January 15, 2018

Steven V. King , Executive Director and Secretary
Washington Utilities and Transportation Commission
P. O. Box 47250
1300 S. Evergreen Park Drive S. W.
Olympia, Washington 98505-7250

Re: PSE's 2017 IRP Chapter #5 Demand; Chapter #8 System Planning, Docket #160918

Dear Executive Director and Commissioners:

While there may be many factors that go into the planning and ultimately the execution of projects, customer demand has to be the primary driver. Validity of models can vary. Actuals are hopefully accurate. Forecasts are imprecise. Nevertheless, as imprecise as all this might be customer demand forecasts are critical.

The 2017 IRP demand analysis lacks detailed factual analysis and justification. Forecasts are incongruent with current information. Forecasts for the Eastside of King County are absent.

1. **Integrated Resource Planning Process – 2015 versus 2017 – Total & Peak Demand**

Total Demand: If you compare Total Electrical Demand forecasts for 2013 to 2015 to 2017, PSE shows a decline from 1.9%, to 1.6% to 1.3%*. PSE's forecasts appear to be consistently inflated by about 17%. Assuming this trend holds, PSE's forecast should be about 1.1%. After many months of IRP Advisory Group meetings PSE stated "demand is flat". I am told Seattle City Light's forecast is .9%, far less than the Eastside which PSE forecasts at 2.4%. It is interesting to note that Seattle's PRSC economic and population growth is equal to if not greater than the Eastside's. (*IRP Figure 1.2; p 1-7; 2017 IRP Figure 5-3; p. 5; 1.3).

Yet, PSE continues to quote PRSC employment and economic growth as a justification for Energize Eastside. Yet, energy growth continues to decline. Rather than creating a false public relations narrative PSE needs to be more forthright and transparent about energy growth in today's market place, as they should within an Integrated Resources Planning Process.

Using 30 year historical data in econometric forecasting is probably a major cause for the large discrepancies. In the past five years there has been a virtual revolution in technology advancements, conservation, and changes in consumer behavior that would be easily clouded.

The important issue here is that data centric information is critical to making decisions of this magnitude and PSE's methodology and conclusions appear flawed. These flaws need to be explained. Will PSE standby their 1.3% forecast?

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2. Integrated Resource Panning 2015 vs 2017 – Missing Data?

In the 2015 IRP, PSE states in the Executive Summary: "Overall electric demand growth has slowed. But some areas are growing rapidly like the Eastside of King County at 2.5% versus 1.6% for all of PSE." (paraphrased). This statement has been challenged on several occasions. Unfortunately, PSE will not answer questions or provide further data and information to support a 2.5% demand projection.

In the 2017 IRP, there is no mention or forecast for Eastside of King County. Since there is no analysis here, we might assume that this number should decrease as it has for overall demand. That would suggest that 2.5% versus 1.6% in 2015 would equate to roughly 1.7% for the Eastside in 2017. But, the irony here is that just two years ago Eastside of King County was a critical element in PSE's forecasting and today it is not. The irony here is that Chapter 8, a descriptive analysis of Energize Eastside, is not supported or substantiated by a forecast for that area.

Could it be that a lower forecast would show that the intersection of demand with available capacity is out a few more years? Could it be that a lower forecast would necessitate a further examination of far less costly alternatives to Energize Eastside, which incidentally is about 400% more capacity than we now have.

The important point here is current data and information for Eastside of King County is now absent in the 2017 IRP, which strangely notable since PSE describes "Energize Eastside in such detail in Chapter 8?

3. PSE SEC Form 10K filings – 2014, 2015, 2016

As a business person and after many unsuccessful attempts to acquire demand data, I reviewed PSE's Form 10K reports to see if we could learn more about usage. Following is a table taken from those documents:

PSE – Form 10K*

Entity	2016 over	2015 over	2014 over
Total Customers "% increase yr over yr"	1.5	1.1	1.0
Energy Sales to Cust. "% increase yr over yr"	(3.0%)**	(2.9%)**	(1.6%)**

*PSE SEC 10K filings; pages 13 & 14 (various by year)

**() denotes negative

This chart includes customers and sales for all of PSE. This chart is for sales, not Total Demand or Peak Demand. In any event, this chart shows tremendous downward pressure on sales, which certainly is correlated to demand.

The most obvious conclusion is that while customer growth is increasing energy usage is declining. This is probably shocking to the general public, but probably not to those familiar with the industry.

4. "Eastside Customer Demand Forecast – 2012" & "Eastside Customer Demand Forecast – 2014" as it relates to public presentations, CAG & EIS

In 2013 and on many occasions, an "Eastside Customer Demand Forecast" was presented to the CAG as justification for the Energize Eastside project, and a solution to meet this need was imminent *(See Attachment 1)* The CAG was charged with helping determine the best transmission line route between two substations. This process charged ahead based upon PSE's demand assumption for nearly a year.

PSE provided little if any detail regarding total demand versus peak demand, assumptions, numbers or percents, technology/conservation declining growth etc. Many questions went unanswered.

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In 2015, this updated 2012 "Eastside Customer Demand Forecast" was presented to a number of groups including the City of Bellevue and PSE's Environmental Impact Statement sessions *(See Attachment 2)*. The message was that the need is imminent and EE is the solution. This process charged ahead under this assumption for another year.

As was the case in previous meetings, PSE provided little if any detail about the new 2014 "Eastside Customer Demand Forecast". There were several written and verbal inquiries about these charts. PSE would not and did not provide answers.

