Appendix D – Ask the Consultant

A key purpose of the ITA and the OTA was to provide an increased level of understanding of the purpose, need and timing of the EE project to the City Council and to community stakeholders. Over the course of the project, dozens of questions were received from various stakeholders. The City engaged such comments through an online outreach feature called 'Ask the Consultant.' In addition to this outreach the City initiated separate interviews with key stakeholders and USE staff. City staff filtered all Ask the Consultant stakeholder comment through the various Tasks in the Scope of Services and submitted the need-related comments to USE for report inclusion. Other comments were directed as appropriate to other comment venues including for example to the scoping process for the Environmental Impact Statement (EIS) the Integrated Resource Plan (IRP) process. That filtering is documented in the chart below.

A Q&A discussion is documented at the end of each section of the ITA.

See Attached Table 1.

Date	Name	Question or Comment	Directed to:
1/27	Plummer	Industry standards, IRP, average yearly loads	Extensive reference to lack of industry wide standards; paragraph 4 and 5 to ITA
1/22	Marsh	Questions for ITA consultant: Overview, Real need, distribution of peak use, Eastside vs regional needs, reliability	Skype session
1/28	Marsh	Questions for ITA consultant: extreme winter study case, other adjustments modeled, System Cap.	Role of Case Study Assumption, clarify reference to Needs Assessment Section 6, connection between CSA and CDF to ITA
1/30	Sweet	Data center consolidation comment	ITA
2/6	Plummer	Quantitative reliability metrics	ITA
2/9	Lander	Choice of USE and communications	Communications response
1/15	Osterberg/ Laughlin	E3 and Cadmus Study, declining revenue, blended project	EIS
2/3	Borgmann	12 questions: forecast, growth rates, Columbia Grid role, used and useful comparison, alternatives	1, 2, 7, 8, 12 to ITA 3 ? to ITA, comments to EIS 5 ? to ITA, comments to EIS 6 ? to ITA, comments to EIS 7- 2nd set? to EIS 4, 9, 10, 11 to EIS
2/9	Kim	2 comments on tech study and CDF chart; 2 questions on growth forecast disparity, show project stakeholder pie chart	1 and 2 to EIS 3 and 4 to ITA

2/10	McCray	4 questions: Load projection, options, trend down, Chang proposal	1 and 3 to ITA 2 and 4 (Chang) to EIS
2/10	Marsh	Circumstances of all-time peak usage occurrence	EIS
2/10	Marsh	PSE and SCL electricity trends	EIS
2/11	Alford	comment on tech study and CDF chart; questions on growth forecast disparity, show project stakeholder pie chart	See Kim comment
2/11	Mozer	Magnitude and timing of EE, alternatives, Canada powerflow	ITA (1) and EIS (2)
2/12	Andersen	4 questions: SCL capacity, Peak load information, use of temperature in modelling, distributed generation, use of peaking turbine generation	New Q1 to EIS Add 1 Q4 not in ITA scope Add 2 Q7 not in ITA scope Add 3 Q15 DSR and DG in ITA modelling, cost info not in scope Add 4 Q19 to EIS
2/12	Merrill	7 questions: Reasonableness of PSE conclusions, rational look, Eastside Customer demand, use of actual data, replacement, outages	1, 3, 5, 6 to ITA 2, 4, 7 to EIS
2/12	Hansen	Bridle Trails Subarea infrastructure reliability	EIS or ERS implementation
2/12	Halvorson	Customer Demand Forecast and Columbia Grid need pie chart	ITA
2/12	Marsh	7 questions: Top assumptions and parameters of the load forecast, economic projections, Spring District, increased efficiency, local government actions, regional transmission flow, regional grid	ITA

