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Introduction & Summary

CHAPTER 1. INTRODUCTION & SUMMARY

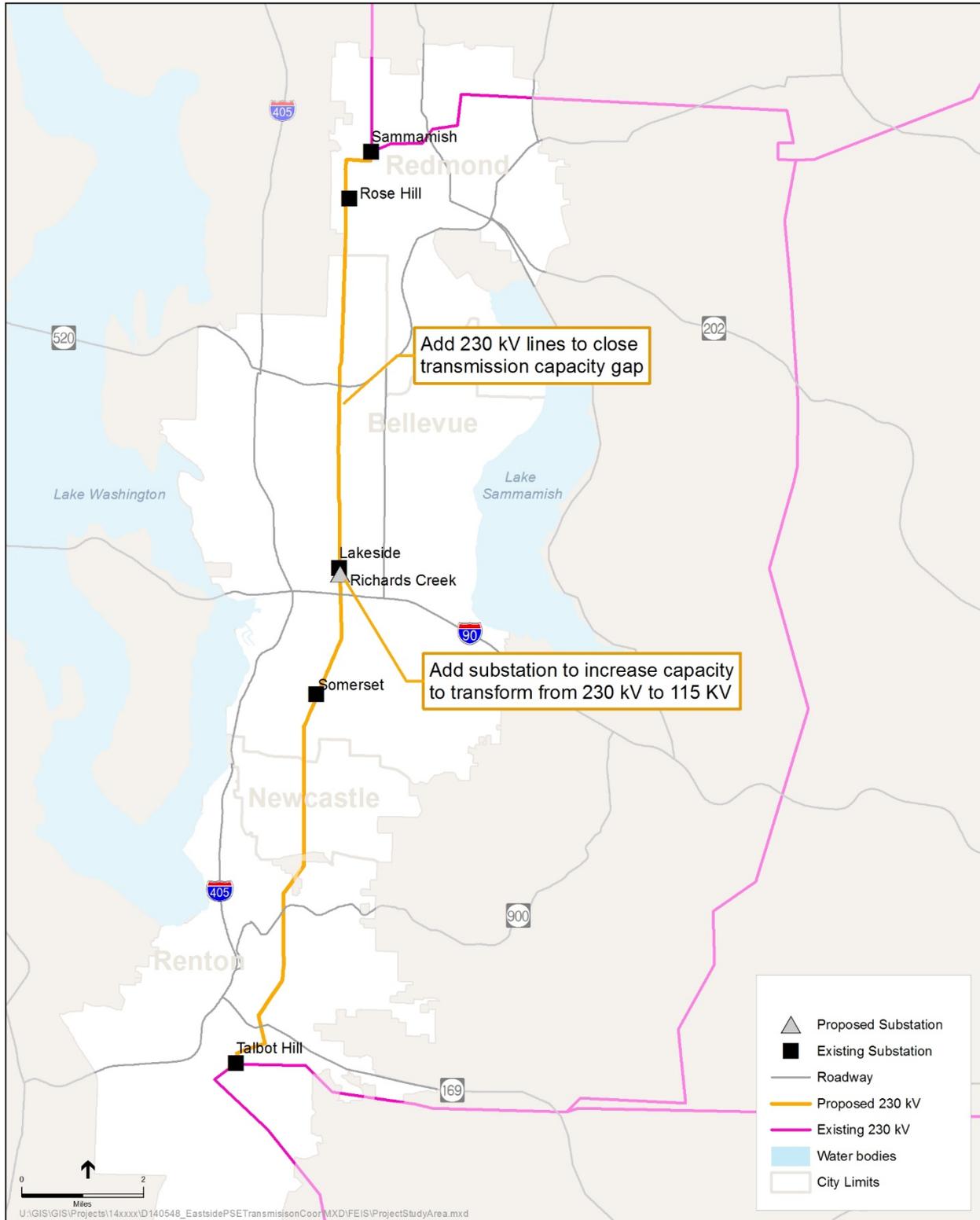
The City of Bellevue and its partner *Eastside Cities (Partner Cities)* are conducting a phased environmental review process under the State Environmental Policy Act (SEPA) for an electrical *transmission line* project proposed by Puget Sound Energy (PSE). The project, called Energize Eastside, is a proposal to build new electrical *transmission* infrastructure to serve PSE’s customers in the Eastside area, in King County, Washington. This Final Environmental Impact Statement (Final EIS) builds upon the previous Phase 1 Draft EIS and Phase 2 Draft EIS, released in January 2016 and May 2017, respectively. The Final EIS assesses PSE’s project-level Proposed Alignment, as described in Section 1.5 and Chapter 2. The Phase 1 Draft EIS assessed a range of impacts and implications associated with broad alternatives for addressing PSE’s objectives, in a non-project or *programmatic* EIS. The project-level Phase 2 Draft EIS incorporated the Phase 1 Draft EIS by reference and presented a project-level assessment of several segment and route options for a new substation, overhead transmission lines, and associated components at a preliminary design level. Based on the results of the Phase 2 Draft EIS analysis, PSE has refined the proposed route of the transmission lines and associated project components, as evaluated in greater detail in this Final EIS.

The **Eastside**, as referred to in this EIS, is an area of King County between Lake Washington and Lake Sammamish, roughly extending from Redmond in the north to Renton in the south.

This chapter provides an overview of the project and a summary of the findings of the Final EIS. The project includes numerous terms that may not be familiar to all readers. Throughout the EIS, words shown in *italics* when they first appear in the document are included in the glossary (Chapter 11). Some of the information presented in this Final EIS repeats information that was included in the Phase 2 Draft EIS, although focused on PSE’s Proposed Alignment, which differs from PSE’s preferred alignment from the Phase 2 Draft EIS (referred to as the Willow 2 route). PSE’s Proposed Alignment also differs in some details from the other segment routes in the Phase 2 Draft EIS. This repetition of information is intentional, with the goal of presenting a comprehensive Final EIS document that includes the information about PSE’s Proposed Alignment needed by decision-makers to support permitting decisions. In particular, the Final EIS includes a full analysis of potential impacts associated with the construction and operation of PSE’s Proposed Alignment. Supplemental material that supports the analysis is included as appendix material, or cross-referenced, with the Phase 1 and Phase 2 Draft EIS documents incorporated by reference.

1.1 ENERGIZE EASTSIDE PROJECT

PSE’s proposal is to construct and operate a new 230 thousand volt (kilovolt or kV) to 115 kV electrical *transformer* served by approximately 16 miles of new high-capacity electric *transmission lines* (230 kV) extending from Redmond to Renton. The transformer would be placed at a new *substation* site near the center of the Eastside, referred to as the Richards Creek substation. Electrical power would be transmitted to the new substation and the voltage lowered, or “*stepped down*” (*transformed*), from 230 kV to 115 kV for distribution to local customers. Figure 1-1 shows the Eastside and the locations of existing substations and 230 kV transmission lines, and the area where a new substation and new 230 kV lines are proposed. This set of facilities is proposed to address a deficiency in electrical transmission capacity during peak periods that PSE has identified through its system planning process.



Source: King County, 2015; Ecology, 2014.

Figure 1-1. PSE 230 kV Transmission System in the Eastside

This deficiency is expected as a result of anticipated population and employment growth on the Eastside. PSE expects this deficiency within the next few years to negatively affect their ability to meet federal requirements for protecting the regional electrical grid while also supplying continuous power to its Eastside customers.

Based on federally mandated planning standards, PSE's analysis found that the existing transmission system could place Eastside customers and/or the regional *power grid* at risk of power outages or system damage during peak power events that typically occur in cold or hot weather as early as the summer of 2018 (PSE, 2017a). PSE's analysis concluded that the most effective solution was to add a 230-to-115 kV transformer within the center of the Eastside to relieve stress on the existing 230-to-115 kV transformers that currently supply the area. This would need to be fed by new 230 kV transmission lines from the north and south. By having lines from two different directions, a substation can continue to be supplied even if one line goes down.

The 230 kV system is proposed because that is the next highest voltage level (greater than the existing 115 kV lines) that PSE could feasibly install and operate consistent with the regional grid system that would meet project reliability goals and PSE's project criteria. As illustrated in Figure 1-1, there is no 230 kV transmission line operated by PSE that reaches the center of the Eastside area.

This Final EIS evaluates the proposed 230 kV improvements as part of PSE's proposal (i.e., PSE's Proposed Alignment), as described in more detail in Chapter 2.

1.2 NEED FOR A SEPA EIS

Discussions between the Partner Cities in 2014 (including the cities of Bellevue, Kirkland, Newcastle, Redmond, and Renton) and PSE indicated that the project is likely to have significant adverse environmental impacts. Pursuant to SEPA, a Threshold Determination of Significance was issued on April 30, 2015, in compliance with the Washington Administrative Code (WAC) 197-11-360.

