

## PSE IRP Consultation Update

### Webinar 7: Load Forecast, Resource Adequacy, Resource Need and CETA

September 1, 2020

9/22/2020

The following consultation update is the result of stakeholder suggestions gathered through an online Feedback Form, collected between August 25 through September 8, 2020 and summarized in the August 15, 2020 Feedback Report. The report themes have been summarized and along with a response to the suggestions that have been implemented. If a suggestion was not implemented, the reason is provided.

#### Alternative compliance actions

PSE received feedback from Joni Bosh of Northwest Energy Coalition (NVEC) concerning increased use of conservation and demand response programs to meet the 20% alternative compliance metric as stated in CETA. PSE will add a sensitivity on increased conservation and demand response programs for the 2021 IRP.

#### PSE summer load forecast

PSE received feedback from Don Marsh of CENSE and Robert Briggs of Vashon Climate Action Group concerning PSE's summer load forecast. PSE is working on pulling the data together and a graphic of the 2021 IRP peak for both the summer and winter seasons. This graphic will be included in the IRP draft available on [pse.irp.com](http://pse.irp.com) to be submitted January 4, 2021 and/or the final IRP available on [pse.com/irp](http://pse.com/irp) to be filed with the WUTC on April 1, 2021. PSE realizes that its status as a winter peaking utility is relatively unique in the WECC region, and therefore performs all resource adequacy calculations for the entire year to take into consideration impacts of other regions on market conditions.

#### Temperature years

PSE received feedback from Don Marsh of CENSE, Joni Bosh of NVEC and Robert Briggs of Vashon Climate Action Group concerning the number of years of temperature data used to generate load forecasts and perform resource adequacy calculations. PSE would like to clarify that the temperature data used in these two aspects of IRP modeling are distinct, serve different purposes and, therefore, should not be indiscriminately grouped together.

Temperature data for the load forecasting purposes is used to understand and project climate trends over the modeling horizon. To address the impact of temperature data on the load forecast PSE will analyze a sensitivity on temperature and the demand forecast, as compared to the 30-year average normal used in the presented load forecast.

Temperature data for the resource adequacy model (RAM) is used to generate simulations over a range of conditions which could plausibly occur in the PSE service territory. The RAM requires many, many simulations to ensure statistically significant results in modeling highly stochastic processes. Therefore, the number of temperature years of data must be large enough to cover the range of temperature conditions likely to occur in the PSE service territory and generate enough simulations for accurate results. PSE currently uses 88 temperature years of data for the RAM model. PSE is researching peak temperatures and extreme weather conditions as part of the temperature sensitivity.

#### Washington Utilities and Transportation Commission feedback

Commission Staff provided feedback for the Webinar #7: Scenarios and Sensitivities on September 10. Due to the missed deadline, PSE is addressing the questions submitted on September 10 in this Consultation Update. The feedback, questions and comments from the WUTC concerning the Webinar #7 are presented below, followed by the PSE responses:

**WUTC Staff:** Slide 12: I'm curious about whether PSE is assessing CETA alternative compliance payments as a route to CETA compliance on a least-cost basis. Are the alternative compliance payments included as something like resource options in the portfolio expansion model? How is PSE modeling the various options – RECs, energy transformation projects, alternative compliance payments and additional generation?

**PSE response:** PSE plans to model a price forecast as a stand in for CETA alternative compliance unbundled RECs or Energy transformation projects. Some options can be either a CO<sub>2</sub> price forecast such as the California price or a REC price. PSE is seeking stakeholder feedback on the price forecast as the stand-in cost.

**WUTC Staff:** Slide 17: What goes into PSE's decision to change IAP2 participation levels from topic to topic? If stakeholders see potential problems with the information presented by PSE during an "INFORM" topic, is the company still open to receiving feedback?

**PSE response:** PSE determined the International Association for Public Participation (IAP2) participation level to the level on the spectrum PSE can commit to in the 2021 IRP process. The measure of success for IAP2 is not the level one chooses on the spectrum, but the level that can be achieved by PSE and the level PSE can maintain our promise to stakeholders. PSE greatly appreciates the feedback and participation of our stakeholders. For example, "INFORM" topics, PSE provides opportunities for questions and comments in the chat feature of GoToMeeting, during the meeting, as well as answering questions in the feedback report and addressing any follow-up in the consultation update.

**WUTC Staff:** Slide 27: It seems difficult to guess at whether some COVID-prompted energy usage shifts may persist, but it also seems unlikely that the post-COVID normal will be identical to the pre-COVID normal. Does PSE intend to adjust its long term energy usage pattern estimates based on a pre- and post-COVID analysis?

**PSE response:** PSE agrees that the COVID-19 pandemic event is significant and there is potential for a “new normal” regarding energy usage patterns. At this time, PSE has not yet observed what could be considered long-term usage pattern differences due to the pandemic. Once PSE determines that there has been a permanent shift in usage patterns, PSE will incorporate those into the forecast.

**WUTC Staff:** Slide 29: The table shows that a shorter timeframe for defining ‘normal’ has an outsized impact on cooling estimates. Warmer and dryer summers may not yet have an impact on PSE’s resource adequacy in the summer months, but could have a dramatic impact on the price of electricity. PSE discussed the RA component of its market reliance in this presentation, but did not cover the cost risk. How is that represented in the IRP? Does the IRP consider the prospect of escalating costs for market power as summers get hotter, and as thermal generators retire?

