

# Meeting Summary

Integrated Resource Plan (IRP) Stakeholder Webinar on Draft Electric Portfolio Results

## Meeting Information

- Monday, December 12 from 9 a.m. - 12 p.m.
- Virtual webinar hosted by PSE, facilitated by Triangle Associates
- Links to:
- [Meeting materials](#) (e.g. hot sheet and presentations)
- [Meeting recording](#)

## Meeting Summary

### Electric Progress Report Process

*This information is on [slides 7-12](#) of the presentation*

- Phillip Popoff, Director of Resource Planning Analytics, PSE, provided background information on the 2023 Electric Progress Report process including how PSE developed the least cost (reference) portfolio, technology risk, and candidate alternative portfolios.
- Phillip explained that PSE may develop additional portfolios based on the feedback from stakeholders during the December 12 IRP meeting.
- Elizabeth Hossner, Manager of Resource Planning and Analysis, PSE, reviewed PSE's current nameplate electric generating resources including thermal, wind and solar, hydroelectric, long-term contracts, and coal.

- Elizabeth discussed PSE’s resource planning goal to continue to be a clean energy leader by meeting Clean Energy Transformation Act (CETA) and Clean Energy Implementation Plan (CEIP) obligations as well as diversifying the portfolio through non-emitting resources and delivering an equitable clean energy transition.
- Elizabeth explained how public participation and new opportunities shaped PSE’s work including:
  - Reducing market reliance, incorporating climate change data and equity, the Inflation Reduction Act (IRA), and more.

## Distributed Energy Resources

*This information is on [slides 13-21](#) of the presentation*

- Heather Mulligan, Manager of Customer Energy Renewable Programs, PSE, provided an overview of PSE’s clean energy products and services.
- Products include newer Distributed Energy Resources (DERs) that provide clean energy solutions to Highly Impacted Communities and Vulnerable Populations:
  - Green Power Solar Grants, Green Direct, Community Solar, Income-Eligible Community Solar, and Customer Connected Solar.

## Resource Plan Modeling Results

*This information is on [slides 22-64](#) of the presentation*

- Elizabeth Hossner reviewed the Resource Plan modeling results, beginning with the least cost (reference) portfolio. This portfolio is not the preferred portfolio. PSE reviewed sensitivities and candidate portfolios later in the meeting.
- Elizabeth reviewed CETA commitments and emphasized that PSE will maintain resource adequacy targets to meet reliability through:
  - Analysis of winter and summer peak capacity needs using climate change data, electric vehicle forecast, and market reliance.
  - Winter peak is driving resource capacity additions through 2045.

- Elizabeth explained the types of energy resources in the reference portfolio and how the resources stack over time in 2023, 2030, and 2045.
  - The model suggests a significant increase in DERs including solar and battery storage, demand response programs, and wind by 2030.
- Elizabeth shared the benefits of a diverse portfolio, including decreased dependence on a single fuel source.
  - PSE will consider near- and long-term additions when building this diversified portfolio.
- PSE evaluated a variety of alternatives to meet peak needs including biodiesel, and the new technologies of small modular nuclear and hydrogen. PSE modeled several diverse energy mixes to meet demand.
- PSE evaluated multiple portfolios, including six diversified candidate portfolios.
- PSE used a portfolio benefits analysis to illuminate customer benefits and burdens beyond cost. PSE evaluated portfolio benefits against total portfolio cost (with emissions) for each portfolio.

## Candidate Portfolios Discussion

*This information is on [slides 66-67](#) of the presentation*

- Meeting participants were placed into four breakout groups with facilitators and PSE staff to discuss the candidate portfolios and the following questions:
  - The diversified portfolios were developed to reduce risks associated with over reliance on one or a few resources. Do you agree this type of resource diversification should be a priority?
  - The diversified portfolios require trade-offs. How would you prioritize these trade-offs between resource types, costs, and various CBI metrics?
    - Utility scale resources are less expensive to diversify but result in lower CBI scores
    - Localized resources (Distributed Energy Resources or DER) are more expensive but result in higher CBI scores
- Breakout room facilitators captured discussion on a Mural board and reported key discussion points to all IRP stakeholders in the main room.

