

# 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 2020-07-23

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- Administrative Hearings Division

Address: 201 High Street SE, Suite 100

City: Salem

State: OR

Zip: 97308

Public Meeting Date comments address: 06-18-2020

Check here if not related to specific meeting

List additional organization attendees at cited meeting:

\_\_\_\_\_

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

Optimization Modeling; 2021 IRP Topics and Timeline; Transmission Overview and Update

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.

### **Optimization Modeling:**

Slide 20 (Stepwise approach) and Slide 22 (Optimization modeling) both describe that PacifiCorp must input the production costs of its generating units. P. 20 “Rank order your units by energy production cost, low to high; generate from each unit, in order, until all loads are met; calculate remaining generating capability; sell excess energy at market when economic”. P.31 suggests the inputs are the same with the new Plexos optimization model (“The optimization math remains the same”).

### **PacifiCorp Optimization Modeling Response:**

Production costs are an input regardless of the type of calculation performed to determine system dispatch. However, the key point of slides 20-22 is that a linear optimization does not take ordered steps. Taking ordered steps embeds incremental assumptions at each step, inherently preventing an optimal solution. The steps described on slide 20 do not apply to Plexos (and also do not apply to the models used in the 2019 Integrated Resource Plan).

\* Required fields

## Questions:

1. Can PacifiCorp provide the production costs that it inputs into the IRP for its existing generators?

### **PacifiCorp Response:**

Inputs for the 2021 Integrated Resource Plan (IRP) remain under development, and are expected to be provided in the confidential data disc assembled to support the published document.

2. Please describe the production costs used for new units such as Naughton 3 gas conversion and the Energy Vision 2020 new wind, by explaining where these units fit into the dispatch stack and how they are altering the dispatch of other existing units.

### **PacifiCorp Response:**

There is no dispatch stack. Please refer to the “Optimization Modeling Response” above. Detailed inputs are provided in the confidential data disc, per response to question one, above.

3. Does the economic dispatch part of modeling include proxy available front office transactions? If so, please explain the approximate costs of front office transactions input into this step of modeling, and provide an example of how the market price forecast is likely to vary over a given day and a given year. Please also explain how the front office transactions fit within the dispatch stack, such as whether they are in economic merit order or whether they are only used if there is a shortfall after using PacifiCorp’s units.

### **PacifiCorp Response:**

All options and inputs are considered simultaneously, resulting in optimal economic dispatch. Front office transactions (FOTs) are valued at a premium to market in order to avoid non-material arbitrage in the model. FOTs compete with all other supply-side resources based on the cost and value they bring to the system. Myriad short- and long-term costs and benefits are considered in optimization modeling. For example, while an FOT purchase may appear superficially more expensive than another resource on a dollars per megawatt hour (\$/MWh) basis, FOTs have the flexibility to defer or avoid a more expensive unit startup cost, reducing system costs over a longer time period. Limits for FOTs, market purchases and sales are currently under development in the 2021 IRP along with all other supply-side resources.

4. Does the economic dispatch part of modeling also compare the costs of available resources from the supply side table? Or does that only occur in the model after a shortfall is identified?

### **PacifiCorp Response:**

Economic dispatch is a consequence of the simultaneous consideration of all system inputs, including supply-side resource costs and benefits. Please refer to the “Optimization Modeling Response”, and other discussion, above.

5. Please explain if economic dispatch is used to develop the load/resource balance that shows the capacity position, or whether the load/resource balance is irrespective of economics?

### **PacifiCorp Response:**

In the 2019 IRP, the initial load and resource balance report does not reflect economic dispatch. Economic dispatch influences the initial energy balance.

## 6. Comments/Recommendations:

Economic dispatch seems to be a foundation of IRP modeling, yet it is not explicitly discussed in the IRP. It seems that it would be particularly helpful to understand which units are marginal and highest cost. That background would provide context for new resource selections in the IRP, by explaining that particular units are \$X/MWh and new resources are

\* Required fields

\$Y/MWh. More explanation on the dispatch stack could provide more transparency into why new resources are displacing FOTs, or why additional energy is selected in a portfolio.

If not explained in PacifiCorp's response to this feedback form, I recommend that we cover PacifiCorp's modeling of economic dispatch in a public input meeting.

**PacifiCorp Response:**

Economic dispatch is a fundamental element of system operations that drive net power costs, and should therefore be a fundamental element of any electric utility IRP. The identification of a marginal unit varies by hour and can be influenced by a wide range of system conditions (i.e., load, transmission limits, market prices for power and natural gas, wind generation levels, solar generation levels, need for operating reserves, etc.). As noted earlier, a dispatch stack is not used as an input to the modeling process. Rather dispatch is an outcome of optimization, accounting for all simultaneous considerations.