To address the potential for significant environmental impacts, PSE submitted an application for processing of an EIS with the City of Bellevue. As the largest and potentially most affected city, the City of Bellevue agreed with the other Partner Cities to take the role of *Lead Agency*, consistent with WAC 197-11-944. The City of Bellevue is directing the overall preparation of the EIS, with assistance by consulting firms referred to as the EIS Consultant Team. The cities of Newcastle, Redmond, and Renton have reviewed preliminary versions of this Final EIS and provided input on its preparation. The City of Kirkland has not been involved in the review of this Final EIS because PSE's project is not located within Kirkland city limits.

Transmission lines are designed to move large amounts of power. In western North America, transmission level power is provided at 230 kV and higher. The next lower voltage level in the regional grid is 115 kV, which is considered a sub-transmission voltage level.

What is a Reasonable Alternative?

WAC 197-11-440(5)(b) defines a reasonable alternative as an action that could feasibly attain or approximate a proposal's objectives, but at a lower environmental cost or decreased level of environmental degradation. Reasonable alternatives may be those over which an agency with jurisdiction has authority to control impacts, either directly or indirectly through requirement of mitigation measures.

The Phase 1 Draft EIS (released in January 2016) broadly evaluated the general impacts and implications associated with feasible and reasonable alternatives available to address PSE’s identified objectives for the project. The Phase 2 Draft EIS (released in May 2017) was a project-level evaluation, describing impacts at a site-specific and project-specific level for a group of segments and options that would meet PSE’s objectives, at a conceptual design level. This Final EIS focuses on a single route alignment (PSE’s Proposed Alignment), informed by the results of the Phase 1 and Phase 2 analyses. This approach is consistent with the requirements for Phased Review outlined in WAC 197-11-060 (5)(c). The Partner Cities have not identified a preferred alternative, nor have they made a final decision on any portion of the project.

This project-level EIS began at an early stage of design development for the project. PSE’s project design has been refined since publication of the Phase 2 Draft EIS, including route preference and design details, such as pole types, locations, voltage configuration, and associated project components. This is consistent with rules that intend for SEPA to be “*integrated with agency activities at the earliest possible time to ensure that planning and decisions reflect environmental values, to avoid delays later in the process, and to seek to resolve potential problems*” (WAC 197-11-055). Information about the project is approximate and subject to change and refinement as the design is developed, but is accurate enough to determine the impacts expected from the project. Where there is uncertainty about potential impacts, the Final EIS uses conservatively high impact assumptions to ensure that any potential significant impacts are addressed.

1.3 APPLICANT’S OBJECTIVES FOR THE ENERGIZE EASTSIDE PROJECT

PSE has determined that there is a need to construct a new 230 kV bulk electrical transmission line and an associated electrical substation east of Lake Washington to supply future electrical capacity and improve the reliability of the Eastside’s electrical grid. PSE prepared two studies that describe the need: the *Eastside Needs Assessment Report* and the *Supplemental Eastside Needs Assessment Report* (Gentile et al., 2014, 2015). These are referred to collectively as PSE’s Eastside Needs Assessment, as described in more detail in the Phase 1 Draft EIS, Section 1.3. Based on PSE’s needs analysis, PSE established broad objectives for the project as follows:

- Address PSE’s identified deficiency in transmission capacity.
- Find a solution that can be feasibly implemented before system reliability is impaired.
- Be of reasonable project cost.
- Meet federal, state, and local regulatory requirements.
- Address PSE’s electrical and non-electrical criteria for the project.

More details on the project objectives, including PSE’s electrical and non-electrical criteria, are described in detail in Chapters 1 and 2 of the Phase 1 Draft EIS.

As outlined in WAC 197-11-060 (3)(a), the lead agency is responsible for ensuring that a proposal that is the subject of environmental review is properly defined. The process of defining the proposal includes an understanding of the need for the project, to enable a thorough understanding of the project’s objectives (see Section 1.8 of the Phase 1 Draft EIS) and technical requirements, and to accurately identify feasible and reasonable project alternatives for consideration in the EIS.

According to WAC 197-11-060(3)(a)(iii), proposals should be described in ways that encourage

considering and comparing alternatives, and agencies are encouraged to describe proposals in terms of objectives rather than preferred solutions. An understanding of the need for the project helps to clarify the objectives used to develop project alternatives.

This Final EIS will not be used to reject or validate the need for the project; it will be used to inform decision-makers reviewing land use permits that PSE will need to secure from each affected jurisdiction to build the proposed substation and transmission line. The EIS process is intended to identify reasonable alternatives that could attain or approximate PSE’s objectives at a lower environmental cost and disclose potential significant adverse environmental impacts associated with the alternatives analyzed.

The deficiency in transmission capacity on the Eastside identified by PSE is based on a number of factors. Key factors include growing population and employment in the Eastside, changing consumption patterns associated with larger buildings, more air-conditioned space, and changing utility regulations that require a higher standard of electrical system resilience than was required in the past. Heightened concerns about resilience that underlie the regulatory changes trace back to an August 2003 blackout in the Midwestern and Northeastern portions of North America that affected 55 million customers.¹

PSE has concluded that the most effective and cost-efficient solution to meet its objectives is to site a new 230 kV transformer in the center of the Eastside, which would be fed by new 230 kV transmission lines from the north and south (Stantec, 2015).

The Eastside population is expected to grow at a rate of approximately 1.2 percent annually over the next decade, and employment is expected to grow at an annual rate of approximately 2.1 percent, a projection based on internal forecasting conducted by PSE. Given the nature of expected development, PSE has projected that peak electrical demand within the Eastside will grow at an annual rate of 2.4 percent². This forecast is based on the concept that economic activity has a significant effect on energy demand. As described in PSE’s *Eastside Needs Assessment*, this growth rate takes into account population and employment growth as well as expected “*block load*” growth that PSE is aware will be coming in the next 10 years (Gentile et al., 2014, 2015).

Without adding transmission capacity for local peak periods in the Eastside, a deficiency could develop as early as winter of 2017–2018, with potential for *load shedding* (forced power outages) by summer of 2018 (PSE, 2017a). To address this risk in the near term, PSE would continue to deploy and expand the use of a series of operational steps to prevent system overloads or large-scale loss of customers’ power; these steps are referred to as *Corrective Action Plans (CAPs)*. CAPs generally involve shutting off or reducing load on overloaded equipment and rerouting the load to other equipment. The CAPs are seen as temporary measures to keep the entire system operating, but they can place large numbers of customers at risk of a power outage (e.g., rolling blackout plan) if anything else on the system begins to fail. CAPs are described in more

Block loads are substantial increases in expected electrical demand from individual customers, typically industrial, commercial, or institutional customers. PSE regularly communicates with large customers to estimate upcoming block load to ensure that their supply and *distribution system* will be capable of serving the need.

¹ See U.S. - Canada Power System Outage Task Force Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations, April 2004.

² PSE annually updates projected electrical demand systemwide; however, it does not develop annual estimates for the Eastside only.

detail in Section 2.2.1.12 of the Phase 1 Draft EIS. For additional information, see the Energize Eastside Outage Cost Study (Nexant, 2015), available on the project EIS website.

Load shedding would be initiated if the electrical demand reaches limits established by PSE engineers to avoid violating federal standards designed to protect the regional grid (e.g., as established by the North American Electric Reliability Corporation [NERC]) (Stantec, 2015). These peak load periods can occur during typical cold or hot weather conditions. If one or more components of the system are not operating for any reason, load shedding could be required to protect the Eastside and the rest of the regional grid. This is because once the threshold is crossed, the physical limitations of the system are such that even the slightest overload will produce overheating that can damage equipment, and larger overloads will produce overheating more quickly. Once equipment is in an overload condition, the options are to let it fail or take it out of service. Either condition would leave the Eastside in a vulnerable state where the system is incapable of reliably serving customer load. At that point, further actions such as load shedding may be needed to keep the system intact within the Eastside service area and beyond.

By the end of the 10-year forecast period, PSE's estimate is that in the summer 2024 scenario, if there were a period of above average temperatures, over 211,000 customers could experience rotating outages on up to 9 days over a period of 16 days. In the winter 2023–2024 scenario, if there were a period of below average temperatures, around 175,000 customers could experience rotating outages on up to 13 days over a period of 29 days (Nexant, 2015).

The load area in question is situated between two existing sources of bulk electrical power: the Sammamish substation on the north end (Redmond/Kirkland area) and the Talbot Hill substation on the south end (Renton area) (Figure 1-1). These two sites are the closest substations that bring 230 kV power supply to the Eastside, and therefore supply power to this geographic area. Because of the configuration and limited capacity of the transmission system within the Eastside, a direct change in electrical demand for power flowing through these two substations, or a change in power being supplied to these two substations, will affect the Eastside area. Once the higher voltage (230 kV) is transformed down to a lower voltage (115 kV) at these two substations, the system is limited by the physical capacity of the *conductors* and transformers that connect these two substations to the electrical load and feed the area (Stantec, 2015).

1.4 SEPA REVIEW PROCESS FOR THE PROJECT

The Energize Eastside EIS is a Phased EIS (WAC 197-11-060(5)). Figure 1-2 illustrates the overall process for preparing the two phases of the Draft EIS, followed by this Final EIS.