**PSE responses:**

To date concerning the modeling, no loss of load events occurs in the summer months in the Resource Adequacy Model (RAM). RAM only evaluates the capacity need with the balance between the supply and demand; cost is not included.

The cost risk of market reliance be will addressed in PSE’s stochastic modeling. PSE is still working on the cost risk around market reliance and the stochastic model will be presented at the December 9, 2020 IRP meeting.

**WUTC Staff:** Slide 60: Is GENESYS and the WPCM both run 7040 times, once for each RAM run?

**PSE response:** Yes, GENESYS and WPCM both consider the 88 temperature years and 80 hydro years, so there are 7040 simulations (88 x 80 = 7,040) in total.

**WUTC Staff:** Slide 61: Please refresh my memory about the COB import limit. What is the nature of the 3400 MW limit? Are there any plans to increase (or decrease) this limit? Also, how are connections to other regions – BC to NW, MT to NW, SW (AZ/NV/CA) to NW – modeled?

**PSE response:** Regional interties are part of the regional GENESYS model and PSE relies on the Northwest Power and Conservation Council’s assumption of 3400 MW limit. PSE then interconnects to the regional model with the 1500 MW limit to the Mid-C market.

**WUTC Staff:** Slide 63: What does temperature do in the RA model? Does temperature impact load or thermal performance?

**PSE response:** RAM considers 88 temperature years in the load forecast. Thermal plant outages are modeled in AURORA using the Frequency Duration. This takes into account the forced outage rate (%) and mean time to repair (hours). The outages are model for each generating unit individually with a probability of failure (FOR) and run for 260 different simulations of outages. The probability of an outage is not based on temperature.

**WUTC Staff:** Slide 63 (cont): What data does GENESYS need? Is that data provided in the software? Can it be modified? Can it be made publicly available?

**PSE response:** GENESYS uses the data from the Northwest Power and Conservation Council (NPCC), which is publicly available. The PNW regional generation and load forecast data relevant for the years 2022-2045 is publicly available. For the study years 2027 and 2031, PSE considers the load growth and retirements of units, which is obtained from NPCC staff.

**WUTC Staff:** Slide 63 (cont): What new resources are included as inputs into the RAM?

**PSE response:** In 2021 IRP, PSE will include the new resources and contracts obtained through the 2018 RFP.

**WUTC Staff:** Please provide some examples what is meant by “regional curtailment” and explain how these affect a model run.

**PSE response:** With the expected load growth and generation retirements, the capacity of supply will be, at times, less than the demand. That is the physical meaning of load curtailment. For example, during a peak hour, the regional resource capacity is 3000 MW but the regional load is 3001 MW, then a regional load curtailment occurs. During a PNW load curtailment event, there is not enough physical power supply available in the region, including available imports from California, for all of the region’s utilities to meet their loads plus operating reserves. The Wholesale Purchase Curtailment Model (WPCM) will “allocate” the regional capacity deficiency to the individual utilities. These individual capacity shortages are reflected through a reduction in the forecasted level of wholesale market purchases. On an hourly basis, the WPCM translates a regional load-curtailment event into a reduction in PSE’s wholesale market purchases.

**WUTC Staff:** Slide 71: What other contracts are expiring in 2026 and 2027 to cause the contraction of the “Contract” portion of the bars representing those years?

**PSE response:** Please see below table.

Resource (Contract)	Nameplate (MW)	Contract End Date
Twin Falls	20	3/8/2025
Centralia PPA	380 <sup>1</sup>	12/31/2025
Colstrip 3 & 4	370 <sup>2</sup>	12/31/2025
Electron	24	12/31/2026
2018 RFP new contracts	200	12/31/2026

NOTES

1. The capacity of the TransAlta Centralia PPA is designed to ramp up over time to help meet PSE's resource needs. According to the contract, PSE will receive 280 MW from 12/1/2015 to 11/30/2016, 380 MW from 12/1/2016 to 12/31/2024 and 300 MW from 1/1/2025 to 12/31/2025.
2. Does not include the sale of unit 4.

For the 2021 IRP, all contracts are expected to retire on the contract expiration date except for the Mid-C hydro contracts. In light of meeting the requirements of CETA, PSE assumes an extension of the Mid-C contracts and uses the current share as proxy to the extension. Terms and/or the possibility a contract extension will be determined closer to the actual expiration of the contracts.

**WUTC Staff:** Slide 71: Do PSE's existing hydro contracts include some contract mechanism that ensures PSE can obtain a renewal of the contracts as represented starting in 2028? Or is the company presuming that, whatever the negotiated cost ends up being, it's safe to assume that PSE will renew?

**PSE response:**

For the 2021 IRP, all contracts are expected to retire on the contract expiration date except for the Mid-C hydro contracts. In light of meeting the requirements of CETA, PSE assumes an extension of the Mid-C contracts and uses the current share as proxy to the extension. Terms and/or the possibility a contract extension will be determined closer to the actual expiration of the contracts.

## Summary of all updates

PSE appreciates the feedback provided by stakeholders. In summary, the following changes will be implemented into the portfolio model or included in the proposed portfolio sensitivities:

- An increased conservation and demand response program sensitivity will be analyzed to explore the impact of using these measures to meet the CETA alternative compliance metrics.
- Summer peak demand forecasts will be included in IRP documentation as reference material.
- A temperature sensitivity will be analyzed which examines the impact to the demand forecast.

PSE is committed to keeping our stakeholders informed of our progress toward incorporating feedback into the 2021 IRP process.