative technology**

Questions and suggestions have been posed regarding ways to address the project need without building a transmission line.

#### **Excerpts:**

- *The perception is that PSE has not done enough to explain what transmission alternatives were evaluated and why they were ruled out. Those alternatives need to include co-generation, local peaker generation, battery storage, distributed renewable energy solutions, conservation, and a combination of all of these options.*
- *There are many options not presented.*
- *New technology is on The horizon and PSE should be working hard to become an innovator in bringing new technology to the energy sector! Not adding ancient technology to satisfy an unproven Future need.*

#### **Puget Sound Energy Response:**

Before launching this project, PSE studied several different solutions in addition to building the new overhead transmission lines. Those alternatives included reducing demand through conservation, increasing the capacity of PSE's existing electric transmission lines, generating energy locally, and building new infrastructure. However, these other solutions are not enough to solve the problem of transporting the energy we have to the fastest-growing places and the people who need it.

Through upgraded lighting, appliances and equipment, increased weatherization, and energy-efficient building technologies, PSE customers helped us save enough electricity to power 30,000 homes in 2012. Despite these aggressive conservation initiatives by PSE and its customers over the past few decades, studies show demand is dramatically outpacing supply.

PSE is closely monitoring battery storage technology, and is moving forward with a pilot project in Glacier, Wash. to test the viability of the technology on a small scale. The Glacier battery pilot project will install four batteries, each the size of a semi-tractor trailer, to provide 2 megawatts (MW) of capacity, enough energy to power 150 homes for one day. In contrast, to serve 350,000 customers on the Eastside, we need to add more than 60 MW starting in 2017-18, growing quickly to more than 100 MW. This would require PSE to initially install up to 300 batteries, each the size of a semi-tractor trailer. It would also still require new power lines to distribute electricity from the battery site to our customers.

Furthermore, while battery storage may be a possible solution in certain situations, the technology is not yet mature enough to reliably and cost effectively solve the Eastside's capacity problems. To our knowledge, no utility has used battery storage to replace a power delivery system (i.e. substations and transmission lines). Rather, battery systems primarily have been used as backup storage on the

generation system, or to address system voltage or frequency stability issues, and even that technology is still emerging. PSE is unwilling to risk the 24/7 electric reliability of 350,000 customers on unproven technology. To do so would be irresponsible, and result in an unacceptable risk to public health and safety.

PSE reviewed both the planned conservation as well as additional potential demand reduction to meet the growing need. This included programs such as gas conversions and increased incentives for insulation and efficiency improvements in existing residences and businesses. In addition, solar panels and other types of local renewable generation were considered. All of these potential measures combined were unable to meet the need for the projected growth in the Eastside region. After a detailed analysis, PSE determined that a combination of continued conservation and infrastructure upgrades – a new substation and higher capacity transmission lines – is the best way to reliably meet the Eastside’s growing energy needs. Find more information in the [Eastside 230 kV Project Constraint and Opportunity Study for Linear Site Selection](#) on the project website.

Many have asked if building the 230 kV transmission line can be avoided by upgrading the existing 115 kV transmission line. PSE has already made as many upgrades as possible to its existing infrastructure to postpone the need for the new 230 kV line. By increasing the voltage from 115 kV to 230 kV, the wires must be placed on new poles due to different clearance requirements and the fact that the new wires are heavier and therefore require sturdier poles to support them.

You can read more about the alternatives studied in PSE’s [needs assessment report](#), [solutions report](#), [non-wires solution analysis](#), and much more on the [Energize Eastside project website](#).

### **Environmental, Vegetation, and Geology/soils/steep slopes**

Questions and concerns about the environmental review process and impacts to wildlife and vegetation have been presented.

#### **Excerpts:**

- *Has the design team identified areas along the route that can double as wild life corridors to reduce habitat fragmentation in urban areas?*
- *Has the design team assessed risks due to natural disasters such as earth quake and land slides? Looking at the data table some of these routes run near unstable slopes.*
- *[Organization] is active in preserving and enhancing the Mercer Slough area. Any construction nearby would be considered deleterious to the environment of the slough area. Section F would impact this area.*

#### **Puget Sound Energy Response:**

As with all of PSE’s projects, PSE is committed to minimizing, where practicable, environmental impacts that can result from construction, operation and maintenance of electric transmission lines. When impacts cannot be avoided, PSE provides appropriate restoration or mitigation. For illustration, regardless of the route selected, federal, state, and local regulations do not allow construction stormwater that exceeds specific water quality parameters to run off into waters of Washington State. Erosion Control Planning will be incorporated into the project design. This is standard practice, as all large scale projects are required to assess potential drainage impacts. Once the route is selected, a detailed engineering analysis will be performed to address possible stormwater issues. Transmission lines typically have a small impervious footprint and therefore are not a major contributor to stormwater runoff. Runoff from PSE’s infrastructure facilities will also comply with the appropriate stormwater regulations.

