

PacifiCorp - Stakeholder Feedback Form

Integrated Resource Plan

PacifiCorp (the Company) requests that stakeholders provide feedback to the Company upon the conclusion of each public input meeting and/or stakeholder conference call, as scheduled. PacifiCorp values the input of its active and engaged stakeholder group, and stakeholder feedback is critical to the IRP public input process. PacifiCorp requests that stakeholders provide comments using this form, which will allow the Company to more easily review and summarize comments by topic and to readily identify specific recommendations, if any, being provided. Information collected will be used to better inform issues included in the IRP, including, but not limited to the process, assumptions, and analysis. In order to maintain open communication and provide the broader Stakeholder community with useful information, the Company will post appropriate feedback on the IRP website based on your selection below.

Date of Submittal 2024-07-03

*Name: Will Mulhern

Title: Senior Utility Analyst

*E-mail: William.Mulhern@puc.oregon.gov

Phone: (503) 385 - 3294

*Organization: Oregon Public Utility Commission

Address: 201 High St. SE, Suite 100

City: Salem

State: OR

Zip: 97301

Public Meeting Date comments address: 05-02-2024

Check here if related to specific meeting

List additional organization attendees at cited meeting:

***IRP Topic(s) and/or Agenda Items:** List the specific topics that are being addressed in your comments.

Some of the comments relate to specific topics from the May 2nd meeting, while the rest are recommendations from Staff\u0019s comments on the 2023 IRP Update

Check here if you want your Stakeholder feedback and accompanying materials posted to the IRP website.

***Respondent Comment:** Please provide your feedback for each IRP topic listed above.

We would appreciate the response being posted publicly.

1. May 2 Public Input Meeting - Distributed generation study:

a) Why is non-rooftop solar not considered in land use requirements?

- **Reply:** Land-use requirement assumptions are inputs for all combinations of technology and customer types when estimating future adoption. These are based on a combination of existing system sizes for customer installations and technical feasibility factors. Non-rooftop solar is included in some larger commercial, industrial, and irrigation customer bins, but these overall sizes are capped because they also include assumptions for rooftop solar installations within the same customer type bins.

b) What is the definition of the “diffusion model” used in this study?

- **Reply:** The diffusion model is based on the Bass diffusion approach for technology adoption. This approach uses segment-level adoption rate curves, customer economic metrics, and historical customer adoption as inputs to forecast future adoption of distributed generation across the PacifiCorp territory. Please refer to the forecast methodology slide deck that was presented in the May 2 stakeholder meeting for more information.

c) Does the model use different capacity factors based on location?

* Required fields

- **Reply:** Yes. Capacity factors vary by state.
- d) Will Oregon specific avoided costs – as reflected in UM 1893 Phase II - be used in the DSM forecast for the 2025 IRP? If not, will the updated EE avoided costs from UM 1893 be used in the CEP and if so, how?
 - **Reply:** No, the 2025 IRP does not use the avoided costs developed in UM-1893, though it does incorporate some of the same concepts and input assumptions, as discussed in more detail below.
 - Transmission and Distribution Capacity Credits: a comparable methodology is in the 2025 IRP, but the specific values won't be reflected in UM 1893 until after acknowledges the 2025 IRP or otherwise adopts the assumptions for use in UM 1893.
 - Generation Capacity Credits: the UM-1893 methodology uses the all-in fixed cost of a simple cycle combustion turbine. The 2025 IRP identifies the least-cost portfolio of resources needed to meet capacity requirements throughout the study horizon, based on the net cost of capacity (resource costs less the energy value the resource provides). The portfolio of resources includes varying combinations through time. The IRP modeling doesn't explicitly identify a net cost of capacity.
 - Energy prices: the UM-1893 methodology uses monthly HLH/LLH market prices as the energy value. In the IRP, the system value and marginal energy value is calculated based on the energy efficiency volumes in each hour. Heating and cooling measures tend to provide greater energy savings under more strained conditions (colder in the winter or hotter in the summer), so the value of associated energy savings may be higher than a monthly average. The prices in the IRP also reflect the impacts of a given portfolio, as plentiful wind and solar resources can result in congestion resulting in energy values that are lower than the market price.
 - Clean energy requirements: the most recent UM 1893 filing included higher avoided energy costs based on possible HB 2021 compliance requirements. The 2025 IRP will endogenously account for Oregon's HB 2021 compliance requirements and will include a combination of clean resources and new energy efficiency selections (offsets to load).

