

Resource Planning Advisory Group feedback report

Meeting details

- Tuesday, September 30, 2025, 1:00 p.m. - 4:00 p.m.
- Virtual webinar hosted by PSE and facilitated by Triangle Associates
- Links to:
 - [Presentation](#)
 - [Meeting recording](#)

Feedback

The following records participant questions and PSE responses from the public comment opportunity and comments submitted via online [feedback form](#) or email to isp@pse.com. Meeting materials are available on the [clean energy planning website](#).

PSE endeavors to provide clarity in responses but subsequent follow-up may be required at times. Please direct any follow-up clarifications to isp@pse.com.

RPAG member feedback

1. Quinn Webber on behalf of the Washington Utilities and Transportation Commission, October 7, 2025 via isp@pse.com

General Feedback

1. In Staff comments to the September 2024 RPAG, Staff asked whether PSE plan's "to work with any other interested persons besides the EAG and the RPAG in sourcing customer survey questions (e.g., the CRAG, or the public)?" In its feedback, PSE did not directly respond to this question. As articulated in the feedback below, Staff has several concerns regarding the structure, design, and intent of

the survey. Staff believes that surveys intended to inform ISP decision-making would benefit from direct input from relevant advisory groups (notably the RPAG), to ensure that the resource achieves optimal results. Staff encourages PSE to conduct more comprehensive input in its future surveys.

PSE engaged both the EAG and RPAG in developing this survey in September 2024. Should PSE conduct similar surveys in the future we will again seek advisory group feedback at that time.

Public Survey

1. In Staff comments to PSE's initial survey solicitation, dated 9/12/2024, Staff suggested "that PSE carefully design this survey to provide actionable and insightful results. For example, if survey respondents overwhelmingly respond that they do not want PSE to invest in battery storage technologies, what would PSE do with that information while still adhering to the requirements of lowest reasonable cost planning and prudent investment?" PSE responded by indicating that "PSE is developing the survey with a professional research consultant to ensure we ask questions that can be used to inform the work ahead." Please provide information explaining how the survey results will be used to inform work ahead, including examples of actionable insights or how this survey might translate into portfolio selection by PSE.

The survey was intended to better understand customer opinions on clean energy. While we engaged both the EAG and RPAG in design, the survey is focused on clean energy topics broadly. As stated during the 9/30 RPAG meeting, this survey was not intended to make resource acquisition or planning decisions. Instead, the results are being considered with broader qualitative experiences from our work such as community engagement, program design and enrollment, and communications strategies.

2. Staff is concerned that some survey questions were leading and that the survey structure primed respondents to answer a certain way, which can lead to biased or inaccurate results. Staff is also concerned that the survey provided respondents with a significantly limited understanding of the costs and benefits of emissions reductions, as well as a limited understanding of customer choices regarding the clean energy transition. Examples of the limitations of specific questions are provided below. How does PSE plan to interpret the results of survey questions, given these concerns?
 - a. Question #2 mentions "clean energy" and "traditional energy", without mentioning alternative energy sources. This primes respondents to assume there are no alternatives. Similarly, the question answers limit respondent options to the resources mentioned in the survey.
 - b. Question #9 is leading and assumes that all respondents have energy cost concerns.
 - c. Placing Question #5 early in the survey primes respondents to focus on costs in their future responses. Therefore, in the results of questions Question #12 and Question #13, in particular, participants have been primed to focus on the costs of "green energy" in

their responses. Further, throughout the survey, reference is made to the costs of the clean energy transition, without mention of the social costs of “traditional energy” nor mention of the benefits of “clean energy,” which provides participants with a limited understanding of the competing costs and benefits.

- d. Question #16 is somewhat leading by asking the question in a way that assumes respondents would support natural gas use under certain conditions. Further, Q16 provides an oversimplified explanation of the role of gas, which does not provide mention of alternative resources that may meet load and therefore primes respondents to accept gas under conditions.

PSE used a highly qualified 3rd party to develop the survey. PSE appreciates the feedback provided and will consider it in developing future surveys and in further consideration of these results. However, this does not mean PSE agrees with all aspects of the comments above. We believe the survey provides a good snapshot of customer opinions at the time the survey was fielded based on the information they had available to them. The survey was not intended nor designed to influence or lead customers into preferring options.

3. Does PSE intend to conduct additional surveys or research concerning the intersection of affordability and benefits not immediately perceived on customer bills? If not, please provide additional context why not.

PSE has not determined if/when future surveys will be conducted but is considering opportunities for the future.

4. Staff would appreciate additional explanation of the PSE Customer survey sample size and an explanation of how representative of their customer base PSE understands the sample size to be.
 - a. On Slide 13, the total WA Gen Pop sample size is provided, broken down by county. What is the sample size of the PSE Customers population, which is referenced in the subsequent slides? What is the survey sample size of PSE Customers in each county? For context, what is the number of current PSE customers in each county?
 - b. Slide 13 states that the survey was collected to be representative of the Washington population. Given the small sample size in the WA Gen Pop for some counties, Staff is concerned that the sample size of the WA Gen Pop and the PSE Customer Pop is unlikely to be regionally representative. How does PSE interpret perceptions around customer affordability in Kittitas County, for example, where the survey received 9 responses?

