

December 2019 IRP Comments and Public Input

Overview

The following comments were received in December 2019 as part of Puget Sound Energy's 2019 Integrated Resource Plan (IRP) process. In total, four comments were submitted to the IRP team. Comments in this document include all text submitted, with comments in their entirety available online.

Responses from the IRP team are included immediately following the submitted comment. For questions or comments regarding the 2019 IRP, please visit the project website or email the IRP team at IRP@pse.com. All comments or questions submitted will be made public.

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Comment #1: Response to PSE’s 2021 IRP Progress Report, Peak Demand Reporting

Date received: 12/4/2019

Name: Don Marsh, James Adcock, Norm Hansen, Doug Howell, Warren Halverson, Kevin Jones, Rob Briggs, Kate Maracas, Willard Westre, Elyette Weinstein, Cynthia Mitchell, Court Olson, John Williams, Michael Laurie, Sara Papanikolaou, Janis Medly, Linda Hagedorn, Emily Powell, Kathie Ossenkop, David Perk

Organization: PSE Technical Advisory Group

Comment

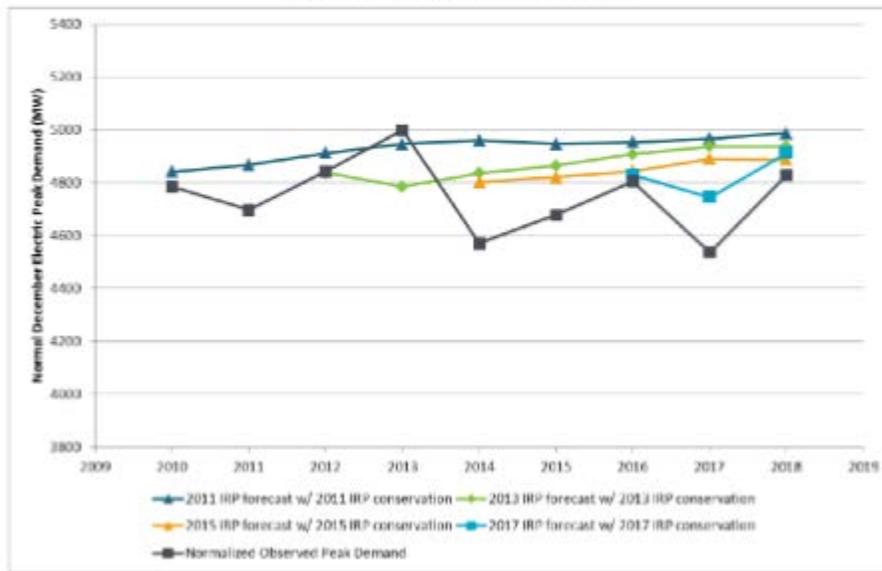
Dear Ms. Netik,

As PSE reminds us, the energy grid must be designed to serve instantaneous peak demand without failing. For this reason, a forecast of peak demand is an essential part of resource planning. A graph of the forecast is often shown at the beginning of an Integrated Resource Plan. PSE’s 2021 IRP Progress Report displays the peak demand forecast in the first graph of the report, Figure 1.

Members of the Technical Advisory Group have urged PSE to include historical peak demand values to help everyone understand how demand has evolved over time and how the forecast extends or deviates from the trends.

PSE responded to our requests by including a graph of observed peak demand in Figure 12 of the Progress Report:

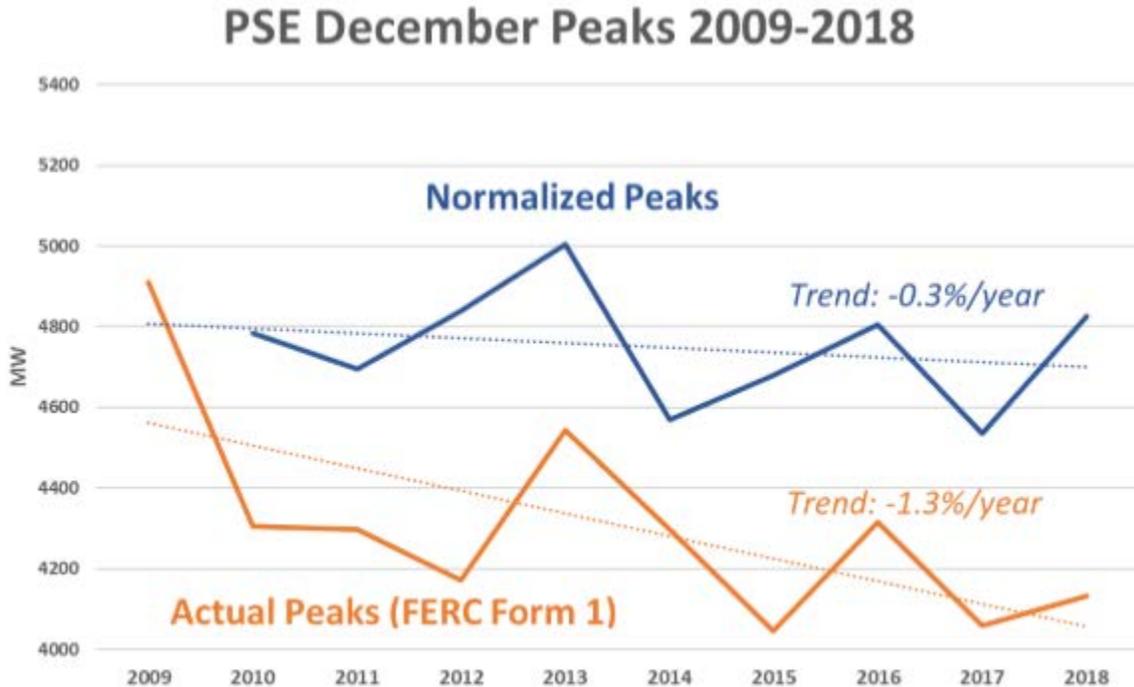
Figure 12: Observed Normalized Electric December Peak Demand Compared to Previous IRP Forecasts



PSE explains some of the inputs used to “normalize” the values shown in this graph: “The normalized actual observations account for peak hourly temperature, monthly HDDs [Heating Degree Days], and the day of week and time of day the actual peak was observed. [Footnote] Given that the forecasts are for peaks at a design temperature, observed actual peaks are adjusted to reflect what would have been the peak if the design peak temperatures had been achieved.”

