

# PacifiCorp - Stakeholder Feedback Form

## 2021 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 2021 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 4/9/2021

\*Name: Rose Anderson

Title: **Economist**

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Phone: [Click here to enter text.](#)

\*Organization: Oregon Public Utility Commission

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: **1/29/2020**  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.

Renewables load correlation, Supply Side Resources, Coal

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. Please explain how the renewables load correlation method looks at east versus west. Does PacifiCorp only compare the generation of resources in the east to load in the east? If so, please explain why PacifiCorp does not compare the generation shapes of all resources to the load shape of the system as a whole, and explain the reasoning for dividing the correlation between east and west.

### PacifiCorp Response:

Each day of 2016-2019 was assigned to a load tier, based on its ranking relative to the other days in that same month. Separate tiers were identified for east (ID+UT+WY) and west (CA+OR+WA).

Tier Daily Load Ranking

1 1 (i.e. the highest load day in a month)

2 2-5 (i.e. the 2<sup>nd</sup> through 5<sup>th</sup> highest load days in a month)

3 6-10

4 11-15

5 16-20

6 21-25

7 26-31

\* Required fields

The Company expects that local weather conditions are most likely to impact both renewable output and load in relatively close proximity. At the same time, high load conditions on the west side of the Company's system may be paired with a range of different load conditions on the east side of the Company's system, with different impacts to renewable output in the different locations. The Company therefore believes that calculating east and west load and renewable resource relationships is more appropriate than system-wide relationships. Specifically, the daily average capacity factor of PACW wind resources was calculated during each of the PACW load tiers in each month of the historical period. This same calculation was made for PACW solar relative to PACW load tiers, and PACE wind and solar relative to PACE load tiers. The resulting values identify how much above or below the monthly average wind and solar generation should be in each load tier.

Each day in the 2021-2040 IRP study period is also assigned a load tier, again with separate tiers for east and west, and these tiers are used to confirm that the arrangement of the renewable shapes is aligned with the historical relationships in each load tier. The Company recognizes that broad weather patterns also play a role, beyond just east and west. Therefore, the Company opted to retain the relationship between east and west renewable output by using data from the same historical day for both PACE and PACW. While PACE renewables on a specific day are compared against PACE load, the PACW renewables for that same day are modeled at the same time, even though there is no targeted relationship between PACW renewables and PACE load. For example, the renewable generation profiles from January 1, 2018 are applied to January 11<sup>th</sup> of each year of the IRP study, and this same realignment is applied to all renewable resources: wind and solar, east and west, new and existing. As a result, some of the historical relationship between renewable generation and distant load is being retained.

2. Staff enjoyed the half-day format of the Public Input Meeting. It was a good amount of time for staying focused and engaged.

**PacifiCorp Response:**

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Thank you for this feedback.

3. Would PacifiCorp please publish the average costs for each resource type from bids in PacifiCorp's 2020AS RFP, to the extent that can be done while protecting confidential information? This would be very helpful as a cross-reference for the costs of similar resources in the supply side resource table.

**PacifiCorp Response:**

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At this time, PacifiCorp is unable to provide any indicative pricing received as part of the 2020ASRFP, as prices are confidential and subject to update.

4. Is the same 2016 to 2019 data used to evaluate stochastics for renewables also used when developing renewable generation profiles for existing and new resources? If not, then what data is used to develop renewable generation profiles?

**PacifiCorp Response:**

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The modeled annual renewable generation for future resources or resources that have recently come online reflect the median forecast used in the acquisition analysis. Once four full calendar years of operating history are available, the forecast is based on the average of all full calendar years of operation. In addition, for solar resources, annual output is degraded annually consistent with the developer's projection.

The modeled hourly renewable generation shapes are based on a single calendar year of operating history from existing resources, currently 2018. For each existing resource, hourly 2018 actuals are incremented up or down

in each month as necessary to match the expected generation for that month. For repowered resources, a turbine curve is used to adjust the hourly output from its original generation curve to the repowered generation curve, and an adjustment is applied so that the annual result matches the forecast used in the acquisition analysis. For new resources (and those that reached commercial operation during or after 2018), generation is based on a blend of hourly output from two nearby resources, with adjustments to match the expected generation for the resource in question.