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
Q1	12	5.1 Simplified Description of the Forecasting Procedure	Please explain weather adjustment. Is it reasonable/appropriate?	Please see the [section] discussion. Weather adjustment is reasonable and appropriate, and is required by NERC.	*Council*
Q2	25	End-Use Data, Including Demand-Side Response and Energy Efficiency	What is the effect of the LED street light program on load?	The Eastside load is forecasted at 641 MW under normal conditions (Winter 15/16). The funded street light conversion program would reduce this load by 282 kW and the full conversion would reduce the load by 798 kW. On a percentage basis, the funded conversion would reduce Eastside load by 0.044% and the full conversion would reduce Eastside load by 0.12%. Though not evaluated in the 2013 IRP and thus not part of the 100% conservation measures, there will be limited impact to the overall load in any given year.	*Council*
Q3	25		Does the load forecast take into account local government actions, such as Bellevue's street light and traffic light initiatives?	The LED programs were not specifically identified in the 2013 IRP. The LED technology and availability is different today than it was when the 2013 IRP study began. PSE is planning on including LED lighting in the 2015 IRP.	*Marsh Q5 2/12* ***ITA***
Q4	25		What is the effect of the planned 289 kW of renewable generation (including Solarize Bellevue, the Bellevue College and the Bellevue Service Center), to the grid?	The Eastside load is forecasted at 641 MW under normal conditions (Winter 15/16). The planned 289 kW of renewable generation is nameplate rating, so actual output may be 80-85% of that on a sunny day. For a summer peak, the Eastside load could be reduced by 0.04%. For a winter peak, solar output would be significantly less or non-existent. PSE assumes that solar will not be available for the winter peak, since the winter peak usually occurs when it is dark out. The sample graph below reflects a mixed commercial/residential area, with the peak driven by the residential load. (A substation with the peak driven by commercial load could have a different load profile (different peaking curve)	*Stakeholder*
Q5	26		Is PSE using all the available Demand Response initiatives/opportunities?	Available Demand Response initiatives/opportunities were evaluated as to whether they were achievable and technically feasible. Then PSE used a generation optimization tool to identify the lowest cost combination of resources that a) meet capacity need b) meet renewable resources/RECs need, and c) included as much conservation as was cost effective. (Once the capacity and renewable resources/RECs needs are met, the decision to include additional conservation bundles is simply whether that next	*Borgmann Q4 2/3* ***EIS***

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
				bundle of measures increases the cost or decreases it. The IRP has the objective of providing reliable and least-cost electric service to its customers while addressing applicable environmental, conservation and renewable energy requirements. For example, Pacificorp states that the objective of the IRP is "...providing reliable and least-cost electric service to all of our customers while addressing the substantial risks and uncertainties inherent in the electric utility business." Energy Efficient West Virginia states that IRP is a process used by utility companies to determine the mix of resources that will meet electricity demand at the lowest cost.	*Cont'd*
Q6	27		How does efficiency affect energy usage?	Energy efficiency elements were described above. The 2013 IRP identified 521 aMW[1] of market achievable, technically feasible electric energy-efficiency potential by the end of 2033. To gauge achievability, Cadmus relied on customer response to past PSE energy programs, the experience of other utilities offering similar programs, and the Northwest Power and Conservation Council's most recent energy efficiency potential assessment. For the 2013 IRP, PSE assumed achievable electric energy efficiency potentials of 85 percent in existing buildings and 65 percent in new construction. If this potential proves cost-effective and realizable, it would result in a 16% reduction in 2033 forecast retail sales. (Note: this is an energy usage question, not a demand (MW) question. That said, the forecast and need are based on incorporating all of the cost-effective conservation measures (100% Conservation)	*Council*
Q7	27		Provide details on cost-effective energy efficiency and Demand Response (DR) elements included in the forecast, and how "cost-effective" is determined.	See Tables B-2-1, B-2-2, and B-2-3 (pages 156 – 265) of IRP Appendix N (2013) for a list of the thousands of electric measures studied. Table 13, page 20 provides a summary of the number of energy efficiency measures by customer class. The energy efficiency measures make up the majority of the DSR measures. Cost-effective: The short answer is that PSE has an optimization tool that ensures that the capacity needs are met, ensures that the renewable resources/RECs requirements are met, then minimizes total revenue	*Andersen Add3 Q15 2/12* ***ITA*** ***Cost info not in scope***

[1] aMW - The average number of megawatt-hours (MWh) over a specified time period; for example, 295,650 MWh generated over the course of one year equals 810 aMW (295,650/8,760 hours). (Source: PSE's 2013 IRP Definitions)