**2021 IRP Topics and Timeline:**

Slide 49 lists the 2021 IRP Supplemental Studies, with Resource Adequacy/Market Reliance Assessment as the last bullet.

7. **Question:** Will the study that discusses market purchases (Market Reliance Assessment or Western Resource Adequacy Evaluation) be released before the 2021 IRP is filed?

**Comment/Recommendation:** We did not have the chance to discuss this study during 2019 IRP development. It would be helpful to understand more detail about the study for the 2021 IRP.

**PacifiCorp Response:**

Market reliance and resource adequacy are discussed in the public input meetings. The discussion and analysis conducted to support the public presentations are the basis for the chapter that will appear in the published 2021 IRP. Please refer to the Market Reliance Assessment discussion from the 2019 IRP, August 30-31 public input meeting. Discussions regarding market reliance include resource adequacy, FOT limits, and the status and availability of updated studies. An initial discussion on market reliance is anticipated for the September 17-18, 2020 public input meeting for the 2021 IRP cycle.

8. Below is an example of how Puget Sound Energy displays market transaction information in its IRP. "Available Mid-C Transmission" is shown as a firm resource in the load and resource balance with a set MW amount. Does PacifiCorp base its market availability assumption on the transmission rights/paths available from a given market?

**PacifiCorp Response:**

As with past IRPs, the 2021 IRP is expected to include both hard maximum FOT limits and also transmission constraints. PacifiCorp does not assume purchases equal to limits or constraints; rather the selection of FOTs is optimized within these constraints with amounts selected so as to minimize overall system costs.

9. I recommend that PacifiCorp explain the connection between the transmission rights it holds for market transactions/FOTs, and the amount of market transactions/FOTs that are assumed to be available to meet PacifiCorp's load (shown in Table 6.12 below).

**PacifiCorp Response:**

Any competing resource can use transmission, so there is no necessary connection between the transmission rights PacifiCorp holds, and the amount of market transactions/FOTs that are assumed to be available to meet PacifiCorp's load. However, a hard limit constraint will be applied separately from transmission, as described in the response to question eight, above. The hard limit in PacifiCorp's 2019 IRP is given in Table 6.12, below.

## Existing Resources

Figure 6-5 summarizes the winter peak capacity values for PSE's existing supply-side resources.

Figure 6-5: Existing Supply-side Resources  
Nameplate Capacity and Winter Peak Capacity for December 2018

Type of Generation	Nameplate Capacity (MW)	Winter Peak Capacity (MW)
Hydro	973	853
Colstrip	677	658
Natural Gas	1,905 <sup>1</sup>	2,061
Renewable Resources	956 <sup>2</sup>	143
Contracts	614	695
Available Mid-C Transmission	2,331	1,722
<b>Total Supply-side Resources</b>	<b>7,456</b>	<b>6,132</b>

### NOTES

1. The nameplate capacity for the natural gas units is based on the net maximum capacity that a unit can sustain over 60 minutes when not restricted to ambient conditions. Natural gas plants are more efficient in colder weather, so the winter peak capacity at 23 degrees F is higher than the nameplate capacity.

2. Includes Klondike III (50 MW) and Skookumchuck (131 MW) as a wind resource.

Table 6.12 - Maximum Available Front Office Transaction Quantity by Market Hub

Market Hub/Proxy FOT Product Type Available over Study Period	Megawatt Limit and Availability (MW)	
	Summer (July)	Winter (December)
<b>Mid-Columbia (Mid-C)</b> Flat Annual ("7x24") or Heavy Load Hour ("6X16")	400	400
Heavy Load Hour ("6X16")	375	375
<b>California Oregon Border (COB)</b> Flat Annual ("7x24") or Heavy Load Hour ("6X16")	250	250
<b>Nevada Oregon Border (NOB)</b> Heavy Load Hour ("6X16")	100	100
<b>Mona</b> Heavy Load Hour ("6X16")	300	300

### Transmission Overview and Update:

Slide 80 shows target in-service dates for Energy Gateway segments. PacifiCorp's graphic shows a 2023 target in-service date for segment D1, Windstar to Aeolus. Slide 94 states that PacifiCorp's interconnection queue reform will not impact projects with signed large generator interconnection agreements and thus no impact to the 1,920 MWs of projects in the queue behind Gateway South Segment F (Aeolus to Mona) and Gateway West Segment D.1 (Windstar to Aeolus).

