Energize Eastside Phase 1 Draft EIS

Economic Considerations Report

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Prepared by

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SECTION I: INTRODUCTION

A. PURPOSE

The Energize Eastside Project, led by Puget Sound Energy (PSE), entails near-term investments to address a power transmission deficiency within the Eastside Study Area. The communities served within the Eastside Study Area include the cities of Bellevue, Kirkland, Newcastle, Redmond, Renton and portions of unincorporated King County.

The purpose of this report is to provide recommendations for establishing criteria on which to compare and evaluate improvement alternatives being considered as part of the Energize Eastside Project Draft Environmental Impact Statement (EIS).

B. WORK COMPLETED

To complete this work, FCS GROUP conducted the following activities:

- **Literature Review**. In this task, we compiled a mix of background reports and studies that shed light on the underlying assumptions for the Energize Eastside Project, and reviewed studies that provided findings regarding the economic impacts of power outages.
- **Interviews**. This task included conducting interviews and correspondence with financial and real estate appraisal specialists with the City of Bellevue, King County, and Washington State Department of Revenue. Interview findings were aimed at understanding the direct and indirect property and fiscal impacts of utility investments.
- **Economic and Fiscal Analysis**. This task included compiling an overview of existing economic and fiscal conditions within the Energize Eastside Study Area using economic data and models.
- **Economic Analysis Criteria**. In this task, we assimilated the findings from the literature search, interviews and provided professional judgment to recommend a set of criteria in which to compare and evaluate EIS alternatives.

C. REPORT OVERVIEW

This body of this report is organized into three sections:

- **Background**. Provides findings from the literature and interviews.
- **Existing Conditions**. Provides an overview of current economic conditions in the Energize Eastside Study Area.
- **Draft Economic Analysis Criteria**. Includes a set of quantitative and qualitative factors that could be applied to the EIS alternatives to assist with comparing and evaluating the alternatives during the next phase of the EIS process.

SECTION II: BACKGROUND

This section provides the relative background information gleaned from literature on the subject of economic impacts of power outages, and interviews that helped identify the scope of direct and indirect impacts that are to be associated with this project.

A. LITERATURE

The following documents provided a framework of findings regarding the potential economic effects of the Energize Eastside project.

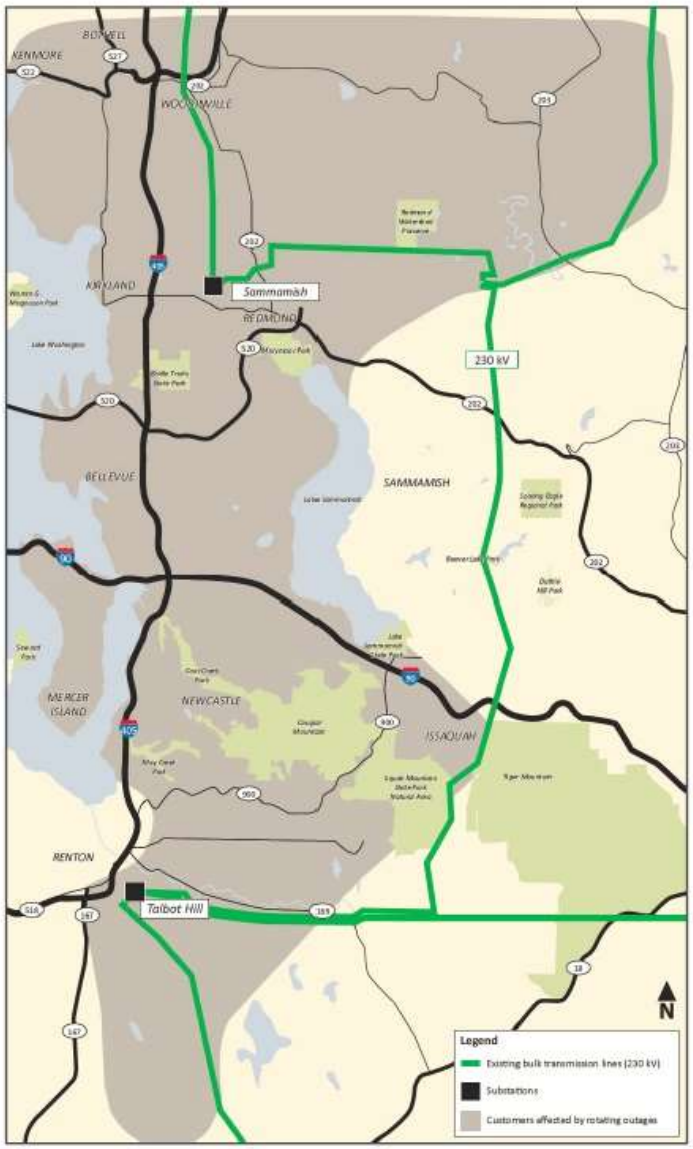
Puget Sound Energy (PSE) Energize Eastside Outage Cost Study (Oct 30 2015 by Nexant)

In order to determine the economic impacts of taking no action to upgrade the energy transmission system on Puget Sound's East Side, PSE retained Nexant to analyze how such events might impact the regional economy.

Nexant utilized an econometric model which applied data developed in conjunction with the U.S. Department of Energy and the Lawrence Berkeley National Laboratory. Nexant developed the model by aggregating 34 customer outage cost surveys from across the nation to estimate customer outage costs. Using this econometric approach, Nexant analyzed a pattern of rolling blackouts during two summer events and one winter event.

The findings suggest that certain substations would go without power for a set period of time to avoid exceeding limits established by the North American Electric Reliability Corporation. Nexant used the geographic approximations shown in **Figure 2.1** to evaluate customers in those blacked out areas by cross-referencing

Figure 2-1: Map of Eastside Area



customer data with the blacked out regions. Based upon the customer class, usage and industry type of impacted customers, Nexant estimated economic losses based on three scenarios, which are summarized in **Exhibit 2.2**:

1. An outage of two transmission substation transformers in the summer of 2018 with a resulting 130,995 customers experiencing rotating outages—findings suggest an economic impact of $92.1 million.

2. An outage of two transmission substation transformers in the summer of 2024 with a resulting 211,240 customers experiencing rotating outages—findings suggest an economic impact of $274.6 million.

3. An outage of two transmission substation transformers in the winter of 2023-2024 with a resulting 174,818 customers experiencing rotating outages—findings suggest a total economic cost of $276.9 million.

Exhibit 2.2

Summary of Outage Cost Analysis by Nexant					
Scenario	Customer Class	Number of Customers Experiencing Rotating Outages	Total Outage Cost	Customer Load Shed	Cost per Unserved kWh
			$ Millions	MWh	$
Scenario 1, Summer 2018	Medium and Large C&I	2,799	$65.1	2,419	$26.9
	Small C&I	7,983	$23.3	207	$112.5
	Residential	120,213	$3.8	2,093	$1.8
	Scenario 1 Total	**130,995**	**$92.2**	**4,719**	**$19.5**
Scenario 2, Summer 2024	Medium and Large C&I	4,480	$179.3	5,266	$34.0
	Small C&I	14,086	$84.5	577	$146.4
	Residential	192,674	$10.8	4,751	$2.3
	Scenario 2 Total	**211,240**	**$274.6**	**10,594**	**$25.9**
Scenario 3, Winter 2023-2024	Medium and Large C&I	3,142	$153.1	8,897	$17.2
	Small C&I	9,786	$115.7	875	$132.3
	Residential	161,890	$8.1	8,914	$0.9
	Scenario 3 Total	**174,818**	**$276.9**	**18,686**	**$14.8**

Source: Puget Sound Energize Eastisde Outage Cost Study, Oct. 2015; by Nexant, Inc.

