

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 7/23/2019

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Address: Click here to enter text.

City: Click here to enter text. State: Click here to enter text. Zip: Click here to enter text.

Public Meeting Date comments address: 6/21/2022 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.
Coal, transmission, storage.

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.

Since PacifiCorp's June 20-21 IRP meeting, Oregon Staff have conducted a detailed review of the company's presentation. Oregon Staff appreciates the significant effort of the company's IRP team and its consistent engagement with stakeholders. Nonetheless, Oregon Staff requests the company use this additional time prior to filing the IRP in October to restore stakeholder confidence in the modeling process and to address what staff has identified as deficiencies in the modeling provided to date through additional portfolio analysis on coal retirements, transmission options, and storage.

Part 1. Coal Study Analysis

PacifiCorp should follow a proper sequence in building its portfolios to allow stakeholders to see that the coal study informs the IRP portfolios, as presented in PacifiCorp's December 2018 portfolio matrix.

1. OPUC Staff refers to PacifiCorp's LC 70 Compliance Filing from October 2, 2018
<https://edocs.puc.state.or.us/efdocs/HAD/lc70had154010.pdf>

* Required fields

as well as PacifiCorp's September 28, 2018 Portfolio Development Matrix.

http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2019_IRP/2019_IRP_Portfolio_Dev_Matrix.pdf

These documents show that PacifiCorp was to identify economic early retirements, and that, "results from the coal study will be used to develop additional retirement scenarios that consider Regional Haze compliance alternatives in the subsequent portfolio development process in the 2019 IRP." This spring, OPUC Staff believed that PacifiCorp was in the process of building portfolios following the sequence described in PacifiCorp's December 2018 portfolio matrix. However, in May, PacifiCorp deviated from its portfolio development matrix, stating on page 3 of its presentation that "portfolios that capture regional haze compliance scenarios and alternative economic retirement assumptions relative to those assumed in Case C-42 from the coal studies may provide greater benefits for PacifiCorp's customers."

http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2019_IRP/2019_IRP_Portfolio_Dev_Matrix.pdf

What resulted were portfolios with Gadsby units retiring and Naughton 3 converting to natural gas, options that added additional variables and complexity to the modeling. This added complexity is one reason Staff is requesting additional portfolio analysis in the 2019 IRP.

Additionally, PacifiCorp did not systematically apply the top ranked coal study portfolio (C-35 in the June presentation) to a Regional Haze (RH) reference case, a Regional Haze intertemporal case (such as the 2017 IRP Update preferred portfolio), a Naughton small gas conversion, and a Naughton large gas conversion, as contemplated in the December 2018 portfolio development matrix. The portfolio tree that PacifiCorp based on one stacked portfolio from the coal study, C-42, did not consider the possibility of retiring only one Jim Bridger unit, an outcome which PacifiCorp retroactively found to be a characteristic of the most cost-effective coal portfolio after correcting certain errors in the analysis.

- OPUC Staff requests that PacifiCorp present portfolio analysis in the sequence that was described in the December 2018 Portfolio Development Matrix. If PacifiCorp cannot sequence its IPR portfolios so that they begin with the top-performing coal study, then it should at least thoroughly explain why a family tree begins with a given "parent", and how that parent compares to the top portfolio from the coal study and increases the benefits identified in the coal study.
 - PacifiCorp should also provide an explanation of how benefits from the coal study are a foundational building block for IRP portfolios.
 - OPUC Staff requests that PAC run new unit-by-unit 2022 retirement analysis for Jim Bridger 1, Naughton 1, Hayden 1, Hunter 1, and Craig 1 in order to provide a spot-check demonstrating the impact of all of the modeling changes and updates to the original unit-by-unit analysis.
2. PacifiCorp should provide more visibility into the supply curve for replacement resources over time such that stakeholders can better understand the point at which the cost to fill additional capacity need may outweigh the benefit of retiring resources.

- Oregon Staff requests that PacifiCorp identify the magnitude in MWs economic early retirements that it can accomplish in the action plan window, and provide an explanation of why this is the limit of economic retirements achievable in the near-term without moving up the supply curve to more expensive replacement resources. This “tipping point” analysis would convey the relationship between magnitude and timing of least-cost retirements with incremental costs of replacement resources
3. PacifiCorp should provide clear explanations and additional analysis of Jim Bridger’s (units 1&2) regional haze assumptions and the impact on optimal retirement date.

Before the coal study began, OPUC Staff understood from the 2017 IRP Update (page 74-75)

http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2017%20IRP%20Update/2017_IRP_Update.pdf

that there is an approx. \$83 million cost of SCR installation for Jim Bridger 1 and 2 in 2021/2022 and running the plants to 2037, compared to 2028/2032 retirements for these units with no SCR. Stakeholders disputed the feasibility of no SCR, 2028/2032 early retirement dates in PacifiCorp’s 2017 Utah IRP proceeding,

<https://pscdocs.utah.gov/electric/17docs/1703516/3005351703516rao3-2-2018.pdf>

and in the OPUC’s proceeding on Idaho Power’s 2017 IRP (OPUC declined to acknowledge 2028/2032 for Idaho Power in Order No. 18-176). <https://apps.puc.state.or.us/orders/2018ords/18-176.pdf>

Thus, OPUC Staff has closely watched the coal study results on Jim Bridger 1 and 2, to learn whether there are cost savings achievable through retirement dates for the Jim Bridger units other than 2028/2032 (units 1 and 2) and 2037 (units 3 and 4.)

