Richard Lauckhart written comments to the WUTC on PSE's IRP dated Nov 14, 2017 (including list of Supporting Documents on this record)

Docket No. UE-160918

Comments Submitted January 8, 2018

My name is Richard Lauckhart. I am an energy consultant and former VP at Puget. My resume' is included in Supporting Document 1 at its Appendix H.

The IRP Rule WAC 480-100-238 on Integrated Resource Planning indicates that an Integrated Resource Plan needs to provide an assessment of transmission needs. It also states as follows:

> (6) The commission will consider the information reported in the integrated resource plan when it evaluates the performance of the utility in rate and other proceedings.

It has been long WUTC policy that a prudent decision is one which a reasonable board of directors and company management would make given the facts they know, or reasonably should know, **at the time they make the decision**, without the benefit of hindsight.

On November 14, 2017 PSE submitted its Integrated Resource Plan to the WUTC for the record and for WUTC review in Docket No. UE-160918. Now is the time that PSE is making decisions on whether or not to build (a) the Energize Eastside project and (b) the Lake Hills-Phantom Lake 115 KV transmission line.

I. On the matter of the Energize Eastside project: As required by the IRP Rule, PSE has a chapter (Chapter 8) that discusses "Delivery Infrastructure Planning" including PSE's analysis of the need for Energize Eastside. Chapter 8 is completely inadequate to demonstrate that a decision to build Energize Eastside would be a prudent decision. Table 8-6 in the IRP states that PSE uses a Power Flow model (Power World Simulator) to evaluate it transmission system infrastructure needs. On page 8-34 of the IRP PSE points to its studies that it claims provides the "proof" of the need for Energize Eastside. This "proof" includes Power Flow studies performed by Quanta Services. But as I describe below, these Power Flow studies contain fatal flaw input assumptions.

In a nutshell, the Power Flow (aka Load Flow) modeling performed by PSE/Quanta is flawed. As indicated in Supporting Document 12, the primary problem with their Load Flow modeling is that:

> (a) They erroneously assumed that the proposed Energize Eastside project must increase the ability of BPA to move large amounts of power to and from Canada during extremely cold temperatures in the Puget Sound region, and

(b) They erroneously assumed that essentially all of their owned/controlled power plants located in the Puget Sound region would not be operating during this extremely cold event.

Neither one of these assumptions is legitimate.

First, there is no firm requirement for PSE or BPA or anyone else to move large amounts of power to and from Canada. *See Supporting Documents 3, 4, 8, 13 and 16.* Second, it would make no sense for PSE to fail to run its Puget Sound Area generation in an extremely cold event. PSE could not meet its total System Peak load in such an event if they did not run their Puget Sound Area generation. *See Supporting Document 5, at pages 22-26. See also Supporting Document 7.*

If these inappropriate input assumptions are fixed, a Power Flow study demonstrates that Energize Eastside is not needed now or any time soon. **The Lauckhart-Schiffman Load Flow study is the only one on the record in Docket No. UE-160918 that uses the load forecast PSE gave to the Western Electricity Coordinating Council, correct inter-regional flows, and appropriate generation dispatch. That study concludes that Energize Eastside is not needed now or any time soon.** [*See Supporting Document 1*]

Since May of 2015 I have spent considerable time and energy investigating PSE's proposed Energize Eastside project. I have placed 17 documents on the record in Docket No. UE-160918 that lead to the conclusion that Energize Eastside is not needed now or any time soon. Yet PSE completely ignored these 17 documents when it wrote its IRP. It is as if my documents did not exist.

Attached is a list of the 17 Supporting Documents that I placed on the record that PSE has completely ignored. Some of the key items in this list and the date they were filed in this Docket UE-160918 are:

- August 21, 2017 Document describing the "fatal flaws" in the Load Flow studies PSE had run in an attempt to justify EE.
- July 25, 2017 Lauckhart-Schiffman Load Flow study showing EE is not needed (includes my resume')
- July 25, 2017 Rebuttal to PSE criticisms of Lauckhart-Schiffman including Q's and challenges to PSE.
- September 12, 2017 Questions and challenges for PSE to respond to regarding its studies of the need for Energize Eastside. These questions/challenges are:
    a. Challenge PSE or ColumbiaGrid to cite a specific requirement to transmit 1,500 MW to Canada in the NERC Reliability Criteria or PEFA.
    b. Challenge PSE, ColumbiaGrid, or BPA to produce a contract showing a Firm

Commitment to deliver 1,500 MW to Canada.