Independent Technical Analysis of Energize Eastside for the City of Bellevue, WA (April 28, 2015 by Utility System Efficiencies)

The city of Bellevue retained the services of Utility System Efficiencies Inc. (USE) in order to determine the need for the Energize Eastside project. The goals of the analysis included:

- Determining the need for the Energize Eastside project in terms of it addressing growth in the city of Bellevue, specifically, are the load flow forecasts used by PSE to justify the project are reasonable.
- Identifying whether or not the project is needed to address the reliability of the electric grid on the eastside (i.e. is the need for the project a local issue).
- Conducting an analysis of the impacts of the export and imports of energy to Canada? Is this a major contributing factor to the need for the Energize Eastside project?

USE analyzed the PSE assumptions for the Energize Eastside project, including: evaluating whether the methodology applied by PSE was in accordance with industry standards; incorporating weather normalization; considering data sources for a given factor (i.e. using census tract level data to analyze eastside use and population, county level data for county-wide projections and Puget Sound Regional Council (PSRC) and OFM data for employment); reviewing conservation estimates based upon state and federal goals; and assessing block load data (addressing future major construction projects) in order to project demand.

USE determined that PSE's method of data gathering was accurate and prepared in accordance with industry standards, and the project is needed to provide additional transmission capacity as a result of continued growth despite conservation.

Regarding the issue of reliability for the Eastside electric grid, USE's analysis determined that by the winter of 2019, over 60,000 customers will be at risk of losing power with some at risk as soon as summer 2018. USE considered the time frame for the entire project from EIS to construction to completion and, when taking into account EIS-related delays (due to litigation) and the potential for less-than-projected conservation along with adverse weather in winter 2018, determined that the need existed at-present to move forward to obviate any unnecessary outages. USE also analyzed scenarios in which greater-than-projected generation occurred in King County, along with reduced growth rates in the County (but maintaining the growth projections for the eastside area), each of which indicated that Energize Eastside project is necessary.

Regarding the concern that Energize Eastside is being developed to allow greater power sales to Canada, USE's analysis determined that this concern is not supported by their technical analysis. In its optional technical analysis, USE modeled a scenario in which power flows to Canada were set to zero. The result showed that at least one Eastside transformer would still be at risk of overload by 2017/18, which meant that this scenario would not meet transmission planning standards set by the North American Electric Reliability Corporation (NERC) in TPL-004.

Business Blackout Appendix 2 (2015 by Lloyd's in association with the University of Cambridge)

This research discusses the issues that insurance companies might deal with in the case of a cyber-attack-induced blackout. Researchers evaluate a risk scenario that assumes a regional outage ranging from less than 24 hours for some customers to a number of weeks for others. The report includes information such as data from large blackout events; and an estimate of the valuation of energy sales

lost as a result of a large blackout; and a valuation of lost load (VOLL) by business/industry sector (**Exhibit 2.3**). While most of this information is specific to the New York and Washington DC region, the VOLL table is representative of a study of Austrian businesses, which the authors suggest is "not expected to vary significantly for the USA."

Exhibit 2.3: Value of Lost Load by Duration of Power Outage

Value of Lost Load (USD/kWh)			
Sector	4-hour Outage	12-hour Outage	48-hour outage
Construction	$96.58	$52.28	$40.75
Wholesale & Retail Trade	$80.98	$46.13	$37.08
Information & Communication	$39.18	$20.31	$15.59
Professional, Scientific & Technical Services	$31.71	$16.77	$13.63
Administrative Support Services	$31.19	$17.56	$13.89
Accommodation & Food Services	$30.01	$15.99	$12.32
Finance & Insurance	$27.26	$12.84	$9.57
Real Estate	$27.13	$12.71	$9.70
Transportation	$14.15	$7.73	$6.03
Public Sector	$13.37	$7.08	$6.81
Manufacturing	$7.99	$4.32	$3.14
Agrilcultre	$7.47	$4.59	$3.41
Mining	$3.54	$1.70	$1.31
Electricity & Gas Supply	$2.49	$1.31	$1.05
Water Supply, Waste Management	$1.83	$0.92	$0.66
Households	$1.70	$1.83	$2.21

Source: Business Blackout Appendix 2 , Table 14 (2015)

Power Blackout Risks (Nov. 2011 by Allianz)

This report provided national and international context for evaluating and quantifying the impacts of power blackout risk in industrialized nations. The report discusses emerging risk factors such as the increased use of renewables whose volatility in supply can lead to either undersupply or oversupply, either of which increases the risk of a significant blackout event. In addition to the sources of energy, the means of power transmission are highlighted as a source of vulnerability in industrialized nations, stating that a worldwide investment of $6.8 trillion in transmission networks will be necessary by 2030 in order to meet ever increasing demand.

The report indicated that the U.S. experiences an average of nine hours of disruption per year per customer. These disruptions are estimated to cause an estimated loss of $150 billion in economic activity annually. Further, the authors suggest that the U.S. grid is 5-10 times less reliable than Western European nations, and that U.S. consumers deal with 30 times more service interruptions each year than customers in Japan or Singapore.

The report cited an analysis performed by Leonardo Energy which suggests that large U.S. industrial businesses experience losses of between $15,709 (in the instance of a 30 minute blackout) and $93,890 (in the instance of an 8 hour blackout). The 2003 blackout, which cut power from New York to Ohio, cost an estimated $4 to $8 billion according to the report. The authors juxtapose that loss with total U.S. economic costs of blackouts in an average year (between $104 billion and $164

billion), which is to say that a major event is not required to significantly impact the national economy. Rather, the authors conclude that smaller blackouts and power outages (4 to 8 hours per event) are the primary cause of economic losses associated with power outages in the U.S.

Analysis, Control, and Economic Impact Assessment of Major Blackout Events (2008 by Koji Yamashita et al.)

This study of the events which precipitated a blackout and the economic impacts which followed is useful for understanding how blackouts happen and in quantifying the economic impacts of power outages. The study suggests three methods to calculate the economic impact of a blackout: macroscopic, microscopic and analytical.

Macroscopic approach: Is the ratio of GDP to total energy consumption in kWh. This analysis can be run on a national, state, county or industry basis so long as it is known what both figures are.

Microscopic approach: Requires much more data than the aforementioned macroscopic approach. First, the microscopic approach requires that either the researcher or utility conduct a survey of outage cost by sector using various interruption scenarios. Using this data, a researcher would relate the interruption duration to the outage cost of each customer and averaging those figures within each industry. Using these outcomes, a researcher would weigh the factors, creating a model of damage observed.

Analytical Approach: This approach uses a mathematical model to evaluate outage costs based on expected energy not supplied (EENS) and the interrupted energy assessment rate (IEAR). EENS is defined as a probabilistic average amount of the energy loss that customers experience under outage scenarios. IEAR is expressed in dollars/kWh and quantifies the cost to customers caused by each unit of unsupplied energy due to power interruptions. These factors are calculated using a combination of probability of the event, days of event and hours of event in order to determine the total cost of the event.

B. INTERVIEWS

As a part of the Energize Eastside economic impact assessment, FCS GROUP interviewed staff from King County, City of Bellevue, and Washington State Department of Revenue to document the likely fiscal impacts of project investments. A series of in-person interviews, phone interviews and e-mail correspondence was used to gather the following information.

King County Assessor

FCS GROUP interviewed the director of the King County Assessor's Commercial and Business Division, Bonnie Christensen on November 18th, 2015.

