

From: [rsb](#)
To: [UTC DL Records Center](#)
Subject: COMMENTS ON UE-160918 AND UG-160919: PUBLIC PARTICIPATION, WEATHER DATA, AND PUMPED STORAGE
Date: Thursday, February 22, 2018 5:42:31 PM
Attachments: [COMMENTS ON UE-160918 AND UG-160919 - PUBLIC PARTICIPATION - WEATHER DATA - PUMPED STORAGE.doc](#)

Please find in the attached Word file additional comments from me on Docket number UE-160918 AND UG-160919.

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Thursday, February 22, 2018

Dear UTC Commissioners:

Subject: COMMENTS ON UE-160918 AND UG-160919: PUBLIC PARTICIPATION, WEATHER DATA, AND PUMPED STORAGE

WAC 480-100-238 (5) reads, “Consultations with commission staff and public participation are essential to the development of an effective plan. The work plan must outline the timing and extent of public participation. In addition, the commission will hear comment on the plan at a public hearing scheduled after the utility submits its plan for commission review.”

PSE 2017 IRP (both the body of the report and appendices) appear designed to thwart rather than facilitate public review. In the Settlement Letter for *PSE 2015 IRP*, PSE was faulted for a lack of clarity and transparency.

If the Commissioners earnestly believe that public participation is valuable and want meaningful comments at public hearings, they should not permit PSE to continue its pattern of obfuscation and misleading presentation. I offer a couple of examples below.

- Demand projections are shown without legally mandated efficiency measures, for example Figure 1-7. The rationale that demand-side resources are themselves variables in the optimization is a nonsensical reason for presenting an artificially inflated picture of demand as though it is a valid baseline. PSE uses “newspeak,” such as “Gas Sales Design Peak Day Resource Need” to describe something as simple as peak demand. I’m fine with PSE communicating in such terms internally, but it is an affront to the public in an IRP.
- Even in the appendices, you see demand-side efficiency measures labeled only as numbered “bundles.” No meaningful public review is possible when discrete measures are labeled with numbers. Anytime you bundle different measures together you obscure the effectiveness of the individual measures. Depending on how you combine them, you can get almost any measure to appear cost-effective or not.

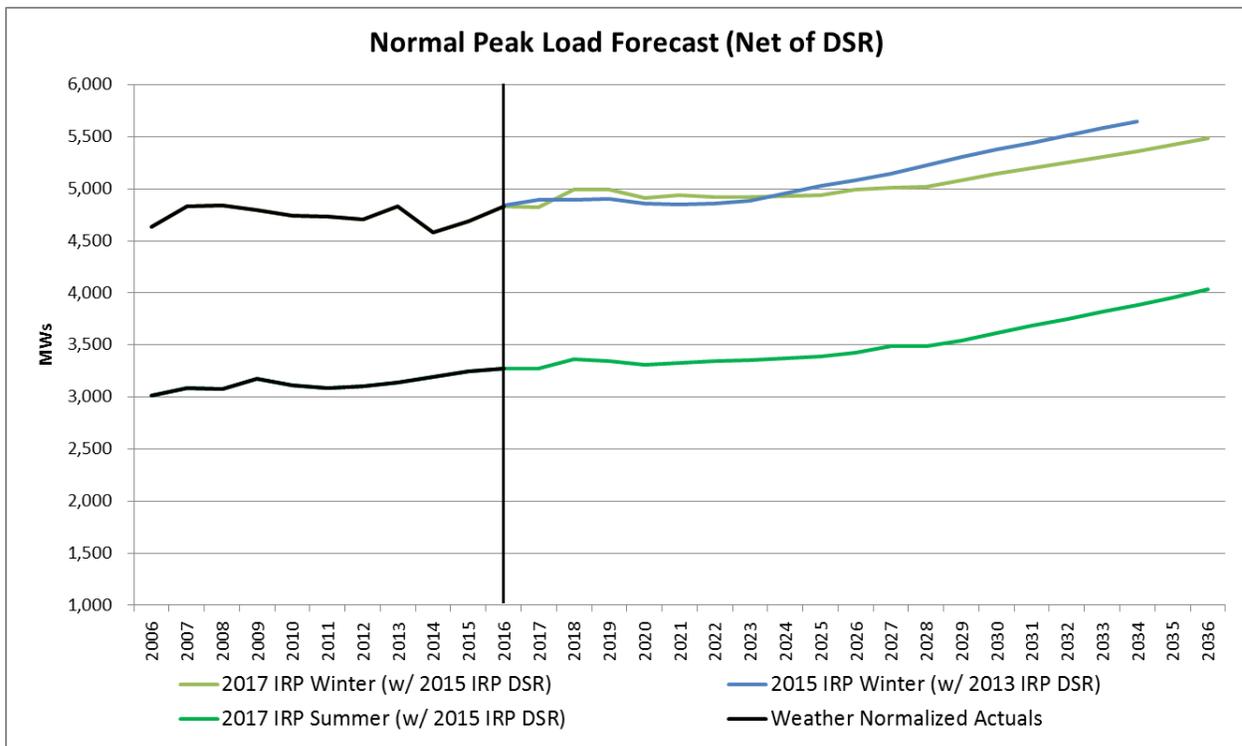
Is this possibly why for natural gas demand-side resource measures, the IRP finds that just 0.4% per year of the load can cost-effectively saved through conservation? As someone who has worked in the field of energy-conservation in buildings for many years, I find this result not credible. Yet I have no way to figure out where PSE went wrong and share that with the UTC, because the data are obscured.

