

From: [Zakai, Yochi \(UTC\)](#)
To: [UTC DL Records Center](#)
Cc: [Brian Grunkemeyer](#); [Twitchell, Jeremy \(UTC\)](#)
Subject: Supplemental comments of Brian Grunkemeyer Docket UE-141170
Date: Monday, March 07, 2016 8:32:28 AM

Hi Records Center,

Please add the following "Supplemental comments of Brian Grunkemeyer" to docket UE-141170.

Thanks,

Yochi Zakai
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From: Brian Grunkemeyer [mailto:grunk@live.com]
Sent: Saturday, March 5, 2016 1:05 AM
To: Zakai, Yochi (UTC) <yzakai@utc.wa.gov>
Subject: Supplemental oral comments on PSE IRP

Hi Yochi,

Could you please add this to the record? This is what I intended to say today, if I were given 10 minutes to talk. Instead I paraphrased only 3 of these sections. Some of this is novel content, such as my suggestion of an "Actual Unused Energy" metric, some of the urgency around Colstrip shutdown, etc. I also hope the Commissioners understood that we believe Cadmus' solar study is out of sync with reality. (Commissioners Jones and Danner looked at each other as if that was news when one of our other volunteers quoted my comments today.)

Thanks for your help.

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I'm Brian Grunkemeyer. I live in Redmond. I'm a volunteer for the Sierra Club, and the Chair of the Sierra Club Energy Committee. I have participated in the IRP advisory group since 2008.

Prepare for the near term shutdown of Colstrip.

*) We believe low natural gas prices are making Colstrip uneconomic today. Also, Talen Energy is financially distressed.

- 1) Target shutting down units 1 & 2 in 2017.
- 2) For units 3 & 4, Oregon just passed a law requiring utilities to get off coal by 2030. This affects other Colstrip owners and sets an upper bound on Colstrip's lifetime. We think it needs to shut

down sooner, but we now have an upper bound.

3) PSE's rates must reflect these shorter plant lifetimes. We don't want to be paying for Colstrip in 30 years. Currently PSE projects the plant will be open to 2045 and we believe the costs were spread out over all of those years.

To smooth the path to retirement, we must:

- 1) create a decommissioning fund for coal ash and water pollution costs.
- 2) UTC must demand a full accounting of decommissioning costs at the next available opportunity. Please step up and regulate them appropriately.
- 3) Replacement power must come from renewable resources.
- 4) Support a just transition for the state of Montana, such as building a wind farm at Judith Gap, MT or Colstrip.

This afternoon, we have many people from Montana to speak about Colstrip's water & air pollution problems, and a Montana State Representative here to talk about the legislative landscape and equity for Montana residents.

PSE's Mismatch From Regional Projections

PSE has one overarching problem – their projected power plant builds don't match with the Northwest Power & Conservation Council's 7th Power Plan. Instead, it looks like they're overbuilding. This comes through in their load forecasts, their choice of a planning standard, and Energize Eastside. Let me walk through these and propose some fixes.

Climate Forecasts

During the last two IRP's, we and others noticed PSE was not looking at current climate forecasts and temperature trends, which increases their load forecast incorrectly. PSE didn't act on our concerns, but we now have some official data to help make the case from the University of Washington's Climate Impacts Group.

*) Over the past 120 years, the Puget Sound region warmed by 1.3 degrees.

*) Over the next 20 years, Puget Sound is projected to warm by another 2 degrees.

While these may seem like small changes, they contribute to peak capacity, and directly influence the number of power plants PSE must build. The most recent climate science must be reflected in load forecasts.

I have graphs and links to climate reports in my written comments. Please take a look.

Planning Standard & Higher Reliability Standards

*) PSE changed its planning standard from LOLP to EUE, and changed the capacity standard. They lowered the equivalent LOLP measure from 5% to 1%. They justified this with an economic study of the value of lost load to customers. We fully recognize there is a benefit from reducing lost load, but it may be overstated.

Two questions will help us understand this issue:

- 1) How many power outages were caused by a lack of power on the regional spot market vs.

problems with distribution lines? Phillip Popoff said this hasn't happened possibly ever, and certainly not in the last 10 years.

- 2) Should the value of lost load to customers be capped when customers are willing to spend money on backup generators and uninterruptible power supplies? Yes.