Comparison to actual peaks

TAG members and other stakeholders believe it is likely that PSE's normalization process obscures actual trends and may mislead the public. The following graph compares the normalized peaks with actual peaks reported in PSE's FERC Form 1 reports for this period:

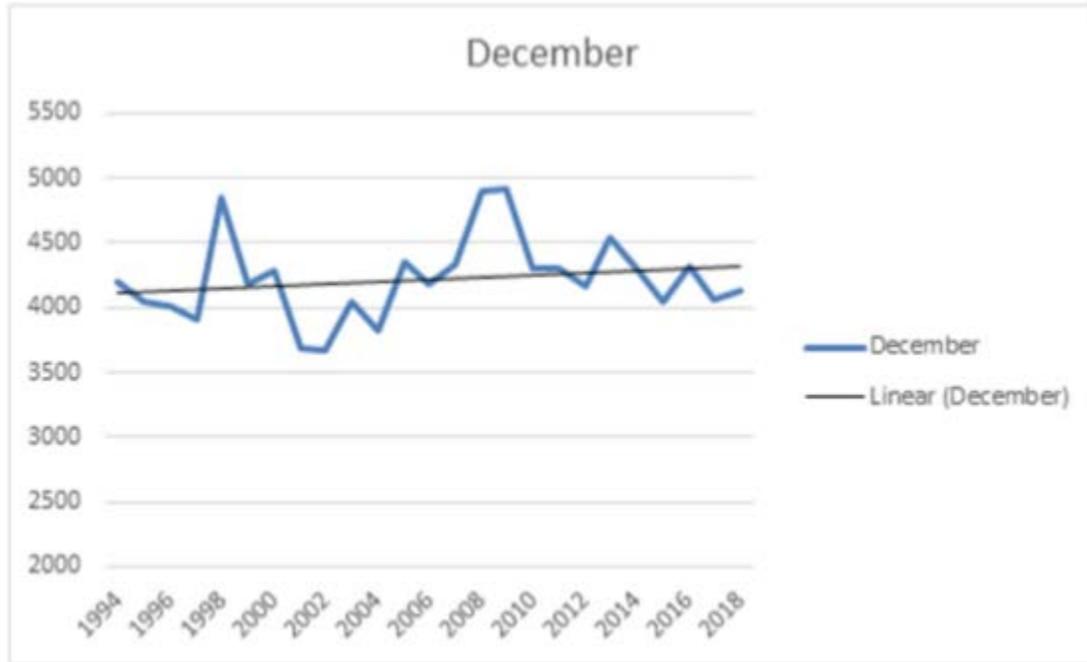


The significant divergence between reported values and normalized values raises two concerns from a planning standpoint:

- Normalization produces high peaks.** At 5000 MW, the theoretical peak for 2013 is almost 500 MW higher than the actual peak. In fact, the 2013 normalized peak is higher than any actual peak during the decade, including the record peak of 4911 MW in December 2009. This becomes problematic if normalized peaks are used to justify infrastructure investments that are not needed, to the detriment of ratepayers.
- Normalization understates the actual rate of decline.** PSE's normalized values decline -0.3% per year, while the actual December peaks fell at a more precipitous rate of -1.3% per year. The difference may cause ratepayers to be charged for infrastructure investments to handle peaks that will likely never materialize.

Reporting timeframe

In response to a different letter questioning the use of forecasts to justify PSE's "Energize Eastside" transmission project, PSE produced the following graph of actual peaks:



PSE's interpolated trend shows December peaks rising at 0.2% annually over a 25-year period. TAG members are concerned that this timeframe understates the effect of warming winters and rapid adoption of LED lights and other energy efficient devices during the past decade. This concern is supported by an article by Scott Madden Management Consultants:

According to a 2013 paper published in the Journal of Applied Meteorology and Climate, the use of 30-year surface temperature averages as estimates of future temperatures will, in many instances, result in a "cold bias"—predicting temperatures will be colder than those actually experienced; using the most recent 15-year average is the best method for developing weather normalization curves... Recently, the New York Public Service Commission authorized the use of 10-year historical averages for the development of weather normalization calculations for rate cases submitted by Central Hudson Gas and Electric, New York State Electric & Gas, and Consolidated Edison.¹

We believe that warming winters, further efficiency advances, and concerted conservation efforts are likely to extend the downward trend in peak demand, reversing the rising trend of previous decades. This

¹ <https://www.scottmadden.com/insight/traditional-weather-normalization-practices-used-utilities-ratemaking-process-appropriate-given-increased-climate-variability/>

is the conclusion of neighboring utilities like Seattle City Light, Tacoma Power, and Snohomish PUD. A more realistic representation of demand growth will provide additional flexibility to pursue clean energy and smart technology in coming decades.

Conclusion

We have shown that PSE's normalization method for historical data is opaque and potentially misleading. It appears to obscure the actual data, overstate demand, and understate the actual rate of decline.

We request written responses to the following questions:

1. Will PSE report **actual peak demand** in the final draft of the 2019 IRP Progress Report?
2. Will PSE analyze demand trends from the past **ten or fifteen years** to provide a realistic assessment of the impacts of warming winters and energy efficiency advances?
3. Will PSE recognize that **peak December demand has been declining** during the past decade and explain why? (We believe this will enable more accurate planning for future IRPs.)

PSE Response

1. *The 2019 IRP Progress Report was filed with the WUTC in November 2019. PSE did not provide the actual peak demand in the 2019 IRP Progress Report and at this time will not be updating the report.*
2. *In the 2021 IRP, the peak forecast will analyze demand trends that were observed in more recent history compared to the load forecast used in the 2019 IRP analytics. PSE will consider your suggestion for the 2021 IRP; thank you.*
3. *The direction of a trend depends on a starting point and end point. If we look at the last 10 years of actual peaks, the last very cold weather we observed was 2008 and 2009, therefore the starting point is high, and trending down to more recent peaks when the weather was warm. This is more complicated than a trendline. For example, our system also included Jefferson County until 2013, which is included in any actual system peak data prior to 2013 (roughly 50 MW of peak).*

Comment #2: Energize Eastside questions

Date received: 12/19/19

Name: Don Marsh, Warren Halverson, Kevin Jones, Rob Briggs, Norm Hansen

Organization: CENSE, Vashon Climate Action Group, Bridle Trails Neighborhood

Comment

Dear Mr. Mills,

On November 4, 2019, five members of PSE's Technical Advisory Group sent a letter to Irena Netik, PSE's Director of Energy Supply Planning and Analytics. We asked three questions that Ms. Netik answered and published on PSE's IRP website on November 27, 2019. Here we review our questions and explain why we find PSE's answers unsatisfactory.