- Group 1: Facilitated by Will Henderson (Maul, Foster, and Alongi [MFA]), Phillip Popoff (PSE) and Alex Karpoff (PSE)
- Group 2: Facilitated by Seth Baker (MFA), Kara Durbin (PSE) and Tyler Tobin (PSE)
- Group 3: Facilitated by Claire Wendle (Triangle Associates), Wendy Gerlitz (PSE), Jennifer Magat (PSE) and Nathan Critchfield (PSE)
- Group 4: Facilitated by Lucila Gambino (Triangle Associates), Elizabeth Hossner (PSE) and Ray Outlaw (PSE)

## Participant Feedback\* on Diversification of Resources in the Candidate Portfolios

Group 1	Group 2	Group 3	Group 4
<ul style="list-style-type: none"> <li>• Diversification is a strategy to reduce risk, especially given uncertain technologies (ex. hydrogen)</li> <li>• Reducing risk is one of the foremost items in a LRC portfolio</li> <li>• Diversity in all things is advantageous, happy to see it.</li> <li>• Given the newness of hydrogen, what is PSE's plan to bring it online? Thinking specifically of hydrogen</li> <li>• PSE: Actively engaging in the app process. Taking steps to bring hydrogen to WA</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of failing to meet 80% clean by 2030. Make sure portfolio ensures CETA achievement</li> <li>• Yes a priority – a diverse portfolio mitigates risk, e.g. different battery technologies and generation technologies</li> <li>• Diverse portfolio needs to ensure reliability. Don't rely too much on utility-scale because of risks like fire</li> <li>• Appreciate this approach</li> </ul>	<ul style="list-style-type: none"> <li>• Priority should be managing cost, emissions, reliability and risk. Diversification can help with that but it doesn't get you there</li> <li>• Diversity isn't a value in and of itself</li> </ul>	<ul style="list-style-type: none"> <li>• Yes. I would like to see more details but we do need diversity and that is a given.</li> <li>• Diversification is desirable – staff has taken a good shot at laying out the options.</li> <li>• Diversification has benefits and PSE has shown this in their RA analysis.</li> </ul>

## Participant Feedback\* on Prioritizing Tradeoffs Between Resource Types, Costs, and CBI Metrics

Group 1	Group 2	Group 3	Group 4
<ul style="list-style-type: none"> <li>• Staff do not have a clear recommendation. There is an equity mandate, not sure how to give direction on this right now.</li> <li>• Feasibility, reliability, equity, cost, and diversity</li> <li>• Customers do not know about diversity, folds into reliability. Most customers just want their energy, they assume PSE is doing what is feasible.</li> <li>• Reliability, cost, and equity are most important to customers.</li> <li>• DERs provide more benefit to customers for reliability and equity</li> <li>• Value to having closer in resources</li> <li>• Hard to generalize what customers want. Some inflection point where there is a difference in utility scale resources</li> <li>• Work vs. cost trade off. It is more complicated than what is being acknowledged</li> <li>• Public Counsel was critical of CBI scoring. PSE improved</li> </ul>	<ul style="list-style-type: none"> <li>• On the right track by not choosing lowest cost; recognize value of risk aversion and CBIs</li> <li>• Lean more toward traditional model - minimize resource costs, not confident in DER benefits</li> <li>• Largest concern is failing to meet CETA 80% renewable goal</li> <li>• Concerned a peaker plant would compromise renewable energy goals; Hydrogen market may not develop</li> <li>• Don't have a baseline to understand impact of cost increases to customers</li> <li>• Assuming emerging technologies like nuclear could happen within 20 years is not realistic</li> <li>• Good example of nuclear from PacifiCorp in early to mid 2030s</li> <li>• Be open to new technologies but don't count on them</li> <li>• Not interested in nuclear - doesn't seem secure, safe, cost-effective</li> </ul>	<ul style="list-style-type: none"> <li>• Balance between lowest cost and clean energy, cost is paramount</li> <li>• Air quality - So2, Nox, health impacts cost and customer demands, analysis against cost and total reliability</li> <li>• Incorporate reliability and cost from a customer standpoint</li> <li>• Interested in transmission aspects - will lack of transmission result in new peakers west of Cascades without access to cost renewable resources – nuclear and biodiesel</li> <li>• Reliability is important for customers - consider minimizing weather related outages, equipment related outages.</li> </ul>	<ul style="list-style-type: none"> <li>• PSE should consider dropping the nuclear option. That will decrease portfolio costs and add in more DERs - which is a tradeoff for that.</li> <li>• This might get you a better blend of cost and CBI blend.</li> <li>• I agree with this - yet we should not lose track of nuclear. Eventually it will become real, but it is not in the time horizon right now</li> <li>• I appreciate PSE sees need to emphasize conservation (energy efficiency in buildings - lots of load there)</li> <li>• The diversity of options is really important and we don't want to dismiss any options - as there may be gaps to fill. The projection of conversion to partial use of hydrogen is a potential skeptical outlook - hard to know how some technologies will develop</li> <li>• Nuclear: capital costs are big and they escalate over initial cost. If you eliminate this in the near term, you will save money in planning stage and implementation stage</li> </ul>