Regarding how the County assesses utility property, such as a new substation or right of way for a transmission line, Director Christensen informed FCS GROUP that it was the Washington Department of Revenue (DOR) which actually assesses utility property valuations.

When asked how often properties in King County were reassessed by a county employee, Director Christensen told FCS GROUP this was done every six years. She added that if something significant (such as the construction of a transmission line which obstructs one's view) occurred in the vicinity of a property, there is a good chance that property would be reassessed early.

When asked if the King County Assessor ever lowers assessed values to account for negative influences, Director Christensen said that they do. Some examples of when this might occur included

obstruction of a view (primarily affects residential properties not commercial/industrial properties), deteriorating condition of adjacent homes and businesses around a given property and an undesirable land use being newly zoned adjacent to a property.

Washington State Department of Revenue (DOR)

FCS GROUP interviewed a utility appraiser from Washington State's DOR, Ha Haynes on November 18, 2015 and conducted subsequent correspondence on December 8, 2015.

Mrs. Haynes summarized the state's process regarding the assessment of utility property. She indicated that each utility's property is assessed the same way in which any property would be in Washington, and those assessments are determined by state (not County) appraisers. The assessed market values for utility assets are adjusted (equalized) to reflect the prevailing level of assessment in each county. Year 2014 valuations of PSE assets by county is provided in **Exhibit 2.4.**

When asked if there were assessments for utilities whose infrastructure (pipes or cables) were underwater, Mrs. Haynes confirmed that such investments are assessed and valued as part of the overall utilities asset portfolio each year. A local city or county would have to claim jurisdiction over the body of water in question in order to collect associated taxes.

City of Bellevue

Mr. Troy Lucas, the manager of the City of Bellevue's Tax Division provided input through email correspondence to FCS GROUP on November 13, 2015.

When asked what the impact of major PSE investments in Bellevue would be, Mr. Lucas responded that if the AV in the city increases, it could result in changes in tax revenue distributed to the city.

Regarding specific types of tax which the city expects this project to generate, Mr Lucas suggested the following:

Sales Tax (as a function of construction expenses): Sales tax will apply to those expenses for materials, labor and services delivered to sites within Bellevue, excluding civil engineering and design work

Property Tax Revenue: It is expected that PSE will purchase new land in order to widen transmission line easements, which will increase PSE's overall property tax burden. Additionally, PSE plans to increase capacity at facilities on land they already own within the city, which will increase the improvement value of those parcels and overall AV.

Franchise Fees: Franchise fees in Bellevue are only applicable for cable and, therefore, will not be impacted in this case.

Utility Tax: Will not increase based upon this project alone, as this tax is based upon percentage of gross income base, not capacity.

B&O Taxes: B&O tax would not be due on day-to-day utility charges. B&O tax would be due on other products/services provided, including charges for which the retail sales tax would be due for the construction/project management fees for Bellevue businesses.

Real Estate Excise Tax: Any property PSE purchases would be subject to the 0.5% real estate excise tax.

Leasehold Excise Tax: It is unclear if PSE anticipates leasing any publicly-owned structures so there is no anticipated impact from Bellevue's perspective.

Exhibit 2.4

Puget Sound Energy/Electric Asset Holdings (2014)							
	Real Property		Personal Property		Total Real And Personal		
County	Actual	Equalized	Actual	Equalized	Actual	Equalized	% Dist.
Benton	$0	$0	$149,118	$139,575	$149,118	$139,575	0.00%
Chelan	$0	$0	$399,983	$384,383	$399,983	$384,383	0.01%
Columbia	$0	$0	$88,145,071	$85,412,574	$88,145,071	$85,412,574	2.22%
Cowlitz	$12,990,999	$12,172,566	$101,428,633	$98,487,203	$114,419,632	$110,659,769	2.88%
Douglas	$0	$0	$443,644	$421,462	$443,644	$421,462	0.01%
Franklin	$0	$0	$84,356	$77,270	$84,356	$77,270	0.00%
Garfield	$31,914,590	$31,563,530	$293,660,894	$280,152,494	$325,575,484	$311,716,024	8.10%
Grant	$0	$0	$1,755,672	$1,706,515	$1,755,672	$1,706,515	0.04%
Island	$3,907,715	$3,802,208	$53,362,939	$52,829,311	$57,270,654	$56,631,519	1.47%
Jefferson	$357,417	$349,196	$85,329	$83,366	$442,746	$432,562	0.01%
King	**$374,854,111**	**$350,863,452**	**$1,106,631,862**	**$1,090,032,401**	**$1,481,485,973**	**$1,440,895,853**	**37.46%**
Kitsap	$22,018,163	$20,697,072	$175,230,394	$174,003,779	$197,248,557	$194,700,851	5.06%
Kittitas	$25,265,990	$23,042,584	$243,451,196	$233,469,699	$268,717,186	$256,512,283	6.67%
Klickitat	$38,174,719	$36,189,634	$113,457,504	$113,230,589	$151,632,223	$149,420,223	3.89%
Lewis	$136,612	$131,831	$4,777,891	$4,486,440	$4,914,503	$4,618,271	0.12%
Pierce	$51,920,043	$46,572,276	$236,801,863	$231,118,627	$288,721,906	$277,690,903	7.22%
Skagit	$73,938,129	$68,614,582	$260,155,103	$249,228,592	$334,093,232	$317,843,174	8.26%
Snohomish	$864,770	$813,749	$16,171,664	$16,171,664	$17,036,434	$16,985,413	0.44%
Thurston	$17,286,850	$16,353,359	$186,261,141	$169,125,110	$203,547,991	$185,478,469	4.82%
Whatcom	$35,967,856	$30,536,710	$421,465,291	$403,763,747	$457,433,147	$434,300,457	11.29%
Whitman	$0	$0	$28,478	$22,270	$28,478	$22,270	0.00%
Total	**$689,597,964**	**$641,702,749**	**$3,303,948,026**	**$3,204,347,071**	**$3,993,545,990**	**$3,846,049,820**	**100.00%**

Source: Washington State Department of Revenue; compiled by FCS GROUP.

C. SUMMARY

The findings from the literature reviewed by FCS GROUP indicate that the economic losses associated with rolling power outages in the Eastside Area would be significant if load shedding is required to address demand requirements. While FCS GROUP was not tasked with auditing the background literature, it appears that the findings provided by Nexant in the most recent study (Oct. 2015) denote economic costs per unserved kWh ranging from $14.8 (Scenario 3) to $19.5 (Scenario 1) and $25.9 (Scenario 2). It further appears that the methods used are consistent with recommended industry practices, and result in valuation levels that are in line with independent national studies by Lloyd's in association with the University of Cambridge.

With respect to potential fiscal impacts of the Energize Eastside project, the interviews indicate that the primary fiscal affects could be measured by:

- Positive changes in AV and property tax revenues based on the construction of PSE assets.
- Negative changes in AV and property tax revenues based on the disposition of real estate and changes of use of real estate (e.g., residential zoned land being used for public utilities); and other impacts on residential properties (e.g., view shed impacts).
- Positive changes to sales tax revenues based on project construction put into place.
- Positive changes to real estate transfer tax revenues based on land transactions by PSE.

SECTION III: ECONOMIC OVERVIEW

This section provides a context on which to evaluate the economic conditions that will be affected by the Energize Eastside project. For economic analysis purposes, FCS GROUP has utilized data the generally corresponds with the study area map utilized by the Nexant study (see prior Figure 2-1).