We need an update to the value of lost load. This will help improve the quality of PSE's math.

Energize Eastside

*) The Energize Eastside project is predicated on load forecasts inconsistent with this IRP.

- 1) The IRP shows load growth is almost flat for the next decade, but Energize Eastside claims load growth will be 2.5%, which is 5 times higher
- 2) An independent transmission load flow study shows the power line is unnecessary
- 3) EQL Energy and CENSE have a compelling analysis of this project.

Incentives

These problems stem from the incentive structure for utilities. We compensate them for money spent instead of better service.

We should introduce a new backwards-looking measure, called "Actual Unserved Energy", where we ding utilities for the power that customers wanted but couldn't get, based on last year's outages. This will shift the focus to the combined reliability of the generators, the transmission grid, and the distribution grid. It directly measures the quality of electric service provided to customers.

If we combine this with another measure of capital efficiency, we can fix the incentive to overbuild, so regulators don't need to worry about whether utilities are playing games with their math.

Demand Flexibility & Electric Vehicles

Forward thinkers like Jeremy Rifkin wrote about the Third Industrial Revolution. The future for utilities involves:

- 1) more renewable generation
- 2) hardening the distribution grid to support lateral energy flows between customers
- 3) dramatically increasing demand flexibility

Let's look at one example.

Electric cars are a growing source of demand. They drive up the evening peak capacity requirement. Currently drivers have no knowledge that an evening peak exists, nor any incentive to charge their car late at night. Studies show time-of-use metering only shifts about 1/3rd of shiftable loads. Worse, EV drivers willing to buy expensive cars may be price insensitive. By 2020, EV's in PSE's territory will add 200 MW to evening peak load. And the marginal cost of peak capacity is quite high, since PSE must build new power plants.

This requires a technical solution. I spoke with Tesla's Chief Technical Officer, JB Straubel. He's considering building a dispatchable EV charge management service, to allow charging to be spread throughout the night. This will avoid increasing the peak loads, which means not building new power plants. Other auto manufacturers or third parties may provide a similar service, to keep EV charging both green and cheap.

PSE needs to include Rocky Mountain Institute's study on the economic value of "Flexiwatts", so they can appropriately evaluate demand flexibility.

Social cost of carbon must affect Dispatch

Currently PSE does a thorough IRP where they estimate costs, but these costs only affect future construction of new power plants. They don't impact **existing** plants. Our IRP law can't mean that utilities should do a bunch of math then throw away the results.

Instead, we ask that a social cost of carbon be included in the dispatch of existing power plants. This can be done regardless of whether a carbon price is assessed. Please think about this.

Cadmus's Solar Study

Cadmus did a projection of the adoption rate for residential and commercial solar. Six of the assumptions going into the study were all wrong. I detail this in my comments, but the market rate for solar was up to 53% higher than reality. The cost of solar is dropping faster than Cadmus assumed. Utility rates may be going up faster than what Cadmus estimated.

Later today, solar industry experts will testify that the costs of residential & utility scale solar used in the IRP are not accurate. Residential solar PV is being installed for as low as \$2.47/Watt before subsidies, half of what Cadmus estimates. Utility scale solar can be installed for less than \$2/W, perhaps \$1.75/W. PSE must prepare for more customer-owned solar, and one day, for customer-owned energy storage (like Tesla PowerWalls).

Climate Goals

We need a top-down strategy for meeting the world's carbon reduction goals established in Paris. Starting from the science and national reduction targets, we need our utilities to show how they are going to reduce their carbon emissions. Instead, PSE projected their carbon emissions will increase. This thinking is clearly not up to the biggest challenge of our time. We need results-driven scenarios, in every utility IRP. The last section of my written comments includes a proposed road map for shutting down Colstrip and replacing it with renewables, conservation, demand flexibility, and fixing PSE's math.

To summarize, PSE must prepare for an imminent Colstrip shutdown in the next year or two. PSE needs to do a better job including climate data in load forecasts, choosing an appropriate planning standard, and not overbuilding infrastructure. The UTC should ensure they don't overbuild by fixing utility incentives. And we need better alignment with NWPPCC, as well as reflecting market rates for solar. Utilities must provide a roadmap to decarbonize the electric grid by 2050.

Thank you for your careful attention to these issues.

