

PacifiCorp - Stakeholder Feedback Form

2019 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 2019 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.
*Name: <u>Rose Anderson</u>	Title: <u>Click here to enter text.</u>	
*E-mail: <u>Rose.anderson@state.or.us</u>	Phone: <u>503 378 8718</u>	
*Organization: <u>Click here to enter text.</u>		
Address: <u>Click here to enter text.</u>		
City: <u>Click here to enter text.</u>	State: <u>Click here to enter text.</u>	Zip: <u>Click here to enter text.</u>
Public Meeting Date comments address: <u>Click here to enter date.</u>	<input type="checkbox"/> Check here if not related to specific meeting	
List additional organization attendees at cited meeting: <u>Click here to enter text.</u>		

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

- 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.
Please see the attached comments.

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.
Click here to enter text.

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

Thank you for participating.

* Required fields

Summary:

We are concerned that PacifiCorp may have altered its IRP modeling to give Gateway South a special advantage relative to other transmission upgrades. Since starting the Public Input Meeting process, PacifiCorp has lowered costs at Gateway South, increased its interconnection size, and prevented it from being selected after 2028, which has resulted in its selection in the near-term instead. In its September 5th presentation, PacifiCorp presented a variety of IRP portfolios, with Gateway South selected in every single portfolio. This early and across-the-board selection of Gateway South in the near term contrasts starkly with the June 20th modeling where Gateway South was consistently chosen in 2032 or 2028, and the portfolio with Gateway South in 2023 (P-42) was \$137 million more expensive than the portfolio with Gateway South in 2032 (P-31). In order for stakeholders to fully engage with the transmission selections, we ask PacifiCorp to:

- Provide updated information on System Optimizer (SO)'s transmission upgrade options;
- Provide a report ranking and comparing transmission investments in top portfolios;
- Explain endogenous selection of transmission resources in SO through a stakeholder transmission modeling workshop;
- Explain clearly how the SO model decides when to install new transmission versus utilizing existing capacity, including by reporting on the generation and transmission upgrades that are selected before the model selects Gateway South;
- Discuss how the IRP proxy resources compare to actual projects that would be able to interconnect with new transmission on PacifiCorp's system by reporting on the generation that can feasibly be sited along each proposed transmission project, based on the company's current generator interconnection and transmission queues.

With this additional information we will have a better foundation to understand PacifiCorp's modeling changes to Gateway South, how Gateway South compares to other lines like B2H, and finally, how the all-in pricing of a major transmission upgrade plus generation cost compares to other options.

- 1. PacifiCorp should provide transparency into its transmission modeling by providing an updated list of transmission upgrades modeled in System Optimizer (SO), and that list should include any special inputs or assumptions that apply to the resources in PacifiCorp's IRP modeling, including in-service dates and any sunset dates on availability.**

Specifically, PacifiCorp should provide an updated version of the transmission project list that was provided to OPUC Staff on November 14, 2018 in a feedback form response, "Transmission Upgrade by Location and Increment.pdf." The list should include all updated data (size, cost, in-service and sunset dates) for Gateway South/Segment F. PacifiCorp should also report, in a separate table, the same information for Boardman-

Hemingway/West of Hemingway (H) and for other transmission projects that are not available for endogenous selection by SO.

PacifiCorp should also be sure to include B2H sensitivities in the IRP sufficient to truly assess whether B2H is part of a least cost, least risk portfolio. PacifiCorp has previously indicated that it reflects B2H information as that information is made available by Idaho Power. OPUC Staff requests that PacifiCorp specifically coordinate with Idaho Power to ensure the IRP modeling has the most accurate B2H assumptions.

2. PacifiCorp should provide an updated list of transmission upgrades that SO selects in the top portfolios.

PacifiCorp first presented the below information in its December 3-4 presentation, and then updated it in the April 25 presentation. In both versions Gateway South (Aeolus to UT South) was selected in 2032. PacifiCorp should provide updated information on what transmission upgrades are being selected in what order, and the capital cost of the selected upgrades.