c. Challenge PSE to prove that they did not increase flow to Canada relative to the WECC Base Case.
d. Challenge PSE to explain how they solved issues that arise from their scenario with the electrical limits of the "West of Cascades-North" transmission lines.
e. Challenge PSE to explain their methodology leading to a 2.4% growth rate.
f. Challenge PSE to dispute the methodology used by Lauckhart-Schiffman to estimate future growth.
g. Challenge PSE to cite standards that require them to turn off 6 local generation plants at the same time they are serving peak demand with an N-1-1 contingency.
h. Challenge PSE or BPA to provide examples of when 1,500 MW was transferred to Canada when temperatures in the Puget Sound region were lower than 23° F, as stipulated in PSE's Energize Eastside Needs Assessment

- September 14, 2017 Key Question.... **Why has PSE chosen not to re-run their flawed EE Load Flow studies to fix the flaws?**
    a. **This question is particularly relevant since Mark Williamson is on video confirming that if there is no requirement to deliver 1,500 MW to Canada, then the Load Flow models need to be re-run.**
    https://www.youtube.com/watch?v=UixzsxOmPic
    Note: Mark Williamson is PSE's hired expert to head up PSE's aggressive PR campaign for getting Energize Eastside through the approval processes. Mr. Williamson's website brags about his prowess in getting projects like Energize Eastside approved by treating them the same way as a political campaign.

PSE has never responded to these questions and challenges.

In its IRP PSE states that Energize Eastside is required to meet FERC Reliability Requirements. But that statement is refuted by the fact that FERC has stated it has no jurisdiction over Energize Eastside because neither PSE, nor any other eligible party, asked for Energize Eastside to be included as a part of a Regional Plan. This statement that Energize Eastside is required to meet FERC Reliability Requirements is also refuted by Supporting Document numbers 2, 3, 4, 5, 7, 8, 9, 12, 13, and 16.

In its IRP PSE states that ColumbiaGrid identified the need for Energize Eastside. But ColumbiaGrid told FERC that PSE did not request that Energize Eastside be a part of a Regional Plan. [*If Energize Eastside would have been a part of a Regional Plan, then it would have been subject to FERC Order No. 1000 and ColumbiaGrid would have been required to study the need for Energize Eastside in an open and transparent fashion with stakeholder input. And under the cost allocation provisions of FERC Order No. 1000 BPA would have paid a lion's share of the cost for Energize Eastside.*] And ColumbiaGrid has stated that the ColumbiaGrid "stressed Load Flow case" [*that had the same*

assumptions that Quanta Services used in the Eastside Needs Assessment] "...***goes beyond what is required in the NERC [FERC] Reliability Standards.***" [*See Supporting Document 7 at its Attachment 2, in paragraph a)*]. So ColumbiaGrid did not believe Energize Eastside was needed. Further evidence that ColumbiaGrid did not identify a need for Energize Eastside is provided in Supporting Document numbers 8, 9, and 13.

Clearly now is the time that PSE needs to demonstrate the need for the Energize Eastside Project. Despite the fact that PSE did not run proper Power Flow (aka Load Flow) studies in its attempt to prove the need for Energize Eastside, there is plenty of information in documents on record for this PSE IRP Proceeding (Docket No. UE-160918) that makes it clear that Energize Eastside is not needed. I believe that the Record before you, the WUTC Commissioners, provides ample evidence for you to find in your Order on this PSE IRP that evidence as of the date PSE is making a decision to build Energize Eastside shows that such a decision to build the Energize Eastside project would not be a prudent decision.

If you the WUTC Commissioners still have some questions about this matter, I suggest that you set a fact-finding hearing under which PSE representatives can be examined under oath regarding their basis for saying that Energize Eastside is needed. That fact-finding hearing could involve many items such as:

1) Requiring PSE to redo its Load Flow studies without the inter-regional flows and with all PSE's Puget Sound Area generation operating. Then provide the studies to individuals like myself who have CEII clearance from FERC so that cross examination of the PSE Load Flow modelers on these studies could be conducted.
2) Requiring PSE witnesses to answer other key questions about their justification for Energize Eastside. (e.g. the PSE claim that nothing has been done on the transmission grid on the eastside in the last 50 years).

PSE has been ducking and dodging questions about its "proof" of the need for Energize Eastside for the more than two years that I have been involved in the project. PSE needs to be more forthcoming in answering questions before there is any finding that a decision to build Energize Eastside would be a prudent decision.

II. On the matter of the Lake Hills-Phantom Lake 115 KV transmission line: There has been no substantive review of this transmission project in this or in any previous IRP. As such, PSE has not complied with the IRP rule on this project. Further, PSE has failed in its duty to properly analyze the need for this transmission line. The City of Bellevue and PSE were advised by the City's consultant, Exponent, in 2012 that "looped 12.5 KV distribution" could be an alternative to the Lake Hills transmission line. But PSE failed to analyze this alternative. A prudent utility would analyze this alternative before making a decision to build this transmission line. It is particularly problematic that not only does PSE not analyze this distribution backup alternative

itself, but PSE also refused to give the data so that a consultant (Michael Ropp) could analyze this alternative.

