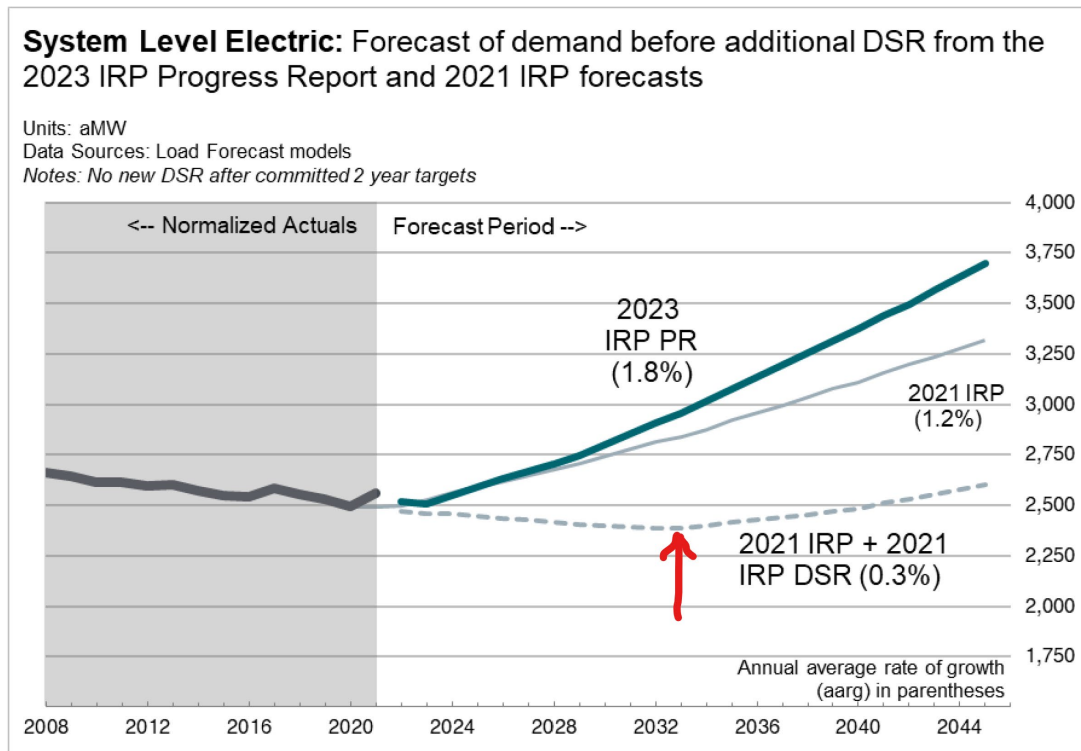


July 14, 2022

Dear PSE IRP Team,

There is a significant flaw in PSE's post-DSR demand forecasting methodology that must be corrected in PSE's 2023 IRP.

The flaw is illustrated in this graph presented on slide 28 of PSE's presentation to the July 12 meeting of the IRP Advisory Group:



Although the graph presents a forecast of electric demand “before additional DSR,” PSE has included the dashed line to illustrate the significant reductions due to Demand Side Resources in the previous IRP. Instead of rising at an average annual rate of 1.2%, the post-DSR projection from the 2021 IRP rises at only 0.3%. However, if the negative trend from 2021-2033 had continued throughout the forecast period, the overall rate of growth would have been approximately -0.4%. That would be a stunning result given expected population and economic growth of the Puget Sound region during coming decades.

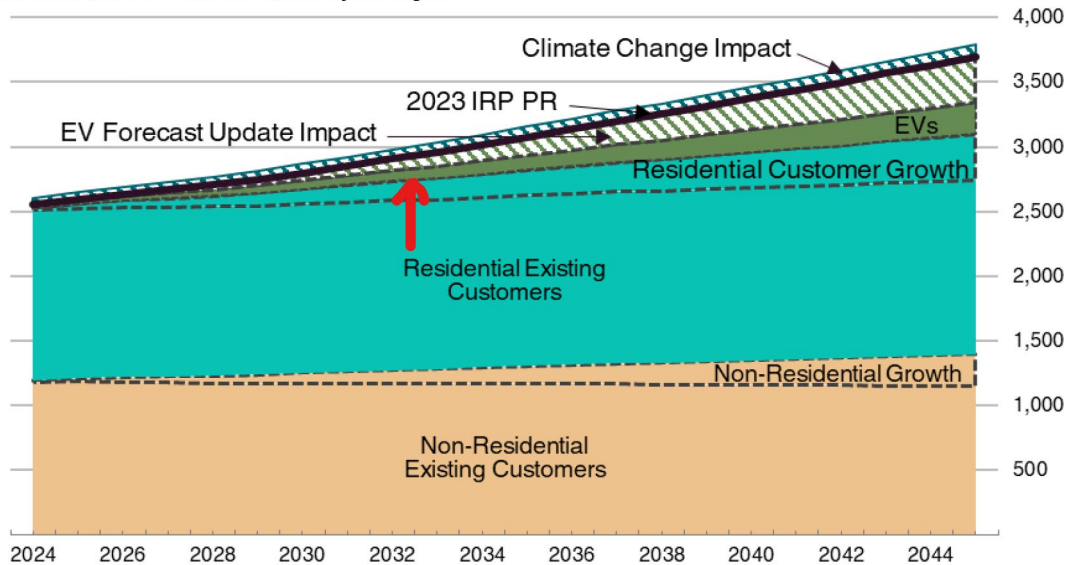
But what causes the downward trend to reverse after 2033? When I asked this question during the meeting, Stephanie Price, PSE's Senior Economic Forecasting Analyst, claimed that it was largely due to the explosive growth of electric vehicles. **This explanation is not credible.** On the previous slide (27), a graph shows that PSE is not expecting a dramatic change in demand growth attributed to EVs in 2033:

System Level Electric: Forecast of demand before additional DSR from the 2023 IRP Progress Report ("IRP PR")

Units: aMW

Data Sources: Load Forecast models

Notes: No new DSR after committed 2 year targets



Because there is no sudden growth in the dark green wedge representing EV load in 2033, and because EV load remains a relatively small portion of the total load, it is unlikely that EVs are responsible for the trend reversal shown in the slide that followed.