1. Will PSE suspend the Energize Eastside project until it can be discussed by the TAG in the context of an Integrated Resource Planning process?

No.

PSE's single-word answer to this question contradicts the TAG charter² that PSE proposed, and group members agreed to follow. The charter states:

The members of the TAG are charged with providing input on:

- *Local system planning: transmission and distribution*

The project team will:

- *Provide background materials, presentations, and data to TAG members and at www.pse.com/irp in advance of meetings to inform their input*

At the meetings, TAG members will:

- *Voice concerns and complaints at the meeting, not outside the meeting*

With respect to Energize Eastside, a very large transmission project, none of these charter expectations has been met. PSE has canceled two TAG meetings where Energize Eastside was to be discussed. Therefore, the requirements of WAC 480-100-238.5 that emphasize the importance of public input are not fulfilled. These shortcomings must be addressed before ratepayers are obligated to pay for this project through their monthly electric bills.

2. Will PSE provide written answers to the UTC's questions about the Energize Eastside project that were included in the Commission's comments on PSE's 2017 IRP?

PSE quotes a letter from Mark Johnson, WUTC Executive Director and Secretary, which appears to excuse PSE for not answering the Commission's direct questions about Energize Eastside. Nonetheless, these questions remain relevant to the public's interest.

Both the WUTC and PSE have affirmed the public's interest and input regarding major utility projects like Energize Eastside. In remarks shared at the May 2019 Listening Session, PSE Vice President David Mills said, "I'm excited to be here ... and am specifically interested in your comments, and your thoughts and

² https://www.pse.com/-/media/PDFs/001-Energy-Supply/001-Resource-Planning/IRP_2019_TAG_Charter_Final.pdf

your concerns as we are in the process of developing the 2019 IRP for both our electric and natural gas portfolios.”

PSE’s Listening Session provided an opportunity for the public to comment on the IRP, but it wasn’t possible to engage in a discussion or ask detailed questions. Aside from the TAG, what forum is available for that kind of interaction?

PSE might say land use hearings are the right forum. However, these hearings are conducted by land use judges who are considering how a project relates to a city’s land use codes. This isn’t the place to delve into details regarding megawatts or contingencies or feasible alternatives. A land use judge may not have the technical expertise to appreciate the complexities of transmission planning. This is illustrated by the following quote from Bellevue’s Hearing Examiner in his decision earlier this year³:

Common sense supports [PSE’s] concerns that extreme heat in summer months, or even like that experienced recently during the past month with area temperatures in the high 80s and low 90s, poses a very real risk of failure for a system that has not been upgraded for decades to address increased demand caused by significant growth in the Eastside of King County.

Nowhere in his decision does the Hearing Examiner justify his conclusions by referring to rates of Eastside demand growth (which PSE continues to withhold), how close transformers have come to overloading, or to what extent regional transfers of electricity may be impacting local infrastructure. These would be normal questions for technical experts to probe.

In some cities, technical details are not considered relevant to the application of local land use codes. For example, a senior planner in Renton recently stated that project need is not considered in Renton’s codes:⁴

Project Need: *The proposed transmission line upgrade is permitted within the City of Renton subject to the approval of a Conditional Use Permit (CUP) by the Hearing Examiner. The City’s regulations do not require that the applicant demonstrate that the project is needed in order for a Conditional Use Permit to be granted.*

To ensure that technical questions are clearly and completely answered, a review by experts and members of the public should be conducted by the TAG or WUTC.

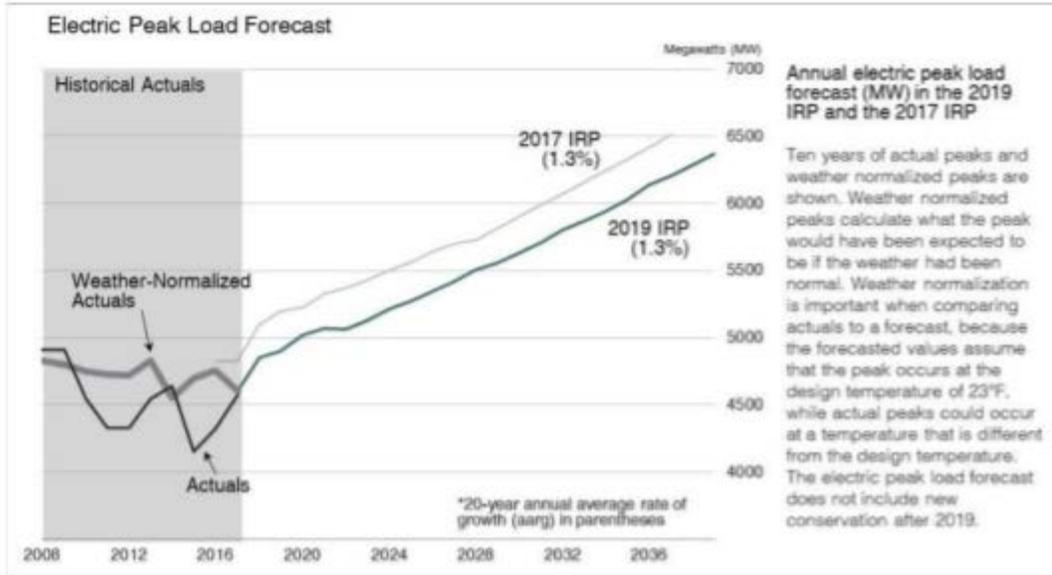
3. Will PSE acknowledge declining winter peaks as documented by FERC Form 1 filings?