The 2025 IRP will select cost-effective energy efficiency bundles based on an optimization subject to all of the aspects described above. The cost-effective energy efficiency bundles may be modified in the CEP, based on additional analysis of possible compliance pathways.

2. May 2 Public Input Meeting - Transmission modeling:

- a) Please explain with examples how the new 2025 IRP granularity adjustments to transmission modeling would be an improvement over the previous approach.
 - **Reply:** In the previous approach, transmission options did not receive a granularity adjustment, meaning the LT model's did not benefit from the data provided by the more granular ST model. For example, on a lower granularity time-block LT model basis, due to aggregation, a transmission option may appear to be valuable during periods where enabled resources cannot effectively make use of the transmission. Giving the LT model the benefit of the ST model's more granular hourly view will improve the selections the LT model is able to make. This change will also align with the methodology that is already in place for resources.
- b) Is the ST import and export margin typically greater than the LT import and export margins?
 - **Reply:** Not necessarily, the margin could be lower indicating the transmission is not as valuable in the ST as the LT.
- c) How is LMP forecasted for both short and long-term?
 - **Reply:** The Locational Marginal Price is calculated as the value of the final MW added to a topology location in the model.

- d) How does the granularity adjustment impact interconnection transmission options that do not have flow to other bubbles? Is this kind of adjustment more in line with how flows occur in practice or is it only a modeling adjustment?
- **Reply:** The exact mechanics of modeling granularity adjustments on interconnection options has not yet been finalized. As such, PacifiCorp is not yet able to determine what the impact may be. However, transmission options that are only for interconnection and do not provide incremental transmission capacity between topology bubbles are valued in the ST model based on optimization, just like any other resource.

3. 2025 IRP recommendations based on analysis of 2023 IRP Update:

- a) PacifiCorp should continue to improve transparency and interactive improvements in the portfolio integration step to combine state policy portfolios with the system portfolio.
- **Reply:** Thank you for your feedback. PacifiCorp has implemented reporting which compares the various portfolios to show differences in resource selections between the state specific and integrated portfolios. We welcome further feedback on these reporting enhancements.
- b) PacifiCorp should report the steps taken to reduce the magnitude of reliability and granularity adjustments due to portfolio integration.
- **Reply:** Thank you for your feedback. PacifiCorp has directly engages internal and Energy Exemplar subject matter experts on an ongoing basis, and has diligently pursued enhancements to its modeling to reduce the gap between LT and ST solutions. Regarding portfolio integration, the reliability and granularity are unique to each portfolio and impact initial resource selection. The integration leverages both LT and ST results from reliable portfolios and thus mitigates the impact of initial reliability or granularity adjustments as neither are considered in the system dispatch and valuation of individual resources in the ST model. It is the more granular ST model that is used to evaluate portfolio cost and risk.
- c) PacifiCorp should improve the temporal granularity in the capacity expansion modeling to avoid the large number of modeling adjustments that incorporate sequential commitment and dispatch.
- **Reply:** At this time, with the complexity of the PacifiCorp system and to comply with state requirements and stakeholder requests, it is not feasible to increase the level of granularity in a 20 year capacity expansion run. Other stakeholders have also advocated for this change. In order to immediately improve the granularity in a 20 year run there would have to be trade-offs that have been noted as undesirable by stakeholders, such as reducing resource options available to the model, reducing the granularity of the topology, fewer options for thermal plant selections and retirements, a non-endogenous selection of transmission, and relaxed tolerances for optimality and feasibility.
- d) PacifiCorp should update the temporal configure of battery charging and discharging along with seasonal variability of renewables at the beginning of the modeling process to better capture their dynamics and possible combinations in capacity expansion analysis.
- **Reply:** Thank you for your feedback. PacifiCorp is testing a variety of modeling improvements, including updates to battery properties, renewables shapes and updated transmission constraints which are likely to meet this goal. The objective is to allow the model the maximum practical range to optimally determine resource dispatch and storage usage following hourly system conditions, which may or may not confirm to a broader notion of seasonality in any given period.
- e) PacifiCorp should layer in the fixed fuel costs at Jim Bridger and other coal plants within the PLEXOS model upfront rather than through post-processing workbooks.
- **Reply:** Thank you for your feedback. All fuel costs related directly to actual operations of coal plants are included in PLEXOS modeling. Modeling of fixed costs related to mines or other external entities is not currently contemplated in PLEXOS.

