

# 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 10/19/2020

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Public Meeting Date comments address: 9/17/2020  Check here if not related to specific meeting

List additional organization attendees at cited meeting: Ed Burgess, eburgess@strategen.com

**\*IRP Topic(s) and/or Agenda Items:** List the specific topics that are being addressed in your comments.  
Resources Assumptions, Market Reliance, Coal Operations, Carbon Price, Load Forecast and DSM

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.

### Resource Assumptions

1. Refer to slide 8 from the September 17, 2020 Public Input Meeting.
  - a. Please explain the rationale for the "50% pwr, 4 hours" battery configuration.

### **PacifiCorp Response:**

The options included in the assessment are intended to provide screening level comparisons between different technology options to determine which options merit further development and a more detailed analysis. The information provided in the assessment does not represent the only options available for PacifiCorp to consider for planning purposes. In order to provide a representative configuration for energy storage co-located with a renewable generating facility, the system was sized at 50 percent of the maximum capacity of the renewable asset with a four-hour duration. This duration is based on Burns & McDonnell's experience modeling the performance of energy storage systems in areas of high renewable penetration and paired with renewable energy sources. In these cases, this duration tended to have more attractive levelized costs of energy to the grid when including system inefficiencies across different methods of system control. Levelized costs of electricity, however, will vary significantly depending on project location, execution strategy, and renewable resource to name a few considerations. Accordingly, if a battery energy storage system (BESS) appears to merit further development, it should be pursued following this assessment with greater site and project specificity. The AC charging and discharging capacity of the battery also depends on project considerations including the interconnection type, BESS use case, and range in local energy prices. Without any warranted further detail into any of these factors at this level of study, a 50 percent capacity could allow for less curtailed energy or greater arbitrage potential than other capacities and is expected to serve as an appropriate screening point for planning purposes.

\* Required fields

b. Would PacifiCorp consider including other battery configurations in the model including “50% pwr, 3 hours” and “50% pwr, 2 hours”?

**PacifiCorp Response:**

PacifiCorp does not believe modeling a variety of storage duration options paired with renewables in the 2021 IRP will provide incremental benefits that would justify the increase in complexity. In addition, given the high level of renewable and storage penetration in the 2019 IRP and assuming similar levels are identified in the 2021 IRP portfolio development, the benefits of shorter duration storage options would be diminished, which would also indicate that modeling those options is less justified.

c. During the meeting PacifiCorp mentioned a solar inverter loading ratio of 1.3. Please explain whether this is also used for solar plus storage resources. Please explain the rationale for this ratio.

**PacifiCorp Response:**

Yes, an Inverter Loading Ratio (ILR) of 1.3 is assumed for all solar options, which is within a range of typical utility system designs. Depending on the application and requirements for firmer solar generation, ILR values commonly range from just greater than 1 to 1.4. This value also depends on expected interconnection type, AC capacity ratio between the PV facility to the interconnection limit, and potential use cases when paired with an energy storage system. A larger ILR value will typically yield greater capacity factors at greater overall cost of installation of the PV facility to install greater DC capacity.

2. Refer to slide 13

a. Please explain the source for the Base Capital, Var O&M, and Fixed O&M values listed.

**PacifiCorp Response:**

The Base Capital, Var O&M and Fixed O&M values were provided by Black & Veatch. PacifiCorp provided owner’s costs.

Market Reliance

1. Please explain what types of transactions are considered under the category of Market Reliance

**PacifiCorp Response:**

Consistent with the 2019 IRP, the 2021 IRP modeling assumes a limit to short-term firm front office transactions, which are available in capacity expansion portfolio planning to meet capacity needs.

2. Please provide an overview of the typical delivery points for market purchases and sales for the PacifiCorp system and any associated transmission costs.

**PacifiCorp Response:**

PacifiCorp’s typical delivery points are Four-corners, Mona, Palo Verde, COB, NOB and MidC. For transmission costs, please refer to PacifiCorp’s OATT transmission rates for long-term firm point-to-point transmission. Consistent with prior IRP cycles, 2021 IRP modeling does not include transmission costs related to market purchases and sales.

3. Please explain what analysis PacifiCorp has done or plans to do to assess the overall supply and availability of market resources over time.