The number of PSE customers surveyed was 959 with a margin of error of $\pm 3.2\%$ at the 95% confidence level – which is very similar to the larger Washington resident sample of $\pm 3.1\%$ at the 95% confidence level. Edelman provided data for all customer classes with indications where statistical significance exceeded 90 or 95%. PSE is aware that not all questions in all potential statistical categories are statistically significant. Kittitas County is a good example (there are many) where results should not be assumed to be representative of the county as a whole.

5. While Staff acknowledges that online surveys can provide some insights into customer preferences, Staff wants emphasizes that it should not act as a substitute to procedural engagement with named communities.

PSE agrees with the importance of direct engagement in named communities and views surveys as one of many tools to engage customers. However, it is important to note that this survey serves as one form of procedural equity, as procedural justice asks that we ensure those impacted by decisions are engaged. The survey was intentionally designed to ensure that named communities' voices were heard by oversampling in those communities. Surveys are an important method of increasing the number and diversity of customer opinions reflected in clean energy planning processes.

6. In Staff comments to the September 2024 RPAG, Staff provided feedback stating that “tracking changes in survey responses over time may help PSE understand changing customer preferences in a way that a one-off survey would not.” PSE responded that it had “not determined if repeating the survey in future years will be necessary, but it is certainly possible and something we are considering.” At this juncture, does PSE intend to conduct future iterations of this survey? If not, please explain why not.

PSE agrees tracking trends can be valuable but, as noted above, has not determined if/when future surveys will be conducted.

RA Analysis

1. Is there an opportunity for PSE to work with E3 to consider RPAG comments and implement changes to the resource adequacy analysis based on RPAG feedback? Staff is concerned that the resource adequacy analysis methods, and in particular the methods that have been changed since the 2025 IRP analysis (Slide 32), were not presented to RPAG for feedback prior to running the RA analysis.

E3 presented the updated methodology for review at the May 15, 2025 RPAG meeting (presentation, meeting recording, and summary). The May 2025 presentation included an overview of the RA modeling and updates to the methodology which included the new approach to the regional model (Slide 25, May 15 RPAG). During this RPAG meeting, members learned about and discussed the recommendations from E3 from the 2021 IRP model review and the implementation of the updates, which concluded in this planning process with correlating wind and solar generation to loads and temperatures. PSE did hear concerns or suggested modifications to the modeling methodology after this presentation.

Additionally, E3's RA methodology for PSE and the larger regional analysis, presented to the Commission during the UTC and DOE RA workshop on Sept. 22, 2025, are largely similar. Given that PSE has conducted two RPAG meetings reviewing its RA methodology and the need to use this methodology to proceed with time-sensitive ISP analysis, PSE is not planning to make adjustments to the RA methodology at this time but will consider feedback for future analyses. PSE will be working with E3 to prepare a comparison of key input

assumptions with the prior study to illustrate how temperatures and hydro conditions differ between the hybrid methodology in the last study and the current study. PSE will share that comparison when it is reasonably available.

2. Staff would like to see further justification for the reliance on detrended historical temperature data, rather than climate modeling data, in the resource adequacy analysis.
 - a. Why is historical data detrended by shifting temperatures upwards rather than shifting upwards and also broadening the temperature variation?

The goal of including multiple weather years in resource adequacy modeling is to capture the expected range of weather variability, which impacts both load and renewable generation, that might be seen in the study year. It is important to capture (1) genuine extremities and (2) distribution of these extremities in the set of weather profiles modeled. Using consistent weather profiles for both load and renewable simulation is also a best practice for RA studies, and leveraging historical weather and renewable profiles is one means of producing alignment in datasets used for simulations.

The set of weather profiles modeled for a future study year should be at a level playing field, and each weather year should hold as its own representation of potential conditions in isolation. The goal of the detrending E3 performed is to remove interannual variability in weather that is attributable to the observed warming trend. While the impact of climate change on average temperatures is well understood, the literature on how climate change will impact the frequency of extreme events is less robust. The set of load profiles for 44 weather years developed by E3 was scaled to PSE's median peak load forecast, which incorporates the impacts of climate change.

Load shaping models must necessarily be trained upon the historical correlation between weather (amongst other factors) and load. There is a greater degree of confidence in using the model to predict load for a broader set of historical weather conditions—rather than simulated, climate informed weather profiles—as those conditions are more likely to fall within those used to train the model.

3. How does PSE's RA analysis consider the interaction between PSE's electric and natural gas services? Will PSE be feeding a high electrification scenario into the RA model?