- f) PacifiCorp should provide workpapers showing how system portfolio resources are modified to support state policy decisions, as the Portfolio Optimization & Integration of state policy appears to be a new source of subjective judgement for resource selection.
- **Reply:** Please see the response to subpart a) above. The integration approach is designed to avoid subjectivity, in that resources are integrated on the basis of which portfolio include or exclude each resource. This information is used to determine which states are assumed to participate in each resource decision. The 2025 IRP will pursue great visibility into any adjustments that are not directly represented in the portfolio data.
- g) PacifiCorp should provide more detail and a thorough explanation of its approach to bringing the Bridger 3 and 4 CCUS project into service by 2029.
- **Reply:** Thank you for your feedback. Thermal unit options for the 2025 IRP are currently being developed for the August 14-15 public input meeting, and the timing for Bridger 3 and 4 CCUS is part of that development process.
- h) PacifiCorp should provide a sensitivity that shows the impact of CCUS delays on the lifetime cost/benefit of the Bridger 3 and 4 units.
- **Reply:** Thank you for your feedback. Sensitivities for the 2025 IRP are currently being reviewed in the 2025 IRP public input meeting series.
- i) PacifiCorp should engage stakeholders to develop more accurate hydrogen modeling assumptions.
- **Reply:** Updated assumptions are gathered for every IRP cycle. PacifiCorp appreciates feedback suggesting alternative data sources and considerations for hydrogen cost assumptions.
- j) PacifiCorp should provide updated Natrium assumptions that reflect actual events and project milestones.
- **Reply:** Thank you for your feedback. Assumptions for the Natrium project to be used in the 2025 IRP are currently being developed. These assumptions will reflect the most current milestones available to PacifiCorp at the time of modeling the 2025 IRP.
- k) PacifiCorp should address how asymmetric upside risk of market purchases during periods of peak demand is reflected in its market price projections. The Company should also address how declining market trading volumes are factored into the 2025 IRP model.
- **Reply:** Thank you for your feedback. PacifiCorp is exploring tightening limits on market purchases based on historical data related to peak demand days. Currently modeled market volumes are lower than historical market activity.
- l) PacifiCorp should incorporate the requirements of the finalized 111 rules into PLEXOS.
- **Reply:** As discussed in the July Public Input Meeting, PacifiCorp is planning to use EPA rule 111d as part of the 2025 IRP analysis.
- m) PacifiCorp should better consider the risks associated with emissions regulations across the west trending more toward tighter regulation to avoid over-exposing itself to regulatory risk.
- **Reply:** Risk assessment is a core function of PacifiCorp's approach to modeling and evaluation. Feedback suggesting additional data and considerations is welcome.
- n) PacifiCorp should specifically detail their Oregon-specific resource procurement strategy and the impact of its current financial position, as discussed in the May 30, 2024 Public Meeting, on this procurement strategy.
- **Reply:** PacifiCorp's Oregon-specific procurement strategy is being developed in ongoing IRP and CEP processes. In the IRP, procurement objectives may be incorporated in the action plan.
- o) Related to its levers for new resource additions in the 2023 CEP update, the Company should:
- Test multiple allocation strategies that are feasible within the context of MSP and for which the Company is willing to advocate.
 - Ensure that each allocation strategy supports simultaneous compliance with all state-level policies to which PacifiCorp is subject.