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
				requirements for both Supply-Side and Demand-Side. Those measures it selects are "cost effective". Longer answer: The measures are bundled into similar levelized costs and the optimization tool evaluates the measures in bundles rather than each individually, then the model determines which bundles are cost effective. See IRP Chapter 5 Figure 5-17 for the DSR bundles by cost group and Appendix N Figure 15 for the DSR supply curve. Out of an identified 1226 winter peak MW of achievable, technical potential in the PSE system (1017 MW + 209 MW EISA), 1007 MW were identified as cost effective.	*Cont'd*
Q8	27		Do the growth projections account for increased electrical efficiency? What assumptions are made, and do these represent the low, high, or average model outputs?	Yes, the growth projections account for the cost effective efficiency measures. See answers to the preceding two questions. The forecast represents the base model.	*Marsh Q4 2/12* ***ITA***
Q9	27		Concern expressed with PSE's forecast when considering energy efficiency, renewables, and Demand Response incentives.	Please see above discussion and answers.	*McLaughlin 2/18* ***Not Included***
Q10	32	6.4 Major Loads	Is development like Bellevue's Spring District factored in? Are there numbers that account for the impact of individual projects in downtown Bellevue? What numbers are used to predict the load impact for these projects?	Yes. See Table 6.3 for the summary.	*Marsh Q3 2/12* ***ITA***
Q11	32		A scenario was posed that data centers were consolidating and moving out of the Eastside area, and a question was asked whether PSE had accounted for that in their forecast.	PSE does account for large loads leaving the system or moving from one substation to another, but is not aware of any major changes in data centers. Data centers can be relatively small or quite large. Per PSE, the large data centers generally locate outside the PSE service area, where it is cheaper. PSE's planners have seen no indication of large data center changes. A short, independent web search did not turn up any large data center moves out of the Eastside area.	*Sweet 1/30* ***ITA***

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
Q12	36	6.5 PSE's Forecast <u>Stakeholder Questions related to Actuals (Historical Data)</u>	What are the ACTUAL numbers for 2012, 2013 and 2014?	Actual numbers for employment, population and customer count are shown in Section 6.2. Actual numbers (normalized) for MWh and MW are shown in Section 6.5.	*Borgmann Q1 2/3* ***ITA*** *Cont'd*
Q13	36		Please show historical loads.	See preceding question.	*Borgmann Q1 2/3* ***ITA***
Q14	36		What is the source of the actuals?	See Table 6.1	*Borgmann Q1 2/3* ***ITA***
Q15	37		Would like graph showing load history (back to 2000) and forecast.	See Section 6.5	*Marsh Q1 1/22 Skype* ***ITA***
Q16	37		Please include 2014/15 winter peak data.	The data is not yet available for the 2014/15 winter peak. See Figure 6.2 and the paragraph above it.	*Andersen Add1 Q4 2/12* ***not in ITA scope***
Q17	37		Please provide the unadjusted and temperature adjusted historical peaks.	Temperature adjusted historical peaks are shown in Section 6.5. See the beginning of Section 5 and Section 5.1 for why unadjusted peaks are not used.	*Andersen Add2 Q7 2/12* ***not in ITA scope***
Q18	37		What have been the highest actual aggregate winter peak loads on Eastside feeders and distribution lines ...? How would they relate to PSE's forecast of future loads?	The aggregate peaks for the Eastside area are captured in the historical data shown in Figure 6.19. The historic loads are included in the regression analysis which results in the forecast of future loads.	*Merrill Q2 2/12* ***EIS***
Q19	38	6.6 Summary analysis of PSE's Forecasting <u>Stakeholder Questions related to Forecast Methodology</u>	Questions on heat map. Request to create a more accurate map.	USE attempted to make a replacement heat map. One can obtain usage (kWh) data at a detailed level, but that doesn't show the peak demand which drives the project need - analogy of the odometer and speedometer. USE created a map of substation peak demand, using spatial interpolation between the substations, but the accuracy wasn't sufficient for the granularity of detail that is desired. The substations aren't necessarily located right where the heaviest load is. USE didn't feel the result gave a sufficiently clear representation of the area load and so did not include it.	*Marsh p. 5 Skype* ***ITA***
Q20	39		What are the industry standards for forecasting? Compare to PSE forecast.	See Sections 5 & 6 for standard industry practice.	*Plummer 1/27* ***ITA***