A. SOCIO-ECONOMIC OVERVIEW

The Eastside Study Area, which includes the City of Bellevue (Washington's fifth largest city in population) and the cities of Kirkland, Redmond, New Castle and Renton along with unincorporated portions of King County is a major submarket within the greater Seattle-Tacoma-Bellevue Metropolitan Statistical Area (MSA).

The Eastside Area (map of Eastside study area is provided in **Appendix C**) is estimated to have a population of over 575,000, and includes approximately 16% of King County residents according to PSRC's Traffic Analysis Zone (TAZ) data. As indicated in **Exhibit 3.1**, there were nearly 379,000 people living in the five Eastside partner cities, particularly Bellevue with 135,000 residents. It is apparent that the Eastside cities have added population at a much faster rate than King County or the State of Washington, with average annual increases of 2.6% between 2000 and 2015.

Exhibit 3.1

Eastside Population Trends (2000-2015)				Annual Growth Rate		
	2000	2010	2015	2000-2010	2000-2015	2010-2015
Redmond	45,256	52,124	59,180	1.4%	1.8%	2.6%
Bellevue	109,569	119,454	135,000	0.9%	1.4%	2.5%
Newcastle	7,737	9,868	10,940	2.5%	2.3%	2.1%
Renton	50,052	86,372	98,470	5.6%	4.6%	2.7%
Kirkland	45,054	47,677	83,460	0.6%	4.2%	11.8%
Eastside Cities Subtotal	**257,668**	**315,495**	**378,563**	**2.0%**	**2.6%**	**3.7%**
King County	1,737,034	1,879,189	2,052,800	0.8%	1.1%	1.8%
Washington	5,894,121	6,561,297	7,061,410	1.1%	1.2%	1.5%

Source: U.S. Census Bureau (2000 and 2010), Washington Office of Financial Management (2015) Compiled by FCS GROUP

As the primary power consumer/customer group within the Eastside, occupied housing units have also increased by significant levels over the past decade. As indicated in **Exhibit 3.2**, there were approximately 152,893 occupied housing units in the five Eastside cities, particularly Bellevue with 53,231 units.

Exhibit 3.2

Eastside Occupied Housing Units (2000-2014)				Annual Growth Rate		
	2000	2010	2014	2000-2010	2000-2014	2010-2014
Redmond	19,102	22,405	23,520	1.6%	1.5%	1.2%
Bellevue	45,836	50,337	53,231	0.9%	1.1%	1.4%
Newcastle	3,028	3,872	4,173	2.5%	2.3%	1.9%
Renton	21,708	35,213	37,207	5.0%	3.9%	1.4%
Kirkland	20,736	22,191	34,762	0.7%	3.8%	11.9%
Eastside Cities Subtotal	**110,410**	**134,018**	**152,893**	**2.0%**	**2.4%**	**3.3%**
King County	710,916	781,977	808,729	1.0%	0.9%	0.8%
Washington	2,271,398	2,577,375	2,645,396	1.3%	1.1%	0.7%

Source: U.S. Census Bureau, Occupied Dwellings, Compiled by FCS GROUP

The Eastside Area also includes thousands of commercial and industrial businesses with total employment of over 319,000 jobs. Employment growth in the Eastside area averaged 2.2% annually between 2002 and 2013 (Exhibit 3.3).

Exhibit 3.3

Eastside Employment	2002		2013		Avg. Annual Growth Rate
Industry Group	Jobs	Share	Jobs	Share	
Construction	15,069	6.0%	12,967	4.1%	-1.4%
Manufacturing, Warehousing, Transportation, Utilities	40,049	15.9%	55,470	17.4%	3.0%
Finance, Insurance, Real Estate, Services	151,439	60.0%	199,272	62.4%	2.5%
Retail & Food	45,728	18.1%	51,385	16.1%	1.1%
Education	17,540	7.0%	18,852	5.9%	0.7%
Government	5,273	2.1%	6,169	1.9%	1.4%
Total	**252,285**	**100.0%**	**319,094**	**100.0%**	**2.2%**

Source: Census On The Map database; compiled by FCS GROUP.

Long-term projections for the Eastside Area (**Appendix C**), portend growth at a rate which exceeds that of King County for population, households, and employment (see **Exhibit 3.4**).

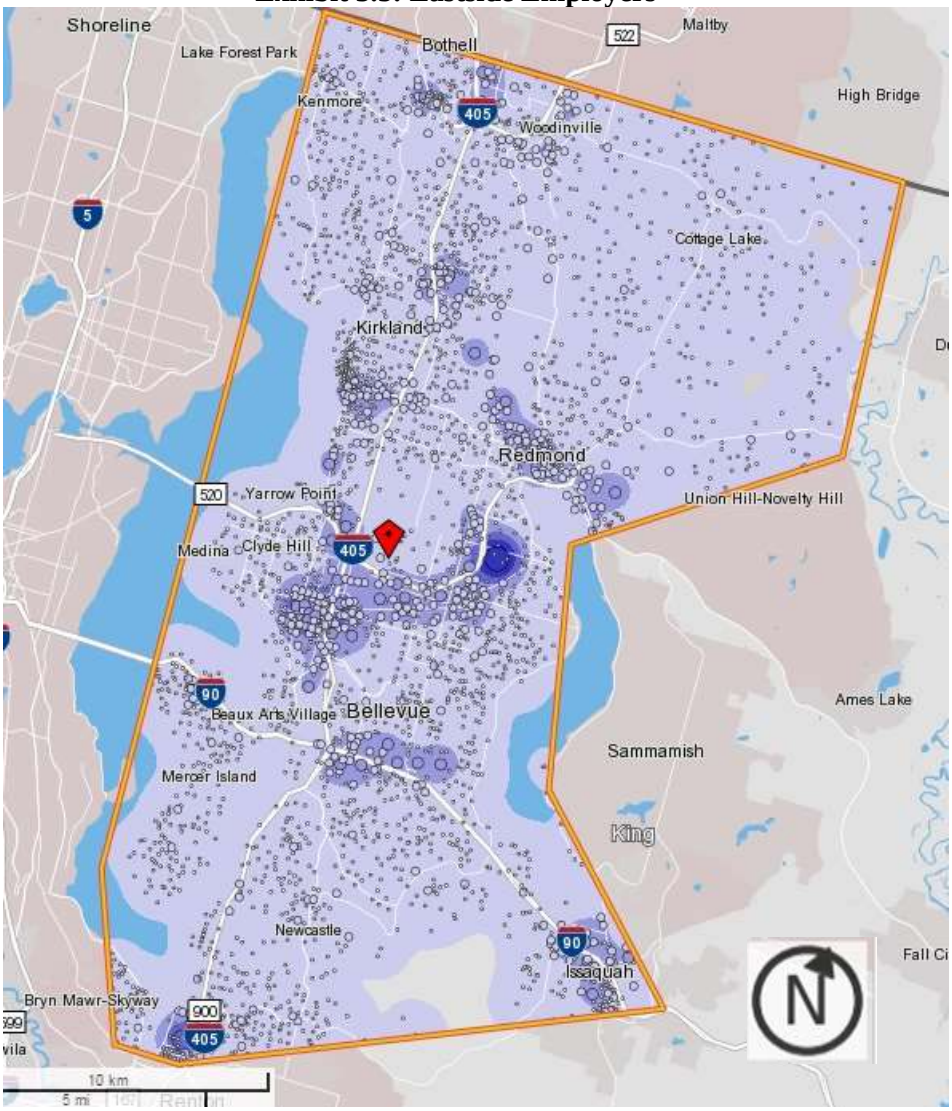
As a major employment center with businesses such as Microsoft, Expedia, Paccar, T-Mobile, Group Health Bellevue Medical Center and Overlake Hospital Medical Center, the Eastside Area is comprised of diverse businesses in most major industry sectors. **Exhibit 3.5** illustrates the relative density of employment throughout the Eastside Study Area.