- Be transparent about allocation assumptions and their implications, including the timing of any crucial allocation decisions to support policy compliance.
- Recognize the benefits of resources allocated to Oregon to the overall portfolio and reflect those cost savings in Oregon-allocated cost estimates.
 - **Reply:** PacifiCorp is currently participating in the process to determine the timing and nature of next steps for Oregon potential procurements and other levers as introduced in the April 2024 CEP Supplement. Multiple strategies are expected to be addressed, and portfolios are expected to be compliant with all state regulatory requirements.
- p) Related to its lever for adding energy efficiency in the 2023 CEP update, the Company should:
 - Consider additional energy efficiency within Oregon to contribute to achieving HB 2021 GHG targets, support Oregon communities, and reduce the need for generation, transmission, and distribution investments.
 - **Reply:** The company's integrated portfolio selected Oregon specific energy efficiency and demand response which was incrementally higher than the original portfolio in order to meet these needs.
 - Adopt at least one Community Benefit Indicator (CBI) that reflects community benefits associated with energy efficiency selection in Oregon and recognizes the value of avoided transmission upgrades.
 - **Reply:** Avoided transmission benefits are currently a component of small scale resource planning.
- q) Related to its levers for adjusting dispatch strategies for emitting resources in the 2023 CEP update, the Company should:
 - Discuss how it intends to operationalize changes rather than just treating them as modeling assumptions.
 - **Reply:** PacifiCorp recognizes the need to describe details regarding the pros and cons of each of the levers, and what it means to operationalize particular assumptions. This analysis is planned for the 2025 CEP as the next step in the analysis introduced in the CEP Supplement.
 - Compare the total systemwide GHG emissions under the alternative operational strategy to the total systemwide GHG emissions under a business-as-usual or economic dispatch operational strategy.
 - **Reply:** System emissions are expected to be a component of reporting for each portfolio used to evaluate the levers.
- r) Related to its levers for changes to the DEQ Emissions Calculations in the 2023 CEP update, PacifiCorp should dialogue with DEQ over the coming months to determine if a change to the emissions methodology for qualifying facilities may be a worthwhile strategy to pursue.
 - **Reply:** PacifiCorp is currently engaging with DEQ related to this topic.
- s) PacifiCorp should provide analysis supporting the assumption that new natural gas plants are capable of converting to alternative fuels in the future. Further, are these plants modeled with non-emitting fuels in any of the analyses or is this just an assumption that impacts the economic life of gas plants?
 - **Reply:** In conversations with various developers, PacifiCorp has been informed that this conversion is possible as of today. New natural gas plants are modeled as operating under natural gas throughout the life of the plant and the approximate modeled cost of alternative fuels and natural gas with a carbon tax cost adder are equivalent beginning in 2040.
- t) Would PacifiCorp consider conducting an RFI prior to the 2025 IRP/CEP to better understand the market prices for new generation?
 - **Reply:** This is not under consideration at this time.

Data Support: If applicable, provide any documents, hyper-links, etc. in support of comments. (i.e. gas forecast is too high - this forecast from EIA is more appropriate). If electronic attachments are provided with your comments, please list those attachment names here.

Recommendations: Provide any additional recommendations if not included above - specificity is greatly appreciated.

Please submit your completed Stakeholder Feedback Form via email to IRP@PacifiCorp.com

Thank you for participating.

* Required fields