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 5/15/2019

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Public Meeting Date comments address: **4/25/2019** ☐ 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.

April 25, 2019 Updated Coal Analysis

☐ 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.

1. In December, PacifiCorp indicated that they would assess alternative retirement dates for the least economic coal plant units (2022, 2025, 2028, and 2031). Does PacifiCorp still plan to assess these alternative retirement dates?

PacifiCorp Response:

1.

For the December 3-4, 2018 public input meeting, PacifiCorp conducted alternate year studies for the coal studies. PacifiCorp is also evaluating early retirement scenarios with alternative retirement dates as part of the portfolio-development phase of the 2019 Integrated Resource Plan (IRP). Some of these cases were presented at the May 20-21, 2019 public input meeting, and additional updates will be provided at the June 20-21, 2019 pubic-input meeting.

2. We understand that the additional analysis that PacifiCorp has not yet performed includes Energy Gateway transmission cases.

2a. Does PacifiCorp intend to change the Energy Gateway West transmission line project? If so, then how will PacifiCorp change the transmission line, by schedule, route or in service dates?

2b. The proposed early retirement of the Naughton and Bridger units would free-up the capacity on the existing transmission line. Is it necessary to complete Gateway West by December 2020 if the coal plants are retired?

2c. If PacifiCorp still plans to complete the line to Bridger by December 2020, how has the delay in the construction plan submitted to the Wyoming Public Service Commission ("PSC") in June 2017 affect the deadline?

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PacifiCorp Response:

2, 2a-c.

PacifiCorp will maintain the necessary permits for segments of Energy Gateway through each segment's ultimate planning and construction schedule. As customer load and system reliability needs are identified that support the respective construction phases, the projects will be ready to move forward. Reliability issues are identified through planning studies as part of the North American Electric Reliability Corporation (NERC) reliability standard transmission planning assessment (TPL)-001-4, PacifiCorp annually performs reliability assessments on the 1 or 2-year, 5-year and 10-year future power system models to determine the needs of the transmission system to reliably serve peak load projections. The peak load represented in the models used in the TPL planning studies are based on the load-and-resource projections submitted to PacifiCorp by different load-serving entities. New transmission mitigation such as new lines or other transmission modifications are based on the reliability needs identified in this TPL assessment. The outstanding segments of Energy Gateway would be identified as part of the system reliability needs if additional load was added to PacifiCorp's system or if generation resources are retired.

3. Are the transmission line and wind projects still scheduled to be completed by December 2020?
3a. Has the construction for these projects started? The original filing before the Wyoming PSC showed construction would start in November 2018.
3b. Will PacifiCorp consider in its risk assessment of replacement resources for coal the possibility of the transmission line and wind projects not being completed in time to receive 100% of the benefits of the production tax credit?

PacifiCorp Response:

3.

Yes. PacifiCorp's Energy Vision 2020 projects are on-track to be completed by December 2020.

3a.

Construction of the Aeolus-to-Bridger/Anticline transmission line has started. The repowering of existing wind facilities has started, and construction of the new TB Flats wind facility has commenced. Construction of the new Ekola Flats and Cedar Springs wind facilities will commence in the near-term.

3b.

Please see response to 3 above.

4. PacifiCorp also plans to analyze regional haze compliance alternatives for the next meeting. In the current coal analysis, is the cost of environmental upgrades considered in the emissions cost saving from retiring the unit?
4a. What are the factors to be considered in regional haze compliance alternatives?
4b. Does the cost savings analysis include the future risk of a carbon tax?

PacifiCorp Response:

4.

The reduced costs associated with avoidance of regional haze compliance costs for selective catalytic reduction systems (SCRs) at Jim Bridger Units 1 and 2 are included in the economic analysis. These costs show up as reduced capital costs, not as potential carbon dioxide (CO_2) emission cost savings.

4a.

Regional haze and alternative economic retirement cases were reviewed at the May 20-21, 2019 public-input meeting, specifically slides 16-20. PacifiCorp has designed cases to evaluate regional haze compliance alternatives for Cholla 4 (earlier retirement), Naughton 3 (early retirement or gas conversion of varying sizes), and Jim Bridger 1-2 (installation of SCRs, early closure of varying dates). PacifiCorp is evaluating the results from these studies in the context of broader economic retirement cases.

4b.

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The portfolio analysis includes a medium CO_2 price assumed to begin in 2025. PacifiCorp will study portfolios that include no CO_2 price, a high CO_2 price, and a social cost of carbon. PacifiCorp expects to review these studies at the June 20-21, 2019 public input meeting.

5. What is included in the decommissiong cost of retiring a coal plant unit?
5a. Is PacifiCorp including the reclamation cost of closing a coal plant, including the cost to remediate the coal ash disposal sites?
5b. Has PacifiCorp identified the source of elevated readings of arsenic, cadmium, and radium at the groundwater monitoring sites?
5c. Naughton 3 was put on standby in January 2019, when will PacifiCorp begin actual closure and redemidation?
5d. What are the estimated costs of plant decommissiong and do they include remediation of coal ash?