The Phase 1 Draft EIS evaluated, at a programmatic level, various alternatives for addressing the identified project need. It describes the types of impacts that the alternatives could cause, mitigation that would be available to minimize or avoid such impacts, and any significant impacts that would be unavoidable. This programmatic evaluation was not required by SEPA but was optional and intended to provide decision-makers and community members with a better understanding of what constructing and operating the alternative methods would mean to the community, and how to best evaluate the environmental impacts of project-level alternatives that are described and analyzed in the Phase 2 Draft EIS, and in the Final EIS.

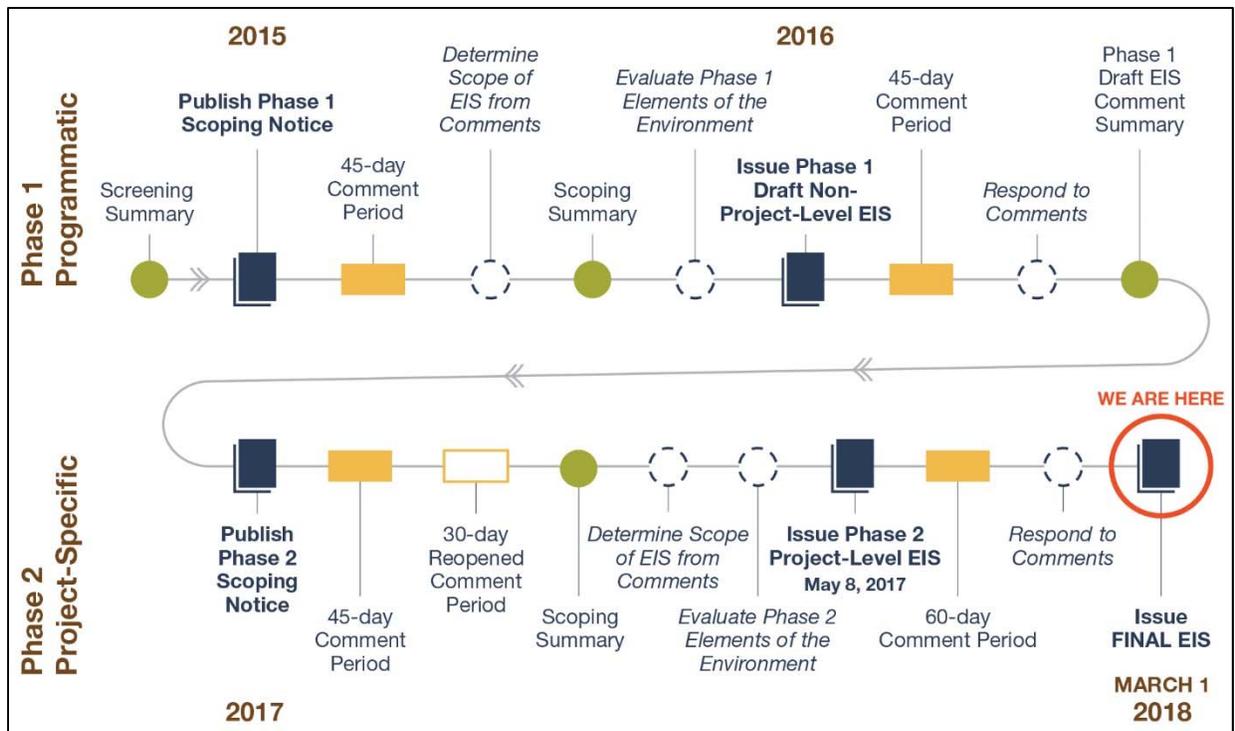


Figure 1-2. Phased EIS Process

Following release of the Phase 1 Draft EIS (in January 2016), comments were reviewed and summarized in the Phase 1 Draft EIS comment summary, available on the project website. These comments, along with comments received during the Phase 2 *scoping* period, were used to inform the selection of alternatives carried forward into the Phase 2 Draft EIS, which included additional detail on the project alternatives.

The Phase 1 Draft EIS generally did not analyze impacts associated with specific development at specified geographic locations. The Phase 2 Draft EIS included project-level alternatives based on more defined geographic locations, and a more detailed analysis of potential environmental impacts.

This Final EIS includes responses to comments on both the Phase 1 and Phase 2 Draft EIS documents (see Chapter 6, Appendix J, and Appendix K). Given the programmatic nature of the Phase 1 Draft EIS, responses to comments during Phase 1 were prepared in a comment-response narrative summary. Because the Phase 2 Draft EIS focused on a specific project proposed by PSE, responses to Phase 2 comments are presented for each individual comment received. Comments that resulted in corrections or other modifications to information presented in the Phase 1 and Phase 2 Draft EIS documents are included in Chapter 3, *Errata*.

The Final EIS evaluates PSE’s Proposed Alignment, which combines and refines elements of the alternatives evaluated in the Phase 2 Draft EIS. PSE’s Proposed Alignment is the alignment PSE has begun submitting permits for. The Phase 2 Draft EIS analyzed options for routing the transmission lines along various corridors other than PSE’s existing 115 kV corridor. These options are not PSE’s preferred alignment, but they may still be considered by the jurisdictions in their permitting decisions, since the Partner Cities have not made a decision on a preferred alternative.

Together, the Phase 1 Draft EIS, Phase 2 Draft EIS, and Final EIS are intended to provide a comprehensive analysis of the project and alternatives. The Final EIS supplements the analysis in the Phase 2 Draft EIS and Phase 1 Draft EIS as part of a phased EIS process per WAC 197-11-060(5). Commenting was invited for each of the Draft EIS stages and at each of the scoping stages. All phases of the EIS will be used by the Partner Cities to support any permit decisions required.

1.5 HOW THIS EIS WAS DEVELOPED

As with the Phase 1 Draft EIS and Phase 2 Draft EIS, this Final EIS was developed under the direction of the City of Bellevue, working closely with its Partner Cities and its consultants. The project is proposed by PSE, a regulated utility. Therefore, PSE developed the project objectives and helped to define alternatives that would attain or approximate the project objectives, as required by SEPA. The City of Bellevue and its team conducted scoping to identify alternatives and the impacts to be analyzed, and based on information from PSE and public scoping comments, refined the alternatives to meet SEPA requirements, including development of a No Action Alternative.

The following major steps were taken to develop the Final EIS:

1. Following the Phase 2 Draft EIS comment period (which ended July 6, 2017), comments on the Phase 2 Draft EIS were received and compiled. Responses to comments on both the Phase 1 Draft EIS (in a narrative summary) and the Phase 2 Draft EIS (individually) were prepared, as described above.
2. PSE identified its Proposed Alignment, described in Chapter 2 of the Final EIS. This alignment uses the existing transmission line corridor described in the Phase 2 Draft EIS, but differs in some design details. The Final EIS addresses the specific impacts that are expected from PSE's Proposed Alignment.
3. The City of Bellevue and the other Partner Cities reviewed drafts of the EIS chapters prepared by the EIS Consultant Team and provided comments for EIS Consultant Team response. PSE reviewed Chapter 2, Section 2.1 only and provided appropriate clarifying revisions to the description of PSE's Proposed Alignment. The City of Bellevue, as SEPA Lead Agency, performed final review of the Final EIS prior to publication.

Project background materials are available on the Energize Eastside EIS Project website, via the Library tab (www.EnergizeEastsideEIS.org/library.html).

1.6 PARTNER CITY REVIEW PROCESS

The Partner Cities were engaged through the preparation of the EIS. During the scoping process for each phase, the Partner Cities were presented with options for alternatives to be considered. In examining alternatives, the EIS Consultant Team, including technical subconsultants, met with the Partner Cities and responded to questions about technical feasibility, likely impacts, and other concerns. In some instances, this involved additional research and inquiry by both the EIS Consultant Team and the Partner Cities into specific potential alternatives. The Partner Cities reached unanimous agreement on the alternatives to be included in each Draft EIS, as well as the Final EIS.

During preparation of the EIS documents, the EIS Consultant Team worked closely with the Lead Agency, the City of Bellevue, to develop the outline, methodology, and content of the EIS. While initial and final review was delegated to the City of Bellevue, preliminary drafts of all sections of the

EIS were provided to assigned City staff for each City, with sufficient time to review and provide comments. The EIS Consultant Team discussed the comments and concerns with the Partner Cities in meetings, and Partner Cities provided their comments in writing. The EIS Consultant Team responded to each comment by making the changes requested or providing an explanation in the limited instances where the requested change could not be made. When requested, Partner Cities were provided with second or third drafts of revisions to ensure that their concerns had been adequately addressed. The final products (Phase 1 Draft EIS, Phase 2 Draft EIS, and Final EIS) reflect the input and consensus of all of the Partner Cities.