Group 1	Group 2	Group 3	Group 4
<p>methodology – believe in pursuing LRC...balancing CBIs will increase resource costs.</p> <ul style="list-style-type: none"> <li>• Some CBIs (DER, DR participation) indirectly measure benefits of DERs. Biases resource selection for portfolios that has greater participation. Direct benefits may not be commensurate.</li> <li>• What are the direct benefits that we are trying to measure. May require bill impact analyses and non energy impacts, distributional equity analyses</li> <li>• Cost is at the top of most people's list followed with reliability. Equity is not as important to customers</li> <li>• PSE has done a great job at giving options as a starting point</li> <li>• Leans toward reducing risk - leads to the utility solution shown in 4 and 5</li> <li>• Values of DER - How do values quantify for distributed energy resources?</li> <li>• PSE: reflected avoided T&amp;D cost, reflecting the same value. For solar have ELCC modifier for T&amp;D</li> <li>• CBIs are important but do not reflect all energy and non-energy benefits in a portfolio</li> </ul>	<ul style="list-style-type: none"> <li>• Concerned about ongoing and increased reliance on natural gas peakers</li> <li>• Combine wind/solar overbuild to produce hydrogen - use hydrogen in peakers and fuel cells. Has this been dismissed?</li> <li>• What is the most aggressive transmission scenario that would make the grid support reliability requirements?</li> <li>• Would like to see the California North/South transmission more reciprocated</li> <li>• What could be done to make Canadian resources CETA-compliant</li> <li>• Ask BPA to respond to power contract requests</li> </ul>		<ul style="list-style-type: none"> <li>• PSE is overlooking time varying rates as a peak reducer. Rates will vary to the consumer, there is very little cost to PSE so overall will not increase rates to consumers</li> <li>• As we see more electrification (EVs and building sector), time varying rates will become useful tool in keeping load down</li> <li>• Demand response to a level of the individual homeowner and consumer, not just to big consumers. Capability here to shut down water heaters at peak hours for example</li> <li>• Might be expensive for PSE to develop this capability but for the long term will keep down the peak load.</li> <li>• PSE needs to concentrate more on the demand side than the generation side - opportunities there are big (DER, time varying rates, etc) to reduce peak load. I don't see PSE focusing as intensely there as I believe is needed. Keeping demand down prevents excessive building of new infrastructure</li> <li>• It is hard to do tradeoffs at the portfolio level because CETA requires benefits be equitably distributed, it</li> </ul>

Group 1	Group 2	Group 3	Group 4
<ul style="list-style-type: none"> <li>Not easy to add things like solar in communities that are not excited about it</li> </ul>			<p>happens when resources are being deployed</p> <ul style="list-style-type: none"> <li>PSE has started to do work on what equity means, but not fully formed yet at this point in the journey</li> <li>Agree that some technologies do not exist currently and optimistic projections - be wary of relying too much on resources that are not commercially available or exist</li> <li>DR is an attractive resource and provides benefits for CBIs to everyday customers</li> <li>Cost graph: important piece of information. All of PSE's options average 21-23 billion dollars - UTC approval of increase in \$1 billion a year. Concern that consumer rates will increase due to this.</li> </ul>

\* Feedback is presented as submitted (verbatim) by meeting participants.

## Next Steps

Sophie Glass closed the meeting and shared the next steps for the IRP stakeholder feedback process.