PacifiCorp Response:

5, 5a.

As a regulated utility, PacifiCorp is required to book asset retirement obligations (AROs) to ensure that the costs associated with decommissioning generation facilities at the end of their useful lives is accounted for and planned into PacifiCorp's operating plans. PacifiCorp conducts ongoing studies to evaluate the cost of decommissioning to ensure that AROs reflect the anticipated cost of decommissioning, including the remediation of coal ash and these costs are factored into PacifiCorp's analyses.

5b.

All PacifiCorp coal combustion residual (CCR) landfills and impoundments in the state of Wyoming are permitted with the Wyoming Department of Environmental Quality. PacifiCorp also maintains strict compliance with the Environmental Protection Agency's (EPA's) CCR Rule, which became effective in 2015. PacifiCorp has conducted ongoing ground water monitoring and reporting at each landfill and impoundment since the late 1990s. All impacts to groundwater have been identified and have been remediated or are being remediated with Wyoming Department of Environmental Quality oversite. As required by the CCR Rule, the results of PacifiCorp's CCR constituent detection and assessment monitoring, along with any applicable corrective measures assessments, are made publicly available on PacifiCorp's website.

5c.

PacifiCorp is currently maintaining plans to convert Naughton Unit 3 to a natural gas fueled generation resource. There are no current plans to begin demolition and site remediation of that unit stand-alone. PacifiCorp currently expects that demolition and remediation of Naughton plant infrastructure, particularly Naughton Units 1 through 3, would occur following retirement of the last operating unit on the site. That assumption is subject to change as market conditions, regulatory drivers, laws and regulations change over time.

5d.

A dollar per kilowatt (kW) assumption of cash decommissioning costs is included in the IRP to account for the potential change in timing for which these costs could be incurred. Decommissioning cost assumptions for individual plants are confidential but do incorporate closure costs for coal combustion residuals infrastructure on each site.

6. What will the reclamation schedule for the coal plants look like?
6a. What about the reclamation of captive mines that PacifiCorp owns all or a share of?

PacifiCorp Response:

6, 6a.

Reclamation schedules will depend on final resource decisions. No resource decisions have been made at this point in the integrated resource planning process. Nonetheless, timing implications of mine reclamation costs are factored into PacifiCorp's analyses.

7. How will the community impact of retiring the coal plants inform or add to the analysis of whether to retire the coal plants early?
7a. How do these secondary and tertiary impacts caused by coal plant retirements influence retail and wholesale rates born by PacifiCorp customers?

* Required fields

PacifiCorp Response:

7, 7a.

PacifiCorp is required by state regulatory commissions to develop its IRP from the perspective of its 1.9 million retail customers. The IRP establishes a data set that includes potential changes to present-value revenue requirement under a range of different planning scenarios over a twenty-year timeframe. The data set also establishes a number of risk metrics (stochastic risks, emissions, timing, technology risks, etc.). Together, these cost and risk data points facilitate quantification of costs (as measured by relative changes to present-value revenue requirement) and risks. PacifiCorp can use these data to inform its ultimate resource actions, with consideration given to employee and community impacts. For instance, the myriad of planning cases considered in the IRP could show a range of potential outcomes that are similar in overall cost and risk profiles from the perspective of our 1.9 million retail customers but that might be significantly different from the perspective of specific employee groups or communities. Under such a scenario, PacifiCorp would pursue a path that is in the interest of its retail customers while also reasonably mitigating potential impacts of resource decisions on employee groups and communities.

8. In January 2019, PacifiCorp had indicated that there were limited power storage options for the wind farms and the batteries could store about four hours when the turbines cannot operate due to too little or too much wind. PacifiCorp also stated that it was working on a better solution. In less than three months, to model presented on April 25, 2019 relies heavily on batteries on batteries to meet reliability requirements in the early years as shown in the stacked cases C-36 through C-43 in the April 2019 presentation.
8a. Has there been a technological breakthrough in storage?

8b. What else changes in the model to produce reliance on batteries as a near-term solution to meet variability and system demands?
8c. Is this in addition to the amount of battery storage (about 200 to 600 MW depending on the stacked case) used annually to replace the lost capacity from early coal retirement?
8d. Are their enough batteries out there currently to store this amount of power for long enough to still be reliable?
8e. What will be the cost and how does this affect the rate structure?

PacifiCorp Response:

8, 8a.

The overall penetration of storage resources is influenced by PacifiCorp's review of reliability obligations, which was absent from the results presented at the December 3-4, 2018 and subsequently discussed in January 24, 2019 public input meetings. PacifiCorp's battery assumptions for energy storage resources are based on operational considerations from its 2018 Renewable Resources Assessment, available online under 2019 IRP –at the following: www.pacificorp.com/es/irp/irpsupport.html.

8b-e.