Benchmark Case (C-01) Transmission Upgrades



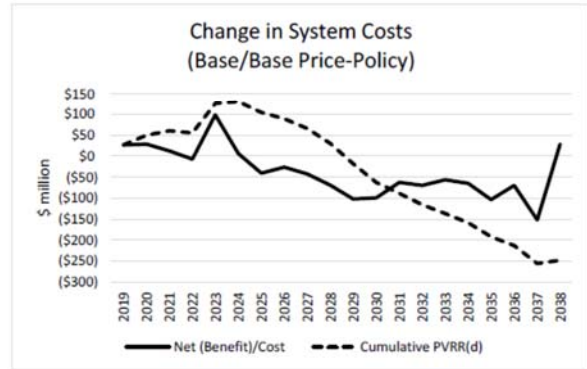
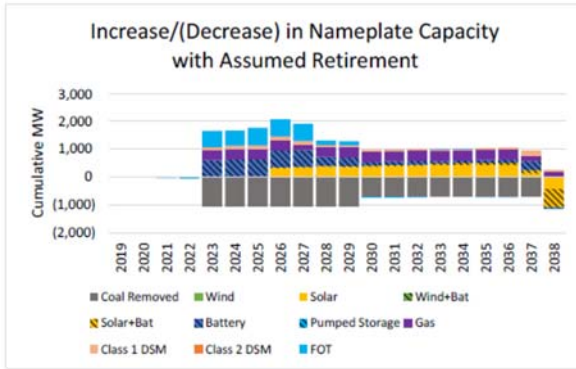
Year	Resource Location	From	To	ATC	Max Interconnection	Nominal Capital (\$m)
2021	UT South	UT South	UT South	0	300	\$8.0
2025	Yakima WA	Yakima WA	Yakima WA	0	405	\$3.1
2025	Southern OR	Southern OR	Southern OR	0	975	\$85.2
2025	SW WY	SW WY	SW WY	0	100	\$8.8
2026	UT South	UT South	UT South	0	800	\$188.0
2030	Goshen ID	Goshen ID	UT North	800	800	\$253.7
2032	Aeolus	Aeolus	UT South	1,500	1500	\$2,319.2
2033	Walla Walla WA	Walla Walla WA	Yakima WA	200	450	\$74.8
2037	Yakima WA	Yakima WA	Southern OR	450	835	\$260.7
2037	UT North	UT North	UT North	0	500	\$50.9
2037	SW WY	SW WY	SW WY	0	500	\$38.8
Total						\$3,294.6

- Yakima WA to Southern OR in 2037 is an expansion of the Yakima upgrade in 2025

3. PacifiCorp should provide a report that identifies how transmission costs and in-service dates change from the benchmark under different top portfolios.

PacifiCorp provided information in its April 25 presentation showing that early retirement of Naughton 1-2 and Jim Bridger 1-2 caused a shift in a WY transmission upgrade relative to the benchmark. This type of report showing changes in transmission upgrades and PVRR from the benchmark portfolio should be presented for the top portfolios, as well as any additional portfolios that PacifiCorp runs to include B2H.

Stacked Case C-42 Overview (NT1-2, JB1-2)