At TAG meeting #4 (January 9, 2019), PSE showed the following peak demand forecast⁵:

³ https://bellevuewa.gov/sites/default/files/media/pdf_document/2019-06/Energize%20Eastside%20S%20Bell%20Segment%20Decision%20on%20CUP%20application.pdf

⁴ Email from Jill Ding, senior planner for City of Renton, to Sue Stronk, dated Nov. 26, 2019

⁵ https://www.pse.com/-/media/PDFs/001-Energy-Supply/001-Resource-Planing/03_IRP_01_09_19_TAG_Meeting_4_Slide_Deck_FINAL.pdf, slide 46



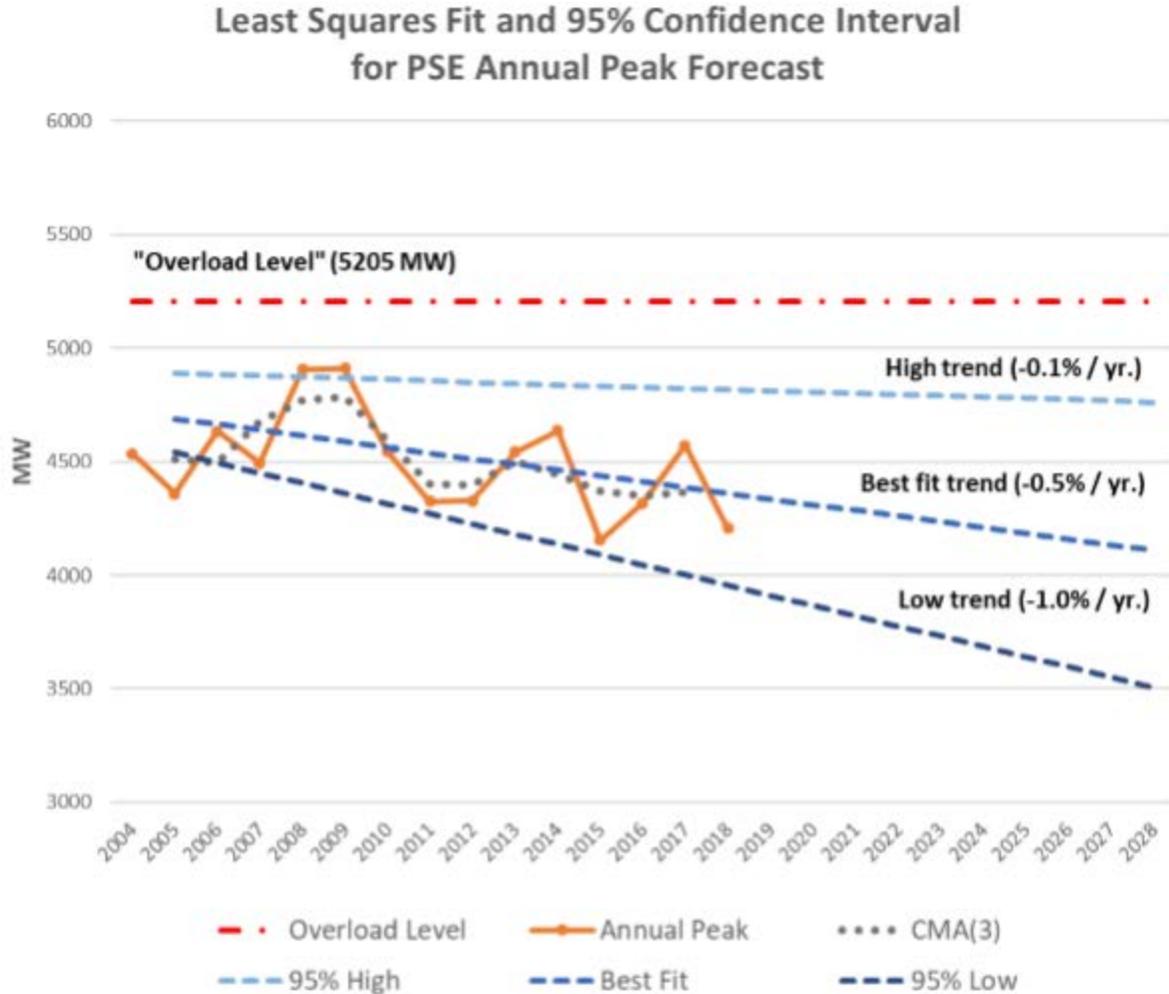
This graph shows “Actuals” and “Weather-Normalized Actuals” declining over the past ten years. When we raised this as a relevant issue for Energize Eastside, PSE supplied a 25-year history of December peak demand in PSE’s service territory. PSE states, “Based on the data from FERC Form 1, December peaks from 1994 to 2018 clearly show, in the graph below, that the overall trend is increasing.”

It appears that the chosen timeframe determines the rate of increase or decrease. We believe a shorter timeframe better captures advances in efficiency like LED lighting (LED market share was only 1% in 2010) and smart thermostats (the popular Nest thermostat was introduced in 2011). Methodology described in the Journal of Applied Meteorology and Climate (and adopted by New York’s utility commission) recommends using 15 years of temperature data to account for recent weather trends:

According to a 2013 paper published in the Journal of Applied Meteorology and Climate, the use of 30-year surface temperature averages as estimates of future temperatures will, in many instances, result in a ‘cold bias’—predicting temperatures will be colder than those actually experienced; using the most recent 15-year average is the best method for developing weather normalization curves.⁶

Using demand peaks in December may further bias PSE’s analysis. During the past 15 years, two-thirds of the maximum peaks occurred in months other than December. It is normal practice for Washington utilities to report the maximum annual peak rather than focusing on peaks occurring in a chosen month.

⁶ <https://www.scottmadden.com/insight/traditional-weather-normalization-practices-used-utilities-ratemaking-process-appropriate-given-increased-climate-variability/>



This graph shows 15 years of PSE’s maximum annual demand peaks (not just December), according to FERC Form 1 filings. The peaks are smoothed using a three-year Centered Moving Average (CMA-3). High and low trends are calculated at a 95% confidence level, decreasing at an annual rate of 0.1% and 1.0%, respectively. The best fit trend decreases at 0.5% per year and was calculated using a leastsquares solution for a simple linear regression.