*The resource adequacy analysis was done using the reference demand forecast. The result is a PRM percent number and that percent will be applied to the peak forecast for each load scenario. For example, if the peak is 5,000 MW, then the calculation is $5,000 \text{ MW} * 20\% = 1,000$, but if the peak increases to 7,000 MW then the calculation is $7,000 \text{ MW} * 20\% = 1,400 \text{ MW}$. The percent planning margin will not change, but the total need will adjust with each demand forecast. At this point, there are no plans to run the high electrification scenario in the RA model.*

4. Thinking broadly about the decrease in resource needs identified in the 2027 ISP RA analysis compared to the 2025 analysis (e.g. Slide 41), and in particular the decrease in summer resource needs, can PSE share any initial thoughts on what changes we might expect in the preferred portfolio due to these changes? Similarly, does PSE expect these decreases to have a discernable impact on near-term capacity expansion planning?

The portfolio expansion is driven by the winter resource needs since that is a higher need than the summer. Therefore the portfolio results will be driven by the winter deficit to fill the capacity and how the new resources can fill that deficit. Along with the capacity deficit, the model will also optimize to meet hourly demands and CETA requirements.

2. Mike Goetz on behalf of Renewable Northwest, October 07, 2025 via isp@pse.com

Like UTC Staff and other stakeholders at the RPAG meeting, we have concerns and outstanding questions about the Company's decision to move to using E3 detrended historical temperature data to inform its RA study. While we support moving forward with the best possible analysis to address reliability concerns across the Company's system, it appears that consensus on moving towards the E3 approach was not reached. In RNW's review, it is unclear at this time why the decision to adopt the E3 modeling approach was selected. While significant load growth is anticipated across the Company's system, early indications demonstrate that there may be significant variability regarding the load that will actually materialize. Further, the use of historical weather data may be imprecise, since future conditions are anticipated to vary widely.

RNW would like to better understand the rationale and implications of the shift in modeling approach and looks forward to continuing to engage with the RPAG on this issue--especially since the change has an impact on ELCCs and resource valuation relative to longstanding practice. Before a significant change like this is made, RNW urges PSE to continue to gain feedback and insight from the RPAG. We will address this issue further in that venue and in the feedback that is due towards the end of the month.

Thanks for the opportunity to submit these comments.

Please see response above to WUTC staff question, which is similar (RA Analysis 2.a.).

Public feedback

3. James Adcock, September 30, 2025 via isp@pse.com

There is a basic problem with how PSE is modeling how climate change is affecting temperatures over time. PSE models this, falsely, as a minor shift in average temperatures, both in summer and winter.

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However, as I have examined the actual distribution of temperatures in PSE's territory over time, and have reported to PSE over the last 15 years, and to UTC, this is not actually what is going on. What is actually going on is that there has been an extreme reduction in the Winter "Extreme Tail Risk" -- very cold winter days. These very cold days are simply not happening anymore -- where a "cold day" used to mean 0 degrees F. Now a "cold day" means "just" 18 degrees F. This is an 18 degree F shift in coldest winter days -- not the approx. 1 degree F "fix" that PSE is providing to "normalize" "Historic winter temperatures." As such, the modeling technique that PSE is using to try to model climate change is simply false, and will greatly overpredict the need to additional peaking energy [Natural Gas, presumably] during the winter -- or even worse PSE is proposing new "Fossil Fuel" baseload generation! This is a clear modeling error, in my analysis.

Conversely, there has been a small summer increase in "Extreme Tail Risk" -- the probability of the rare very hot summer day has gone up somewhat.

Thus, the focus needs to be on increased summer risk, and not winter risk, where the risk of a very cold winter day has gone way down! And as such, additional "Fossil Fuel" baseload is not warranted based on this PSE false "climate change" analysis.

The goal of developing a set of load profiles for multiple weather years in the RA analysis is to characterize the expected range of variability in load that could be seen in the study years, 2031 and 2037. E3 developed a set of load profiles characterizing the range, and the set of profiles were then scaled such that the median peak of the 44 weather years modeled matches PSE's median peak load forecast. E3 developed the set of load profiles using historical temperatures detrended for climate change impacts. The goal of detrending is to isolate the impact of the historical warming trend that has made typical winter cold day warmer than it has been historically. The detrending effectively reduces the range of variability seen in the historical record to produce a set of profiles on a level playing field.

While the literature on how climate change will impact typical winter temperatures is robust, there is greater uncertainty on how climate change will impact the frequency of extreme events (both in the winter and summer). Due to this uncertainty, E3 relied upon the detrended historical temperature set to characterize the potential range of weather and load variability. We note that the method of using historical weather years accounts for changes in recent historical weather years that impact the frequency of cold weather extremes as we use a dataset that also includes more recent historical conditions. In recent years, PSE has experienced some extreme cold events that have created challenging conditions for maintaining reliability, such as the winter storm that occurred on January 13-16, 2024, that are critical to consider when planning for reliability.