

Comments by James Adcock on Docket UE-210220 and 6/11/2021 Open Meeting

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Commenting party's name: James Adcock, Electrical Engineer

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Comments by James Adcock on UE-210220 Request for Proposal and 6/11/2021 Open Meeting
6/11/2021

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Re: Docket UE-210220 and 6/11/2021 Open Meeting

Comments of Jim Adcock, Electrical Engineer, graduate of MIT, who has spent the last 40+ years of his life performing statistical analysis.

"The Fatal Flaw" in PSE's LLP/ELCC Calculations

Due to the short notice provided by PSE to today's Open Meeting discussing UE-210220 I was unable to sign up to participate online, but I would like to offer these comments on subjects discussed at today's meeting:

I am very concerned -- as I have been for the last dozen years of my participation in PSE's IRP process -- of the methodology PSE uses in calculating its peak winter capacity needs, including LLP and ELCC.

In terms of "participant vetting" of the latest IRP -- as in the previous dozen years of PSE IRPs -- we participants told PSE that what they are doing in terms of LLP and ELCC calculation is simply wrong, and PSE simply continued to ignore us. Worse, in the latest IRP PSE told us that they were going to fix the problem, and then at the end of the IRP process, suddenly reversed course and told the IRP participants that they were not going to fix the problem.

The problem in a nutshell is this: That PSE is in practice ignoring the effects of the last 90 years of climate change *that have already happened* in calculating their winter LLP and ELCC. During the last 90 years the greater Seattle area, including PSE's central temperature data point of Seatac, has already experienced 18 degrees of winter coldest days warming, resulting in about 20% reduction in maximum winter Heating Degree Day, and thus a 20% reduction in PSE Peak Winter Day Load. This is not talking about additional climate change that will happen in the future, but rather climate change *that has already happened*. PSE greatly exaggerates their LLP and ELCC load requirements by using winter temperature data which is 90-years-out-of-date. PSE makes the "kindergarten" argument that "well, zero-degree days have happened in the past,

so it could happen again." That is equivalent to the argument "Well, dinosaurs happened in the past, so expect to see dinosaurs walking on our sidewalks tomorrow." No, we will not see dinosaurs walking our sidewalks, nor will we see zero-degree winter days again -- as the famous climate change scientific paper by Susan Solomon "Irreversibility of Climate Change" points out -- once Seattle area coldest winter day zero-degree-days have gone away -- gone away by 18 degrees already -- then they are gone. They are not coming back tomorrow, or in future decades, even though they have happened in the past. The statistics of PSE-area winter temperature distributions has irreversibly changed. Zero-degree days are gone, now 18 degrees is as cold as one can statistically expect -- and which PSE should be designing for. Not zero-degree days.

PSE had acknowledged this, and told participants that they were only going to use the most recent 30 years of temperature data -- which still somewhat exaggerates winter peak power needs but not nearly as much so -- but then at the end of the IRP PSE reversed themselves and said they were in fact continuing to use 90 year out-of-date temperature data.

In terms of Freshman Statistics, this is the problem of "stationary data" -- where in terms of temperature data "stationary data" means the assumption that climate change isn't happening, and that the coldest winter days haven't warmed by 18 degrees already. If one did have "stationary data" -- which Seattle/Seatac temperature data clearly IS NOT -- then one can legitimately use techniques called "Monte Carlo Methods" where one selects previous years' temperature data as being statistically representative of what might happen in the future. PSE uses "Monte Carlo Methods", pretends that the temperature is "stationary" -- PSE pretends that the 18 degrees of coldest winter day warming hasn't happened -- PSE thus pretends in their modeling efforts that climate change isn't happening.

The reason PSE does this in order to exaggerate their need (if in reality any) for new NG peaker plants.

Since PSE's statistical modeling of LLP/ELCC is simply false, we IRP participants have proposed a simple fix: That PSE only use the most recent 20/30 years of temperature data. This is known as the "quasi-stationary" assumption -- the assumption that yes the coldest winter day temperature data is still getting warmer, but not so much so over a more limited period of analysis, so maybe we can simply accept some smaller margin of error -- some smaller margin of exaggeration of the need for PSE additional winter NG Peaker Capacity. Seattle, for example, takes such a "quasi-stationary" approach of only using most recent decades' temperature data. NOAA only uses the most recent decade of data. But PSE refuses to take such an approach. At the start of the most recent IRP they said they would do so, but then at the end of the IRP they reversed course and said they would not. By changing what they were doing at the end of the IRP, they effectively prevented IRP participants meaningful participation and "vetting" during the course of the IRP.

Please require PSE to fix this problem prior to the RFP. Require that PSE must only use the most recent 20/30 years of temperature data in their LLP/ELCC calculations, and in calculating resulting peak capacity needs.

Further, please note that PSE gave IRP participants extremely limited opportunities to speak during the most recent IRP meetings – even in comparison to prior cycle IRPs. In part by only holding half-day meetings rather than full-day meetings. And in particular PSE actively engaged in a “freeze out” of this author, not acknowledging my “raised hands” nor allowing me to speak.

Finally, please note that in addition to this coldest-winter-day temperature modeling problem, there is a regional modeling assumption problem, where for some inexplicable reason Californian utilities can assume the entire North-to-South capacity of the Californian AC/DC interties is available to import power from the PNW in the summer, but on the contrary PNW utilities (including PSE) assume that only a small fraction of the South-to-North capacity of the Californian AC/DC interties is available to import power to the PNW in the winter -- in spite of enormous unused winter Californian generation capacity. This incongruity also needs to be addressed.

James Adcock, Electrical Engineer