The dashed red line shows the “Overload Level” as reported in Quanta’s 2013 Eastside Needs Assessment Report. 6 PSE warns that certain transformers and transmission lines would overload if peaks exceed 5205 MW at the same time that two critical pieces of electrical infrastructure are out of service, half a dozen local generation plants are shutdown, and large amounts of electricity are being transmitted to Canada.

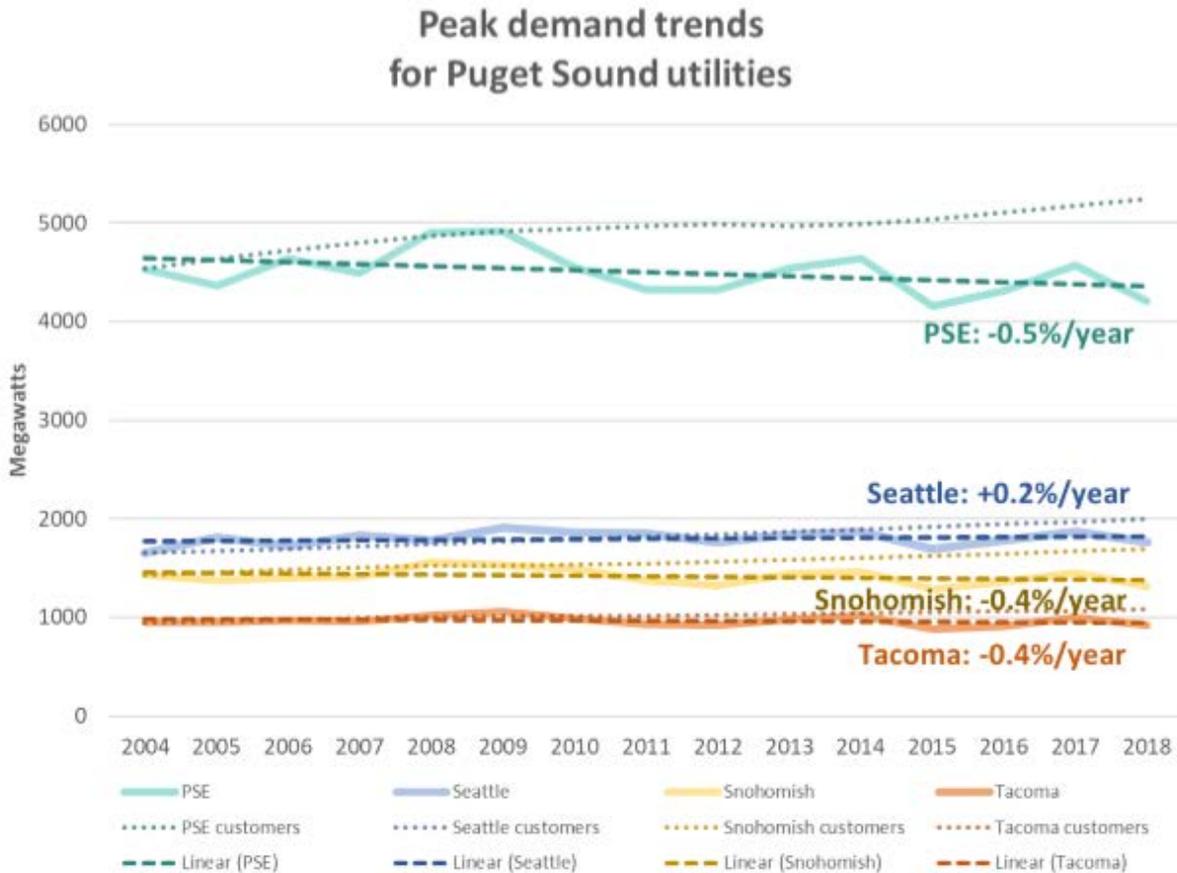
If peak demand trends continue as they have during the last 15 years, PSE’s overload scenario would never occur, and Energize Eastside would be a waste of customers’ money.

Puget Sound trends

According to PSE, population growth is a primary driver of the need to build Energize Eastside. This assumption is apparent in the most recent “Fact Sheet” for the project, published in September 2019:

“Studies project that growth on the Eastside could cause demand for electricity to exceed the capacity of the backbone of the Eastside’s transmission system.”⁷

Using data from annual reports and public records requests, the following graph shows 15 years of maximum peak demand for PSE and three nearby Puget Sound utilities: Seattle City Light, Snohomish PUD, and Tacoma Power.



The solid lines show actual peak demand for each utility. The dashed lines show the linear trend line for the peak demand for each utility, as calculated by Microsoft Excel. The dotted line shows what the peak demand would have been if it had grown in direct proportion to each utility’s customer base.

Although customer growth and peak demand trends are mostly going in different directions, peak demand is affected by customer growth rates, as one would expect. PSE and Tacoma had the lowest growth of customers during this time period (increasing 0.8% per year) and the biggest declines in demand. Seattle City Light had the highest growth in customers (1.37% annually) and the biggest increase in peak demand (0.2% annually).

The comparison between Seattle and PSE is worth a closer look. Seattle’s customers grew at a rate over 60% higher than PSE’s customer growth rate (1.37% vs. 0.84%). And yet, Seattle’s peak demand grew at only 0.2% per year, **twelve times lower** than the peak demand growth rate PSE forecast in 2015 to

⁷https://energizeeastside2.blob.core.windows.net/media/Default/Library/Reports/Eastside_Needs_Assessment_Final_Draft_10-31-2013v2REDACTEDR1.pdf

justify Energize Eastside (2.4% annually). What could possibly explain this extreme disparity between two utilities located only six miles apart?

Conclusion

We have explained why we believe technical review of large transmission projects by the WUTC and/or TAG best serves the interests of ratepayers.

We request written answers to the following questions:

1. The charter that PSE created for the TAG includes review of local transmission and distribution resources by the group. How does PSE see this responsibility being fulfilled?
2. Please provide a specific date for a meeting of the TAG where we can provide technical inputs on major transmission projects, including Energize Eastside.
3. Five years ago, PSE's consultant forecast peak demand on the Eastside would grow at an annual rate of 2.4%, more than twice the rate of population growth on the Eastside, and 12 times the rate that peak demand has grown in Seattle. Given the actual trends presented in this letter, please explain why PSE's forecast remains reasonable. When will PSE publish an update to the 2015 forecast based on recent trends?

