

# 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 [Click here to enter date.](#)

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Public Meeting Date comments address: 6/18/2020  Check here if not related to specific meeting

List additional organization attendees at cited meeting: [Click here to enter text.](#)

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

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.

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**\*Respondent Comment:** Please provide your feedback for each IRP topic listed above.  
Please see attached document with feedback.

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June meeting feedback form:

### Topic: Demand Response in the CPA and IRP

1. Please provide all details and parameters of how Demand Response (DR) resources will be modeled in Plexos in the 2019 IRP, and include information that answers the following questions:
  - Which types of DR will be modeled in Plexos?
  - Will the DR levelized costs from the CPA be input into Plexos directly? If not, please explain how DR cost inputs to Plexos will be developed. If it is still unknown how they will be developed, please explain how the inputs to System Optimizer were developed in the 2019 IRP.
  - In what ways will the Plexos modeling of a DR resource be similar to, and how will it differ from, the modeling of a typical supply-side resource?
  - Please list and briefly describe the Plexos inputs and constraints that will be necessary for the modeling of DR resources.

\* Required fields

- Please explain how the Plexos model will be used to accurately consider the full capabilities of DR resources, including capacity and ancillary services.

**PacifiCorp Response:**

It is anticipated that all types of demand response (DR) resources provided in the Conservation Potential Assessment (CPA) will be modeled in Plexos. The levelized costs from the CPA will input directly into Plexos after adjusting for any applicable credits intended to capture value that the model cannot otherwise see; an example of such a credit is the Transmission & Distribution deferral credit. The Plexos modeling of DR is expected to be the same or similar to other supply-side resources other than for characteristics that are unique to DR. One example of a unique DR characteristic is the capability for return energy that requires unique modeling in Plexos. The Plexos modeling for the 2021 Integrated Resource Plan is currently under development.

2. See page 30 of the DSM I and III CPA chapter from the 2019 IRP. What does it mean for a DR pricing program to have a useful life of ten years? What is the reasoning for using a ten year lifespan?

**PacifiCorp Response:**

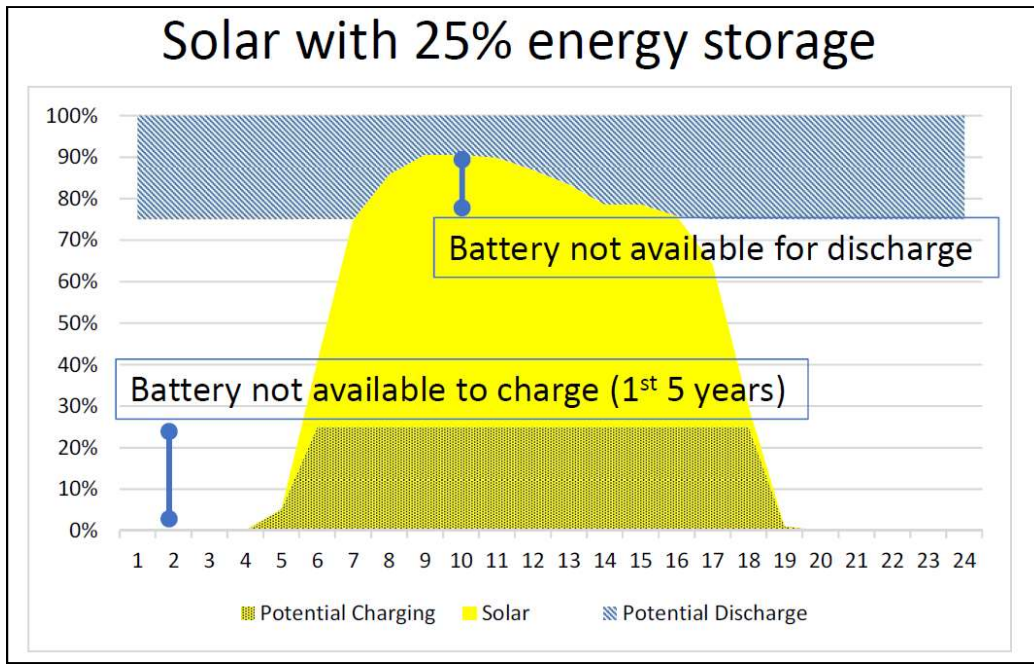
Demand-side management (DSM) options are assumed to have both one-time startup costs and ongoing annual costs. Essentially, a “program life” assumption is used to amortize one-time costs over the period for which the pricing option might be offered. The 10-year assumption reflects that PacifiCorp would likely offer a new Class 3 DSM rate option for a number of years, but that over time, the rate may need to be redesigned or discontinued based on changes in enabling technology options and adoption, customer preferences, resource needs and value, or other considerations.

**Topic: Modeling Energy Storage:**

3. Please provide an explanation of how the solar plus storage constraints in the chart on slide 39 of the June IRP presentation will be implemented in Plexos.

**PacifiCorp Response:**

Plexos modeling includes definable constraints. For each co-located battery, a constraint will be constructed limiting the amount of battery charge in each period to the amount of generation of the collocated resource. An additional constraint will restrict battery storage discharge plus resource generation to the correct interconnection limit. As an example, if the interconnection limit is 500 megawatts, then the constraint will be built with a formula representing [Co-located Resource generation + Battery Discharge <= 500].



