BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UM 2059

In the Matter of PACIFICORP, dba PACIFIC POWER, 2020AS Request For Proposals (RFP).	COMMENTS ON THE INDEPENDENT EVALUATOR'S CLOSING AND SENSITIVITIES REPORTS AND PACIFICORP'S UPDATED REQUEST FOR ACKNOWLEDGEMENT OF ITS 2020AS RFP FINAL SHORTLIST

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This 2020AS Request for Proposals (RFP) Final Shortlist (FSL) represents the culmination of many hours of collaborative work by PacifiCorp staff, the Independent Evaluator (IE), and PUC staff. From the release of this RFP to the FSL, there have been seven Commission workshops and over 60 scheduled meetings between PUC staff, PA consulting (PA or the IE), and/or utility staff. This RFP was the first RFP to be fully run under the new Oregon Competitive Bidding Rules, and it is also unique in the level of attention given by Staff and Commissioners to the market price risk and other risks associated with a large near-term acquisition that seeks to make use of market opportunities and renewable incentive opportunities. Additional work undertaken in this unique RFP has included the collaborative development and analysis of sensitivities to assess market price risk and PTC extension risk, and an additional report by the Independent Evaluator assessing all of the sensitivities and their implications for costs and risks to customers.

The 2020AS RFP Final Shortlist was originally filed on June 15, 2021, along with the Independent Evaluator's Closing Report summarizing and assessing the RFP results. However, a few significant errors in the FSL modeling were identified and on July 21, 2021, PacifiCorp filed an update to the FSL.

On July 30, the Independent Evaluator filed its Sensitivity Analysis Report summarizing and assessing the 2020AS RFP sensitivity analysis. On August 4, 2021, PacifiCorp filed a presentation to the Commission that contained certain information responsive requests made of the Company at the July 8, 2021 Special Public Meeting. In the August 4 filing, PacifiCorp identified one additional significant issue in the RFP modeling, and filed another updated FSL acknowledgement request on August 12, 2021, with updated cost data for the Energy Gateway South transmission line. While Staff understands that the 2020AS RFP was large and complex, the frequent corrections, delays, and updates to the Company's analysis made it difficult for Staff and the IE to provide timely feedback on PacifiCorp's work.

Staff's comments below draw from each of these filings, as well as from the public meeting presentations of PacifiCorp and PA Consulting, to provide Staff's perspective on the FSL, sensitivity analysis, and the reporting that has been done so far by PacifiCorp and the IE.

PacifiCorp's June 15, 2021 Final Shortlist Filing

In PacifiCorp's June 15 filing, it shares the initial results of its RFP shortlist modeling and analyzes the performance of various portfolios and sensitivities. The portfolios and sensitivities analyzed include:

- LN – Low gas price and no carbon price,
- MM – Medium gas price and medium carbon price,
- HH – High gas price and high carbon price,
- SL – Staff's recommended low market price sensitivity,
- SNS – Staff's recommended no market sales sensitivity, and
- SNST – Staff's recommended tax credit extension sensitivity.

The Company selected the SNS bids as the 2020AS RFP Final Shortlist.

One element of PacifiCorp's June 15 filing that Staff finds it important to discuss is the Company's statements about its pursuit of compliance with the requirements of the OAR competitive bidding rules. In its filing, the Company states that, "Pursuant to OAR 860-089-0250, PacifiCorp chose track 'two' and provided a proposal for scoring and associated modeling in its independent evaluator selection docket."

Staff would like to clarify that, while the Company may have pursued a path of compliance with the OARs, Staff's position is that the RFP process did not provide adequate time or resources for stakeholders to review the RFP bid scoring/modeling methodology, and did not comply with the OARs. Staff requested that the Commission waive the requirement in OAR 860-089-250 for approval of a scoring and modeling proposal, and that waiver was granted in Order No. 20-114. The waiver means that Staff does not consider PacifiCorp's lack of compliance to be a problem in the current RFP. However, the Company will need to provide adequate time for stakeholder review in future RFPs in order to meet the RFP rules.

PacifiCorp's Updated FSL Presentation Filed July 30, 2021

In this updated FSL presentation, the Company introduces its first updated analysis, corrected for several errors identified in the FSL review process. Additionally, the Company presents the "SNS Bid-LN" portfolio, which includes FSL bids and uses LN assumptions for the proxy resource selection after 2024. The analysis shows that, when both portfolios are optimized for LN assumptions in the long run, the "SNS Bids-LN" portfolio is expected to be about $94 million less expensive than the LN portfolio.