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
Q21	39		There appear to be no industry wide standards for the development of utility load forecasts, but there do appear to be standards for Integrated Resource Plans. RCW 19.280 State IRP, WAC 480-100-238. Clarify term "conservation" and why it is used for customer load reductions.	Yes, the industry standards have concentrated on the IRP process, but within that are requirements relating to some of the forecast elements. There are typical industry practices. 100% Conservation is defined as the cost-effective, achievable, technical DSR measures. See the Section 5 introduction and Section 6.3.	*Plummer 1/27* ***ITA*** *Cont'd*
Q22	39		Is PSE using population growth as a parameter? If so, at what granularity are the growth projections made? In other words, are growth projections used for individual cities, or is the Eastside treated as a whole, with one forecast governing the whole area?	Population is used as a parameter. Forecasts were developed at the system level, at the county level, and for the Eastside area. The Eastside forecast was developed using census tract data.	*Marsh Q1 2/12* ***ITA***
Q23	39		We would like to understand economic projections as well. Is economic growth projected for each city, or only for the whole Eastside? What numbers were used?	Economic projections were made at the system level, at the county level, and for the Eastside area. Graphs were provided for some of the major elements (Section 6.2 and 6.5).	*Marsh Q2 2/12* ***ITA***
Q24	39		Does the load forecast anticipate changes in regional transmission flow, such as south-north transmissions to Canada?	The load forecast is based on load. Transmission flows are irrelevant to the forecast. The link between forecast and transmission flows comes from modeling the substation load data, which was correlated to the load forecast, into a powerflow case. The powerflow case is where regional flow scenarios can be modeled. (See Appendix B, Optional Technical Analysis for study results of this scenario. It showed that even with no power flowing to Canada on the Northern Intertie (which is an unrealistic hypothetical scenario but modeled to answer the local vs. regional question), there is still a project need.	*Marsh Q6 2/12* ***ITA***

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
Q25	39		What other factors governing the regional grid is the load forecast taking into account?	See preceding answer.	*Marsh Q7 2/12* ***ITA***
Q26	39		Is it possible that the industry-standard methodology which PSE uses to forecast load growth has not evolved to reflect the realities of the current electricity marketplace? Are there any newer methodologies, or modifications to existing methodologies, which better reflect the realities of the modern electricity marketplace?	This question is outside the scope of this study; however, the IRP process continues to get attention, and frequently includes input from stakeholders, which is where Demand-Side Resources are evaluated and feed into the forecast process.	*Merrill Q4 2/12* ***EIS*** *Cont'd*
Q27	39		Is PSE's load projection reasonable? Are they the needs of Eastside or the needs or BPA, etc.? Are the loads PSE is projecting based on a farfetched combination of circumstances that are unlikely to actually happen?	The load projections and need determination are based on a normal weather forecast with 100% conservation. The 2014 forecast methodology and inputs are reasonable. See Section 6.6. See Section 7 for discussion on standards.	*McCray Q1 2/10* ***ITA***
Q28	40		Is PSE's forecast based on good data, independently verified?	Yes, PSE has followed industry practice in forecasting their demand load. See section 6.6.	*McCray Q1 2/10* ***ITA***
Q29	40		Why is PSE projecting load growth when their public documents (e.g. 10k) show they are selling less electricity?	The referenced 10k report is based on energy, which like an odometer reading shows usage, not peak demand. As noted previously, average use behavior is not necessarily winter peak behavior; the trends don't have to match. In addition, the data in the report is not adjusted for weather. See figures in Section 6.5 for current forecasts.	*McCray Q3 2/10* ***ITA***
Q30	40		Provide justification/ rational/definition for the System Capacity line on PSE's "Customer Demand Forecast".	System Capacity: Occurs when the load (Eastside Area) just hits the rating limit of the critical contingency condition(s). The System Capacity line can shift depending on where load grows (if not homogenous). The contingency analysis is dictated by national standards. Using the same methodology as the 2013 report, a winter Eastside system capacity range of 688-708 MW has been identified based on the 2014 load forecast powerflow results (see Figure 8.1).	*Borgmann Q2 2/3* ***ITA***