Exhibit 3.4: Eastside Area and King County Growth Forecast

	2010		2040 Proj.		Proj. Annual Growth Rate	
	King County	Eastside Study Area	King County	Eastside Study Area	King County	Eastside Study Area
Jobs	1,155,550	313,586	1,808,554	555,564	1.5%	1.9%
Population	1,931,249	575,481	2,427,691	749,775	0.8%	0.9%
Households	789,232	228,071	1,089,057	320,747	1.1%	1.1%

Source: Puget Sound Regional Council Traffic Analysis Zone data; compiled by FCS GROUP

Exhibit 3.5: Eastside Employers



Note: Census On The Map Eastside Study Area boundaries in Exhibit 3.5 are based upon approximation of Nexant Eastside Study Area boundaries (shown previously in Figure 2-1)

B. ECONOMIC ANALYSIS

FCS GROUP conducted an analysis of existing economic activity within the Eastside Study Area using generally accepted economic modeling procedures for evaluating regions. This economic analysis relies upon the IMPLAN (Impact Analysis for Planning) model, which was originally developed by the United States Department of Agriculture Forest Service in cooperation with the Federal Emergency Management Agency and the United States Department of the Interior Bureau of Land Management to assist in land and resource management planning. The IMPLAN system has been in use since 1979. The IMPLAN database consists of two major parts:

1. National-level technology matrices;
2. Estimates of regional data for institutional demand and transfers, value-added, industry output and employment for King County, as well as state and national totals.

King County estimates include expected effects after accounting for what's called a "regional purchase coefficient (RPC)." An RPC is the proportion of the total demand for a commodity by all users in King County (households and businesses) that is supplied by producers located within King County. Hence, only economic benefits that are contained within King County are included in this analysis.

This economic benefits analysis relies upon IMPLAN metric known as "total value added."

Value Added Benefits. Sometimes referred to as **gross domestic product (GDP) or gross regional product (GRP)** this represents the total economic benefits from expenditures or investment by businesses within the Eastside Study Area. For this analysis, value added is measured in terms of employee compensation (wages), proprietor income (business profits), and property income (such as lease revenues) and taxes produced within King County.

Findings from the IMPLAN model reports a total annual GDP of $190.5 billion for King County in 2015, of which approximately 20% is estimated to be derived from businesses and households within the Eastside Study Area.

After excluding major businesses in the Eastside Area that have on-site power generation, it is estimated that the average weekday GDP of businesses and households without on-site power generation is $135 million. The IMPLAN model indicates that the amount of GDP that is "at risk" in the event of a four hour (half day) power outage is on the order of magnitude of $67.5 million (see **Exhibit 3.6**).

It is interesting to note that this finding (using IMPLAN) is generally consistent with the total outage cost for Scenario 1, Summer 2018, by Nexant (see literature review) that estimated the total outage cost of $92.1 million with load shedding occurring over 9 hours on 6 days.

Exhibit 3.6: Gross Product, Eastside Study Area, 2015

	Total
Annual Direct GDP	$36,136,887,360
Average Weekday GDP	$135,044,574
GDP At Risk with 4 hour Outage	**$67,500,000**

Source: Puget Sound Regional Council & IMPLAN, compiled by FCS GROUP. Note, these data exclude large single-employers with on-site backup generation such as Microsoft. Derived from Appendix A.2.

C. PROPERTY VALUE OVERVIEW

Transmission lines easements can reduce the value of property because they place limitations on how the property can be developed, and also because of visual impacts. Some properties are entirely within the utility easement and thus cannot be developed with structures. Others have an easement passing over a portion of the property, but still have room outside of the property to develop a residence or other use. In order to test how transmission lines easement areas affect assessed property values, FCS examined a small sample of single-family zoned properties along transmission lines in the Eastside.

Exhibit 3.7 displays a sample of Eastside properties which are similar both geographically and in terms of build out, but whose utility easements impacts (based on current conditions) vary. While this is not a statistically valid sample, it does reflect the general range of impacts that might be expected when new transmission lines are constructed. For example, three taxlots along SE 164th in Renton were chosen for this analysis, one of which has significant 230 kV line easements, one of which has a relatively less intrusive easement and one which has no transmission line or easement on the parcel.

The results of this analysis suggest that the level of utility easement does negatively impact assessed property value. Those properties with a high degree of utility easement had property values ranging from $1.24/SF to $24.93/SF, while those properties with a medium degree of utility easement ranged from $6.33/SF to $33.51/SF and those properties with no transmission line presence ranged from $9.32/SF to $39.49/SF.

Exhibit 3.7

Degree of Use	Description	Appraised Land Value	Square Feet	Land Value ($/SF)
High	Significant transmission line presence	$115,000	$92,782	$1
High	Vacant land with transmission lines over it.	$237,000	$47,480	$5
High	Significant transmission line presence	$324,000	$23,000	$14
High	Vacant land with transmission lines over it.	$931,000	$436,471	$2
High	Significant transmission line presence	$475,000	$49,384	$10
High	Significant transmission line presence	$308,000	$38,699	$8
Medium	Slightly less transmission line infringement	$150,000	$23,680	$6
Medium	Slightly less transmission line infringement	$217,000	$15,000	$14
Medium	Transmission line present	$157,000	$17,967	$9
Medium	Transmission line present	$694,000	$50,123	$14
Low	No transmission line present	$103,000	$11,050	$9
Low	No transmission line present	$241,000	$15,000	$16
Low	No transmission line present	$193,000	$13,114	$15
Low	No transmission line present	$844,000	$43,560	$19
Low	No transmission line present	$308,000	$10,912	$28
Low	No transmission line present	$344,000	$8,712	$39

Source: King County Assessor; Compiled by ESA & FCS GROUP

Note: Legal Descriptions would say "subject to Trans LN ESMT," but under the land data it might say that there is no easement. Legal descriptions were used to determine if power lines use a portion of the property. Properties that should be compared are grouped by color.

When compared to similar properties, the variation in price per square foot between high and low degrees of power line impacts range from a high of 87% decrease in land values in Renton ($1.24/SF for

properties with significant easements and $9.32/SF for the property without transmission lines) to a low of 12% decrease in land values in Kirkland ($14.09/SF for properties with significant easements and $16.07/SF for the property without transmission lines) (**Appendix B**).

FCS GROUP averaged the per square foot value of properties based upon their utility impact levels (high, medium, low) to determine the potential change in property value impacts. As indicated in Exhibit 3.8, the average change in assessed property values per SF of land area ranges from $5.13/SF to $15.48/SF. When extrapolating these impacts for a 50-foot easement right-of-way width over 1 mile, the potential negative change in assessed property values attributed to power line easements is expected to range from: $1,354,000/mile (with impact changing from medium to high); $2,734,000/mile (with impact changing from low to medium); and $4,088,000/mile (with impact changing from low to high).

Exhibit 3.8

Level of Utility Encroachment	Average Existing AV per SF of Land
High	$5.72
Medium	$10.85
Low	$21.20
Change in Utility Encroachment	**Potential Avg. Change in AV per SF of Land**
From Low to High	($15.48)
Low to Medium	($10.35)
From Medium to High	($5.13)
Potential change in AV per Mile*	
Impact from Low to High	($4,088,000)
Impact from Low to Medium	($2,734,000)
Impact from Medium to High	($1,354,000)

Source: King County Assessor; Compiled by ESA & FCS GROUP.