I also provide the following comment on the response that PSE sent to Michael Ropp who would be performing the study of the Distribution Automation solution to increase the reliability in East Bellevue as an alternative to the imminent Lake Hills-Phantom Lake Transmission line. I have received a copy of that PSE response. See Appendix A to these comments. In that response PSE states as follows:

> *"Options like distributed automation/FLISR or a 12.5 KV distribution loop would not address the need for a backup transmission line to the three substations."*

I believe this statement is incorrect. Shortly after I received my Bachelor of Science in Electrical Engineering from Washington State University in the 1970's I went to work for Pacific Gas & Electric in their San Jose Division as a Distribution Engineer. [*See Supporting Document 1 at its Appendix H.*] One of my main tasks was to look at areas of the system where there were several substations served with short 115 KV radial transmission lines. Using spreadsheet analysis, I looked at the distribution line network that emanated from each of the substations to see if the distribution system would be able to keep customers in service if a radial transmission line to a substation failed. Data needed for the study was the rating of each of the substation transformers, the conductor size of the distribution lines that could connect to substations, and historic loading on each distribution line during system peak conditions. If we found a problem the fix was generally to beef up a distribution line. Not loop the 115 KV transmission.

Today there are more sophisticated tools to perform this analysis. Michael Ropp is a consultant that is well versed in these tools. But he needs data just like I needed data when I worked for Pacific Gas & Electric.

PSE may think that the 12.5 KV distribution loop would not address the need for a backup transmission line to the three substations, but they need to prove this statement is true by having the Distribution Automation study performed. Any confidential information the consultant would need to perform his study would be provided under a Non-Disclosure Agreement signed by the consultant. That is standard practice in the industry.

PSE has not adequately studied the need for the Lake Hills-Phantom Lake Transmission line either in its IRP or elsewhere by not looking at the Distribution solution. That being the case the WUTC should state in your Order on this PSE IRP that this Commission would deem it imprudent for purposes of rate recovery if PSE builds the line and asks for it to be included in ratebase in the future.

III. What would motivate PSE to want to build these two transmission projects (Energize Eastside and Lake Hills-Phantom Lake) that are not needed? The answer lies in the Macquarie investment objectives it had when it decided to buy all of the common stock of Puget nearly 10 years ago. Adding transmission ratebase increases their profits without requiring competitive bidding by third party suppliers that must be done when adding new generation. *See Supporting Documents 5 and 6*. Also, note that Macquarie has begun the process of selling its ownership share of PSE. See:

https://www.bloomberg.com/news/articles/2017-06-15/macquarie-said-to-explore-sale-of-stake-in-utility-puget-energy

Macquarie desperately needs to show potential purchasers that there will be new large investment coming into PSE's ratebase soon so that the potential purchaser will believe PSE will be receiving higher revenues from its ratepayers in the near future.

Comments Submitted by Richard Lauckhart
Energy Consultant
44475 Clubhouse Drive
Davis, Ca 95618
lauckjr@hotmail.com
Former VP at Puget

Richard Lauckhart

Supportive Documents provided by Richard Lauckhart in Docket No. UE-160918
[Related to the need for Energize Eastside (EE)]

Date document filed	Brief Document Description...See full Document in UE-160918 record
July 25, 2017	Several documents filed as follows:
	Supporting Document 1-Lauckhart-Schiffman Load Flow study showing EE is not needed (includes my resume')
	Supporting Document 2- Rebuttal to PSE criticisms of Lauckhart-Schiffman including Q's and challenges to PSE
	Supporting Document 3-Part 3: Email demonstrating that there is no Firm Requirement to deliver Canadian Entitlement Power to the Canadian Border
	Supporting Document 4-Copy of "Agreement on Disposals of the Canadian Entitlement within the United States" covering the years 1998-2024 referred to in the email above
	Supporting Document 5-Blowing the Whistle Slide show questioning PSE's motive and proof of the need for EE
	Supporting Document 6-Backstory on PSE's motive to build EE
	Supporting Document 7-Setting the record straight on EE Technical Facts
July 31, 2017	**Supporting Document 8**-Comments I made to ColumbiaGrid pointing out the error in their System Assessment write-up regarding the need to deliver 1,350 MW of Treaty power to the Canadian border
August 2, 2017	**Supporting Document 9**-Evidence that ColumbiaGrid had no substantive role in determining the need for EE
August 14, 2017	**Supporting Document 10**-Email describing alternatives that would be better than EE if in the future there is a need for reliability improvements on the Eastside. These include more DSM, batteries, 230/115 transformer at Lake Tradition, looping the SCL 230 KV line through Lakeside, or a small peaker plant strategically located (e.g. at the Lakeside substation). Some of these alternatives have the added benefit of helping meet PSE's Total System Peak capacity deficiency that is indicated in this IRP while solving any local infrastructure need (e.g. any infrastructure need on the eastside).
	Supporting Document 11-Comments demonstrating that the Seattle City Light line is a legitimate and better alternative to EE if there is a need and PSE chooses to use the FERC