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
Q31	40		How does PSE justify an Eastside growth rate of 1.7% to 2%?	PSE used reasonable methods to develop the 2014 forecast by following industry practice (see Section 6.6). The forecast is built from the data inputs via regression analysis. The 2014 demand forecast shows a 2.4% growth rate for the Eastside area from 2014-2024 and a 2.5% growth for Eastside between 2014 and 2031. In comparison, the forecast shows a 1% growth rate for King County between 2014 and 2031. The Eastside area demand is projected to grow significantly faster than King County as a whole, which is in line with the land use Vision 2040 Regional Growth Strategy report. Whether the forecasted demand growth will be sustained through 2031 is unknown. Note: if the growth rate is calculated from the 2010 actuals through 2017, the growth rate is 2.2% for Eastside and 0.4% for King County. See Figure 6.18 and Figure 6.19. Note: SCL's "demand" forecast growth of 0.5% noted in their latest IRP update is actually an energy forecast. SCL's actual demand forecast from December 2013 to December 2034 has an estimated compound annual growth rate (CAGR) of 1.2%, based on an estimated 1180 MW in December 2013 and using their IRP demand graph as reference. PSE has a CAGR of 2.4% from winter 2013/14 to winter 2031/32 based on an estimated 615 MW in winter 2013/14.	*Borgmann Q3 2/13* ***ITA-EIS*** *Marsh p. 2 Skype Concern #3* ***ITA*** *Marsh Q7 2/10* ***EIS*** *Cont'd*
Q32	40		What is the magnitude and timing of the need for EE? An updated peak load forecast is needed to resolve serious questions about the load forecast used by PSE to justify the project as now proposed.	In early February, 2015, PSE completed their 2014 forecast which included historical data through 2014, and thus included the summer 2014 peak and the winter 2013/2014 peak. See the top of Section 6 for discussion on the new forecast methodology.	*Mozer Q1 2/11* ***ITA***
Q33	40		Please explain PSE's "Eastside Customer Demand Forecast" chart. A detailed quantitative analysis for the years is needed on this chart. There have been several credible articles stating electrical usage is not growing but is flat, even declining in the United States.	Please see discussions in Section 6.2 on the economic and demographic data sources, the Vision 2040 Regional Growth Strategy, and Section 6.4 on Major Loads. Please see Section 4 on Energy vs. Demand and Q4 on potential impact of solar on a winter peak.	*Kim Q2-Q4 2/9* ***EIS*** *Alford 2/11* ***EIS***

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
			This trend is apparent over several years and is due to conservation and technological changes in production, usage and storage. How does Energize Eastside explain this disparity? Also, solar energy has been increasing on the Eastside.		
Q34	41		PSE's energy use (MWh) trend and # of customer trend is similar to SCL, yet PSE's load forecast (MW) shows a significantly higher growth % than SCL. Explain. National electricity use is declining as is regional (Pacific Northwest Utilities Conference Committee (PNUCC)). Why is PSE's forecast increasing? Explain why electricity use in Bellevue is so different from other cities.	Please see Q31 and Q33 answers.	*Council* *Marsh p.3 Skype **ITA***
Q35	41		Please explain PSE's "Eastside Customer Demand Forecast" chart. Show peak demand for Bellevue. Show retail sales to customers, off-system sales and electricity delivered to transmission only customers. Concern over accuracy of trend.	See preceding answer. See Figures in Section 6.5. There are no off-system sales within the Eastside area; this would not affect the Eastside forecast. There are transmission only customers in King County outside of the Eastside area, but since the off-system sales customers are not PSE's customers, they wouldn't affect that forecast either.	*Halvorson Q1 2/12 **ITA***
Q36	41		Is it true that PSE's "Eastside Customer Demand Forecast" graph is based on a hypothetical "grid-flow modeling scenario" ... rare winter peak ...	No. It is based on normal winter weather. The hypothetical outage scenarios are part of the industry mandated contingency analysis. Please see the weather normalizing discussion in Section 5 and see Section 7 on Standards, regarding the required contingency analysis.	*Council*
Q37	50	7.6 Electrical Reliability	2013 Needs Assessment report, page 43. The "3d" sensitivity,	PSE's capacity line is the load level at which overloads will just begin to occur under contingency situations. Because the scenario being referred	*Marsh p. 7 Skype **ITA***