The 2016 to 2019 renewable resource generation data described in PacifiCorp's January 29, 2021 public-input meeting is not directly used in the modeled renewable generation described above, except to the extent the source data overlaps. Instead, the 2016-2019 data was used to identify patterns of output relative to different load conditions over that four-year history. For this purpose, all wind and solar data was aggregated by BAA, and is not unit-level. Prior to renewable-load correlation adjustment, historical renewable generation on January 1, 2018 drove the assumed output on January 1<sup>st</sup> of each year of the IRP study for every renewable resource, both new and existing. After the adjustment, the renewable generation profiles from January 1, 2018 are instead applied to January 11<sup>th</sup> of each year of the IRP study, and January 19, 2018 is applied on January 1<sup>st</sup> of each year of the IRP study. This same realignment is applied to all renewable resources: wind and solar, east and west, new and existing.

5. Were any minimum take requirements modeled for the Jim Bridger coal units in the 2019 IRP?

**PacifiCorp Response:**

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For owned/operated coal units, potential retirement dates are based upon avoiding major overhauls, assuming a unit operates for five years after its last overhaul prior to an early retirement assumption. Cost information will be available once the 2021 IRP is filed and PacifiCorp provides work papers to support the filing.

The 2019 IRP did not model minimum take (generation) requirement for Jim Bridger coal units. The Planning and Risk model determines the optimal unit dispatch recognizing minimum capacity, heat and ramp rates. The liquidated damages related to coal contracts from early coal retirement was accounted for in the PVRR.

6. A note/reminder about Oregon resource acquisition rules and how they will help provide stakeholders with a chance to thoroughly review RFP design, scoring methodology, and modeling, per OAR 860-089-250:

(2) The draft RFP must reflect any RFP elements, scoring methodology, and associated modeling described in the Commission-acknowledged IRP. The electric company's draft RFP must reference and adhere to the specific section of the IRP in which RFP design and scoring is described.

(a) Unless the electric company intends to use an RFP whose design, scoring methodology, and associated modeling process were included as part of the Commission-acknowledged IRP, the electric company must, prior to preparing a draft RFP, develop and file for approval in the electric company's IE selection docket, a proposal for scoring and any associated modeling.

**PacifiCorp Response:**

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PacifiCorp will comply with all applicable competitive bidding rules.