1.7 PUBLIC INPUT

The scope of this EIS has incorporated public comment received through website forms, emails, oral testimony, and letters. During Phase 1, comments regarding the need for the project helped focus attention on clarifying the project objectives. In both Phases 1 and 2, comments about the alternatives resulted in changes to the alternatives as originally proposed. Comments from both Phase 1 and Phase 2 about potential impacts were catalogued and evaluated by the EIS Consultant Team and the Lead Agency to determine which impacts could be significant. The results of the scoping process for the Phase 2 Draft EIS are summarized in the *Phase 2 Draft EIS Scoping Comment Summary Reports (Parts 1 and 2)* (City of Bellevue, 2016a, 2016b). Scoping and public comment from both Phase 1 and Phase 2 informed the analysis as presented in the Final EIS. Public comments on the Phase 2 Draft EIS also led to additional analysis and clarification in the Final EIS.

1.8 ALTERNATIVES EVALUATED IN THE FINAL EIS

Chapter 2 describes in detail the alternatives included in the Final EIS. The EIS evaluates a No Action Alternative and one action alternative (PSE's Proposed Alignment), summarized below.

The action alternative evaluated in the Final EIS (PSE's Proposed Alignment) is a refined route based on the results of the analysis of the action alternative segments and options as presented in the Phase 2 Draft EIS. In particular, the Phase 2 Draft EIS included analysis of several options in central and south Bellevue, some of which departed from PSE's existing 115 kV corridor. Based on the results of that analysis and subsequent comments received, PSE has refined its proposed route, and PSE's Proposed Alignment as evaluated within this Final EIS is entirely within PSE's existing 115kV corridor. Two options are evaluated for the Newcastle Segment for this Final EIS. The No Code Variance Option (Option 1) is similar to what was evaluated in the Phase 2 Draft EIS. The Code Variance Option (Option 2) is PSE's preferred option in this segment because the poles can be shorter and can be set farther away from homes. More information is provided in Chapter 2, Project Alternatives.

Under either alternative, it is assumed that PSE would continue to achieve 100 percent of the company's conservation goals as outlined in its *2017 Integrated Resource Plan* (PSE, 2017d), system wide and for the Eastside. Conservation goals are achieved through a variety of energy efficiency improvements implemented by PSE and its customers. Conservation refers to electrical energy savings above and beyond state or local energy code requirements. For additional information on conservation efforts in PSE's service area, see Section 2.3.1 of the Phase 1 Draft EIS. Since conservation efforts would not change as a result of the project, impacts associated with such efforts are not analyzed in this EIS.

1.8.1 No Action Alternative

As required by SEPA, the No Action Alternative must be evaluated in an EIS, as a baseline against which the action alternatives can be evaluated and compared. The No Action Alternative includes the following:

- Ongoing maintenance that PSE can do without requiring state or local approvals.
- No new 230 kV transmission lines or substation.

1.8.2 PSE's Proposed Alignment: New Substation and Overhead 230 kV Transmission Lines

PSE's proposed project (PSE's Proposed Alignment) includes two main components:

1. **New 230 kV overhead transmission lines**, connecting the Sammamish substation in Redmond and the Talbot Hill substation in Renton, a distance of approximately 16 miles; and
2. **A new substation, called the Richards Creek substation**, adjacent to the existing Lakeside substation in Bellevue.

The new Richards Creek substation and upgraded transmission lines would increase electrical capacity and improve reliability of the electrical grid for Eastside communities. PSE has proposed an alignment for the transmission line, described in Section 2.2.2. PSE proposes to use its existing 115 kV corridor, replacing the existing poles and conductors with new poles and conductors.

The segments analyzed in the EIS are broken down by jurisdiction. The Redmond, Newcastle, and Renton Segments each consists of one alignment that extends through that jurisdiction. Although the Final EIS presents two options for the Newcastle Segment, both of these options follow the same alignment (the options differ by pole type and placement). Bellevue is divided into three segments, because the Phase 2 Draft EIS included several route options within those areas. As Lead Agency, the City of Bellevue decided to retain the three-segment organization of the analysis within Bellevue for the Final EIS, to facilitate comparison of the options presented in the Phase 2 Draft EIS with PSE's Proposed Alignment in the Final EIS. PSE's Proposed Alignment, as evaluated in this Final EIS, is entirely within PSE's existing 115 kV corridor.

1.9 ENVIRONMENTAL REVIEW AND NEXT STEPS IN THE ENERGIZE EASTSIDE EIS PROCESS

The City of Bellevue and other Partner Cities published the Phase 1 Draft EIS on January 28, 2016. For Phase 1, a 45-day comment period was open until March 14, 2016 and included five public hearings (from February 23 through March 1, 2016). The City of Bellevue and other Partner Cities published the Phase 2 Draft EIS on May 8, 2017. For Phase 2, a 60-day comment period (initially a 45-day period but extended by request) was open until July 6, 2017 and included three public hearings (from May 23 through June 3, 2017). Based on the analysis in the Phase 1 Draft EIS and Phase 2 Draft EIS, public comments, and technical analysis by PSE engineers and consulting engineers, PSE refined its proposal as PSE's Proposed Alignment, the alignment evaluated in this Final EIS. The Partner City communities and other permitting agencies will use the Final EIS in making permit decisions regarding the project.

Following publication of the Final EIS, PSE will need to obtain land use and construction permits from each of the five jurisdictions where the Energize Eastside project is proposed to be built: Redmond, Bellevue, Newcastle, Redmond, and unincorporated King County. Applications for local permits have already been submitted for the first phase of the project, including Renton, Newcastle, and the southern portion of the project in Bellevue.

Each of the five jurisdictions has its own land use permitting process. The permits required for the Partner Cities are shown in Figure 1-3.

PSE would also require other permits, including land use and construction permits from King County. For any construction in a wetland, PSE would also need a Section 404 permit issued by the U.S. Army Corps of Engineers. Other entities such as the Washington Utilities and Transportation Commission (WUTC), Bonneville Power Administration (BPA), North American Electric Reliability Corporation (NERC), and Federal Energy Regulatory Commission (FERC) would not be involved in local construction permitting. They would, however, be involved in setting utility rates and regulating PSE's system to ensure it is operating safely and in accord with regional and federal requirements. For additional detail on required permits, see the Fact Sheet.

If approved, the final design and permitting process for the first phase of the project is expected to be completed by summer 2018, with construction beginning soon after. (Phasing is described in further detail in Chapter 2.) Project completion would be late 2019 or early 2020 at the earliest.

1.10 ELEMENTS OF THE ENVIRONMENT NOT ANALYZED IN THE FINAL EIS

As required by SEPA (WAC 197-11-440(6)), elements of the environment that are not significantly affected do not need to be included in an EIS. The following are elements of the environment evaluated in the Phase 1 Draft EIS that would not be significantly affected by the proposed project, and were therefore not analyzed in either the Phase 2 Draft EIS or this Final EIS.

Public Services – As described in the Phase 1 Draft EIS, neither the No Action Alternative nor the Energize Eastside project alternatives would significantly increase the demand for public services, or significantly hinder the delivery of services. Existing services are also adequate to address impacts from the project. Therefore, no significant impacts are expected. Several comments were received during the Phase 1 Draft EIS and Phase 2 Draft EIS regarding the ability of local emergency service providers to respond to a fire or other release on the *Olympic Pipeline system*. For additional discussion of this issue, please see “Key Theme” (Issue) SVC-1 in the response to comments on the Phase 1 Draft EIS in Chapter 6 and Appendix J of this Final EIS.

Utilities – As described in the Phase 1 Draft EIS, neither the No Action Alternative nor the Energize Eastside project alternatives would significantly increase the demand for utilities, or significantly affect utility operations, except as described in the Phase 1 Draft EIS with regard to electrical reliability. Therefore, no significant adverse impacts are expected for the Energize Eastside project alternatives. Significant adverse impacts to utilities (e.g., rolling blackouts) could occur under the No Action Alternative if capacity increases are not implemented, as described in the Phase 1 Draft EIS. Public safety issues related to the Olympic Pipeline system are addressed in this Final EIS under Environmental Health - Pipeline Safety.

Note: This chart has been updated. See the project [website](#).