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
		Standards Path 3 Issues <u>Stakeholder Questions related to Standards and Reliability</u>	modeling 2021-2022 extreme Weather with 100% conservation. Explain why this scenario, which had 845 MW predicted Eastside load, showed no overload for N-0 yet 845 MW is above PSE's "current system capacity" line in their 2013 report. Clarify what PSE's capacity line represents.	to in this question is "N-0" (or no contingency), there are no overloads. The reason for there being no overloads is that up to two additional pieces of equipment are in service to carry power to the load.	*Marsh 1/28* ***ITA*** *Cont'd*
Q38	51		Too much transmission reliability?	The requirement for transmission reliability is discussed in the section on NERC Reliability Standards. Because the Reliability Standards are mandatory, meeting these standards provides just adequate reliability.	*Council*
Q39	51		How are EE "need" and "reliability" related? How many outages in the next 10 years (2017-2027) are anticipated to be avoided by implementation of EE, due to transformer limitations or otherwise stressing system capacity due to local Eastside growth (excluding unpredictable weather events)?	EE need is related to reliability by the requirement that when overloads occur during a planning assessment under the contingencies that are required to be run (see the discussion of TPL-001-4 in the Independent Technical Analysis), there is by definition a need. This need is not necessarily EE, but something must be done to mitigate the overloads seen in the planning assessment. The question of how many outages may be avoided by implementation of EE is not relevant to the question of need. The Reliability Standards require that a defined set of contingencies be run on the system model. If overloads or other violations are found, then a Corrective Action Plan must be produced. The fact that a Corrective Action Plan is needed demonstrates that there is a need.	*Borgmann Q6 2/3* ***ITA-EIS***
Q40	51		What is the probability of an N-1-1?	The probability of an N-1-1 is not a factor that is considered in determining if there is a need for a project. However, typically the probability of an N-1-1 is between 0.33 and 0.033 outages per year or once in 3 years to once in 30 years,	*Borgmann Q8 2/3* ***ITA***
Q41	51		One of the rationales advanced by PSE for the new transmission lines was to increase the 'reliability' of PSE's transmission system and/or the reliability of PSE's "system" that supplies electricity to Bellevue and other east side communities.	Energize Eastside is a project designed to mitigate overloads found in planning studies that used projected future load growth. Therefore, a better way to look at EE is that it will maintain the current reliability that exists today and prevent it from getting worse.	*Plummer 2/6* ***ITA***

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
Q42	51		Task 8 of USE's 'scope of services' states that USE will develop a formal, written evaluation of the need for PSE's Energize Eastside (EE) project, including an assessment of the " ... impacts to electrical system reliability ..." Please describe (or provide in the report) a schematic/line-diagram of the "electrical system" that USE evaluated to assess the "reliability" of the "electrical system"; and describe the quantitative reliability measures/metrics that were used in performing the evaluation of the impact of PSE's EE project on the "electrical system" reliability.	The electrical system modeled was the entire Western Interconnection that extends from the Pacific Ocean on the west east to Colorado and from British Columbia and Alberta in the north south to Arizona and a portion of northern Mexico. The studies concentrated on the Puget Sound area, but included all facilities in the entire Western Interconnection. USE did not assess the impacts of PSE's EE project on electric system reliability. Our work scope was limited to investigating the need for EE. Therefore, we investigated the accuracy of PSE's latest load forecast (2014) and ran studies using the system model without EE in it to see if problems occurred that would require a project like EE to solve. In performing this investigation, we addressed the impacts of PSE's assumptions regarding load growth and regional transfers on the system without EE to determine if there was a need for a project like EE. The Optional Technical Assessment (OTA) (Appendix B) looked at the sensitivity of modified assumptions regarding load growth, westside generation levels, and regional transfers on the need for a project like EE. Determining the preferred project to mitigate the problems found in the studies of the system without EE is one of the purposes of the EIS process, but this determination is beyond the scope of the ITA and the OTA.	*Plummer 2/6* ***ITA*** *Cont'd*
Q43	52		Why is an N-1-1 outage scenario (rare) used to determine need?	Because N-1-1 contingencies must be simulated in the planning assessments required by the mandatory NERC TPL-001-4 Reliability Standard.	*Council*
Q44	52		Questions about reliability, outages, contingency analysis.	As noted in responses to other questions, probability of an outage is not considered in determining need using the NERC TPL-001-4 Reliability Standard. When performing a planning assessment all outages need to be simulated and if there are any overloads or other violations, then a Corrective Action Plan must be developed. What is included in this Corrective Action Plan will vary depending on the type of outage and what sort of mitigation is allowed for that outage in the TPL-001-4 Reliability Standard. However, need is established as soon as a Corrective Action Plan needs to be developed.	*Marsh 2/10* ***EIS***
Q45	52		We ask the consultant to forecast how many outages in the next five years (2016 – 2020) would be	Please see the responses above.	*Marsh Q4 1/22 Skype* ***ITA-EIS*** *Merrill Q7 2/12* ***EIS***