Note: Estimated width of easement will be 50 feet.

D. FISCAL OVERVIEW

This section of the report summarizes fiscal data for the City of Bellevue and City of Newcastle as a means of providing an approach to understanding jurisdiction-level fiscal impacts of the Energize Eastside project. A detailed analysis was conducted on the finances of the City of Bellevue including analysis of potential impacts Energize Eastside might have on the City's property tax and sales tax revenues. This analysis was accompanied by similar analysis of potential property tax revenues in Newcastle. These two were chosen because they represent the largest and smallest cities in the study area both in terms of geographic size and assessed value.

The City of Bellevue relies heavily upon taxes and special assessments to afford its functions, such as public safety, general government, economic development and culture/recreation. As indicated in **Exhibit 3.9**, total taxes and special assessments generated $129.8 million in revenues, or 76% of fund revenues in FY 2014. These tax revenues consist primarily of real and personal property taxes, sales and excise taxes, business and occupation (B&O) taxes, real estate transfer fees, and state pass-through taxes.

Exhibit 3.9

Bellevue General Fund FY 2014 (In thousands)		
Revenues	Actual 2015 Revenues	Share
Taxes & Special Assessments	$129,825	76%
Licenses & Permits	$509	0%
Intergovernmental	$16,398	10%
Service Charges & Fees	$20,737	12%
Fines & Forfeitures	$1,071	1%
Interest & Assessment Interest	$40	0%
Net Change in Fair Value of Investments	$31	0%
Rent	$1,581	1%
Other	$240	0%
Total Revenues	**$170,432**	**100%**

Source: City of Bellevue, 2014 Consolidated Annual Financial Statement (CAFR); compiled by FCS GROUP.

Property taxes are a function of ad valorem real and personal property assessments in the City, and current mil rates. A preliminary estimate of 2015 tax rates based on $36 billion in assessed real estate values (AV) and a 0.98085 tax rate[1], results in $35 million in 2015 annual property tax revenues for the City of Bellevue (see **Exhibit 3.10**). This amount of tax revenue equates to 20.5% of the City's fund revenues.

If EIS project alternatives result in changes to the amount of AV in the City, we would expect a corresponding change to the property tax revenue. For study purposes, FCS GROUP analyzed the relative change that would be expected to occur to City of Bellevue general funds with a $10 million increase or decrease in AV. **The results indicate that for each $10 M change in AV, property tax revenues collected by the City would change by $9,800 per year.**

Exhibit 3.10

Representative Bellevue Property Tax Rates and Revenue (2015)		
Tax Recipient	Mil Rate	Annual Revenue
City of Bellevue	0.98085	$35,340,996
King County	1.34522	$48,469,607
Bellevue School Dist.	3.12778	$112,697,007
Library	0.50276	$18,114,940
EMS	0.30217	$10,887,484
Flood	0.13860	$4,993,895
State School Fund	2.28514	$82,335,854
Port of Seattle	0.18885	$6,804,452
Total Property Tax Rate	**8.87137**	**$319,644,235**

Source: King County Assessor; compiled by FCS GROUP.

[1] Includes .88 which is dedicated to the City's General Fund and .10 for a voter-approved parks fund

A similar analysis of sales excise tax revenues was also conducted. The analysis is based on the existing sales tax rates in the City of Bellevue, which is shown in **Exhibit 3.11**. Construction of the Energize Eastside project would be subject to sale tax and the firms doing the construction would be subject to the B&O tax. **For analysis purposes, for each $10 million in taxable sales, the City would collect approximately $85,600.**

Exhibit 3.11

Sales Excise Tax Rates within City of Bellevue	
Tax Recipient	**Local Rate**
City of Bellevue (permanent rate)	0.425%
Optional Rate (Bellevue)	0.425%
Criminal Justice (Bellevue estimate)	0.006%
Total City of Bellevue Portion	0.856%

Source: City of Bellevue, 2014 Consolidated Annual Financial Statement (CAFR); compiled by FCS GROUP.

Other potential fiscal impacts of the Energize Eastside project may include changes to B&O tax revenues, real estate transfer tax revenues and other miscellaneous fees and development charges.

A similar property tax analysis was conducted on Newcastle to determine the impact a $10 million change in assessed. The most recent estimate of Newcastle's assessed value available to FCS GROUP was a 2013 end-of-year figure of $1.93 billion. Meanwhile, Newcastle's 2013 property tax rate was $2.32529 per $1,000 of assessed value, which is larger than Bellevue's tax rate. Hence, for each $10 million in change in AV, property tax revenues in the City of Newcastle are expected to change by approximately $23,250 per year. Based on these factors, a $10 million change in assessed value within Newcastle would represent less than 0.25% of Newcastle's total revenues.

SECTION IV: RECOMMENDATIONS

A. ECONOMIC EVALUATION CRITERIA

The next step in the EIS process is anticipated to include an analysis of the relative economic effects of the Energize Eastside project alternatives. It is apparent that with each alternative there will be measurable economic and fiscal considerations that may warrant direct comparison among the alternatives being considered. Exhibit 4.1 includes potential economic impact evaluation criteria that could be applied to each alternative to enable affected stakeholders to compare alternatives with regard to economic, socio-economic and fiscal considerations.

Potential Impacts of Power Outages

There are two types of criteria regarding the economic impact of power outages that we recommend for inclusion in the EIS.

1. A comparison of the relative GRP at risk in the Study Area as described in this report is a general measure of economic activity in the study area. With this criterion, the "no action" alternative and any alternative that increases the risk of power outages would result in a higher level of GRP that is at risk in the event of a power failure.
2. Power Outage Risk Assessment Parameters, Scenarios and Costs, as described in independent work by Nexant and others, is considered an appropriate means to measure economic cost of unserved kWh by customer class. It is important that affected stakeholders have the opportunity to review and provide feedback on the primary input assumptions (aka. Power Outage Risk Parameters) such as customer growth rates, transformer system emergency operating limits. The resulting economic cost of power outages using this approach is yet another means to compare EIS alternatives, when the level of risk of outages varies by alternative.

Socio-economic Impacts

It is likely that the each EIS alternative will have different impacts attributed to households, population groups, and businesses. The application of geographic information systems (GIS) and field survey estimates can be utilized to document the relative impact each alternative would have on displacements and adjacent property impacts.

Construction Impacts

The level of construction impacts may vary by EIS alternative, and could be quantified using the IMPLAN model. Project alternatives that rely primarily upon existing right-of-way and PSE land and facilities may result in a shorter-construction period with less disruption to economic activity in comparison to alternatives that require significant new ROW and land acquisitions. The short-term economic impact of project construction, as measured by jobs, GRP, and tax impacts can also be quantified for each project alternative.

Permanent Impacts

Permanent economic impacts, such as PSE operating and maintenance spending, and related jobs, payroll and tax revenues may also vary by EIS alternative and can be quantified using the IMPLAN model. For example, project alternatives that require extraordinary levels of O&M to monitor and limit transformer loads or to address potential power outages would likely result in a higher permanent economic cost than other project alternatives.

Fiscal Impacts

As the amount and type of PSE investment varies by EIS project alternative, so too will local fiscal impacts vary by alternative. Criteria that quantify the relative impact on assessed property values, sales tax revenues and real estate transfer tax revenues can be used to ascertain the relative fiscal impacts of each project alternative on local general fund revenues.