City of Redmond		Land Use Permits							
A Conditional Use Permit is required which includes a neighborhood meeting and public hearing.	CONDITIONAL Land Use Permit	Notice of Application	Neighborhood Meeting & Comment Period Staff Review	Staff Issues Recommendation	Public Hearing	Hearing Examiner Issues Decision ¹			
	¹ Decision can be appealed to City Council. City Council decision can be appealed to King County Superior Court.								
City of Bellevue									
Conditional Use Permit and Critical Areas Permit will be reviewed concurrently. The public comment period for each will occur during the same time frame.	North Phase	CONDITIONAL Land Use Permit	Notice of Application	Public Meeting & Comment Period Staff Review	Director Issues Recommendation	Public Hearing	Hearing Examiner Issues Recommendation ¹	City Council Adopts Ordinance	EBCC Issues Approval or Disapproval ³
	South Phase	CONDITIONAL Land Use Permit	Notice of Application	Public Meeting & Comment Period Staff Review	Director Issues Recommendation	Public Hearing	Hearing Examiner Issues Decision ^{1,3}		
	for both phases	CRITICAL AREAS Permit	Notice of Application	Public Meeting & Comment Period Staff Review	Director Issues Decision ^{2,3}				
¹ Decision can be appealed to the City Council.									
² Decision can be appealed to the Hearing Examiner.									
³ Decision by EBCC or decisions on administrative appeals (notes 1 & 2) can be appealed to King County Superior Court.									
City of Newcastle									
Both anticipated permits will be reviewed concurrently. The public comment period for each will occur during the same time frame. PSE may apply for a variance to allow pole installation closer to the Olympic Pipeline right-of-way to reduce pole height in specific locations.	CONDITIONAL Land Use Permit¹	Notice of Application	Public Comment Period Staff Review	Staff Issues Recommendation	Public Hearing	Hearing Examiner Issues Decision ²			
	CRITICAL AREAS Permit	Staff Issues Recommendation	Community Development Director Issues Decision ²						
¹ Decision must also consider criteria applicable to Utility Facilities-Regional.									
² Decision can be appealed to King County Superior Court.									
City of Renton									
All anticipated permits will be processed under a single land use application file number and considered at one open record hearing with the City's Hearing Examiner.	CONDITIONAL Land Use Permit	Public Meeting	Notice of Application	Comment Period Staff Review	Staff Issues Recommendation	Public Hearing	Hearing Examiner Issues Decision ^{1,2}		
	SHORELINE Exemption	Public Meeting	Notice of Application	Comment Period Staff Review	Staff Issues Recommendation	Public Hearing	Hearing Examiner Issues Decision ^{1,2}		
¹ Decision can be appealed to City Council. City Council decision can be appealed to King County Superior Court.									
King County and the four cities above also require PSE obtain permits for engineering review, building and related facilities, clearing and grading, construction and use of the right-of-way.		To obtain these permits PSE must submit construction drawings that demonstrate compliance with all applicable codes. No public input is required.				Actual Permitting Processes May Differ The anticipated permitting processes shown above are for Energize Eastside as currently proposed with local regulations in effect February 2018.			

Figure 1-3. Permitting Required for the Energize Eastside Project by Partner Cities



Transportation – The only potential for significant transportation impacts that was described in the Phase 1 Draft EIS was the possibility of building the transmission line underground in a street right-of-way. Since this alternative is not being carried forward, there was no need to further analyze transportation impacts from the project in the Phase 2 Draft EIS or the Final EIS. Transportation impacts resulting from construction of PSE’s Proposed Alignment would be below the level of significance and addressed through regulatory requirements as part of the right-of-way use permit. If undergrounding were required as mitigation, regulatory requirements for right-of-way use could ensure that significant impacts are avoided.

Energy and Natural Resources – The project would not affect the generation or consumption of energy. Energy consumption would be essentially the same under all alternatives, with the exception that any temporary minor reduction in consumption under the No Action Alternative due to rolling blackouts would not be as likely to occur under PSE’s Proposed Alignment. The project would consume other natural resources, but such consumption is not considered a significant impact.

Noise – As described in the Phase 1 Draft EIS, there would be no significant and unavoidable adverse noise impacts associated with any of the project alternatives, either during construction or operation. Several comments were received during the Phase 1 Draft EIS and Phase 2 Draft EIS regarding potential noise impacts. For additional discussion of this issue, please see Topic Noise (and associated “NOI” Key Themes) in the response to comments summary in Appendix J-1, as well as Chapter 6, of this Final EIS.

Each of these elements was analyzed in the Phase 1 Draft EIS. Comments from Phase 1 that address these topics are included and responded to in this Final EIS (see Chapter 6 and Appendix J).

1.11 KEY FINDINGS OF THE EIS (SUMMARY BY ELEMENT OF THE ENVIRONMENT)

The following pages provide a summary of the findings of each element of the environment, as analyzed in detail in Chapter 4 and Chapter 5 of this Final EIS. For each element of the environment evaluated in the EIS, these two-page summaries provide a brief description of key findings about the affected environment, potential impacts, mitigation available, cumulative impacts, and any unavoidable significant impacts. Summaries are not intended as a replacement for the more thorough analyses presented in Chapter 4 and Chapter 5.

Impacts are generally categorized as less-than-significant, or significant. Less-than significant does not imply the impacts would be negligible or insignificant, but rather that the impact does not meet the definition of a significant impact under SEPA, as determined by the lead agency. SEPA also provides substantive authority to mitigate moderate and minor impacts to the environment. Each subsection of Chapters 4 and 5 defines “significant” and “less-than-significant” for the specific element of the environment and provides detailed descriptions of impacts. Impacts that are described in this EIS as “negligible” refer to small impacts that would be inconsequential.

For each element of the environment evaluated, the EIS identifies mitigation measures. Mitigation measures are implemented to reduce or eliminate the adverse impacts associated with a proposed action. Mitigation can be achieved through avoidance, minimization, rectification, elimination, compensation, or monitoring of environmental impacts (WAC 197-11-768, *Mitigation*).

Mitigation measures must be related to a specific adverse impact clearly identified in an environmental document (WAC 197-11-744) on the proposal, and must be reasonable and capable of being accomplished [WAC 197-11-660(1)(b) and (c)]. They can be mandated through regulations, suggested by the applicant, or recommended in an environmental document, such as this EIS. Mitigation measures may be required if existing regulations are not sufficient to provide adequate mitigation for an impact. Mitigation beyond compliance with existing regulations can be required, even if the impacts are not considered significant, provided the mitigation is based on a SEPA policy adopted by the decision making agency.

Mitigation measures can be applied prior to construction (e.g., through design changes), during construction, or during operation of the project. In general, mitigation measures applied prior to construction or during operation address long-term impacts. Conversely, mitigation measures applied during construction address short-term, construction-related impacts.

In the Final EIS, possible mitigation measures for PSE's Proposed Alignment are listed and described in Chapters 4 and 5 at the end of each element of the environment. Application of these measures and/or additional measures will be determined during the permit process. In addition, the Final EIS includes a new appendix (Appendix M) that compiles and summarizes potential mitigation measures presented in the Phase 1 Draft EIS, Phase 2 Draft EIS, and the Final EIS.



Land Use & Housing



Typical multi-family residential development in Bellevue



Typical single-family residential development



Renton Technical College, Renton

AFFECTED ENVIRONMENT



Land Use

Existing Land Use: The most common existing land uses in the study area are residential (49 percent), vacant land (17 percent), and institutional (9 percent).

Neighborhood Character: The study area passes through numerous neighborhoods. The proposed Richards Creek substation site is surrounded by mostly industrial area. The Redmond, Bellevue North, and Newcastle Segments pass through mostly residential neighborhoods. The Bellevue Central Segment, Bellevue South Segment, and the Renton Segment pass through a mix of neighborhoods, including residential, commercial, recreation, and institutional.

Zoning: The most common zoning category along the corridor is single-family residential (70 percent).

Future Land Use: Comprehensive Plans for the Partner Cities identify future land use designations to protect existing single-family neighborhoods, provide opportunities for infill development, increase opportunities for new multi-family development, and encourage redevelopment of commercial land uses into mixed-use developments, particularly in the Bellevue Central and Bellevue South Segments.

Housing

There are about 663 single-family and 2,205 multi-family residences in the study area, with the highest density areas in the Bellevue Central Segment.

SUMMARY OF IMPACTS

OPERATIONAL IMPACTS

- » Each segment of the project would be consistent with land use-related policies in applicable city and subarea plans.
- » Some segments were found to be inconsistent with aesthetic and recreation-related policies. See the corresponding sections for more detail.
- » For crossing of Cedar River Shoreline, operation must be considered maintenance or repair.

CONSTRUCTION IMPACTS

- » Construction impacts, due to their temporary nature, would be less-than-significant.

CUMULATIVE IMPACTS

- » The project is not expected to alter land use or the supply of housing. The project would not affect the scale of additional development, but if the project were not constructed, it could slow the rate of additional development on the Eastside.

NO ACTION ALTERNATIVE IMPACTS

- » No direct impacts to land use and housing in the study area would occur.
- » Potential inconsistency with the Growth Management Act and Comprehensive Plan policies that require planning for utilities to accommodate anticipated growth.

Mitigation Measures

- » Co-locate utilities.
- » Adhere to zoning regulations.
- » Comply with conditional use permits and other permits, as required.
- » Underground distribution lines where feasible.
- » Underground portions of the transmission line.

Significant Unavoidable Adverse Impacts

- » There are no significant unavoidable adverse impacts to land use and housing.



Scenic Views & Aesthetic Environment



Coal Creek Natural Area in Bellevue



Cedar River Trail in Renton



View of Lake Washington from Somerset neighborhood

AFFECTED ENVIRONMENT



Aesthetic Environment

Natural Environment: Rolling topography with hills (e.g., Woodridge, Somerset, and Olympus), ravines (Coal Creek, May Creek, and Honey Creek), and valleys (Richards Valley and Cedar River). Notable water bodies crossed by or near the project include the Cedar River; Sunset, Coal, Richards, Kelsey, May, and Honey creeks; and Swan Lake. Tree density is highest in undeveloped areas (e.g., the ravines) and lowest in highly urbanized areas (e.g., Bel-Red).