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
			avoided by implementation of Energize Eastside.		
Q46	52		Is it true that PSE's "Eastside Customer Demand Forecast" graph is based on a hypothetical "grid-flow modelling scenario" in which a rare winter peak electricity demand event occurs on the Eastside at exactly the same time that there are two major and simultaneous equipment outages on nearby transmission lines?	The demand forecast is independent of any equipment outages. The current system capacity line is determined by studies of system performance under multiple contingency scenarios with models that incorporated forecasted peak load. These studies are required to be run in this manner by the Requirements in the NERC TPL-001-4 Reliability Standard.	*Merrill Q1 2/12* ***ITA*** *Cont'd*
Q47	52		Are PSE's conclusions reasonable?	See the conclusions section of the Independent Technical Analysis and the Executive Summary of the OTA (Appendix B).	*Merrill pre-Q1 2/12* ***ITA***
Q48		N/A			
Q49	58	9. Regional Issues related to EE <u>Stakeholder Questions related to Regional vs. Local Need</u>	What is the connection between the need for EE and Columbia Grid (CG) technical objectives?	The CG technical objective is to identify effects of multiple systems that prevent fulfillment of firm transmission commitments. Mitigating transmission effects that do not involve multiple systems is not within the CG mandate. After the effects are identified, the multiple system owners are convened as a team facilitated by CG to identify mitigating alternatives and select the preferred alternative. The proposed 230kV scope of EE is identified by the CG facilitated team as a preferred alternative to reconductoring SCL's Maple Valley-SnoKing 230kV lines. EE at 230kV also changes the SCL scope of rebuilding the Bothell-SnoKing 230kV lines to reconductoring these lines.	*Borgmann Q5 2/3* ***ITA-EIS***
Q50	58		How are the technical needs of Columbia Grid prioritized and what criteria are used for evaluation and prioritization?	CG performs system assessments to determine forecasted transmission constraints to serving firm transmission commitments. A constraint that affects more than one member is the criteria for creating a study team, facilitated by CG, composed of the affected members. The study team mandate is to determine the mitigating alternatives and select the preferred alternative. Each study team determines their own evaluation and prioritization criteria. In the Puget Sound Area Study Team (PSAST), the criteria is a qualitative combination of cost and a planning metric (i.e. Transmission Curtailment Risk Measure or TCRM).	*Borgmann Q5 2/3* ***ITA-EIS***

Q #	ITA page	ITA Section	ITA Question	ITA Answer	*Original Source/ Question or comment/ Date/**Filter***
Q51	58		Who has regulatory oversight of Columbia Grid?	There is no government regulatory oversight of CG. The oversight is by CG members, who have their own government regulatory oversight at state and federal levels. CG has no construction authority. The only CG authority is determining cost allocation, but this authority is only used if members do not agree on the cost allocation for a project they agree to implement.	*Borgmann Q5 2/3* ***ITA-EIS***
Q52	58		Is EE an "OPEN ACCESS" project? A	No. An "Open Access" project provides new requested transmission service. This project provides service for existing firm obligations. (The longer answer is as follows: This answer assumes that "Open Access" refers to a transmission service request under a transmission provider's Open Access Transmission Tariff (OATT). These transmission service requests are for new transmission service that involve study requirements, facility addition determinations, and FERC pricing policies. Since EE is for load growth that falls under existing transmission service, it isn't "open access" because it is not new transmission service. .	*Borgmann Q7* ***EIS*** *Cont'd*
Q53	58		How are the merits of each need evaluated independently and which need takes priority?	The CG PSAST team evaluated the regional, multi-system needs for bulk power transfers independent of local load service needs. The local load service need is evaluated by the single systems. If a single system project (e.g. EE at 230kV) affects multi-system power transfer needs, then it is included in the multi-system evaluation. Firm commitments, regardless of bulk power transfers or local load service, are equal priority to be addressed and issues mitigated.	*Borgmann Q7 2/3* ***EIS***
Q54	59		Please describe how the need for EE and Power Wheeling are connected. What are PSE's power wheeling objectives for EE, and how much of the EE need is based on the ability to participate in additional power wheeling?	Wheeling is the transportation of electric power over transmission lines by an entity that does not own or directly use the power it is transmitting. (from PSE's Energize Eastside website, based on 2012 forecast) "PSE makes no profit on wheeling power. All revenue obtained from wheeling contracts is passed directly back to our customers in the form of lower rates. PSE does have contracts to wheel power across the region; those contracts bring in revenue of roughly $28 million a year. One hundred percent of this revenue is returned to our customers in the form of a rate reduction. As we stated in our presentation, 92-97% of the power flows on the Energize Eastside line will deliver electricity to local Eastside customers. The power flow studies show that the power used for regional purposes on the Energize Eastside project is 3 to 8% - not 38% (as was	*Borgmann Q12 2/3* ***EIS-ITA***