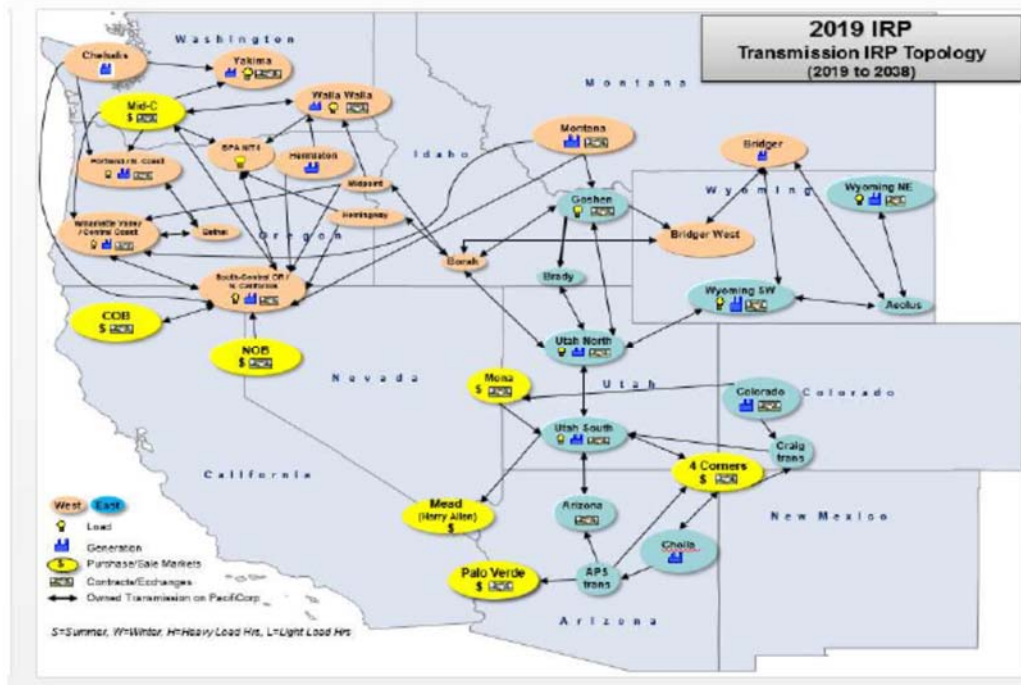


Change in Transmission Upgrades

Change in Year	Resource Location	From	To	ATC	Max Interconnection	Change in Nominal Capital (\$m)
Accelerated from 2037 to 2028	SW WY	SW WY	SW WY	0	500	(\$7.2)
Total						(\$7.2)

4. PacifiCorp should provide the information necessary for Staff to understand whether the IRP modeling process appropriately considers all available transmission on existing lines before building new transmission. Toward providing information necessary for Staff to feel confident in PacifiCorp’s transmission modeling, PacifiCorp should:
 - a. Provide a list of all generation that is selected before the model selects Gateway South in a few top IRP portfolios. The list should include the type, year, size, location, whether any tax credits are assumed, and whether any transmission upgrades are required to build the generation.
 - b. Provide more transparency into endogenous selection of transmission resources in SO through a stakeholder transmission modeling workshop.

In response to previous Staff requests to better understand whether SO is able to utilize all available transmission before selecting new transmission resources, PacifiCorp responded by directing Staff to see the below IRP transmission topology, stating that “transmission is available at these locations.” This graphic is unclear on the amount of available transmission, and Staff requests a transmission analysis that describes in better detail the quantity and location of transmission available to the SO model before it selects new transmission resources. This should include a demonstration of whether and how SO models transmission constraints.



PacifiCorp’s May 20 presentation, on page 23, states, “in the near term all cases include 240 MW of new Wyoming wind.” The June presentation, page 12, states all cases include between 147 MW and 205 MW of new Utah solar. In each portfolio, PacifiCorp’s maps show this Southern Utah solar paired with a 300 MW interconnection. The June presentation also shows 500+ MW of Southern Oregon battery without a transmission upgrade. Staff needs to better understand how SO is determining when upgrades and interconnections are optimal. These questions should be among those addressed by the company in a transmission modeling workshop:

- Are certain upgrades necessary to enable certain generation resources?
- How many/what types of transmission upgrades are available to SO, and in which locations?
- Is SO allowed to choose a wide variety of projects in several locations along the transmission topology, or is it limited to selecting from a few projects with limited geographical variability?
- How did PacifiCorp choose where to allow new transmission and generation resources?
- Is SO able to utilize the extra transmission resulting from lower capacity factors at certain generators?

5. Oregon Staff would like to know to what extent the generation resources studied in the IRP reflect actual projects that would be able to interconnect with new transmission on

PacifiCorp's system. For top portfolios, PacifiCorp should report on the generation that can feasibly be sited along each of its proposed transmission projects, based on the company's current generator interconnection and transmission queues, and how well these actual projects are reflected in the IRP-modeled resources.