Built Environment: Predominately single-family housing, with some low-density commercial buildings with large parking lots (e.g., Bel-Red and Sunset Plaza). Some industrial warehouses (e.g., west of Lakeside substation) and larger institutional buildings (schools and churches) throughout the study area. Utility infrastructure includes substations, 230 kV lattice towers, and 115 kV and 12.5 kV circuits on wood poles.

Visual Quality: In general, visual quality varies but is better in areas where the natural environment is relatively intact, residential and commercial areas have consistent scale and character, and where there is minimal utility presence. The study area has areas with low, medium, and high visual quality. Areas with higher visual quality include the ravines and natural areas (e.g., Coal Creek Natural Area), Lake Boren, and residential areas away from the existing transmission corridor that have consistent building height and form. Areas with lower visual quality include the existing transmission line corridor, the industrial area surrounding the Lakeside substation, and areas with a variety of building forms and heights (e.g., north of Bel-Red Road and south of SR-520).

Scenic Views

The Olympics, the Cascades, Mount Rainier, Cougar Mountain, Lake Washington, Lake Sammamish, and the downtown Bellevue and downtown Seattle skylines.

SUMMARY OF IMPACTS

OPERATIONAL IMPACTS

- » Visual quality could change due to contrast with the natural and built environment from vegetation removal, incompatibility with the surrounding environment, and visual clutter.
- » Scenic views could be obstructed by increased pole height.
- » Viewer sensitivity to impacts to scenic views and the aesthetic environment is important. Groups with the highest viewer sensitivity are residential viewers and users of recreation areas.
- » The Newcastle Segment (both options) and the Bellevue South Segment are expected to have significant impacts due to high viewer sensitivity and substantial contrast with the aesthetic environment.

CONSTRUCTION IMPACTS

- » Construction impacts, due to their temporary nature, would be less-than-significant.

CUMULATIVE IMPACTS

- » Development increases the likelihood of impacts to scenic views and the aesthetic environment. The project would not affect the scale of development, but if the project were not constructed, it could slow the rate of development on the Eastside.

NO ACTION ALTERNATIVE IMPACTS

- » No substantial new infrastructure would be introduced into the aesthetic environment; therefore, no significant contrast would be created.

Mitigation Measures

- » Co-locate utilities.
- » Limit vegetation disturbance, and revegetate with vegetation compatible with clearance requirements.
- » Sight-screen utilities using landscaping and fencing.
- » Underground portions of the transmission line.
- » Design overhead transmission lines to be aesthetically compatible with surrounding land uses. This could include design measures such as changes to pole height, spacing, location, or color.

Significant Unavoidable Adverse Impacts

- » There would be no significant adverse impacts to scenic views.
- » Significant aesthetic impacts from the Bellevue South Segment could be avoided by selecting a different option that has shorter poles.
- » Significant aesthetic impacts from the Newcastle Segment could be reduced if the Variance Option is selected; however, significant impacts would not be avoided.
- » All significant impacts could be avoided if the lines were placed underground.



Water Resources



May Creek, Newcastle



Cedar River, Renton

AFFECTED ENVIRONMENT



Streams and Rivers

The study area includes several streams and the Cedar River. Most major streams, including Kelsey Creek, Coal Creek, and May Creek, flow generally from east to west and drain to Lake Washington. Streams in the Redmond and Bellevue North area, including Willows Creek, drain to Lake Sammamish or the Sammamish River. Kelsey Creek in Bellevue and Cedar River in Renton are Shorelines of the State and regulated under each jurisdiction's Shoreline Master Program.

Wetlands

Numerous wetlands are located along the transmission line corridor. The majority are small Category II or III wetlands (using Ecology's wetland rating system), but a major wetland complex is located at the north end of the transmission line in connection with Willows Creek in Redmond.

Groundwater

Depths to groundwater along the transmission line range from less than 10 feet to approximately 60 feet. Within the study area, Redmond and Renton utilize groundwater for their water supply. The north end of the transmission line is located over Redmond's Wellhead Protection Zone 4, and the south end is located over Renton's Wellhead Protection Zone 2.



Kelsey Creek Park wetland mitigation

SUMMARY OF IMPACTS

OPERATIONAL IMPACTS

- » Minor loss of function and acreage of wetlands, and stream and wetland buffers that would be mitigated through compliance with applicable regulations.
- » Minor increases in stormwater runoff and erosion from new poles and access roads. Compliance with applicable stormwater regulations would mitigate impacts.

CONSTRUCTION IMPACTS

- » Construction would require vegetation clearing, excavation, and limited in-water work, which could temporarily increase erosion and sedimentation. Implementation of BMPs would reduce these impacts to less-than-significant.
- » Pole installation could encounter shallow groundwater requiring dewatering. Excavated areas would be small, so dewatering would be minimal and impacts would be less-than-significant.

CUMULATIVE IMPACTS

- » The project is not expected to contribute to indirect or direct impacts to water resources resulting from other projects; therefore, no cumulative impacts to water resources would occur.

NO ACTION ALTERNATIVE IMPACTS

- » The No Action Alternative does not include substantial new infrastructure; therefore, no significant impacts would occur on stormwater runoff, surface water quality or quantity, or groundwater.
- » PSE's maintenance activities would include vegetation removal, but ground clearing would be limited and erosion would not increase.

Mitigation Measures

- » Comply with Partner Cities' critical areas regulations for wetland and buffer impacts.
- » Comply with state and federal wetland and water quality regulations.
- » Comply with Renton's Shoreline Master Program for the Cedar River.
- » Comply with Partner Cities' stormwater regulations.
- » Implement BMPs to reduce construction impacts.
- » Develop and implement a Stormwater Pollution Prevention Plan, Temporary Erosion and Sediment Control Plan, and Spill Prevention, Control and Countermeasures Plan to minimize construction impacts to water quality.
- » Comply with Redmond's and Renton's Wellhead Protection Zone construction standards to minimize impacts to drinking water sources.

Significant Unavoidable Adverse Impacts

- » No significant unavoidable adverse impacts would occur because there would be no long-term impacts.



Plants & Animals



Great blue heron



Cedar River Valley

AFFECTED ENVIRONMENT



Vegetation cover types include herbaceous, scrub-shrub, forest, agricultural, and woody and herbaceous wetland vegetation. Upland and aquatic fish and wildlife species are present, frequently associated with stream, wetland, and critical habitats. Trees are present throughout the study area, including significant trees (defined as healthy evergreen or deciduous trees, typically 6 inches in diameter or greater, measured 4 feet above existing grade).



Kelsey Creek tributary, Bellevue

SUMMARY OF IMPACTS

OPERATIONAL IMPACTS

- » Minor disturbance or loss of habitat through routine vegetation and facility maintenance activities.
- » Loss of wildlife habitat due to tree removal, trimming, and other management activities.
- » Loss or degradation of fish habitat due to the removal of trees in critical areas and buffers.
- » Operational impacts would be less-than-significant, as the basic character and functions of the habitat in the corridor would be maintained, and few protected wildlife species regularly occur in the study area.

CONSTRUCTION IMPACTS

- » Loss or disturbance of plants and habitat during construction activities. Impact level depends largely on pole placement. Implementation of construction BMPs would result in less-than-significant impacts, and disturbed areas would be replanted with native vegetation.

CUMULATIVE IMPACTS

- » Development increases the likelihood of impacts to fish and wildlife habitat. The project would contribute to urbanization through the removal of trees and a loss or degradation of fish and wildlife habitat. However, cumulative impacts would be less-than-significant as the overall habitat character and functions would be maintained.

NO ACTION ALTERNATIVE IMPACTS

- » Pole maintenance, including replacement, and routine vegetation maintenance could cause habitat alteration or loss of existing plants and animals, and degradation of aquatic and upland habitat. However, compliance with environmental regulations and implementation of BMPs would result in less-than-significant impacts.

Mitigation Measures

- » Minimize tree removal, trimming, and management activities to the extent practicable.
- » Implement minimization measures: erosion control, spill prevention and control plans, and BMPs.
- » Replant and stabilize disturbed construction staging areas with native trees, shrubs, and grasses that would meet powerline clearance requirements.
- » Comply with existing regulations and operational management plans.
- » Comply with critical area ordinances.

Significant Unavoidable Adverse Impacts

- » No significant unavoidable adverse impacts would occur because there would be no significant long-term impacts.



Greenhouse Gases



Existing 115 kV transmission line in Redmond



Lakeside substation, Bellevue



Traffic on I-90 heading west

AFFECTED ENVIRONMENT



Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHGs) because, like a greenhouse, they capture heat radiated from the earth. The accumulation of GHGs is a driving force in global climate change. Definitions of climate change vary among regulatory authorities and the scientific community. In general, however, climate change is the changing of the earth's climate caused by natural fluctuations and human activities that alter the composition of the global atmosphere. In emissions inventories, GHG emissions are typically reported in terms of metric tons of CO₂ equivalents (CO₂e). The GHG environment is the area where the project would directly or indirectly result in GHG emissions or a reduction of carbon sequestration. Carbon sequestration is a process that traps atmospheric CO₂ in plants or soil.