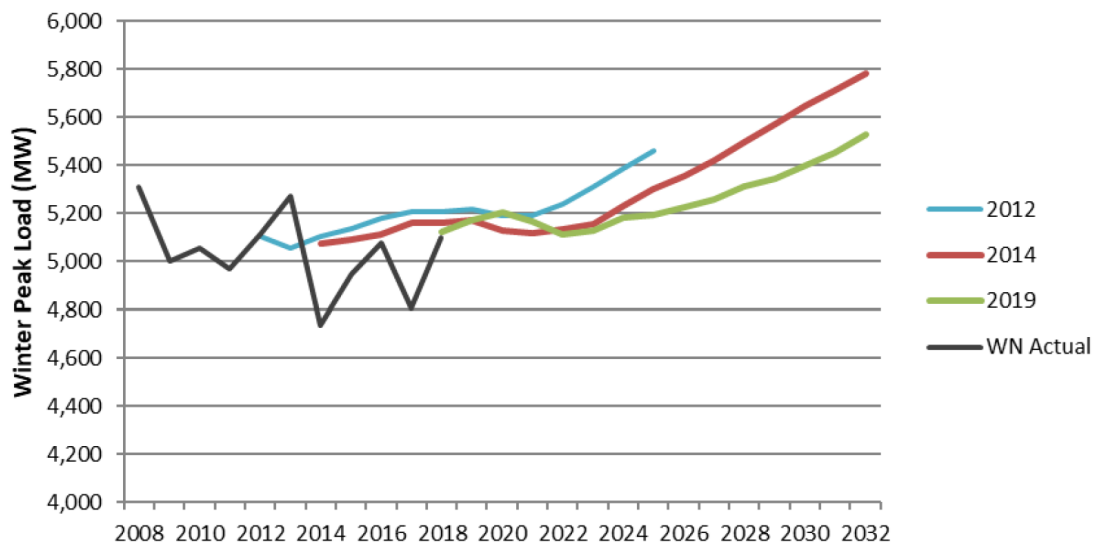
In the meeting I stated my belief that the upward swing in the forecast is an illusory artifact of PSE's policy of modeling electrical efficiency opportunities only during the first 10 years of the 20-year demand forecast. These efficiency opportunities include home weatherization, switching to LED lightbulbs, and other DSR measures that could occur any time during the next 20 years. PSE pursues all those opportunities during the first 10 years of the forecast but none thereafter. Gurvinder Singh, a Senior Energy Management Engineer at PSE, said this policy has proven to be "beneficial for ratepayers" during the meeting.

While I have no quarrel with accelerating energy efficiency efforts for the benefit of all ratepayers, no one benefits from the assumption that these efficiency benefits will be abandoned during the second decade of the forecast period. It is more realistic to assume that efficiency efforts will continue in 2033 and will reduce demand in the following years at roughly the same pace. When we eventually get to work on the 2032 IRP, I expect there will be another 10 years of electrical efficiency opportunities to pursue that weren't accounted for in today's IRP.

This forecasting problem has affected every IRP I have participated in during the past seven years and has been noted by industry consultants. For example, the following graph was prepared by Synapse for the City of Newcastle in a land use hearing for PSE's Energize Eastside project in January 2022. (See page 18 of the document included in PSE's Energize Eastside website here:

<https://energizeeastside2.blob.core.windows.net/media/Default/Library/Reports/Synapse%20MaxETA%20Energize%20Eastside%20Report-Newcastle%207.22.2020.pdf>.)

Figure 5. PSE entire service territory: winter peak load forecasts and actual peak load



Source: Compiled from PSE load forecast documents and discovery responses—WN Actual is weather-normalized actual peak load.

For the 2013, 2015, and 2019 IRPs (as well as the 2017 IRP which was not shown), the dramatic rise in PSE’s demand forecast consistently appears ten years after the IRP date. It sticks out like a sore thumb. The linear increase in the forecast constantly moves forward in time for each subsequent IRP, showing the illusory and incorrect effect of this assumption relative to actual demand trends, which are flat or declining.

Another consultant, Dr. Randell Johnson, CEO of Acelerex, found this flaw in PSE’s forecasting methodology illustrative of forecasting problems that occur in IRP forecasts throughout the industry. He wrote a blog post about the problem (avoiding mentioning PSE by name). Read the post here: <https://acelerex.com/blog/model-error-peak-demand-forecast-in-irps/>.

Why does this matter? Because many projects must be planned at least ten years before the actual need. For example, PSE’s Energize Eastside project was announced in 2013, but it will not be completed and in service before 2023. The project was justified using long-term demand projections that have proven to be incorrect for many years. That project alone will cost ratepayers hundreds of millions of dollars. To avoid unnecessary projects and undue burdens on ratepayers, the problem must be corrected.

Due to the seriousness of this matter for ratepayers and the environment, I am including UTC staff in this communication. If the 2023 IRP includes this forecasting flaw, we will ask the Commission to reject the IRP. Let’s correct the flaw now and avoid that unfortunate outcome.

Don Marsh
Sierra Club Washington State Energy Committee
Lead, Washington Clean Energy Coalition