\* Required fields

**Questions:** The 2019 IRP action plan and preferred portfolio does not specifically list Segment D.1. It may be in the details but I cannot find a target in-service date for Segment D1 listed in the 2019 IRP, Volume 1, or on the data disk “Portfolio Sum” tab as suggested on Slide 92 of PacifiCorp’s June 18 presentation. With that caveat:

10. Please explain the target in-service assumptions for Segment D1 used in the 2019 IRP.

**PacifiCorp Response:**

Gateway West Segment D.1 was not modeled in the 2019 IRP. As the 2019 IRP was under development, the Company anticipated seeking approval from the Federal Energy Regulatory Commission (FERC) to reform its interconnection queue process. The Company anticipated it would seek to move away from serial queue processing that did not test the “readiness” of any generator (i.e., FERC’s long-standing first-come, first-served process) to a first-*ready*, first-served cluster study process that requires large, FERC-jurisdictional generators to demonstrate readiness as a prerequisite to receiving an interconnection study. When modeling assumptions were established, the Company anticipated seeking FERC permission to apply this new readiness test to all generators in the existing queue, including those that had executed interconnection agreements, in order to be most responsive to the Public Utility Commission of Oregon’s feedback in the Energy Vision 2020 proceeding. In response, however, to significant development community stakeholder opposition and FERC staff resistance to a proposal that would abrogate executed interconnection agreements, the Company modified its proposal to, among other things, allow projects to retain their interconnection rights as outlined in an executed interconnection agreement. FERC approved this approach,<sup>1</sup> which means PacifiCorp must preserve the serial-queue priorities and contractual rights of generators with executed contracts. There are a number of projects with serially processed executed interconnection agreements located in northeast Wyoming that identify Gateway West Segment D.1 as a contingent facility. As such, to both comply with FERC’s order and achieve the level of new resources in eastern Wyoming included in the preferred portfolio at the end of 2023, which contribute to meeting resource needs in 2024 and beyond, will require construction of Gateway West Segment D.1 and Gateway South.

11. Please explain why Segment D1 now has a target in-service date of 2023.

**PacifiCorp Response:**

Please see the response to question 10, above.

12. Please explain what (if any) significance the signed interconnection agreements on Segment D1 may have in 2021 IRP modeling.

**PacifiCorp Response:**

Please see the response to question 10, above. PacifiCorp is currently implementing its 2020 All Source (2020 AS) RFP process, which includes bids with signed interconnection agreements that identify Gateway West Segment D.1 as a contingent facility. The Company anticipates that information from the RFP process, as it progresses, will inform model assumptions in the 2021 IRP cycle.

13. Please provide the current expected cost of Segment D1 as provided in the interconnection agreements.

**PacifiCorp Response:**

\$284.3 million with a target in-service date of December 31, 2023.

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<sup>1</sup> *PacifiCorp*, 171 FERC ¶ 61,112 at P 144 (2020) (“PacifiCorp’s Transition Process appropriately protects interconnection customers that are in the late stages of interconnection **by not disrupting already signed interconnection agreements** and continuing to process late stage interconnection request under the currently effective serial process, provided they meet the commercial readiness criteria.”) (emphasis added).

\* Required fields

14. Please provide the resource types and sizes that have signed interconnection agreements on Segment D1, if relevant for IRP modeling or assumptions.

**PacifiCorp Response:**

In direct response to the question, there are no interconnection customers connecting directly to Segment D1. There are several signed interconnection agreements where the Gateway West Segment D.1 is identified as a contingent facility:

Q0713 – Wind – 350 MW

Q0719 – Wind – 280 MW

Q0783 – Solar – 30 MW

Q0784 – Solar - 80 MW

Q0785 – Wind – 100 MW

Q0789 – Solar – 74.9 MW

Q0801 – Solar – 80 MW

Q0802 – Solar – 50 MW

Q0807 – Wind – 75.9 MW

Q835 – Wind – 190 MW

Q0836 – Wind – 400 MW

15. Please explain whether you expect Segment D1 will be relevant for the 2020 AS RFP, because the in-service date is within the window for that RFP but D1 is not shown in the RFP interconnection bubbles on Slide 71.

**PacifiCorp Response:**

Yes, Gateway West Segment D.1 will be relevant in the 2020AS RFP. As noted above, it will be required to achieve the level of resources identified in the 2019 IRP preferred portfolio that are added to the system to meet resource needs from 2024 and beyond. The results of the 2020AS RFP will ultimately determine whether Gateway West Segment D.1 along with the resources dependent upon this investment, are part of the least-cost combination of bids being evaluated.

16. **Recommendation:** It was difficult to notice this change from the 2019 IRP to the 2021 IRP. It is helpful if PacifiCorp can flag and explain changes to target in-service dates. I am working to understand the implications of Segment D1's new target in-service date.

**PacifiCorp Response:**

PacifiCorp accepts this recommendation and will both flag and explain changes to assumed in-service dates for transmission projects going forward.

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**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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I am sending a MS Word attachment separately titled "7-21 feedback form questions" it contains 2 graphics as well as my full set of questions and recommendations that are pasted in above

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

Recommendations for each topic are included in the above (pasted in and sent as a MS Word document)

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

Thank you for participating.