PSE Response

1. *The 2019 IRP public participation process is at an end. PSE notes your constructive feedback concerning the 2019 IRP TAG charter. The TAG was charged with providing input on local system planning: transmission and distribution. PSE provided information and opportunity for discussion and questions concerning system planning during the January 9, 2019 TAG #4 meeting. Reviewing specific transmission and distribution projects were not part of the TAG charter.*
2. *The public participation process for the 2021 IRP is still in development and the dates of the public meetings is not yet available. Project specific discussions and evaluations are not part of the IRP process.*
3. *Forecasting demand for specific projects or geographical areas, like Eastside, is outside of the scope of the IRP.*

Comment #3: Unaddressed November 2019 TAG technical inputs

Date received: 12/28/2019

Name: Kevin Jones

Organization: Vashon Climate Action Group

Comment

Hi Irena,

Thanks for posting the PSE responses to the eighteen November 2019 TAG letters on the PSE website. Unfortunately, there were several questions that were not answered. In some cases the answers provided are themselves subject to additional questions.

Could PSE provide answers to these unanswered questions and the related additional questions, and post them on your website?

The list of unanswered and related additional questions is shown in the table below, containing the original letter number / topic / author, specific unanswered or related additional questions and notes which clarify the question or specify concerns with PSE's original answer.

This follow-up letter is provided in recognition of TAG member continued support to the [PSE TAG charter](#) of "providing recommendations to PSE".

Kevin Jones

Vashon Climate Action Group board member
Puget Sound Energy Technical Advisory Group member
BSEE- University of Washington
PSE Customer

Continued next page

Letter number / Topic / Author	Unanswered or related additional question	Notes
#3 / IRP must address Listening Session comments / Kevin Jones	<ol style="list-style-type: none"> 1) Rephrased: Which of the Listening Session inputs in the original letter did PSE incorporate in the Nov 15, 2019 progress report? 2) Which of the Listening Session inputs does PSE intend to incorporate in the 2021 IRP 	<p>Notes relative to the questions:</p> <ol style="list-style-type: none"> 1) In response to the TAG letter on public participation from Kate Maracas, PSE said “PSE plans to use the ... “involve” IAP2 guidelines in the development of the 2021 IRP stakeholder process”. The Involve level “provides feedback on how public input influenced the decision”. The Listening Session was an important event with significant public input. We ask PSE to start the “Involve” practice now by clarifying which of the 35 Listening Session recommendations were incorporated in their IRP process in time to influence the November 15, 2019 Progress Report. Note: “many” is not an adequate answer. 2) PSE did not answer the question, instead introducing information about rulemaking and an undefined 2021 IRP work plan. The question asks which of the 35 Listening Session recommendations the TAG identified as relevant to the IRP process does PSE intend to incorporate in the next IRP. The TAG again asks PSE to answer the question. Given the PSE commitment to “sharing a written response to the recommendations shared by participants during the IRPAG listening session... on or before December 31, 2019” it should not be difficult for PSE to identify which of the Listening Session recommendations they intend to incorporate into the next IRP.
#5 / Use High Impact Social Cost of Carbon value / Kevin Jones	<p>Related additional question: Explain how your <u>proffered</u> “sensitivity that is more constrained such that only renewable and non-emitting resources are included in PSE’s energy supply portfolio after 2030” could be considered an appropriate alternative to the <u>requested</u> sensitivity using the High Impact Social Cost of Carbon value.</p>	<p>Notes relative to the question: A sensitivity which contains <u>no</u> fossil fuel resources after 2030 is a completely different analysis than the <u>requested</u> sensitivity using a High Impact Social Cost of Carbon value. In the <u>requested</u> sensitivity, the carbon emissions are based on “modeling the PSE portfolio” (your definition of a sensitivity, ref IRP_TAG_Meeting_2_Notes_Final, page 3). The <u>proffered</u> sensitivity does not represent the PSE portfolio. The <u>proffered</u> sensitivity will produce <u>zero</u> greenhouse gas emissions after 2030, which has no relationship to an analysis using the High Impact social cost of carbon in an IRP sensitivity analysis of the PSE portfolio.</p>

<p>#7 / 2019 IRP Data Request / Kevin Jones</p>	<p>This letter makes eight specific data requests necessary for the TAG to continue the IRP technical assessment process. Some of these requests were answered but several were denied or deferred. Of the eight original requests, the TAG reiterates these two requests for 2019 IRP data:</p> <ol style="list-style-type: none"> 1) The results of the 2019 IRP sensitivity analysis which includes no new fossil fuels beyond 2030. 2) The <u>average</u> cost of wind, solar, battery storage and pumped hydro systems in bids received by PSE (<u>not individual bids</u>). 	<p>Notes relative to the questions:</p> <ol style="list-style-type: none"> 1) PSE rationale for not providing this data is UTC Order 2 and the statement that PSE has not been able to complete all the 2019 IRP analyses. This rationale does not seem credible since UTC Order 2 was confirmed on Nov 7, only <u>nineteen days</u> prior to the scheduled Draft IRP release on Nov 26 per the revised UTC Order 1 PSE IRP Work Plan. 2) PSE rationale to not provide this data is asserted by two statements: <ol style="list-style-type: none"> a. Statements about the resource acquisition decision process, which have no bearing on TAG needs to understand the underlying IRP analysis parameters, and b. Data confidentiality. <p>The TAG understands the data confidentiality issue, which is why we are not asking for individual bids that would reveal data received by PSE in confidence. The TAG is asking for average (or anonymized) cost data.</p>
<p>#8 / Upstream Gas Assumptions in PSE 2019 IRP / Rob Briggs</p>	<p>What is PSE assuming for upstream methane leakage rate as a percentage of methane delivered?</p>	<p>Notes relative to the question:</p> <p>PSE responded to this question with a discussion of the Global Warming Potential for methane. PSE did not provide a value for upstream methane leakage rate as a percentage of methane delivered. Please answer the specific question.</p> <p>Please do not direct us to your 2019 IRP Progress Report – which contains methane leakage numbers in a form that aggregates several parameters making it impossible to compare your upstream methane leakage rates with rates reported in the scientific literature.</p>

