

PacifiCorp - Stakeholder Feedback Form

2019 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 calls, 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 2019 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 generally post all appropriate feedback on the IRP website unless you request otherwise, below.

Date of Submittal 9/21/2018

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Public Meeting Date comments address: 8/30/2018

Check here if not related to specific meeting

List additional organization attendees at cited meeting:

[Click here to enter text.](#)

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

Portfolio Development Process and Initial Sensitivity Studies

Check here if any of the following information being submitted is copyrighted or confidential.

Check here if you do **not** want your Stakeholder feedback and accompanying materials posted to the IRP website.

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

Public Utility Commission of Oregon Staff (Staff) appreciates PacifiCorp's presentation and information relating to the Portfolio Development Process and Initial Sensitivity Studies provided at the 2019 IRP Public Meeting held on Aug. 30-31, 2018. Staff offers the following comments requesting further clarity and additional information so as to more meaningfully participate in this process.

1. There was limited information presented on carbon price assumptions and what considerations PacifiCorp is taking into account for analyzing different carbon price scenarios. Therefore, Staff requests that PacifiCorp provide more detail on carbon price assumptions, including the source of the assumptions, the range of prices considered, the analysis of different carbon price scenarios, and how a carbon price is ultimately modeled.

PacifiCorp Response:

Carbon price assumptions were discussed in more detail at the September 27-28, 2018 public input meeting.

2. There are a number of uncertainties that impact the preferred portfolio. At the August 2018 input meeting, the company indicated its willingness to explore "extreme book-end" outcomes. Staff finds that this would be a useful exercise for a number of sensitivities, including a mix of options and decisions around current unknowns such as the outcome of stayed regional haze decisions, continued study of the company's coal fleet economics, the outcome of the multi-state process (MSP), and proposed federal and state carbon policies. Making assumptions regarding these unknowns and combining certain decisions would be useful in order to see how changes and combinations impact costs and selected resources, especially because there could be decisions

* Required fields

made prior to the next IRP cycle. For example, Oregon’s cap-and-invest bill did not pass in 2018 but is expected to be reintroduced in 2019. If the bill remains largely unchanged, then the policy could go into effect as early as 2021, which is before the company’s next IRP filing and thus analysis here is relevant. Staff proposes the following as sensitivities the company should investigate individually and combined:

- a. Regional Haze: all legal obligations must be met, including the stayed Utah decisions
- b. Federal Carbon Policy: incorporate heat rate improvements as guided by EPA’s recently proposed Clean Power Plan replacement called the Affordable Clean Energy rule.
- c. State Carbon Policy: (1) assume the most recently proposed cap-and-invest bill in Oregon passed, (2) assume the most recently proposed carbon tax in Washington passed, (3) assume high, medium, and low carbon prices that are consistent with the allowance price forecasts for the cap-and-trade market administered by the California Air and Resource Board.
- d. Social Cost of Carbon: use EPA mid as guidance.

PacifiCorp Response:

PacifiCorp intends to conduct a number of "book-end" sensitivities, including high-load forecast and low-load forecast as an example. Portfolios will also be run through a number of price policy scenarios, including high gas, high CO₂, low gas no CO₂ bookends.

- a. PacifiCorp will conduct a reference case that addresses known regional haze obligations assuming the potential that all legal obligations must be met as one “extreme book-end”. PacifiCorp will also assess other known and potential alternative regional haze outcomes that include potential negotiated early retirement of units as a beneficial compliance and economic outcome for PacifiCorp customers, in-lieu of selective catalytic reduction system installation.
 - b. Environmental Protection Agency (EPA)’s recently proposed Affordable Clean Energy (ACE) rule identifies candidate heat rate improvement (HRI) projects that individual states will incorporate into implementation plans to be submitted for EPA review and approval within three-years following promulgation of the ACE rule. The EPA has not prescribed specific HRI requirements or guidance beyond the list of Candidate Technologies for individual plants as part of its proposed rulemaking, as it expects individual states to determine the most appropriate compliance path for their states and affected steam generation resources.
 - c. PacifiCorp presented its assumptions on CO₂ policy at the September 27-28, 2018 public input meeting and revised assumptions in the October 9, 2018 public input meeting.
 - d. PacifiCorp will study effects of social cost of carbon in addition to high and low CO₂ price-policy scenarios.
3. In slide #73, PacifiCorp states that diversity is a key element in the process of creating portfolios. OPUC Staff agrees. However, PacifiCorp also verbally explained that diversity is a subjective measure, and that there could be differing definitions among stakeholders about what would be considered ‘sufficiently diverse’. OPUC Staff believes there is a quantitatively transparent and justifiable method to create a minimum range of possible future scenarios by using the variation in its load forecast.

