

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 2024-08-09

*Name: Jon Martindill

Title: _____

*E-mail: jon@npenergyca.com

Phone: _____

*Organization: NP Energy LLC

Address: _____

City: _____

State: _____

Zip: _____

Public Meeting Date comments address: 06-27-2024

Check here if related to specific meeting

List additional organization attendees at cited meeting:

Nick Pappas, Max Greene, James Himelic

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

Non-Emitting Peakers - Hydrogen fuel availability

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.

RNW seeks additional analysis and due diligence from PacifiCorp regarding its hydrogen cost and availability assumptions. Non-emitting peakers play a large role in PacifiCorp's 2023 IRP, and an even greater role in the 2023 IRP Update. The 2023 IRP includes 1,240 MW of non-emitting peakers by 2036. In the 2023 IRP Update, all gas peakers are assumed to be capable of transitioning to hydrogen, an assumption that extends the modeled operational life of all natural gas resources, culminating in 5,000 MW of non-emitting peakers in 2041. The growth of non-emitting and hydrogen-capable peakers seems to be driven in part by Oregon compliance, but more broadly due to coal retirements. In comments submitted on June 14, 2024, RNW identified four gaps in PacifiCorp's planning. 1) Additional energy production requirements necessary to produce green hydrogen; 2) Water consumption to produce green hydrogen; 3) Cost and viability of infrastructure to transport and store hydrogen; and 4) Impact, monitoring, and mitigation necessary to address hydrogen leakage. In the June 27 Public Input Meeting, PacifiCorp acknowledged many of the drawbacks and challenges to combusting green hydrogen to generate power, including its poor round-trip efficiency, need for significant new and expensive infrastructure, and leakage. Further, PacifiCorp acknowledged that there is a lot of work that would need to be done to create a hydrogen economy at a scale for utility power generation including a tremendous amount of infrastructure. In this same session, PacifiCorp clarifies that the 2023 IRP update does not have specific plans to run the hydrogen-capable peakers with 100% hydrogen, and that these are included as a hedge against the possibility that they will need to run 100% hydrogen at a point in the future. RNW seeks additional clarification from PacifiCorp on how it would address these uncertainties and ensure that, to the extent hydrogen peakers are a necessary element of a compliant portfolio, it will ensure that these resources are both capable of utilizing and supplied by green hydrogen to the designated state or federal standard.

* Required fields

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.

Meeting cited: <https://www.youtube.com/watch?v=ifpGWde0nBI&t=2106s>

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

As long as PacifiCorp's IRP models operate on optimistic assumptions about hydrogen availability and cost, RNW asks for specific planning on how PacifiCorp plans to acquire, store, and potentially produce the of hydrogen necessary to generate power.

Specifically, RNW recommends that PacifiCorp:

- 1) Incorporate the green hydrogen energy requirement as an incremental portfolio requirement for renewable energy production, enabling PLEXOS LT to increase clean energy production to meet electrolysis demand.
- 2) Perform a viability and cost assessment of electrolyzer sites that minimize cost of delivered green hydrogen to planned non-emitting peakers. These sites must meet grid connectivity requirements and water availability requirements.
- 3) Perform a viability and cost assessment of hydrogen storage siting and sizing to determine the capital and operational expenses associated with relying on hydrogen fuel for power generation.
- 4) Perform a viability and cost assessment of hydrogen transportation infrastructure.
- 5) Include leak monitoring and leak mitigation into hydrogen infrastructure planning, and include global warming impacts of hydrogen leakage into emissions assessments.

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

Thank you for participating.

PacifiCorp Response (9/10/2024):

Thank you for your feedback. With regard to your recommendation 1, for an incremental portfolio requirement, the company believes that proposed analysis of Oregon and Washington compliance requirements will achieve comparable results. At the August 14-15, 2024 public input meeting, the company presented both tank and cavern storage options for hydrogen, which in combination with electrolysis could allow for increased clean energy production. The company is still finalizing this modeling for the 2025 Integrated Resource Plan (IRP), and does not intend to conduct site-specific or project-specific evaluations as suggested in recommendations 2-5, as those are outside the scope of the IRP, which does not evaluate specific projects. PacifiCorp appreciates the expertise offered by RNW and believes these recommendations may be helpful in developing specifications and requirements for non-emitting peaking resources for inclusion in a Request for Proposals (RFP) following the 2025 IRP.