Open Access Transmission Tariff (OATT) rules available to them in order to enable this option to happen

August 21, 2017 **Supporting Document 12**-Document describing the "fatal flaws" in the Load Flow studies PSE ran in an attempt to justify EE. Documents filed this day also include the documents that PSE has alleged show the need for EE because these documents are referenced in the "fatal flaws" write-up

August 22, 2017 **Supporting Document 13**-Document providing further evidence that the ColumbiaGrid System Assessment write-up stating there exists a Firm Commitment to deliver 1,350 MW of Treaty Power to the Canadian Border is not correct. Includes an email from ColumbiaGrid stating that BPA was the one that told them that such a Firm Commitment exists [even though BPA responded in a Public Record Act request that no such Firm Commitment exists]. ColumbiaGrid explains that it makes no check on what BPA tells them when they write their System Assessment document. They just include the BPA un-validated allegation in their System Assessment write-up. This allegation has subsequently been refuted by BPA in their response to the Public Records Act request

Sept 12, 2017 **Supporting Document 14**-Questions regarding EE for PSE to respond to at their October 5 IRP Advisory Group meeting

Sept 14, 2017 **Supporting Document 15**-One further question for PSE to respond to at their October 5, IRP Advisory Group meeting, i.e. Why has PSE chosen not to re-run their flawed EE Load Flow studies to fix the flaws?

October 1, 2017 **Supporting Document 16**-Document explaining the difference between (1) a WECC Path Rating and (2) a Firm Commitment for transmission delivery. Explains that PSE is erroneously treating the WECC Path Rating for the Northwest to Canada path as if it were a "Firm Commitment" in its Load Flow studies allegedly showing the need for EE. This treatment of WECC Path Ratings is wrong. PSE needs to re-run their Load Flow studies allegedly showing the need for EE to eliminate these non-required inter-regional flows.

October 6, 2017 **Supporting Document 17**-Comments Lauckhart made at the October 5, 2017 PSE IRP Advisory Group meeting

Appendix A

PSE refuses to provide circuit data

From: "Parker, Bob" <bob.parker@pse.com>
Date: Thursday, November 2, 2017 at 2:14 PM
To: Michael Ropp <michael.ropp@northernplainspower.com>
Subject: RE: Request for modeling data for Lake Hills and Phantom Lake substations

Hi Mr. Ropp,

Thank you for your inquiry about PSE's Lake Hills-Phantom Lake Project. We have been through an extensive permitting and subsequent legal process over the past several years with respect to the project. That process has concluded, and we are moving forward with this project.

It is PSE's responsibility to identify system needs in accordance with industry standards, and then evaluate alternatives to meet those needs. PSE does implement distribution automation where it provides benefit, which is incorporated in our smart grid program. To be most effective, distributed automation requires a robust and redundant transmission system to keep power flowing to distribution substations.

The Lake Hills, Phantom Lake and College substations are each served by a single 115 kV transmission line, meaning there's no backup power in an emergency. Both PSE's transmission planners and the City of Bellevue's own expert, Exponent, identified this as a key weakness in the electric grid serving more than 12,000 customers in the East Bellevue area.

For the area served by these substations, our current design and operating guidelines call for our electrical substations to be part of network for added reliability, i.e., served by at-least two transmission lines, creating backup during emergencies. Thus we proceeded with a robust permitting process, and have been granted by the City, the Conditional Use Permit to proceed with building a 115 kV transmission line to loop these radially-fed substations.

Options like distributed automation/FLISR or a 12.5 kV distribution loop would not address the need for a back-up transmission line to the three substations. The Lake Hills-Phantom Lake project provides that back-up transmission line and improves overall system reliability, while minimizing impacts to neighborhoods.

For additional details on the project, take a look at Exponent's 2012 Electrical Reliability Study that affirmed the need for this project, as well as the permit file for the conditional use permit.

We're moving ahead with the Lake Hills-Phantom Lake project as permitted, and consequently, PSE will not be responding further to your inquiry.

Sincerely,

Bob Parker