# PacifiCorp - Stakeholder Feedback Form

## 2023 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 2023 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 06-23-2022

*Name: Sophie Hayes Title:

*E-mail: Sophie.hayes@westernresources.org Phone:

*Organization: Western Resource Advocates

Address:

City: State: Zip:

Public Meeting Date comments address: **May 12, 2022** ☐ Check here if not related to specific meeting

List additional organization attendees at cited meeting: Utah Clean Energy, Powder River Basin Resource Council, Renewable Northwest

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

carbon pricing assumptions, climate impacts modeling

☐ 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.

**Carbon pricing assumptions:**

PacifiCorp has requested feedback on greenhouse gas cost scenarios, noting that two book-end scenarios for GHG costs have already been established (social cost and no cost).

The Parties listed above are supportive of using GHG cost assumptions to represent the impact of potential future regulation of fossil-fueled resources, account for negative externalities (sometimes called the "social cost"), and inform resource portfolios. However, since climate impacts are steadily increasing and there is continued federal policy uncertainty, the Parties recommend modeling two emissions reduction trajectories, in lieu of the "medium" and "high" carbon price scenarios, in addition to the social cost and no-cost GHG price assumptions.

The Parties understand that the purpose of carbon pricing assumptions is to represent costs of potential climate regulations that will be internalized by the utility and its customers. It is likely, however, that additional climate-associated costs will be borne by customers due to the utility making investments to *adapt* to climate impacts, such as wildfires, extreme heat, and droughts, or through more costly operating conditions, rather than from federal climate policy. (PacifiCorp is already charging ratepayers for wildfire mitigation efforts.) The costs of adapting to a changing climate are reflected in the social cost of carbon and it is critical that PacifiCorp consider the social cost of carbon in its portfolio selection. However, because federal carbon costs seem distant, the Parties recommend that, instead of modeling "medium" and "high" carbon price scenarios, PacifiCorp model two emissions reduction trajectories consistent with mitigating the costliest climate impacts.

* Required fields

The Parties understand that the PLEXOS model is capable of modeling emissions constraints over time. The Parties request additional discussion on this issue and propose the following trajectories in lieu of the medium and high carbon price assumptions:

- 80% emissions reductions by 2030 (compared to 2005), 98% by 2040; and
- 98% emissions reductions by 2035 (compared to 2005).

According to the latest IPCC report, to limit global warming to below two degrees Celsius, we need "rapid and deep and in most cases immediate GHG emission reductions in all sectors." Since decarbonizing electricity is necessary for decarbonizing other sectors (like transit and buildings), the Parties recommend that PacifiCorp model emissions reductions trajectories that see the utility achieving near zero carbon by no later than 2040 as the "medium" scenario. The Parties also recommend a "high" scenario that achieves near zero emissions by 2035. This "high" scenario is consistent with President Biden's commitment to meeting the goals of the Paris Climate Agreement and reflects broad agreement that the fastest, lowest-cost emission reductions are in the electricity sector.

**Modeling climate impacts over time:**
PacifiCorp has requested feedback on parameters for modeling climate impacts. The Parties understand that modeling climate impacts is an emerging issue in resource planning and supports the Company's efforts to accurately account for changing climate conditions on resource planning assumptions. The Parties seek additional information before making specific recommendations on modeling parameters for climate impacts.

Load forecasting. While it may be too late for the 2023 IRP, The Parties recommend that PacifiCorp hire a consultant to review and make recommendations for modeling assumptions related to weather normalization. For its most recent IRP, NV Energy hired a consultant (Itron) to evaluate how average temperatures are increasing in their service territory and how that impacts heating degree and cooling degree days. Itron developed trended CDD and HDD for NV Energy that reflect expected increases in average temperature. NV Energy is also evaluating how increasing average temperatures impacts peak demand but has noted that research into this is ongoing.

Weather forecasting. PacifiCorp indicated that before it considers climate impacts, it is assessing historical relationships between weather-dependent inputs, including load; actual solar, wind, and hydro generation; thermal derates; and market prices. The Parties request that PacifiCorp provide this information to stakeholders (to facilitate further recommendations related to modeling climate impacts). The Parties also request that PacifiCorp evaluate the relationship between temperature and transmission availability.

Climate forecasting. PacifiCorp has requested information about climate impacts specific to its service territory. The Fourth National Climate Assessment, chapters 22, 24, and 25 cover states in PacifiCorp's service territory.

With regard to hydro resources, The Parties recommend that PacifiCorp evaluate how drought affects hydro resources, including how changing water availability or timing of runoff affects hydroelectric generation. For the most important hydroelectric resources, PacifiCorp may also wish to evaluate future hydroelectric generation in the context of reservoir management for multiple priorities, such as electricity generation, flood control, or water supply).

The Parties also recommend that PacifiCorp assess how climate change may affect water sources relied on for thermal generation on its system. A recent whitepaper analyzing the effects of climate change and water in IRPs noted that "Climate change effects on hydrological cycles may adjust the timing, temperature, and volume of water availability for thermal electric cooling and for hydropower generation, which could further exacerbate the frequency and duration of operational constraints." https://epe.pnnl.gov/pdfs/Water_in_IRP_whitepaper_PNNL-30910.pdf. We request that PacifiCorp analyze how climate change effects on water sources may affect generation from its thermal resources.

PacifiCorp Response (08/09/2022):

> Carbon Pricing
> The company appreciates the comments provided regarding a carbon pricing scenario which replaces the medium and high CO2 prices with medium and high CO2 targets; Specifically, a 98% reduction in 2035 from 2005 emissions, and an 80% CO2 reduction in 2030 combined with a 98% reduction in 2040 from 2005 emissions,

* Required fields

respectively. The request asks to accommodate a discussion on this proposal at a public input meeting. Given concerns over modeling strategy and incentivization the Company would consider hard cap scenarios as sensitivities. The determination of which sensitivities would be run for the 2023 IRP will be discussed in the public input meeting series.

For your consideration in advance of that discussion, the Company has preferred a CO2 price as opposed to a cost cap for several reasons. By adopting a hard cap limit in specific years, Plexos is less incented to prepare for the drop in emissions and may produce unexpected results. Specifically, with a hard cap the model would not be discouraged from generating each ton of CO2 but rather would only be disallowed generation above the cap, and would generate CO2 freely at any point below the threshold. Whereas a hard cap assumes a known target, a CO2 price provides a better proxy for possible CO2 legislation and CO2 management using a consistent incentive to reduce emissions. Also, trade-offs are more analytically transparent with a CO2 price, giving insight into the conditions under which curtailing CO2 emissions is more or less cost-effective.

Climate & Weather

The 2023 IRP Public-Input meeting dated July 14, 2022 presented the load forecast and incorporated the median climate change projections from the Bureau of Reclamation. The change in temperature was also presented and discussed at this meeting.

The company is continuing to gather historical weather-related data for loads, solar, wind, hydro generation, thermal derates, and market prices. The information will be shared with stakeholders during the 2023 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.

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**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.

* Required fields