In PSE's and the City of Bellevue's Environmental Impact Statement (Chapter 1 – Introduction and Summary p 1-6) they say:

> "Figure 1-2. Eastside Customer Demand Forecast shows PSE's projected growth in load for the eastside from 2014-2024 and the capacity of its transmission system .... **Without adding 74MW** ....a deficiency could develop as early as winter of 2017 or summer/winter of 2018. There is a caveat that economic activity has a significant effect on energy demand." (paraphrased) *(See Attachment 3)*

Once again, several written and verbal inquiries about this chart, including assumptions, data for each year, % year over year increases etc went unanswered.

The last time that I viewed PSEs webpage this chart had been removed.

5. "Eastside Customer Demand Forecast -2012" compared to "Eastside Customer Demand Forecast – 2014"

Earlier we agreed that a customer demand forecast is critical, perhaps the most critical element of a plan. Because PSE won't provide current data it is hard to be precise. You cannot do an effective job of studying graphs without the numbers. Nevertheless, these forecasts are problematic by simply analyzing them and using some home spun measuring devices. With this analysis at least three major issues are apparent. The following are comparisons:

The 2012 10 year forecast (2012 – 2022) MW axis is 600MW to 800MW calibration.
The 2014 10 year forecast (2014-2024) MW axis is 550MW to 800MW calibration.

The 2012 actual customer demand is 645MW+/- in 2012 and 765MW in 2022.
The 2014 actual customer demand is 590MW +/- in 2014 and 790MW in 2024.

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The 2012 actual numeric customer demand for each year ranges from about 4MW to 22MW.
The 2014 actual numeric customer demand for each year ranges from about 6MW to 32MW.

The 2013 percent increase for the first five months approximates **1.8%** ; last five month 1.5%.
The 2014 percent increase for the first five months approximates **3.7%;** last six months 1.9%.

> **ISSUE 1: THE 2012 FORECAST HAS A RATHER FLAT GROWTH RATE, WHILE THE 2014 HAS SIGNIFICANTLY HIGHER GROWTH FOR THE FIRST FIVE YEARS. Is the 2014 forecast front end loaded? Is this a realistic projection with what we have determined so far, and in terms of technological trends and consumer behavior?**

The 2012 actual customer demand is 650- MW in 2012 and **660MW in 2014.**
The 2014 actual customer demand is (n/a MW in 2012)and **585MW in 2014.**

> **ISSUE 2: IN 2014, THERE IS AN UNACCCOUNTED 75MW REDUCTION IN MW REQUIRED WHEN YOU COMPARE THE TWO FORECASTS. Obviously, near term years in a forecast are more accurate and certain than future years; but, without data and explanations it is hard to account for this mystery.**
>
> **This 75MW reduction is enough to fill the purported 74MW shortfall in the overall 2014 forecast. What would a current 2017 forecast show now that PSE has actuals for the years 2012 thru 2016?**

The 2012 nexus where demand meets capacity is early 2017 to 2018.
The 2014 nexus where demand meets capacity is early 2018 to 2019.

> **ISSUE 3: THE NEXUS POINT FOR THESE FORECASTS IS UNSUBSTANTIATED. IN TODAY'S ENVIRONMENT, THE 2014 FORECAST IS OUTDATED. Since these forecasts begin in 2012, we now have actuals for the past five years. What are the actual numbers between 2012 and 2016? Is the nexus projection of 2018/19 accurate? Is the nexus projection of 2018/19 realistic?**
>
> **With a current 2017 forecast, when would the nexus of demand and capacity occur, if at all in PSE's "Eastside Customer Demand Forecast"?**
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> **The City of Bellevue has significantly reduced energy consumption. Why are these results so different from PSE's outdated forecasts and current public messaging?**

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6. **City of Bellevue "It's Your City – Fall 2017 Page 3"**

Most recently, the City of Bellevue was awarded the Georgetown University Energy Prize for reducing energy consumption. This is a REAL HONOR Let me paraphrase: "By taking the "Smart Energy Pledge" **Bellevue's per capita residential energy use DECREASED BY BY 3.6% from 2015 to 2016.** Businesses are now endorsing "Urban Smart Bellevue" with a goal **to reduce energy consumption by 5% .** *(See Attachment 4)*

More issues: What are the implications to PSE's forecast for 2015? What are the implications for a future forecast and future plans?

The focus herein has been primarily demand. The flip side of this is capacity. In Chapter 8: System Planning there is no mention of **Load Flow Studies.** It is my understanding from experts in the field that the only way to know exactly what is occurring on our electrical infrastructure is to conduct complete load flow studies of the lines and system. This is probably a little simplistic but it does capture a common business viewpoint that you need to know capacity and usage to determine whether you increase that capacity or improve it. Several attempts have been made by the CENSE organization to work with PSE to conduct current load flow studies. In fact, an independent one, Lauckhart/Schiffman, was done using WECC data provided to WECC by PSE. This "illuminated" major flaws in previously outdated studies conducted by PSE. PSE has proclaimed that five different studies were conducted justifying Energize Eastside. However, they never say that only one was based upon a full load flow study of the system. In fact, the other "studies" generally and simply confirm that proper procedures and guidelines were followed.

The electrical industry landscape is changing i.e. declining growth, new technologies, abundance of enery in the USA, Canada, California and Southwest. Yet, Washington Rate Payers are going to be asked to fund a project that is not completely "vetted". **Why won't PSE conduct a current Load Flow study and analysis on the Energize Eastside?**

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With only our limited amount of information, the WUTC and ratepayers must question whether a transmission line with 400% +/- additional capacity is the solution or a "fit" to meet customer demand needs ranging from at a maximum 74MW to a minimum negative electrical energy growth in the future.

I submit that items 1-6 clearly show that PSE's Chapter 5 and Chapter 8 do not meet the intent of WAC 480-100-132 or common regulatory standards of being transparent and of providing adequate and accurate information as a basis to fulfill its responsibilities.

Sincerely and on behalf of the ratepayer public,

Warren E. Halverson