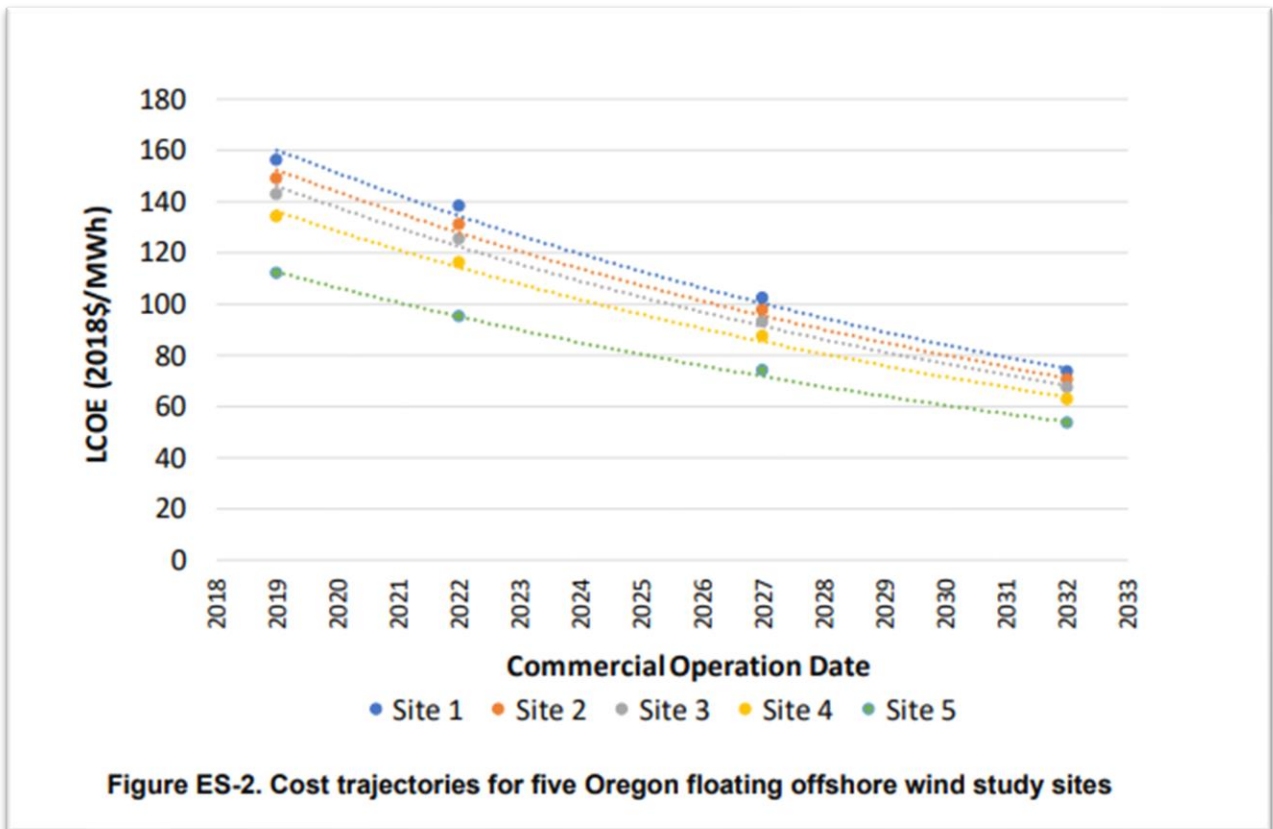
7. There is expected to be significant activity in offshore wind leasing through the Bureau of Ocean Energy Management (BOEM) in the near term, and the White House has issued an [executive order](#) with the goal of identifying steps toward doubling offshore wind production by 2030.
  - a. Would it be possible for PacifiCorp to include a sensitivity in the 2021 IRP that shows the economics of a 500 MW offshore wind installation off the coast of Oregon within five to ten years, using the best cost estimates available today?

- b. Would PacifiCorp please include in the 2021 IRP a discussion of the potential for offshore wind off the West coast, including the Oregon coast? This would include a discussion of potential benefits from increased reliability in the west and any avoided transmission construction costs. Additionally, Staff would appreciate a clear description of the specific information PacifiCorp would need to have access to in order to include offshore wind in a future IRP supply side resource table.