Staff has earlier expressed that PacifiCorp should display the uncertainty inherent to their modeling: a more complete explanation can be found in the previous Public Input Meeting input form. This uncertainty can be straightforwardly expressed in an econometric forecast as a prediction interval. Oregon PUC Staff is also interested in learning more about methods to depict uncertainty created from end-use models. Aggregated, Oregon Staff believes that PacifiCorp can and should display an appropriate level of uncertainty in their forecast.

Load forecast uncertainty can directly inform portfolio creation. As load is a core input in all future scenarios, the revenue requirements associated with the highest and lowest reasonable estimates of load change over the next 20 years will create a wide range of possible futures. At a minimum, the revenue requirements associated

with a 'diverse' set of portfolios should span this range. Additional uncertainty surrounding other key variables (natural gas prices, carbon regulation, etc.) would push this range of possible revenue requirements higher, so the load forecast uncertainty will create only a minimum bar for uncertainty. Oregon Staff looks forward to working with PacifiCorp and other stakeholders to ensure a reasonable, transparent, and justifiable method of portfolio selection is used in this IRP.

PacifiCorp Response:

Similar to previous years, PacifiCorp will conduct high/low load scenarios for the 2019 Integrated Resource Plan (IRP) that will incorporate the optimistic and pessimistic economic driver data. Further, the 2019 IRP high/low load scenarios also incorporates the standard error bands for the forecasted energy and the peak forecast to determine a 95% confidence band around the base IRP forecast. This topic was further discussed at the September 27-28, 2018 IRP public input meeting.

4. On slide 74, PacifiCorp explained its process of preliminary and initial screening, including the evaluation of upper-tail mean PVRR. Oregon Staff is concerned by this adjustment, as it is unclear why any upper-tail risk adjustment would not also include a similar lower-tail risk adjustment. Oregon Staff asks that PacifiCorp either adjust its portfolio screening process or justify this method in future a Public Input Meeting.

PacifiCorp Response:

PacifiCorp will continue to conduct robust cost and risk analysis of its portfolios, see 2017 IRP Chapter 7 Modeling and Portfolio Evaluation Approach for more detail. At this time, PacifiCorp does not intend to conduct lower-tail risk analysis, as the IRP selection process is based on cost and risk, but not inherently on cost, risk, and opportunity. A lower-tail opportunity could be calculated from the information contained in the stochastic Planning and Risk model (PaR) results.

5. Oregon Staff appreciates the Utah Commission's requirement that PacifiCorp develop resource acquisition paths in the IRP. By identifying acquisition strategies that correspond to actual situations in the future, PacifiCorp will connect in a transparent process the IRP and any RFPs it pursues. For this IRP, Oregon Staff believes that these acquisition paths should be created by the credible variation generation load forecasts. As an example, in the 2017 IRP, PacifiCorp provided near- and long-term acquisition strategies for high/low load forecasts. Oregon Staff believes PacifiCorp can improve this by quantifying both the sensitivity (say +/- 1.96 standard deviations in load growth) and the result (corresponding SO/PaR model results), which would create a more credible and transparent path forward.

PacifiCorp Response:

Please refer to PacifiCorp response to question three above. The high and low load forecast sensitivities will be studied using the IRP System Optimizer and Planning and Risk models.

6. PacifiCorp mentioned that it will again use one average price of carbon compliance in the 2019 IRP (as it has in earlier IRPs and updates). Oregon Staff believes that PacifiCorp can improve this methodology. Western states either already have carbon legislation (California) or may soon (Washington & Oregon). Conveniently, many expect a linkage between the three markets. PacifiCorp's Eastern states (Wyoming, Utah, and Idaho) currently have no plans to add a price to carbon pollution. While we certainly imagine some of the difficulties and complexities that interstate regulation adds to the analysis, Oregon Staff believes it is a worthwhile endeavor now, as carbon legislation will likely increase in complexity going forward.

PacifiCorp Response:

Please refer to PacifiCorp's response to question two above.

7. Please explain in detail how the Strategic Business Plan impacts assumptions used in the core cases from one IRP filing to the next.

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PacifiCorp Response:

Due to timing differences in assumptions made during an IRP cycle and business planning cycle, the IRP preferred portfolio may inform the business plan, however the business plan may not be identical to the prior IRP's preferred portfolio. PacifiCorp conducts a sensitivity in its IRP to identify the present value revenue requirement impacts of the business plan portfolio assumptions relative to a portfolio considered in the final screening stage of the IRP.

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.

[Click here to enter text.](#)

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

[Click here to enter text.](#)

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

Thank you for participating.