SUMMARY OF IMPACTS

OPERATIONAL IMPACTS

- » Removal of trees and vegetation would reduce carbon sequestration.
- » Employee vehicle trips to maintain the new facilities would increase GHG emissions.
- » Substations with equipment that use SF6 as an insulating gas could cause some fugitive emissions.

CONSTRUCTION IMPACTS

- » Construction truck trips, off-road equipment, and worker trips would temporarily generate GHG emissions.

CUMULATIVE IMPACTS

- » GHGs are a component of cumulative climate change impacts; both the construction and operational impacts reflect cumulative impacts.

NO ACTION ALTERNATIVE IMPACTS

- » No new infrastructure improvements or utility yards.
- » No changes to vegetation maintenance activities.
- » No new employee vehicle trips.

Mitigation Measures

- » Install SF6 equipment at substations with manufactured guaranteed leakage rate of 0.1 percent.
- » Limit vegetation disturbance.
- » Plant an equivalent number of trees to those removed for the project.

Significant Unavoidable Adverse Impacts

- » None identified – greenhouse gases for the project would not create an increase that would be above the state reporting thresholds.



Recreation



Coal Creek Trail, Bellevue



May Creek Natural Area, Newcastle



Kelsey Creek Park, Bellevue

AFFECTED ENVIRONMENT



Recreation Study Area: PSE’s existing corridor, and road corridors and parcels adjacent to PSE’s Proposed Alignment.

Recreation Sites: Parks, natural areas, open spaces, trails, and playfields, as well as amenities such as community centers, playground equipment, and school playfields and private recreation clubs (such as golf clubs). The study area contains approximately 18 recreation sites plus many miles of trails. This encompasses approximately 475 acres in recreation sites owned and operated primarily by local governments, and includes four schools and two privately owned recreation clubs. The sites provide a variety of recreational opportunities, ranging from small neighborhood or “pocket” parks to large natural park areas and regional trails that extend across the study area. Recreation sites are used primarily by local residents, with the exception of the larger recreation areas and regional trails, which also draw visitors from neighboring communities. Hiking, walking, bicycling, enjoying playgrounds, and picnicking are the primary activities.

Informal Recreation: Activities outside of the designated recreation sites, such as bicycling on a street.

SUMMARY OF IMPACTS

OPERATIONAL IMPACTS

- » Park user experience may change with replacement poles that are taller and/or in different locations than existing poles.
- » Park user experience could be negatively impacted by tree removal in some recreation sites.
- » Magnitude of impact varies depending on location of poles and number of trees removed, but impacts on park users would not be significant in any location.

CONSTRUCTION IMPACTS

- » Temporary loss of the use of a recreation site during construction.
- » Construction activities may decrease the enjoyment of a recreation site during construction.

CUMULATIVE IMPACTS

- » In general, there is pressure on recreation areas from development and increased use. Impacts although less-than-significant to recreation sites from PSE’s Proposed Alignment could contribute to the degradation of existing recreation resources and limit the ability for municipalities to provide additional recreation opportunities, unless mitigation is provided.

NO ACTION ALTERNATIVE IMPACTS

- » No new utility infrastructure would be placed in or adjacent to recreation sites; therefore, no significant impacts would be created.

Mitigation Measures

- » Avoid placing utility infrastructure within or adjacent to recreation sites where there is none currently.
- » Adhere to restrictions that protect recreation land from conversion to other uses.
- » Limit vegetation disturbance, both during construction and operation. Restore areas cleared for construction.
- » Notify local jurisdictions, schools, or private owners in advance of work within recreation sites.

Significant Unavoidable Adverse Impacts

- » None.



Historic & Cultural Resources



115 kV wooden H-frame



Newcastle Cemetery



Twin Valley Dairy Barn

AFFECTED ENVIRONMENT



Study Area

Archaeological evidence indicates human activity in the Pacific Northwest and Puget Sound since at least 12,500 years ago. Within 2 miles of the Redmond Segment is an archaeological site that dates to the earliest known time period of human occupation in the region.

Historic Resources

There are five significant historic resources and hundreds of unevaluated historic resources in the study area. All segments and options contain portions of the Eastside Transmission Corridor, which has been recommended eligible for listing on the National Register of Historic Places. The other resources are the Somerset Neighborhood, Newcastle Cemetery, Mt. Olivet Cemetery, and the Twin Valley Dairy Barn at Kelsey Creek Farm Park.

Archaeological Resources

One protected archaeological resource is recorded within the study area (the Columbia & Puget Sound Railroad). In general, the study area has very low sensitivity for containing additional unrecorded archaeological resources, with the exception of the Kelsey Creek and Cedar River areas, which have a very high sensitivity.

SUMMARY OF IMPACTS

OPERATIONAL IMPACTS

- » Potential impacts to significant historic resources and protected archaeological resources could result from pole replacement, ground disturbance, demolition, relocation, or alterations to the visual setting of resources.
- » Potential impacts to unevaluated historic resources will be determined when the historic property inventory is completed. Significant impacts to these resources could occur, although not all are likely to be eligible for listing.

CONSTRUCTION IMPACTS

- » Construction impacts, due to their temporary nature, would be less-than-significant.

CUMULATIVE IMPACTS

- » Development increases the potential for impacts to historic and cultural resources, if present where development could occur. Impacts to belowground archaeological resources could occur during ground disturbance. Impacts to historic resources could occur from demolition or alterations to the setting.

NO ACTION ALTERNATIVE IMPACTS

- » Ground disturbance due to routine pole replacement has the potential to impact belowground archaeological resources, if present.
- » Routine pole replacement would impact the Eastside Transmission Corridor, which has been recommended eligible for listing in the National Register of Historic Places.

Mitigation Measures

- » Conduct a historic property inventory and belowground archaeological survey. This would document and prepare eligibility recommendations for all identified archaeological resources and unevaluated historic resources. PSE has conducted the historic property inventory, and will submit to DAHP for review. PSE is currently conducting phased belowground archaeological survey.
- » Consult with the Department of Archaeology and Historic Preservation (DAHP) to obtain eligibility determinations for recommended eligible resources, including the Eastside Transmission Corridor.
- » Consult with DAHP, King County Historic Preservation Program, municipal governments, affected Tribes, and other stakeholders as applicable to the resource to develop resource-specific mitigation measures.
- » Apply for an archaeological excavation permit from DAHP if impacts to a protected archaeological resource cannot be avoided.
- » Prepare an Inadvertent Discovery Plan prior to construction of the project.

Significant Unavoidable Adverse Impacts

- » No significant unavoidable adverse impacts are anticipated as it is probable that all impacts could be mitigated through consultation with DAHP, King County Historic Preservation Program, municipal governments, affected Tribes, and other stakeholders.



Environmental Health Electric & Magnetic Fields (EMF)



City of Bellevue, proposed transmission lines North Bellevue



City of Bellevue, existing transmission lines Tyee Middle School



City of Renton, proposed transmission lines

AFFECTED ENVIRONMENT



Magnetic Fields in Study Area

Power-frequency EMF associated with transmission of electric power is present underneath and adjacent to PSE's existing 115 kV transmission lines and substations. In response to concerns expressed during the public scoping comment period, Power Engineers, a subconsultant to PSE, modeled magnetic field levels that would be associated with the No Action Alternative and PSE's Proposed Alignment.

Methods and Approach to Identifying Calculated Magnetic Field Levels

Power Engineers calculated potential magnetic fields at 35 representative locations along the transmission line corridor for the winter 2027/2028 and summer 2028 peak periods. Calculated magnetic field levels were computed as a function of distance away from the centerline of the existing transmission line corridor. The maximum magnetic field levels would typically occur within the corridor and drop in value at the edge of the right-of-way, and further drop in value at the outermost edge of the study area (defined as 250 feet from the centerline of the corridor).

EMF Exposure Guidelines

Reference guidelines for limiting EMF exposure have been adopted by three organizations. The Institute of Electrical and Electronics Engineers (IEEE) Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields sets limits of 9,040 milligauss (milligauss or mG is a commonly used unit of measurement of magnetic field strength) for the general public. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) recommends a limit of 2,000 mG for the general public. The American Council of Governmental Industrial Hygienists (ACGIH) sets limits of 10,000 mG for workers with cardiac pacemakers.

SUMMARY OF IMPACTS

OPERATIONAL IMPACTS

- » All parts of the Energize Eastside project would have associated magnetic fields during operation, and would vary depending on the pole type and electrical load.
- » Operation of the proposed transmission lines would result in a decrease of magnetic field levels for all segments and options.
- » There are no known health effects from power frequency EMF. For all proposed segments and options, the calculated magnetic field levels would be well below reference guidelines. Therefore, under PSE's Proposed Alignment, impacts would be less-than-significant.

CONSTRUCTION IMPACTS

- » Magnetic fields from construction equipment would be indistinguishable from background levels for the public outside of the construction site. Construction impacts would be less-than-significant.

CUMULATIVE IMPACTS

- » The project would reduce magnetic fields along the existing corridor; therefore, there would be no cumulative effect.