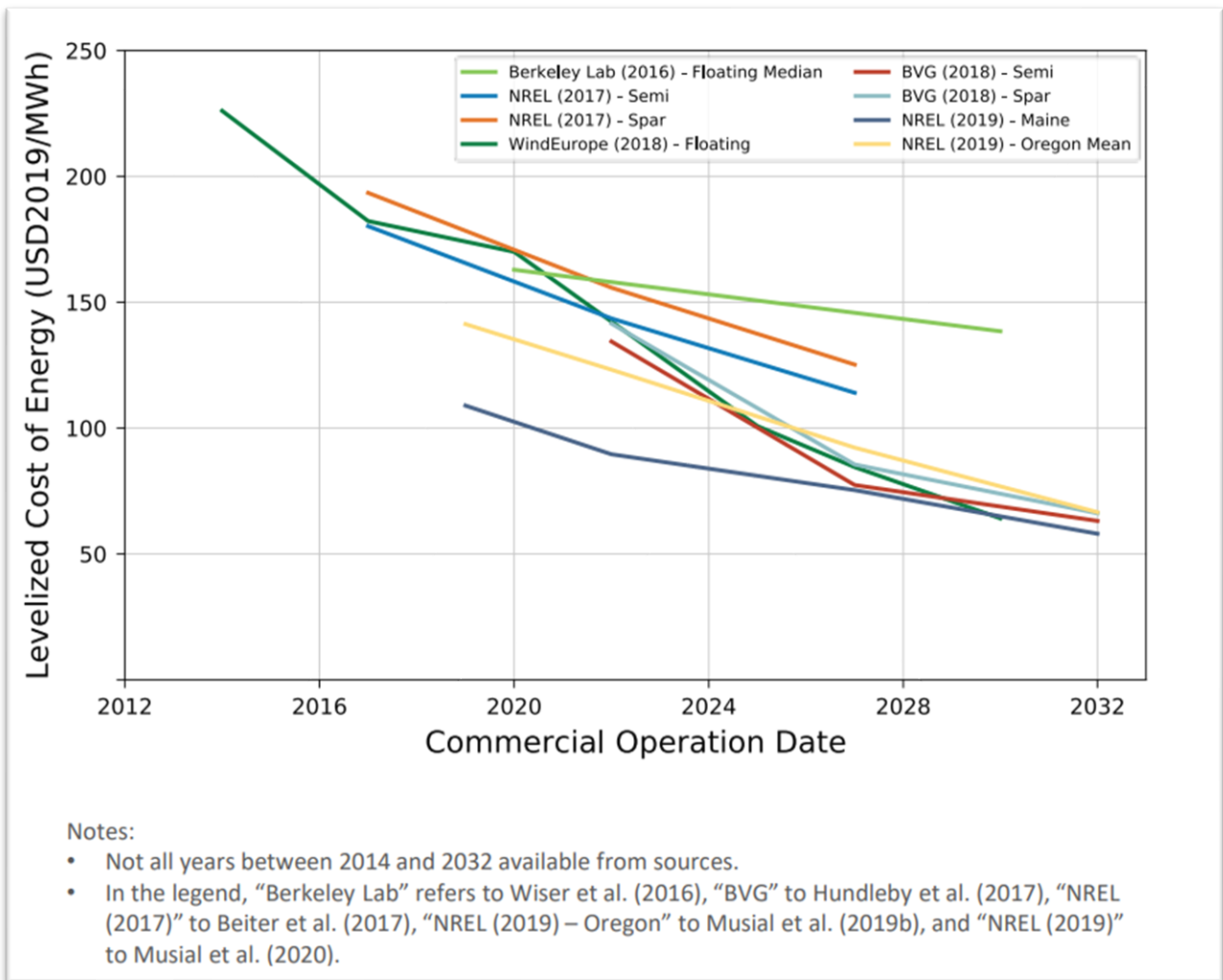
**PacifiCorp Response:**

PacifiCorp plans to include a discussion of the potential for offshore wind along the West coast of the continental United States, including Oregon, in the 2021 IRP and will consider including an offshore wind option in the supply-side resource table for the 2023 IRP. Offshore wind holds the promise of high capacity factors, but at significant cost; the National Renewable Energy Laboratory’s 2019 Offshore Wind Technology Data Update estimates the levelized cost of energy for offshore wind at \$100 per MWh in 2019 and decreasing to between \$50 and \$75 per MWh by 2030. It should also be noted that most of the offshore wind development occurring along the shores of the United States plans to use fixed bottom wind turbines installed in water less than 60 meters deep. The water depth off the Oregon coast will likely require floating wind turbines and there were only 84 MW of floating wind turbines installed worldwide at year-end 2019. PacifiCorp prefers to use cost and performance data of operational utility scale generation assets to inform its supply-side resource table, but it will continue to review the best information available for offshore wind as it prepares for the 2023 IRP.

Please note the following cost projections from the [2019 NREL Oregon Offshore Wind Site Feasibility and Cost Study](#), and the [2019 Offshore Wind Technology Data Update](#):



\* 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.

January 2021 feedback form.docx

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

[Click here to enter text.](#)

Please submit your completed Stakeholder Feedback Form via email to [IRP@PacifiCorp.com](mailto:IRP@PacifiCorp.com)

Thank you for participating.

\* Required fields