<p>#17 / IRP analyses should meet state CO2 reduction goals / Doug Howell</p>	<p>We ask that PSE reconsider the TAG request to respond to these questions – see notes for clarification:</p> <ol style="list-style-type: none"> 1) Has PSE identified their carbon emission reduction requirements needed to comply with Washington State carbon emission reduction goals and timelines? 2) What carbon emission reduction requirements apply to the PSE electricity business? 3) What carbon emission reduction requirements apply to the PSE gas business? 4) Will PSE strive to accelerate their compliance with the Clean Energy Transformation Plan? 5) Is PSE willing to commit to a stretch goal date to achieve 100% carbon free electricity? 6) If yes, when will PSE publish this stretch goal date? 7) If yes, will PSE constrain its electric IRP to achieve this stretch goal date? 8) Will PSE constrain its gas IRP to stay within Washington State carbon emission reduction goals? 9) Will PSE publish a gas IRP carbon emission reduction curve, showing its gas business contribution to Washington state carbon emission reduction goals and timelines? 10) Will PSE publish a gas IRP carbon emission reduction curve, showing the date and carbon reduction path to transition its gas business to 100% carbon free? 	<p>Notes relative to the questions:</p> <p>The PSE response “at this time, we don’t have detailed answers” to these questions suggests that PSE acquisition decisions are made independently of state CO2 reduction goals. Now that “the legislature declares that utilities in the state have an important role to play in this (<i>clean energy</i>) transition”, it is appropriate that PSE provide answers to these questions.</p> <p>The numbered items below correspond to the original questions and provide amplifying information to allow answers to be provided. <u>If it is not possible to answer these questions at this time, would PSE identify when these answers will be available or provide your rationale explaining why it is not appropriate to provide these answers?</u></p> <ol style="list-style-type: none"> 1) Washington state has had carbon emission reduction goals and timelines for some time now. Has PSE identified the requirements they would need to meet, in terms of resource changes, to comply with state goals? This is a yes or no question, although it would be helpful to understand if PSE intends to identify these requirements. This question is independent of CETA. 2) Given state carbon reduction goals, this question is asking how much carbon reduction PSE would allocate to their electricity business. This question is independent of CETA. 3) Given state carbon reduction goals, this question is asking how much carbon reduction PSE would allocate to their gas business. This question is independent of CETA. 4) This is a yes/no procedural question, asking if PSE is inclined (“will strive”) to meet CETA requirements before their mandated compliance dates. 5) This is a yes/no procedural question, asking if PSE is inclined (“willing to commit”) to achieving 100% carbon free electricity prior to CETA mandated compliance dates. 6) This is a procedural / scheduling question. 7) This is a procedural question, to clarify how the electricity IRP process could support a PSE objective to meet a 100% carbon free electricity date. 8) This is a procedural question, to clarify how the gas IRP process could support a PSE objective to meet state carbon emission reduction goals and timelines. This question is independent of CETA. 9) This is an IRP process question that is independent of CETA. 10) This is an IRP process question that is independent of CETA.
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<p>#19 / Building efficiency improvement expectations for IRP analyses / Court Olson</p>	<p>The original letter identifies ten specific recommendations that PSE could implement to accelerate conservation and energy efficiency. For each recommendation, will PSE incorporate the recommendation into the next IRP or support the recommendation if it is not specifically relevant to the IRP analysis process (eg: Question #2):</p> <ol style="list-style-type: none"> 1. Stop forecasting perpetual demand growth in gas and electricity usage. 2. Support and promote Washington PACE legislation passage in 2020. 3. Provide new long-term loan programs for deep efficiency improvements. 4. Establish a MEETS program to “buy” saved energy. 5. Incentivize demand controllable appliances & hot water heaters. 6. Incentivize space heating fuel switching from gas and oil furnaces to efficient electric heat pump systems. (A State law amendment may be needed here). 7. Promote holistic building envelope enhancements aligned with established Passive House design standards. 8. Raise the efficiency incentive bar or provide a graduated incentive structure based solely upon performance outcomes tied to an achieved energy use intensity. Generally, “pay for performance” incentives should be offered for demand reductions over 30%. 9. Target extra efficiency promotions and incentives specific to local areas where transmission and/or generation capacity infrastructure is expected to be stretched. 10. Reduce the long list of incentives for individual efficiency measures. Focus on whole building 	<p>Notes relative to the questions: The PSE response directs the author to the Biennial Conservation Plan without directly addressing any of the ten specific recommendations that utilities could take to accelerate conservation and energy efficiency identified in the letter. The TAG asks PSE to provide a written response to each of the ten recommendations.</p>
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	incentives. Consider limiting individual isolated single measure incentives to just the following: efficient plug-in appliances, appliance demand response control devices, switching to LED lighting, and daylight and occupancy sensing controls.	
#20 / IRP should include efficiency gains from deep retrofit loans / Court Olson	Related additional question: Explain the rationale and supporting data to substantiate your original response that this recommendation “is not in the best interest of all PSE’s customers”.	

PSE Response

Thank you for your detailed analysis. PSE observes that much of the above are statements and not questions. We appreciate your input and have noted it.

PSE has answered many of these questions in the November communications report available on-line here: [November 2019 IRP Comments and Public Input](#). Because of the amount of questions and comments, PSE has collapsed some of the responses and applied the same notation system as referenced in your table.

1. (#3 in the table/IRP must address Listening Session comments/Kevin Jones) [1] Concerning a response to the Listening Session, PSE did publish a response since your December 28, 2019 letter. The response is available here: [May 2019 IRP public input report and PSE responses](#). PSE IRP staff has taken a public participation class and a member of the IRP staff member is taking the IAP2 certification class in February 2020. Lessons from these classes will be applied to the 2021 IRP public participation process. [2] PSE is not in a position to detail how the inputs in the Listening Session will be applied to the 2021 IRP at this time. Thank you for your patience and for reviewing the PSE response to the Listening Session.
2. (#5 in the table / Use High Impact Social Cost of Carbon value / Kevin Jones) PSE will be revisiting sensitivities in the 2021 IRP process and stakeholders will be able to provide input on the sensitivities for analysis in the 2021 IRP. Concerning your specific question regarding the high impact social cost of carbon value sensitivity verses one which produces zero greenhouse gas emissions after 2030, this scenario is equivalent to the no thermal resource sensitivity/all renewable resources after 2030. As we work with stakeholders to develop the scenarios and sensitivities for the 2021 IRP, we will clarify the sensitivities most desired by stakeholders. Thank you.