Under the current framework, regulated utilities have an inherent conflict of interest between maintaining sales and capturing cost-effective opportunities for demand-side efficiencies. Public participation is essential if the public interest is to be served.

I think PSE 2017 IRP does a very poor job of communicating to the public. The UTC should require them to do better.

Weather Data

I am concerned that PSE has paid insufficient attention to the impact of climate change on weather dependent electrical loads, such as for space heating and cooling. Use of the traditional rolling 30-year averages as the basis for design temperatures is called increasingly into question in this era of rapid climate change. After observing near-term heating and cooling degree day trends (contained in the referenced link), one can easily imagine the winter and summer peak load lines in the *2017 IRP Load Forecast – Electric Winter vs. Summer Peak Forecasts* (shown below) crossing within the 20-year planning horizon, turning PSE into a summer-peaking utility.¹



I am a building scientist and not a climate scientist or meteorologist. However, I do know that space cooling load growth will be amplified by the fact that residences in PSE's service territory have traditionally not needed air-conditioning. The gradual warming we see in heating degree day and cooling degree day graphs may combine with more frequent westerly summer flow from interior valleys resulting in huge, rapid summer load growth for air-conditioning.

¹ Relevant graphs used in developing PSE 2017 IRP can be found here: https://pse.com/aboutpse/EnergySupply/Documents/Post_IRPAG_Nov14_IRPAG_Distribution.pptx.

PSE needs to utilize the best available expertise in climate science and meteorology to assess these risks. As has been seen in other parts of the world, the sorts of temperature anomalies that are becoming more frequent are not just a threat to the electric grid, they are a threat to human life and health. 30-year rolling average are not good enough.

Pumped Hydroelectric Storage

I am distressed by the lack of commitment shown by PSE in this IRP to addressing the challenges of integrating variable, nondispatchable carbon-free generating source, such as wind and solar, into their system. In other parts of the world where reductions in carbon emissions are being taken serious, pumped storage is emerging as a key technology. In its 2016 acceptance letter to PSE, the UTC noted that PSE was deficient in its consideration of storage, including pumped hydro.

Washington State has some of the best topography in the country for utilizing pumped storage and at lower than average cost. In fact in a 1976 study, the Army Corps of Engineers found 530 sites in the Pacific Northwest that they judged to be suitable and economic for pumped storage development. Each site was judged to be capable of providing between two and nine Gigawatts of power for 14 consecutive hours at a cost of approximately half that of thermal plants of the day.²

On page 2-13, the IRP states that “When no new thermal resources were allowed, pumped hydro storage became the go-to capacity resource.” As I write this, our Washington state legislature is considering a bill that would prevent the addition of any new thermal resources in the state. Should that legislation pass, a technology that is largely dismissed in the IRP, would likely become a critical component of PSE least-cost generating mix.

I believe that if PSE correctly prices carbon in its analyses, it will also lead to pumped storage as the go-to capacity resource. But clearly given the nature of variable renewable generation and the low capacity value it is given, only robust analyses that recognize the positive synergies between storage and renewables technologies will be capable of fairly assessing their value. Transparency is needed here.

The UTC should insist that PSE be transparent in its analyses and provide interested parties access to the underlying data.

² Pacific Northwest Pumped Storage Inventory - U.S. Army Corp of Engineers, North Pacific Division, January 1976.

Respectfully submitted,

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