- Electric Progress Report Timeline
  - December 14, 2022 – Webinar recording and chat transcript posted
  - December 19, 2022 – Feedback form for Dec. 12 meeting closes

- January 24, 2023 – Draft Chapter 3: Resource Plan Decisions of the 2023 Electric Progress Report posted; feedback form opens
- February 7, 2023 – Deadline to submit feedback on draft 2023 Electric Progress Report
- March 14, 2023 – Final results presentation
- March 31, 2023 – Final 2023 Electric Progress Report Submitted
- Gas Utility IRP Timeline
  - January 10, 2023 – Feedback form opens
  - January 17, 2023 – Draft gas portfolio results meeting
  - January 24, 2023 – Draft Gas Utility IRP published
  - February 7, 2023 – Deadline to submit feedback on draft Gas Utility IRP
  - March 14, 2023 – Final gas portfolio results presentation
  - March 31, 2023 – Final 2023 Electric Progress Report Submitted

## Stakeholder Feedback

We are reviewing and considering stakeholder feedback from the December 12 webinar as we finish draft Chapter 3: Resource Planning Decisions of the 2023 Electric Progress Report. PSE will further consider feedback from this meeting and draft Chapter 3 in finalizing the 2023 Electric Progress Report.



## Attendees (alphabetical by first name)

- |                      |                      |                      |
|----------------------|----------------------|----------------------|
| 1. Aaron Tam         | 15. David Tomlinson  | 29. Michael M.       |
| 2. Amy Wheelless     | 16. Don Marsh        | 30. Mike Elenbaas    |
| 3. Andrew Rector     | 17. Fred Heutte      | 31. Nancy Shimeall   |
| 4. Andrew Wood       | 18. James Adcock     | 32. Norm Hansen      |
| 5. Anusha Papasani   | 19. James Doone      | 33. Paul Gascoigne   |
| 6. Austin Nnoli      | 20. Jeffrey Larsen   | 34. Ryan Roy         |
| 7. Bill Pascoe       | 21. Jennifer Snyder  | 35. Sarah Buck       |
| 8. Bill Will         | 22. Jessica McKenzie | 36. Sashwat Roy      |
| 9. Bradley Cebulko   | 23. Joel Nightingale | 37. Scott Spettel    |
| 10. Byron Harmon     | 24. Jon Lange        | 38. Stephanie Chase  |
| 11. Carol Loughlin   | 25. Justin Kotwicki  | 39. Taylor Nickel    |
| 12. Charlee Thompson | 26. Kathleen McManus | 40. Virginia Lohr    |
| 13. Court Olson      | 27. Kevin Smit       | 41. Warren Halverson |
| 14. David Meyer      | 28. Kolin Loveless   | 42. Willard Westre   |

## Puget Sound Energy Staff (alphabetical by first name)

- |                         |                      |                        |
|-------------------------|----------------------|------------------------|
| 1. Alexandra Karpoff    | 14. Garret LaBove    | 31. Michelle Wildie    |
| 2. Allison Jacobs       | 15. Gurvinder Singh  | 32. Nathan Critchfield |
| 3. Allison Mountjoy     | 16. Hannah Wahl      | 33. Phillip Popoff     |
| 4. Anthony O'Rourke     | 17. Heather Mulligan | 34. Ping Liu           |
| 5. Bob Williams         | 18. Jennifer Magat   | 35. Ray Outlaw         |
| 6. Carrryn Vande Griend | 19. Jesse Durst      | 36. Renchang Dai       |
| 7. Cindy Song           | 20. Jisong Wu        | 37. Sachi Begur        |
| 8. Cindy Vu             | 21. Kara Durbin      | 38. Scott Williams     |
| 9. CJ Nguyen            | 22. Kasey Curtis     | 39. Sheri Maynard      |
| 10. Colin Crowley       | 23. Kelly Xu         | 40. Stephanie Price    |
| 11. Corey Corbett       | 24. Kristine Rompa   | 41. Tyler Tobin        |
| 12. Douglass Hart       | 25. Leslie Almond    | 42. Weimin Dang        |
| 13. Elizabeth Hossner   | 26. Lorin Molander   | 43. Wendy Gerlitz      |
|                         | 27. Marc Alberts     |                        |
|                         | 28. Mark Lenssen     |                        |
|                         | 29. Meredith Mathis  |                        |
|                         | 30. Michael Wehling  |                        |

## Consultant Staff (alphabetical by first name)

1. Claire Moerder,  
MFA
2. Claire Wendle,  
Triangle  
Associates
3. Kim Zamora  
Delgado, Triangle  
Associates
4. Lucila Gambino,  
Triangle  
Associates
5. Seth Baker, MFA
6. Sophie Glass,  
Triangle  
Associates
7. Will Henderson,  
MFA