4. What PacifiCorp operational or regulatory constraints exist that would stop any new or existing VER projects from adding storage capacity at ~50% of VER nameplate? If there are any, what are they and how are these constraints captured/reflected in Plexos?

**PacifiCorp Response:**

Building a new storage capacity project at an existing VER facility would be very similar to building a new storage project anywhere on our transmission system. The storage project would need to secure all regulatory permitting requirements where it is built, as it is unlikely an existing VER would have included storage in its permits. Operationally, the storage project would need to have a land agreement and a suitable site for its construction. There would also likely be some upgrades required to existing substation and/or transmission infrastructure to accommodate the storage project.

Every existing VER project is metered where it connects to the grid. If the storage project is connected on the VER side of the meter, it could possibly be put in place with a modification of the VER project’s interconnection agreement, but electric output to the grid at any single point in time would be limited by the MWs allowed in the VER’s existing interconnection agreement. If the VER and storage project requested an increase in the nameplate capacity of the interconnection agreement for a combined project, it would likely qualify as a major change and may require the VER to abandon its existing interconnection agreement and apply for a new interconnection agreement with a large enough nameplate capacity to handle the full potential output of the VER and the storage project. If the storage project connects on the transmission grid side of the meter, it would need to have an independent interconnection agreement and its own meter.

Given the IRP’s aggregated topology and use of proxy resources, unless there is an economic incentive to co-locate storage and generation technologies (such as exists with solar storage benefits), there is no compelling reason to model co-location as a rigid assumption in Plexos for the 2021 IRP. This is because the co-location structure effectively constrains the model to building both resources together (likely at the same time as well as in the same place), which limits the model’s options. If there is another type of benefit to co-location, such as proximity to load or markets, for example, the model can already realize this benefit by selecting the two proxy technologies (any VER or non-VER with storage) in the same IRP transmission bubble. Therefore, for the 2021

IRP the Company intends to model co-location of solar plus storage explicitly, but also allow to model to co-locate storage with other technologies on an optimized basis.

5. PacifiCorp's June presentation seems to indicate that the transmission capacity available to combined VER (Variable Energy Resource) + Storage resources will be limited to the VER nameplate capacity.

**PacifiCorp Response:**

That is correct.

- a. Are there perhaps some locations on PacifiCorp's system where combined VER + Storage resources could have access to the full transmission required to generate at their combined nameplate capacity, without requiring prohibitively expensive transmission upgrades?

**PacifiCorp Response:**

No. The VER + storage would be limited by the terms of the VER's interconnection agreement. The interconnection agreement establishes the VER's right to use the use the transmission system. If there is additional capacity available on the transmission system, that capacity is allotted through the interconnection queue and established interconnection agreement processes. Therefore, in the 2021 IRP, the maximum output of co-located solar plus storage resources is limited to the VER nameplate capacity in any given hour.

- b. Would PacifiCorp seek to identify a few of these locations and allow VER + storage resources to generate at their full, combined capacity at those locations in the 2021 IRP?

**PacifiCorp Response:**

One of the greatest potential benefits of co-locating VER + storage is the ability to add Storage within the existing VER interconnection agreements. This allows the Storage to function within the existing limits of the transmission system when the VER is not generating at full capacity.

If there are areas of the transmission system that have excess capacity and would benefit from the addition of storage to the grid, this can be accomplished with an independent storage project. There is no great benefit to co-locating storage and existing VER if the storage project requires interconnection access at its full capacity, regardless of the generation taking place at other points along the interconnection system.

6. Is Plexos capable of modeling and selecting independent energy storage projects within PacifiCorp's identified load pockets?

**PacifiCorp Response:**

Yes. As in the 2019 IRP, independent or "stand-alone" storage options will be modeled at multiple locations with load and will be represented in the final 2021 IRP supply-side resource table.

**Topic: 2019 IRP action item updates**

7. What will the retirement date for Cholla 4 be in the 2021 IRP modeling?

**PacifiCorp Response:**

The 2021 IRP will reflect a December 31, 2020 closure date for Cholla Unit 4.

**Topic: Transmission**

8. Please explain in detail how the B2H line will be modeled as connecting to PacifiCorp's system in Oregon in the 2021 IRP. Are additional upgrades assumed to be needed in order to connect the line? If so, approximately how much do these additional upgrades cost? Are they financed entirely by PacifiCorp?

\* Required fields

**PacifiCorp Response:**

The modeling of B2H in the 2021 IRP will include relevant projected costs (and therefore upgrades) necessary to enable the project.

9. Please explain whether the Company will include the 500 kV planned Transcanyon transmission line from Utah to Nevada in Plexos modeling. If the line will be included, in what year will it be in service?

**PacifiCorp Response:**

No, the Company is not planning to incorporate the Transcanyon transmission link in the 2021 IRP. The benefits to PacifiCorp from the Cross-Tie project appear to be access to high capacity factor solar resources in the Southwest. However, when the incremental cost of transmission is taken into consideration, solar resources within our service territory, e.g. central and southern Utah, that do not require a significant investment in transmission, appear to be more economic for our customers at this time. PacifiCorp is evaluating whether to incorporate a study of Cross-Tie in 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.

[Click here to enter text.](#)

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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.