**PacifiCorp Response:**

Please refer to the analysis performed by PacifiCorp to assess the overall supply and availability of market liquidity, provided at the 2021 IRP September 17, 2020, and October 22, 2020, Public Input Meetings.

4. Does PacifiCorp have a predetermined threshold for the amount of market purchases that can be included as resources in its final plan?

**PacifiCorp Response:**

Please refer to materials provided at the 2021 IRP October 22, 2020, Public Input Meeting, specifically on slide 43.

\* Required fields

## Coal Operations

1. Please describe any constraints PacifiCorp intends to apply to the operation of its coal units, including Must Run or Minimum Burn.

### **PacifiCorp Response:**

The Company intends to apply ramp rates, minimum and maximum capacity, heat rates, planned maintenance, forced outages, minimum fuel requirements, minimum up and down times, economic dispatch, CO<sub>2</sub> price, and plant wide emission caps.

2. Would PacifiCorp consider including a sensitivity analysis that includes all of the following 3 scenarios:

- a. Coal plants with must run or minimum burn constraints
- b. Coal plants with seasonal must run or minimum burn constraints
- c. Coal plants no must run or minimum burn constraints

### **PacifiCorp Response:**

The Company is willing to consider these sensitivity recommendations balanced with other stakeholder requests, modeling capabilities and time constraints.

3. Would PacifiCorp consider including a model run that specified all coal units to be retired by a certain date? (e.g. 2030)

### **PacifiCorp Response:**

The Company would consider running such a case Balanced with other stakeholder requests, modeling capabilities and time constraints.

4. Will PacifiCorp's model reflect any parameters intended to reflect provisions in existing or future coal supply agreements (e.g. minimum take obligations)?

### **PacifiCorp Response:**

Yes, fuel supply agreements are considered in the development of IRP model inputs and coal supply analysis.

## Carbon Price

1. Refer to slide 18 from the September 17, 2020 Public Input Meeting. Please explain what CO<sub>2</sub> price will be included (if any) in each of the four scenarios and the rationale for each of these.

### **PacifiCorp Response:**

CO<sub>2</sub> assumptions for the 2021 IRP will be discussed at the November 16, 2020, Public Input Meeting.

2. Would PacifiCorp be open to considering a carbon price that was applied to load served in some but not all of its jurisdictions?

### **PacifiCorp Response:**

The Company is willing to consider this sensitivity balanced with other stakeholder requests, modeling capabilities and time constraints.

## Load Forecast and DSM

1. Refer to slide 4 from the July 30-31, 2020 Public Input Meeting
  - a. Please confirm whether PacifiCorp's load forecast reflects rollbacks of federal codes and standards

### **PacifiCorp Response:**

Yes, the load forecast currently informing the 2021 IRP reflects the rollback of federal codes and standards for Phase 2 of the Energy Independence and Security Act.

2. Refer to slides 5 and 6. Please provide the "system energy load forecast" and "system peak load forecast" both with and without the rollbacks described above. Please provide the underlying data.

\* Required fields

**PacifiCorp Response:**

PacifiCorp has not performed the requested analysis.

3. Please describe how the rollbacks described above were factored into PacifiCorp’s Conservation Potential Assessment (CPA). If they were not factored in please explain why PacifiCorp did not include a corresponding increase in achievable potential.

**PacifiCorp Response:**

The CPA assumptions for residential lighting standards and baseline were provided during the August 28, 2020, CPA workshop. As shown on slide 11 from that workshop, The CPA assumes a rollback of the second phase of EISA in all states except California and Washington, where those standards remain in state law. As noted on that same slide, remaining potential is relative to state-specific baseline assumptions, which may be more efficient than the second phase of EISA standards (e.g., California 100% LED).

**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.

LINK TO COMMENTS IN GOOGLE DOC:

<https://docs.google.com/document/d/1og1UVwAObnp6sTfLVMFPzvixZtajq6yfOtKIce7f5S0/edit?usp=sharing>

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**Recommendations:** Provide any additional recommendations if not included above - specificity is greatly appreciated. This form does not allow for comments to be edited with rich content, like links or bullets, or for document upload. Consider expanding input methods.

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

Thank you for participating.