3. (#7 in the table/2019 IRP Data Request/Kevin Jones) [1] Concerning the results of the 2019 IRP, the 2019 Progress Report closed out the 2019 process and additional results will not be shared beyond what was been provided to date. PSE looks forward to launching the 2021 process and sharing the results as they are available. PSE appreciates your patience. [2a] The rationale concerning not providing commercial information to the TAG is that the IRP process is for generic resource builds and not specific projects. [2b] The commercial confidential information is not available for public disclosure; PSE acknowledges the TAG's desire for average cost data but cannot waive the confidentiality clause.
4. (#8 in the table/Upstream Gas Assumptions in PSE 2019 IRP/Rob Briggs). Concerning the value for upstream methane leakage rate as a percentage of methane delivered, PSE has addressed this multiple times in the 2019 IRP and has provided this information in the Progress Report. PSE acknowledges that we do not agree at this time. PSE will not have any additional or new information to provide until the 2021 IRP public process begins.
5. (#17 in the table/IRP analyses should meeting state CO2 reduction goals/Doug Howell). The answers to your questions sub numbered 1 – 10 are not available at this time. These questions will be considered as PSE develops the 2021 IRP and the 10-year Clean Energy Action Plan.
6. (#19 in the table/Building efficiency improvements expectations for IRP analyses/Court Olson). PSE observes most of the information in the table are comments. Thank you for your input. PSE recommends reviewing the *Biennium Conservation Program (BCP)* available on the UTC website at [PSE 2020 to 2021 Biennium Conservation Program](#) (please click on the icon next to the docket # and for access to all the documents). IRP does not implement the building efficiency programs and we addressed these questions in the [November 2019 IRP Comments and Public Input](#) report. As a reminder, the conservation work (conservation potential assessment) conducted in the IRP informs the development of PSE's energy efficiency programs.

Comment #4: Unaddressed November 2019 TAG technical inputs

Date received: 12/30/2019

Name: Don Marsh

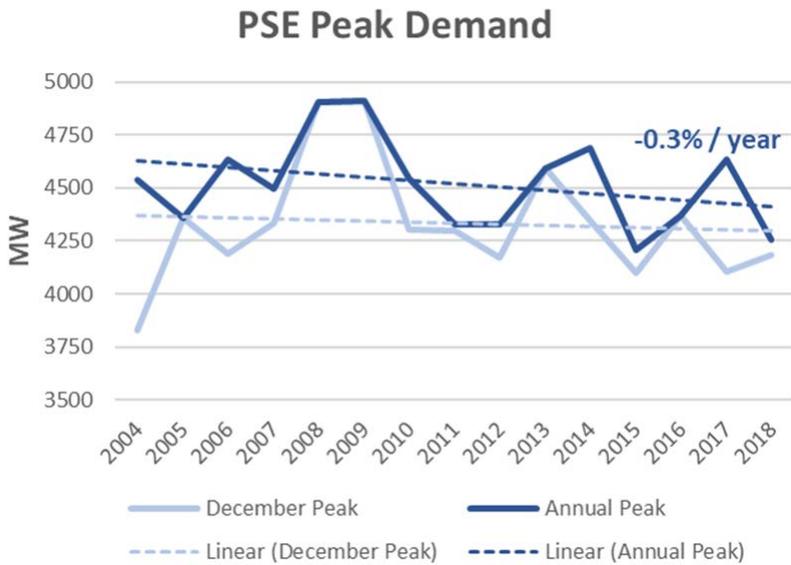
Organization: CENSE

Comment

Michele and Irena,

Since you were kind enough to provide a preview of your January answers, we will give you a preview of our replies.

Concerning the peak demand trend, we produced the following graph that includes PSE demand peaks on both an annual basis (dark blue line) and restricted just to December (light blue). To account for the loss of Jefferson County load, we added 50 MW to each peak for 2013 and subsequent years. This may overstate the actual peaks if Jefferson had not departed. Nonetheless, the annual peak trend declines 0.3% per year. We acknowledge that the high peaks in 2008 and 2009 influence the trends, but even if they are omitted, the annual peak trend still declines 0.2% per year.



We think 15 years is an appropriate time frame to report. This captures some of the weather trends and efficiency advances that have occurred during the last decade. As we mentioned in our previous letter, a 15-year time period is recommended by the Journal of Applied Meteorology and Climate to prevent a “cold bias” at a time of warming climate. Even shorter time periods are being used for weather normalization by other US utilities. We recommend doing statistical analysis, as we did in our previous letter, to find confidence intervals for trends based on 15 peak data points.

We believe reporting maximum annual peaks is more accurate than reporting only December peaks. There are significant differences (more than 10%) between annual peaks and December peaks in 2004 (710 MW difference), 2006 (447 MW), and 2017 (524 MW). Since our electric grid must be designed to handle peaks in any month, not just December, it's important to get this right. This recommendation accords with the practice of other Puget Sound utilities like Seattle City Light, Snohomish PUD, and Tacoma Power, which report their maximum yearly peaks in publicly published annual reports. We recommend PSE do the same, since FERC Form 1 filings are not easily accessible to the public.

We can formalize these findings in our further response to your January letter, but we would prefer to find a mutually agreed resolution to these issues. Continuing a back-and-forth debate on the website over somewhat nit-picky details does not increase the public's confidence in reporting or future forecasts. Let's find an accurate resolution as quickly as possible, because these issues are important to all of us as we face climate threats and transformational change in the energy industry.

Don

PSE Response

PSE agrees that climate change is a transformational issue and looks forward to teaming with stakeholders in productive ways. The PSE IRP team fully supports eliminating this back and forth communication which is not productive. Your suggestions have been shared with the load forecasting team and others at PSE and PSE appreciates your input and positive message.