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				incorrectly stated at the meeting). This is the natural consequence of connecting a transmission line into an interconnected system." June, 2014 http://energizeeastside.com/Media/Default/CAG/Meeting3/2014_0609_CAGLetter_SCL.pdf	
Q55	59		Is any of the capacity of the planned EE 230 kV line, or the existing 115 kV lines between Sammamish and Talbot Hill, allocated for transmission contracts to BC Hydro or CA? If so, what %? What are PSE's power wheeling objectives for Energize Eastside? Does existing or planned/potential wheeling affect the Project capacity?	No/None. PSE makes no profit from wheeling contracts. See Q56. Per PSE, Project capacity is not affected by existing or planned/potential wheeling.	*Council* *Cont'd*
Q56	70	Appendix B – OTA Stakeholder Questions related to the OTA	The study must as clearly, but non-technically as possible, define will happens regarding power flow to and from Canada.	See the OTA in Appendix B. Sensitivities were performed where power flow to and from Canada were reduced to zero. These cases still showed overloads so there is clearly a local need. Some overloads were eliminated when flows were reduced to zero, which indicates that flows to and from Canada also have an impact on the need.	*Mozer Q3 2/11* ***added, ITA***
Q57	70		Clarify Eastside vs. regional needs. What load is causing the problem? Local or regional?	Local. The Optional Technical Analysis results showed that in winter 2017/18, even with the Northern Intertie adjusted to zero flow, the Talbot Hill 230/115 kV transformer #2 is still overloaded by several contingencies. This indicates there is a project need at the local level. See the full Appendix B for further detail.	*Council*
Q58	70		I am concerned that the need is not just for Bellevue and the Eastside but more for Bonneville Power, Snohomish Power, Seattle City Light -- the Columbia Grid. I would ask the consultants to provide a simple quantitative and	See Q56.	*Kim Q4 2/9* ***ITA***

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			pie chart breakout of the need that each stakeholder has in "Energize Eastside".		
Q59	70		Provide a quantitative analysis and pie charts (both historical and futuristic) showing a breakout of the need (demand and reliability) for each of the members of the Columbia Grid.	The Optional Technical Analysis results showed that in winter 2017/18, even with the Northern Intertie adjusted to zero flow, the Talbot Hill 230/115 kV transformer #2 is still overloaded by several contingencies. These results indicate there is a project need at the local level.	*Halvorson Q2 2/12* ***ITA***
Q60	70		Given the scenario and contingency driving the EE project, how much regional load will flow through the line?	See Q61 below.	*Council*
Q61	70		What percentage of North-South flow-through load (to Canada/California) will be carried on EE during an N-1-1 event (failure of BPA bulk main PLUS a second transmission line failure?	The OTA studied a scenario with flows to Canada at 1500 MW and a scenario with flows to Canada set to 0 MW. Under the worst contingency condition (N-1-1), the reduction in flow on the Talbot Hill - Lakeside lines was 22.5%. Under the worst contingency condition (again N-1-1), the reduction in flow on the Talbot Hill 230/115 kV transformer was 2.6%. These results are before EE and reflect the effects on the current transmission system serving the EE area. As you can see from these results, the impact of flows to Canada on the Talbot Hill 230/115 kV transformer (the main driver of the need for EE) is almost insignificant.	*Borgmann Q8 2/3* ***ITA***
Q62	70		Was the system studied with generation on the west side?	Yes, the OTA studied a scenario with generation on the west side.	*Council*
Q63	70		Is EE a "BLENDED PROJECT" to satisfy the needs of Columbia Grid, BPA grid reinforcement (Monroe-Echo Lake bottleneck), Columbia River treaty "Canadian Entitlement" curtailments, Seattle City Light load needs, as well as PSE load growth?	The term "Blended Project" is not clear. However, the OTA results do show that there is a need for a project to satisfy local needs. A review of ColumbiaGrid documentation indicates that EE will also help satisfy a regional need which is why EE was included in the recommended transmission solution from ColumbiaGrid Puget Sound Area transmission planning activity.	*Borgmann Q5, Q7 2/3* ***EIS*** *Osterberg 1/15* ***EIS***