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 5/14/2019

*Name: Nate Sandvig Title: Director, US Strategic Growth

*E-mail: Nathan.Sandvig@nationalgrid.com Phone: 503.602.0998

*Organization: National Grid Ventures

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: **4/25/2019** ☐ Check here if not related to specific meeting

List additional organization attendees at cited meeting: David Howarth

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

Updated Benchmark Case
Stacked-Retirement Summary Results
Reliability Assessment

☐ 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.

Thank you for providing an update on the modeling you have performed to evaluate the potential benefits of closing certain coal plants in advance of their currently scheduled retirement dates. Recognizing that additional analysis is needed to further evaluate these potential retirements in the context of developing a least-cost/least-risk portfolio and associated action plan, National Grid and Rye Development offer the following comments on the materials presented at the April 25, 2019 IRP public input meeting.

Updated Benchmark Case and Reliability Assessment

We note that the Benchmark Case portfolio (in which coal plants are retired as currently scheduled) involves a significant reliance on front-office transactions (FOTs) and the addition of natural gas peaker generation. In the period through 2027, the Benchmark Case includes 500-1,000 MW of summer FOTs, after which the assumed reliance on FOTs to provide firm summer capacity approaches the 1,425 MW limit established by Pacificorp for purposes of the 2019 IRP.

As recently noted by Randy Hardy in a white paper titled “Future Northwest Capacity Shortages,” there are a number of recent developments combining to put pressure on resource supply adequacy in the PNW that have implications for

whether utilities in the region can continue to rely on FOTs to provide reliable planning capacity. As noted by E3 in January 2019, load growth and already announced coal plant retirements will lead to an 8,000 MW deficit through 2030. Loss of Colstrip 3 and 4 following passage of Washington's 100% clean energy legislation would increase the capacity deficit to 9,500 MW, not including any additional early retirements proposed by Pacificorp.

In the context of the WA clean energy legislation and Oregon's proposed establishment of a carbon cap and trade program, it is becoming increasingly apparent that policymakers in Washington and Oregon, at least, do not see the development of natural gas as a prudent approach to meeting the region's electrical needs. As a result, the hurdle for permitting new gas projects is likely to become more difficult to pass and, as has been observed in California, may become nearly impossible.

The resulting market supply uncertainty is being seen across the WECC. As Pacificorp correctly notes on p. 39 of its presentation, there are over 14 GW of scheduled retirements of dispatchable resources in the WECC by 2025, with very little planned additions.

To manage the risk associated with these market developments, we recommend that Pacificorp reduce the assumed availability of FOTs for the purpose of providing reliable capacity for portfolio planning purposes and even include a bookend scenario in which Pacificorp reduces its FOT reliance to zero. Pacificorp should do this when establishing its Benchmark Case portfolio, as well as when evaluating price-policy portfolios for development of its least-cost/least-risk preferred portfolio.

Likewise, Pacificorp should also evaluate scenarios in which no new fossil-fuel plants are added, including natural gas peakers.

During its discussion of the coal retirement results, Pacificorp expressed reservations about relying on large quantities of battery storage capacity and has flagged for additional analysis risk assessment of near-term replacement resources. National Grid and Rye development agree that there are risks associated with battery storage, including supply-chain constraints and operating performance risks. Given the clear conclusion from the studies performed to date that energy storage will play a significant role in providing flexible capacity as part of any future resource plan, Pacificorp can mitigate these risks by constructing portfolios with a mix of storage resources, including batteries and pumped hydro storage. To provide proper signals to the market, Pacificorp should consider such risk mitigation factors not just during the procurement phase, but also now as it develops its IRP preferred portfolio.

Stacked-Retirement Summary Results

Overall, Pacificorp's presentation of the detailed stacked-retirement results was relatively clear, which is an accomplishment given the underlying complexity of the modeling. We are concerned with Pacificorp's summary presentation, however, particularly with respect to Pacificorp's presentation of the CO2 emission cost savings as a percentage of the overall benefit. While the algebra is correct, the implication when that percentage exceeds 100% is that the only benefit of early retirement comes from avoiding CO2 emissions costs. Although unstated in the summary, we are concerned that there is a message that the CO2 emissions cost savings should be discounted when reviewing the results, as if there is doubt that the costs are a real driver of Pacificorp's future revenue requirement (let alone the societal cost). Given the undeniable science that the costs of CO2 emissions are real, and the increasing internalization of these previously external costs through cap and trade and 100% clean energy requirements, Pacificorp should take care not to single out these costs when presenting its results.

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.
Future Northwest Capacity Shortages, Randy Hardy,
https://www.midcseminar.com/Presentations/Future%20NW%20Capacity%20Shortage_Final.pdf

---

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