PSE Customer Cost Impacts

It is possible to compare each of the EIS project alternatives in terms of relative utility rate impact by customer class. Rather than preparing a detailed rate analysis of each alternative, it would be useful for the EIS analysis to provide a relative comparison of how local power rates may be affected by each alternative, which could have varying levels of costs that are to be recovered by rates within the PSE service district.

Similarly, if there are varying levels of costs that are not to be recovered by PSE utility rates, for project elements, such as undergrounding, a criterion could be considered that measures the relative cost impact each EIS project alternative may have in Eastside jurisdictions. If these costs are to be recovered by each respective jurisdiction, through local means, such as franchise fees or utility local improvement districts, they could become a cost to Eastside residents and businesses.

Life Cycle Cost Impacts

Assuming that each EIS project alternative will have varying levels of capital and O&M cost requirements, a life cycle cost criteria would provide a relative comparison of the net present value of each alternative from the perspective of the PSE service district. Such an approach would help quantify and compare the upfront costs as well as replacement and service costs for alternatives that may range from reliance upon proven transmission and power generation technologies vs. on-site micro generation and energy storage facilities.

B. NEXT STEPS

We look forward to modifying or refining these economic evaluation criteria with input from the EIS project team.

Exhibit 4.1: Energize Eastside Project
Potential Economic Impact Analysis Criteria

	Analysis Area	Input Variables	Output Metrics	Data Sources
Potential Impacts of Power Outages				
Gross Product at Risk with half day outage	Eastside Area	Employment by business sector	Annual GRP dollar value	PSRC (emp. Inputs); IMPLAN model for King County (outputs)
Power Outage Risk Assessment Parameters	Eastside Area	Transformer loading, emegency limits, operating limits in MW	MW per hour of total loads and relief required per event day	PSE service area loading data for event day
Power Outage Risk Assessment Scenarios and Cost	Eastside Area	Time of day, season, duration of outage, substations affected, customer characteristics, etc.	Outage cost, customer load shed, cost per unserved kWh by customer type	Interruption Cost Estimate (ICE) Calculator; Outage Cost Estimation Guidebook
Socio-economic Impacts new facility construction (local)				
Displacement Impacts				
Households	Eastside Area	Estimated impacts	HHs , pop., businesses	Field survey estimates and GIS data
Population				
Businesses				
Adjacent Property Impacts				
Households	Eastside Area	Estimated impacts	HHs by income level, pop., businesses	Field survey estimates and GIS data
Low-income households				
Population				
Businesses				
Short-term Construction Impacts of Facilities				
Employment	Eastside Area	Construction Investment by year	Direct, indirect and induced jobs, wages, taxes, GRP, Output	IMPLAN model
Income				
Taxes				
Gross Regional Product				
Econ. Output				
Permanent Economic Impacts of Operations				
Employment	Eastside Area	Changes in O&M Investment by year	Direct, indirect and induced jobs, wages, taxes, GRP, Output	IMPLAN model
Income				
Taxes				
Gross Regional Product				
Econ. Output				

Exhibit 4.1: Energize Eastside Project
Potential Economic Impact Analysis Criteria

	Analysis Area	Input Variables	Output Metrics	Data Sources
Fiscal impacts (local)				
AV adjacent to new facilities	Eastside Area	Property Area & Value by land use classification within 250 feet of new facilities	Potential AV lost due to real estate tranfers, AV lost due to view impacts	King County Assessor, GIS data, EIS Alts. Descriptions
AV reduced due to new facilities				
AV added due to new asset construction	PSE Service District, Eastside Area	Value of construction put in place	Equalized Value of PGE Assets by County/City	Capital Cost and Land Needed by EIS Alt.
Property Tax Revenue Changes	Eastside Area	Net Change in AV, Mil rates by jurisdiction	Net Change in tax revenue by jurisdiction	King County Assessor
Real Estate Transfer Tax Revenue	Eastside Area	Value of land acqusition by jurisdiction	Net Change in tax revenue by jurisdiction	EIS Alts. Descriptions
Sales Tax Revenue (on new construction)	Eastside Area	Value of construction, Sales tax rates by jurisdiction	Net Change in tax revenue by jurisdiction	WA Dept. of Revenue, EIS Alts. Capital Cost
General Fund Revenue Impacts	Eastside Area	Findings from tax analysis	Potential General Fund impacts by jurisdiction ($ and %)	Local CAFRs and EIS Alts. Analysis
PSE Customer Cost Impacts				
Rate Impacts to PSE Customers	Eastside Area	Rate Revenue Requirements by Customer Group and Time frame	Potential Res. And C&I Rate impacts	PSE Rate Funding Assumptions
Extraordinary Cost Impacts	Eastside Area	Revenue Requirements not covered by PSE rates	Potential Cost Impact to Jurisdictions	EIS Alts. Funding Assumptions
Life Cycle Cost of Facilities Investments				
Power Supply Cost (net new by energy type)	PSE Service Dist.	Annual Life cycle cost inputs (30 years)	Net Present Value of Life Cycle Costs	Life Cycle Cost Model
Distribution/Transmission Cost				
Tranformers/Substations Cost				
Storage Cost				
Operations & Maintenance Cost				

APPENDIX TABLES

Appendix A-1

Economic Overview by Employment Sector (Eastside Study Area)							
Impact Type	**Construction**	**Education**	**FIRES***	**Government**	**Mfg. & WTU****	**Retail & Food**	**Total**
Employment							
Direct Employment	19,168	16,570	169,634	20,516	36,600	51,098	313,586
Indirect and Induced Empployment	17,194	4,247	127,169	8,961	35,927	17,097	210,596
Total Employment	**36,362**	**20,817**	**296,803**	**29,477**	**72,527**	**68,195**	**524,182**
Wages							
Direct Wages	$1,816,548,245	$527,231,560	$13,663,196,948	$1,690,311,588	$3,500,879,947	$2,300,976,342	23,499,144,630
Indirect and Induced Wages	$1,010,778,055	$246,290,349	$8,195,229,246	$549,931,412	$2,429,586,359	$1,052,474,986	13,484,290,408
Total Wages	**$2,827,326,300**	**$773,521,909**	**$21,858,426,194**	**$2,240,243,000**	**$5,930,466,306**	**$3,353,451,328**	**$36,983,435,038**
Value Added / GDP							
Direct Value Added / GDP	$1,996,924,517	$549,699,475	$21,172,794,767	$1,972,683,590	$6,880,653,033	$3,564,131,977	36,136,887,360
Indirect and Induced Value Added / GDP	$1,665,081,110	$436,397,384	$13,204,997,875	$866,881,944	$3,860,065,178	$1,824,125,862	21,857,549,353
Total Value Added / GDP	**$3,662,005,627**	**$986,096,859**	**$34,377,792,642**	**$2,839,565,534**	**$10,740,718,211**	**$5,388,257,840**	**$57,994,436,713**
Output							
Direct Output	$4,292,575,633	$925,112,017	$32,351,378,763	$2,510,577,311	$15,429,743,527	$5,054,621,815	60,564,009,066
Indirect and Induced Output	$2,580,684,834	$691,684,860	$20,894,730,907	$1,405,892,718	$6,237,880,705	$2,858,963,828	34,669,837,853
Total Output	**$6,873,260,467**	**$1,616,796,877**	**$53,246,109,671**	**$3,916,470,029**	**$21,667,624,232**	**$7,913,585,643**	**$95,233,846,919**
Taxes							
State and Local Tax Impact	$257,434,513	$63,092,424	$1,891,341,237	$70,586,401	$924,156,290	$765,657,923	3,972,268,788
Federal Tax Impact	$568,320,792	$159,415,735	$4,936,693,517	$464,338,960	$1,476,322,016	$798,682,144	8,403,773,165
Total Tax Impact	**$825,755,305**	**$222,508,159**	**$6,828,034,754**	**$534,925,361**	**$2,400,478,307**	**$1,564,340,067**	**$12,376,041,953**

Abbreviations: *FIRES = finance, insurance, real estate and services. **Mfg. &WTU = manufacturing, warehousing, transportation, utilities.