Battery resources are included in all cases, including cases that do not assume accelerated retirement of coal units. The volume and timing is impacted by early retirement assumptions. Based on the cost and performance assumptions for this type of technology, battery resources help to maintain system reliability by providing operating reserves (system capacity). These technologies can also help manage net power costs by producing energy during high-cost periods and storing energy during low-cost periods. Importantly, the battery resources in the proxy resource portfolios compliment other resources on PacifiCorp's system, including existing coal resources, existing and new natural gas resources, Class 1 demand-side management (DSM) resources, and energy efficiency. The overall combination of these resources provides sufficient energy and capacity to reliably meet our customers' needs. The batteries included in resource portfolios are proxy new resources and are not currently operational. Please refer to the cost and performance assumptions referenced in the response above.

9. To what extent, if at all, have models implementing battery storage accounted for recent, and significant, explosions of lithium batteries and what risk do such explosions pose to reliability of stacked cases mentioned above?

PacifiCorp Response:

9.

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PacifiCorp is aware of the recent fire associated with a battery resource in Arizona and is monitoring the ongoing investigation of this tragic event. IRP modeling has not assumed any specific costs or reliability implications associated with explosions of lithium ion batteries.

10. PacifiCorp is not proposing to accelerate the planned retirement of its entire coal fleet. The focus on the Naughton Plant that uses Kemmerer coal shows that PacifiCorp proposes to retire the highest quality coal first. How has the quantity and quality of various classes of coal in different parts of the region factored into the retirement analysis?

PacifiCorp Response:

10.

The retirement analysis is based on modeled outcomes that includes unit-specific cost and performance data for the unit or units being analyzed in any given stacked case. Coal quality is not a direct driver; however, coal cost and unit efficiency is an important element to variable fuel costs that are factored into the analyses.

11. In the analysis of cost savings, what were the discrete factors considered?
11a. Does the savings calculation include the potential for a carbon tax proposed in 2017 and 2018?
11b. If the savings calculated included the risk of a carbon tax, what percent of the savings is it?
11c. Does the savings calculation reflect the lower taxes that RMP would pay to the State of Wyoming and Lincoln and Sweetwater Counties?
11d. How much did RMP pay the State of Wyoming in severance taxes for its coal mine properties in Sweetwater County in 2018?
11e. How much does RMP pay in federal royalties?
11f. How much did RMP pay Lincoln and Sweetwater Counties in special use taxes in 2018 and 2017?

PacifiCorp Response:

11a-b.

Cost savings reflect all forward-looking operating costs for a given unit. This includes fuel cost, operations and maintenance costs, run-rate capital costs, capital costs for environmental upgrades (as applicable), decommissioning costs, and CO_2 emissions costs tied to an assumed CO_2 tax starting in 2025 (the impact of CO_2 price assumptions and the associated potential cost savings can be derived from the detailed results from the April 2019 public-input meeting beginning at slide 14, which show line item cost savings for emissions specific to the coal units being analyzed for a given case and the associated impact of emissions costs for the rest of the system). All forward-looking capital costs are assessed as a contribution to revenue requirement, which includes depreciation, return, income taxes, and property taxes. The economic analysis does not explicitly include embedded rate base and its contribution to revenue requirement as it is assumed that PacifiCorp will get recovery of these costs regardless of future resource decision outcomes.

11c.

Property taxes are included in the analysis as an operational cost and therefore part of the cost savings incurred in the scenario of an early plant closure.

11d-f.

Severance taxes, royalties, and special use taxes to the extent they apply to PacifiCorp's generation resource operating costs are contemplated in IRP data sets.

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.
The Coalition recommends that PacifiCorp conduct an analysis for the IRP that takes into account the fact that FERC may require new capacity resources (e.g. wind utilities, solar utilities, etc.) to offer their capacity at prices that are at or above a price floor set for each type of resource. FERC has adopted a Minimum Offer Price Rule as the "standard

* Required fields

solution" to address the impacts of state policies on the wholesale capacity markets and thus PacifiCorp must evaluate the impact of a MOPR in its IRP. See Connecticut Dep't of Pub. Util. Control v. F.E.R.C., 569 F.3d 477, 484 (D.C. Cir. 2009) ("Where capacity decisions about an interconnected bulk power system affect FERC-jurisdictional transmission rates for that system without directly implicating generation facilities, they come within the Commission's authority.").

PacifiCorp Response:

PacifiCorp does not operate in a structured wholesale capacity market and PacifiCorp is not planning to produce this type of scenario.

The Coalition also recommends that PacifiCorp revise its analysis to consider what would occur if the renewable resource mandates from other states were set aside as unconstitutional. See Wyoming v. Oklahoma, 502 U.S. 437 (1992) (holding that Oklahoma statute that limits import of no more than 10% of Wyoming coal was unconstitutional since the discrimination was not demonstrably justified by a valid factor unrelated to economic protectionism).

PacifiCorp Response:

None of the studies produced to date by PacifiCorp include renewable resources to specifically meet renewable portfolio standard requirements for specific states. All renewable resources being selected by the System Optimizer model in all portfolios are being selected as a least-cost mix of proxy resources required to meet load over time. Consequently, all cases developed through the coal studies and presented at the May 20-21, 2019 public input meeting already meet this request.

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

Thank you for participating.

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