NO ACTION ALTERNATIVE IMPACTS

- » Operation under the existing 115 kV transmission lines would result in an increase in magnetic field levels during winter peak periods and a decrease during summer peak periods for segments south of the Lakeside substation (Bellevue South, Newcastle, and Renton Segments), and a decrease in magnetic field levels during winter and summer peak periods in the segments north of the Lakeside substation (Redmond, Bellevue North, and Bellevue Central Segments).
- » There are no known health effects from power frequency EMF. The magnetic field levels indicate that the existing corridor under the No Action Alternative would have calculated magnetic field levels well below reference guidelines. Therefore, impacts would be less-than-significant.

Mitigation Measures

- » No adverse impacts from magnetic fields are expected; therefore, no mitigation is proposed.

Significant Unavoidable Adverse Impacts

- » No adverse impacts are likely from power frequency EMF at the levels of public exposure from the Energize Eastside project. It follows that no unavoidable significant impacts under SEPA would occur.



Environmental Health Pipeline Safety



City of Newcastle, co-location with existing transmission lines

AFFECTED ENVIRONMENT



Pipelines in Study Area

The Olympic Pipeline system is located within the study area (defined as the transmission line corridor and the surrounding area that could be affected by an incident) and includes two pipelines. One or both pipelines are co-located with PSE's existing corridor within all of the segments; in the Renton Segment, they are co-located only in the north part of the segment. The pipelines carry diesel, jet fuel, and gasoline and operate about 95 percent of the time.

Potential for Pipeline Damage

The Energize Eastside project could increase the risk of damage to the Olympic Pipeline system. Although the probability of a leak or fire caused by the project is low, the potential damage from such an incident could be high, given the population density in the study area. The project could affect pipeline safety primarily in two ways: outside force/excavation, and/or electrical interference. These could cause unintentional releases from the pipeline, placing the public at risk.

Outside force/excavation could occur during construction of the transmission line. Excavation activities or surcharge loading from construction equipment could damage the pipeline.

Electrical interference could occur during normal transmission line operation, which could contribute to accelerated external corrosion damage on the pipeline, or as a result of fault conditions. Fault conditions involve elevated electric currents (typically caused by lightning, insulator failure, mechanical failure, or transformer failure) that can lead to fault damage or arcing damage to the pipeline.

Methods and Approach to Identifying Change in Risk

$$\text{Risk} = \text{Event Probability (Likelihood)} \times \text{Severity of Consequences (Impact)}$$

EDM Services, a firm specializing in pipeline safety, conducted a pipeline risk assessment to determine if the project would change the risk of potential damage to the pipelines. Risk is presented as the probability that a specific consequence will occur within a specified time period. The severity of the impact depends on the nature and quantity of the substance released, as well as the proximity to people.

SUMMARY OF IMPACTS

OPERATIONAL IMPACTS

- » The probability of a pipeline incident such as damage to a pipe wall as a result of electrical interference could be slightly higher in some locations when compared with the No Action Alternative. In these areas, testing, monitoring, engineering analysis, and implementation of mitigation measures would lower these risks.
- » The likelihood of a pipeline rupture and fire would remain low, and no substantial change in risk from existing conditions has been identified. As a result, the potential risk is not considered significant.
- » In addition to the human safety risks, impacts to natural resources and other elements of the environment could be significant if an accidental release or fire were to occur. The extent of the damage would depend on various unpredictable factors and could cause significant impacts due to the sensitivity of resources in the study area. However, the likelihood of a pipeline rupture and release remains low, and mitigation measures would further reduce the probability of a pipeline incident occurring. As a result, the potential risk to natural resources and other elements of the environment is not considered significant.

CONSTRUCTION IMPACTS

- » During construction, the Olympic Pipeline system would be exposed to an increased risk of damage by outside force/excavation.
- » This change in risk is not substantial and therefore would not be considered a significant impact.

CUMULATIVE IMPACTS

- » Activities by other parties (e.g., ground-disturbing activities), unrelated to the Energize Eastside project, may occur in the corridor on occasion. While these activities remain a source of potential pipeline safety risk in the corridor, the project would not contribute to adverse impacts resulting from these other activities; therefore, no cumulative impacts to environmental health from pipeline safety would occur.

NO ACTION ALTERNATIVE IMPACTS

- » Based on the limited pipeline data available to the EIS team, it is not possible to calculate exact risks along the existing corridor. The risk of external corrosion and outside force/excavation is expected to stay the same under the No Action Alternative. As a result, impacts would be less-than-significant.
- » Impacts to natural resources and other elements of the environment would be the same as for PSE's Proposed Alignment.



Pipeline warning sign in the existing corridor

Mitigation Measures

- » To minimize the potential for electrical interference, PSE would initially operate both lines at 230 kV (rather than 230 kV/115 kV), minimize points of transmission line and pipeline divergence along the corridor, use a delta conductor configuration, and locate pole grounds away from the pipelines.
- » To reduce the potential for external corrosion, PSE could model the final design for instances where additional protection is needed. The pipeline operator is responsible for field monitoring, testing, and providing additional mitigation (such as grounding mats) in accordance with federal requirements.
- » To reduce the potential for outside force/excavation, PSE could field verify the distance between the pipeline and transmission line pole grounds prior to construction and ensure that Olympic representatives are on-site to monitor construction activities near the pipeline.
- » Additional measures are found in Sections 4.9.7 and 5.9.4.

Significant Unavoidable Adverse Impacts

- » Even with worst-case assumptions related to the increased risk during operation and construction, the likelihood of a pipeline release and fire would remain low, and no substantial increase in risk compared to the existing conditions was identified. It is expected that with the implementation of additional mitigation measures, any increase in risks within the corridor can be fully mitigated. As a result, no significant unavoidable adverse impacts have been identified.



Economics



Trees in the study area provide ecological benefits and environmental values



Stormwater inlet

AFFECTED ENVIRONMENT

Although economic analysis is not a required element under SEPA, the Phase 2 Draft EIS evaluated three topics related to economics: (1) potential loss of property tax revenue; (2) cost to the local community of undergrounding a portion of the new transmission lines; and (3) the value of ecosystem services lost due to reduced tree cover along the project corridor. Results of the analysis of the first two topics have not changed since publication of the Phase 2 Draft EIS and are not presented in the Final EIS. Analysis of economics in the Final EIS focuses on the loss of ecosystem services associated with PSE's Proposed Alignment.

SUMMARY OF IMPACTS

OPERATIONAL IMPACTS

- » Under PSE's Proposed Alignment, the project corridor would lose 410 tons of carbon stored in trees, and a loss of 13.3 tons of carbon sequestered per year.
- » The project corridor would lose its ability to remove 0.43 ton of air pollutants annually, valued at \$3,967 per year.
- » Without tree canopy to reduce stormwater runoff volume, the municipalities within the study area must manage an additional 65,216 cubic feet of stormwater per year, valued at \$4,358 per year.
- » The total ecosystem services lost as a result of PSE's Proposed Alignment would constitute less than 0.2 percent of the services provided by urban tree cover, which is not considered to be a large amount. Based on this comparison, ecosystem services are not expected to be significantly impacted by the project.

Mitigation Measures

- » Replace trees removed for the project based on tree protection ordinances and critical areas regulations in each jurisdiction; some of these trees would likely be planted off-site or, mitigated by paying into an in-lieu fee program.

Significant Unavoidable Adverse Impacts

- » PSE's Proposed Alignment would require tree removal along the existing corridor; however, the value of total ecosystem services lost as a result of tree removal would be minimal.



Earth



Erosion hazard

AFFECTED ENVIRONMENT

The Phase 1 Draft EIS included an analysis of potential risks and impacts related to earth resources, including seismic activity, soils and geology, and associated geotechnical hazards. The Phase 1 analysis concluded that impacts under all alternatives would be less-than-significant, and earth resources were therefore not analyzed further in the Phase 2 Draft EIS. Based on comments received on the Phase 2 Draft EIS, the Partner Cities and the EIS Consultant Team decided that additional discussion of the risk of seismic activity at the project level should be provided in the Final EIS, especially regarding areas of seismic and liquefaction risk. The Final EIS analysis focuses on segment-specific locations of the Seattle Fault zone, other seismic hazard areas, and landslide hazard areas.

SUMMARY OF IMPACTS

OPERATIONAL AND CONSTRUCTION IMPACTS

- » The Energize Eastside project would cross the same seismic and other geologic hazard areas as crossed by the existing transmission lines (i.e., No Action Alternative) and would be subject to the probability of future seismic activity. Seismic activity will likely occur during the life of the proposed transmission lines, and could result in ground rupture, liquefaction, and landslides.
- » The short-term construction activities would not likely be subject to seismic hazards.

Mitigation Measures

- » Have a Washington State-licensed geotechnical engineer conduct geotechnical hazard evaluations for all proposed elements.
- » Monitor the project for changes in conditions such as cracking foundations, slumping slopes, or loss of vegetation cover.
- » Comply with relevant state and local codes, including National Electric Safety Code (NESC) standards and local critical areas codes.

Significant Unavoidable Adverse Impacts

- » With the implementation of the mitigation measures, regulatory compliance, and proper geotechnical design, impacts would be less-than-significant.