Source: Puget Sound Regional Council & IMPLAN, compiled by FCS GROUP. Note, these data exclude large single-employers, such as Microsoft.

Appendix A-2

Gross Product, Eastside Study Area, 2015							
	Construction	Education	FIRES*	Government	Mfg. & WTU**	Retail & Food	Total
Annual Direct GDP	$1,996,924,517	$549,699,475	$21,172,794,767	$1,972,683,590	$6,880,653,033	$3,564,131,977	$36,136,887,360
Days of Benefit	260	260	260	260	260	365	
Average Daily Benefit	$7,680,479	$2,114,229	$81,433,826	$7,587,245	$26,464,050	$9,764,745	$135,044,574
1/2 Day Benefit At Risk	$3,840,239	$1,057,114	$40,716,913	$3,793,622	$13,232,025	$4,882,373	**$67,522,287**

Abbreviations: *FIRES = finance, insurance, real estate and services. **Mfg. &WTU = manufacturing, warehousing, transportation, utilities.

Source: Puget Sound Regional Council & IMPLAN, compiled by FCS GROUP. Note, these data exclude large single-employers with on-site backup genration such as Microsoft. Derived from Appendix A.2.

Appendix B: Sample of Taxlots by Utility Easement

Location (Address)	Description	Degree of Use	Appraised Land Value	Square Feet	Land Value ($/Sq.)
Near 230 kV Line					
11135 SE 164TH ST 98055	Significant transmission line presence	High	$115,000	92,782	$1.24
11202 SE 164TH ST 98055	Slightly less transmission line infringement	Medium	$150,000	23,680	$6.33
16408 113TH AVE SE 98055	No transmission line present	Low	$103,000	11,050	$9.32
No street address. Parcel # 032505-9188	Vacant land with transmission lines over it.	High	$237,000	47,480	$4.99
13443 NE 100TH ST 98033	Significant transmission line presence	High	$324,000	23,000	$14.09
13605 NE 100TH ST 98033	Slightly less transmission line infringement	Medium	$217,000	15,000	$14.47
13455 NE 100TH ST 98033	No transmission line present	Low	$241,000	15,000	$16.07

Source: King County Assessor; Compiled by ESA

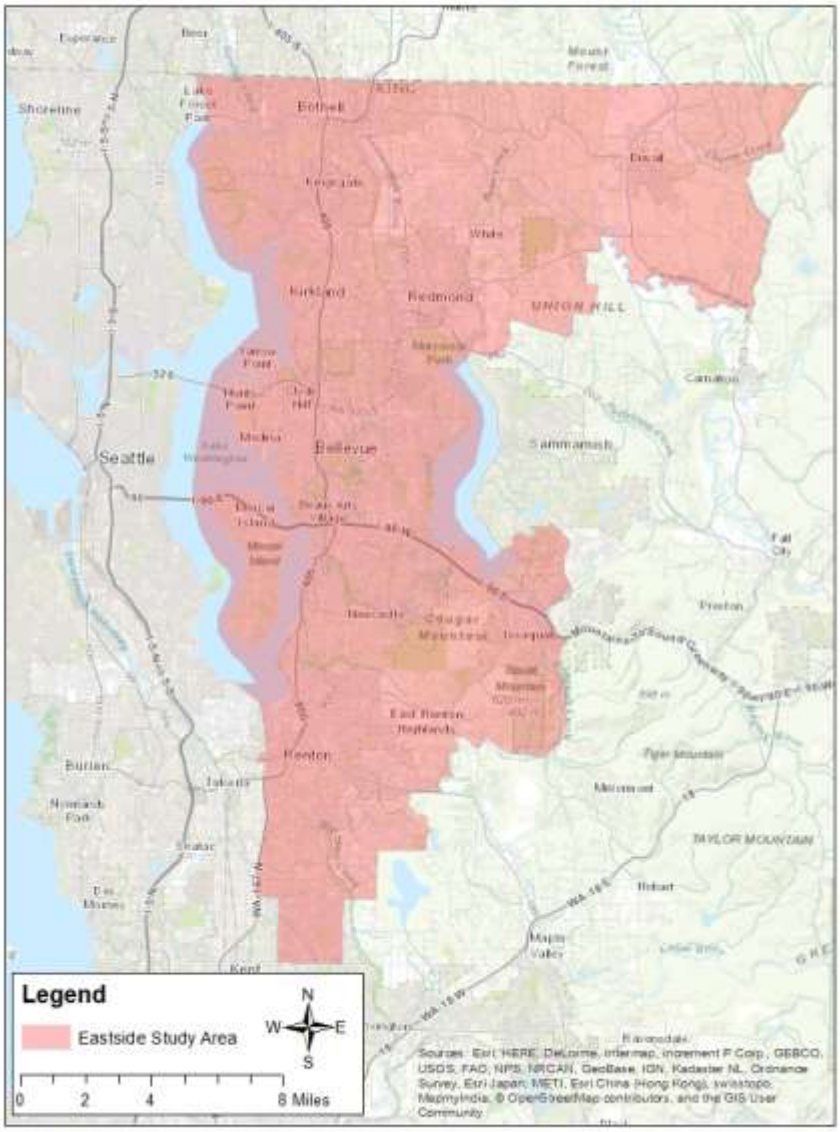
Note: Legal Descriptions would say "subject to Trans LN ESMT," but under the land data it might say that there is no easement. Legal descriptions were used to determine if power lines use a portion of the property. Properties that should be compared are grouped by color.

Location (Address)	Description	Degree of Use	Appraised Land Value	Square Feet	Land Value ($/Sq.)
Near 115 kV Line					
8818 132ND AVE NE 98052	Vacant land with transmission lines over it.	High	$931,000	436,471	$2.13
13640 NE 83RD ST 98052	Transmission line present	Medium	$157,000	17,967	$8.74
13540 NE 83RD ST 98052	No transmission line present	Low	$193,000	13,114	$14.72
13610 NE 40TH ST 98005	Vacant land with power lines over it.	High	$475,000	49,384	$9.62
13460 NE 40TH ST 98005	Transmission line present	Medium	$694,000	50,123	$13.85
13440 NE 40TH ST 98005	No transmission line present	Low	$844,000	43,560	$19.38
4755 SOMERSET DR SE 98006	Significant transmission line presence	High	$308,000	38,699	$7.96
4938 131ST PL SE 98006	Slightly less transmission line infringement	Medium	$336,000	10,026	$33.51
4943 131ST PL SE 98006	No transmission line present	Low	$308,000	10,912	$28.23
13710 SE 42ND ST 98006	Transmission line present	High	$344,000	14,374	$23.93
13700 SE 42ND ST 98006	No transmission line present	Low	$344,000	8,712	$39.49

Source: King County Assessor; Compiled by ESA

Note: Legal Descriptions would say "subject to Trans LN ESMT," but under the land data it might say that there is no easement. Legal descriptions were used to determine if power lines use a portion of the property. Properties that should be compared are grouped by color.

Appendix C: Eastside Study Area Traffic Analysis Zone Map



Note: Eastside Study Area boundaries co-terminus with TAZ boundaries assumed to be included in Eastside Study area based upon approximation of Nexant Eastside Study Area map (Figure 2-1)