Throughout the design and construction of the Energize Eastside project, PSE will collaborate with local, state and federal agencies to ensure compliance with all applicable regulations. This includes meeting all local permit requirements and undergoing environmental review pursuant to the State Environmental Policy Act (SEPA). The SEPA process is used to help decision-makers understand a project's potential to cause impacts to the natural and built environments. For example, potential effects on wildlife such as bald eagles would be identified during that process, along with the appropriate restoration or mitigation actions. Additionally, PSE has an extensive avian protection program and often includes protective measures to power line design. More information on this program can be found on PSE's [Protecting Birds webpage](#).

During construction, each segment will undergo detailed siting of structures to avoid or minimize impacts to the extent practicable. PSE will perform a variety of engineering analyses and studies when designing the transmission lines in order to understand the environment where the structures will be located. For the segments that are selected, PSE will perform comprehensive geotechnical evaluations of each corridor, and the design of the new transmission lines will take into account various factors such as soil type and strength, groundwater, and other factors.

For trees directly under the transmission lines, PSE's transmission vegetation management program generally requires the removal of trees with a mature height of more than 15 feet. For those bordering the wires, trees will be trimmed or removed to maintain a clearance of 20 feet from the nearest line. In specific cases where terrain conditions allow 20 feet of clearance between the line and the mature height of the tree, species that mature at a height of more than 15 feet may be allowed. More information is available in PSE's tree trimming and maintenance information center.

Since PSE has not yet determined the selected route, where poles will be placed, or what exact pole structures will be used, it is too early at this point to know about impacts and mitigation. Please visit the Energize Eastside [Environmental Review](#) webpage for more details.

## **Underground**

Suggestions have been made that PSE construct the new line underground, along with statements about undergrounding costs.

### **Excerpts:**

- *If it is the only viable source then underground should be the only option-not 165 foot towers!*
- *I am very much against this going through our neighborhood all of us have spent thousands of dollars to get underground wiring...We paid a lot of money not have more lines and more tracks above and we hate to have you come in and just put some in.*

### **Puget Sound Energy Response:**

Overhead transmission lines are PSE's first option for standard service due to their reliability and affordability, both of which are important to PSE's customers.

The biggest challenge to underground transmission lines is cost. The construction costs for an overhead transmission line will be about \$3 million to \$4 million per mile, versus \$20 million to \$28 million per mile to construct the line underground. These figures only take engineering and construction costs into consideration, and do not include additional costs such as land acquisition, traffic control, relocation of existing underground facilities that may conflict with an underground transmission line, future increased

operation and maintenance costs, or taxes and overheads. These additional costs can be very significant – sometimes two to three times the construction costs.

When a transmission line is constructed overhead, project costs are distributed evenly between PSE's 1.1 million customers. If a transmission line were to be constructed underground, PSE can't justify asking customers across its entire service territory to pay the significant cost increases for a local aesthetic benefit. That's why, per state-approved tariff rules, the local jurisdiction or customer group requesting underground transmission lines must pay the difference between overhead and underground costs.

The tariff is in place to protect all of PSE's customers from substantial bill increases that would result from frequent requests to underground or relocate transmission lines (view the full tariff: [Schedule 80, Section 34](#)). PSE recognizes some of its customers are in the financial position to pay the substantial increase in rates to underground this project and others, but there are also many low- and fixed-income customers who depend on affordable rates. It is PSE's responsibility to balance the needs of all customers and provide service that is both reliable and affordable. These regulations are founded in fundamental public policy, which hinges on fairness and reasonableness for all customers, regardless of income. Having the local community pay to underground power lines for the aesthetic benefit is not new – it is the same concept our communities follow today when a new development undergrounds the lower voltage distribution power lines.

In addition to cost, there are other factors to consider. For example:

- Putting power lines underground can have bigger environmental and neighborhood impacts. Undergrounding transmission lines requires extensive vegetation removal, trenching and installation of large (20 feet x 30 feet) access vaults every quarter mile and can be very disruptive to neighborhoods and the environment.
- Because they need additional cooling and insulation, underground transmission lines are typically installed in concrete duct banks, which can extend 5 or more feet below the surface. These require an easement 30 feet to 50 feet wide, which, unlike with overhead lines, must be completely free of trees.
- Underground lines typically take longer to repair, and repairs are more difficult. When an overhead line fails, crews can often repair it within hours. Repair of underground transmission lines can take days and even weeks, depending on the repairs that need to be made.

All of these factors are why PSE is proposing to construct the Energize Eastside project overhead.

Read more in PSE's [undergrounding](#) fact sheet.

## Cost

Feedback was provided regarding which routes options would be less expensive to build.

### **Excerpts:**

- *The least expensive route seems to be the E route...and using existing route that may be rebuilt but less expensive than building new.*

### **Puget Sound Energy Response:**

The total cost of the project is not yet known, but estimates range from \$150 million to \$300 million. Once a route is selected and the final design and alignment are determined, PSE will have a better idea of the total cost. In the meantime, PSE has put together data tables containing [cost estimates for the various](#)



[route options](#) under consideration by the Community Advisory Group to assist them in making a recommendation.

Upgrades or additions to the electric infrastructure are shared by all of PSE's 1.1 million electric customers and paid for over time (unless a more expensive upgrade or addition is made to benefit only a certain area or community, such as undergrounding a line for the purpose of preserving aesthetics). While there are many factors that go into determining the individual customers' monthly bill increase, rough estimates are that it will range from \$1 to \$2 per month for typical residential customers.