- With OPUC Order No. 18-176 in mind, OPUC Staff requests a narrative explanation of how the company will support its Regional Haze assumptions for Jim Bridger 1 and 2. What is PacifiCorp’s justification for assuming a 2021 SCR installation requirement could be avoided with a 2028/2032 retirement plan?
- PacifiCorp should put further effort into finding cost-effective portfolios using alternate retirement dates for JB 1 & 2. This should include analysis of reasonable alternate sets of JB 1 & 2 retirement dates in the 2019 IRP. For example, a portfolio with JB 1 retiring in 2024 and JB 2 retiring in 2028. This could take the form of P-03, except:
 - Cholla retires in 2020
 - Naughton 3 Large gas conversion
 - JB 1 retires in 2024, no SCR
 - Naughton 1 & 2 retire in 2025
 - JB 2 retires in 2028, no SCR

- Additionally, PacifiCorp should analyze a portfolio that prioritizes JB 3 & 4 retirements, since these units were also among the most cost effective to retire early in the coal study. This analysis could take the form of P-03, except:
 - Cholla retires in 2020
 - Naughton 3 Large gas conversion
 - JB 3 retires in 2024
 - Naughton 1 & 2 retire in 2025
 - JB 4 retires in 2028

- Staff notes that the Hunter units have some of the higher costs of PacifiCorp’s coal units, in terms of average fuel cost.¹ PacifiCorp should consider at least one coal retirement scenario that includes early Hunter 1 retirement, or else explain why Hunter early retirement is not a cost-effective option.

- Additionally, If C-35 is still the coal portfolio with the greatest benefits after all relevant updates and corrections have been applied, Staff requests an additional portfolio with analysis of early retirement of Naughton 1 and 2 and only one Jim Bridger unit. Staff notes this could be achieved by running P-03 except:
 - Cholla retires in 2020
 - Naughton 3 Large gas conversion
 - JB 2 Retires in 2024
 - Naughton 1 and 2 retire 2025

- Explanation around the costs and benefits modeled for the Jim Bridger units is also requested, including quantification of grid services provided by the units, costs of replacement resources, and total annual energy provided by the units.

Because Jim Bridger unit retirements before 2028 showed some of the greatest potential benefits in the coal study, these alternate JB retirement portfolios would prioritize early retirement of JB units. PacifiCorp should look closely for optimal Jim Bridger unit retirement scenarios by analyzing the portfolios suggested above and any others that may increase benefits through alternate JB retirement dates.

Part 2. Transmission Analysis

PacifiCorp should remove any special model adjustments for Energy Gateway South, and add B2H as an option in each portfolio, to allow all transmission options to be evaluated on a comparable basis.

1. OPUC Staff is concerned that PacifiCorp has limited the transmission options available to the model such that the model may not be able to choose the optimal portfolio. PacifiCorp should add B2H to the

¹ PacifiCorp 2016 FERC Form 1.

* Required fields

“Transmission Integration Cost by Location and Capacity Increment” list of transmission options available to the model. The SO model should be able to select either B2H or Gateway South endogenously in any year starting with 2024 (as a surrogate for year-end 2023).

- OPUC Staff asks that PacifiCorp remove the 2028 restriction on Gateway South, and add B2H as a transmission option, in all portfolios. On page 8 of the June public input presentation, row 5 of the blue family tree contains several different portfolios with Gateway South in different years (2023 and 2028), and OPUC Staff believes the proper approach is for the model to be able to select B2H or Gateway South in 2024 or any year thereafter.
- PacifiCorp should make visible the impact of utilizing all freed-up transmission from retired units or from reduced operations at coal units for each portfolio. At a minimum, demonstration of this modeling effect should be made available for the top portfolios.
- OPUC Staff requests that PacifiCorp specifically demonstrate that the model is recognizing the freed-up transmission capacity at retired coal sites in the top coal study portfolios, and that those low cost replacement resources are also present in the top IRP portfolios.
- Please explain how the model is able to use freed-up transmission from reduced operating minimums. For example, on page 3 of the April 25, 2019 IRP Presentation, PacifiCorp states that it will conduct additional analysis for existing coal units including reduced operating minimums. Did PacifiCorp conduct this analysis and did PacifiCorp make that freed-up transmission capacity available for replacement renewable resources?

Part 3. Storage

PacifiCorp should run its top portfolio with a focus on near term pumped storage instead of near term battery.

1. A feedback form submitted by National Grid on February 5, 2019 suggested that PacifiCorp’s method of calculating capacity factors of storage resources may be undervaluing long-duration storage such as pumped hydro.
 - To test whether long-duration storage could make PacifiCorp’s portfolios more cost effective, PacifiCorp should re-run its preferred portfolio (once the preferred portfolio is determined) in PaR, except replace 100-200 MW of near-term battery storage with long-duration pumped hydro. If this results in a cost-effective reliability improvement, then PacifiCorp should develop a new portfolio around this change.

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.

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

Thank you for participating.

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