Of note in PacifiCorp's FSL presentation filed July 30, 2021, is the capital cost information provided for BTA bids. This will be helpful to stakeholders in reviewing the prudence and costs of projects after they are built.

In order to further assist stakeholders in cost recovery proceedings, Staff also requests that other important bid cost assumptions be included, under the necessary protective order, with the Company's reply comments. This data includes:

- The operations and maintenance assumptions for each BTA on the FSL, and
- A table with the PPA price of the "best and final" bid from each PPA on the FSL.

PacifiCorp's Updated Final Shortlist Filing

Staff appreciates the information provided by PacifiCorp in its updated Final Shortlist request for approval (FSL filing) filed August 12, 2021, and finds it to contain certain information that is largely responsive to requests made by OPUC Staff and Commissioners. This section of Staff's comments will discuss not only PacifiCorp's filing of August 12, 2021, but also other relevant information provided by the Company in its previous FSL filings.

Summary of FSL

Table 11 from PacifiCorp's updated FSL filing provides a useful reference showing the 2020AS RFP Final Shortlist resources:

Table 11: 2020AS RFP Final Shortlist Projects

Project Name	Bidder	Type	Location	Resource Capacity (MW)	Battery Capacity (MW)
Anticline	NextEra	Wind	WY	100.5	n/a
Cedar Springs IV	NextEra	Wind	WY	350.4	n/a
Rock Creek I	Invenergy	Wind	WY	190.0	n/a
Rock Creek II	Invenergy	Wind	WY	400.0	n/a
Boswell Springs	Innergex	Wind	WY	320.0	n/a
Two Rivers	Blue Earth Renewables LLC & Clearway Renew LLC	Wind	WY	280.0	n/a
Cedar Creek	rPlus Energies	Wind	ID	151.0	n/a
~~Steel Solar I & II~~***	~~DESRI~~	~~PVS~~*	~~UT~~	~~147.0~~	~~37.5~~
Rocket Solar II	DESRI	PVS	UT	45.0	12.5
Fremont	Longroad Energy	PVS	UT	99.0	49.5
Rush Lake	Longroad Energy	PVS	UT	99.0	49.5
Parowan	First Solar	PVS	UT	58.0	58.0
Hornshadow I	enyo energy	PVS	UT	100.0	25.0
Hornshadow II	enyo energy	PVS	UT	200.0	50.0
Green River I & II	rPlus Energies	PVS	UT	400.0	200.0
Hamaker	ecoplexus	PVS	OR	50.0	12.5
Hayden 2	ecoplexus	PVS	OR	160.0	40.0
Dominguez I	Able Grid	BESS**	UT	n/a	200.0
Glen Canyon	sPower (AES)	Solar	UT	95.0	n/a

*PVS: Solar paired with battery storage
**BESS: Standalone battery storage
*** DESRI has withdrawn its bid from the final shortlist. [1]

Regarding the costs of the FSL in comparison to other sensitivities, Table 3 in PacifiCorp's filing shows that the SNS portfolio is the least cost portfolio when compared to other portfolios under MM price-policy assumptions:

[1] PacifiCorp's August 12, 2021 FSL Filing. Page 27.

Table 3 – Portfolios Costs under the MM Price-Policy Scenario

	Portfolio							
Price-Policy	LN Bids	MM Bids	HH Bids	No Bid LN	No Bid MM	No Bid HH	SNS Bids	SNS Bids-LN
MM	23,828	~~23,968~~ 23,763	~~24,408~~ 24,204	24,306	~~24,345~~ 24,160	~~24,959~~ 24,774	~~23,893~~ 23,689	~~23,735~~ 23,530
Delta	0	~~139~~ (65)	~~580~~ 376	477	~~517~~ 332	~~1,131~~ 946	~~65~~ (140)	~~-94~~ (298)

[2]

This is a change from the previous FSL filing, which showed the SNS portfolio to be slightly higher cost than the LN portfolio. This change is attributable to PacifiCorp's discovery that it had previously over-estimated the costs of the Energy Gateway South line.

Requests made by Staff and Commissioners

In various comments and meeting agendas, the OPUC has requested reporting information from PacifiCorp regarding market price risk, transmission cost data, annual revenue requirement, and carbon dioxide emissions by year. PacifiCorp has been responsive to those requests, and Staff will summarize the information provided in these comments.

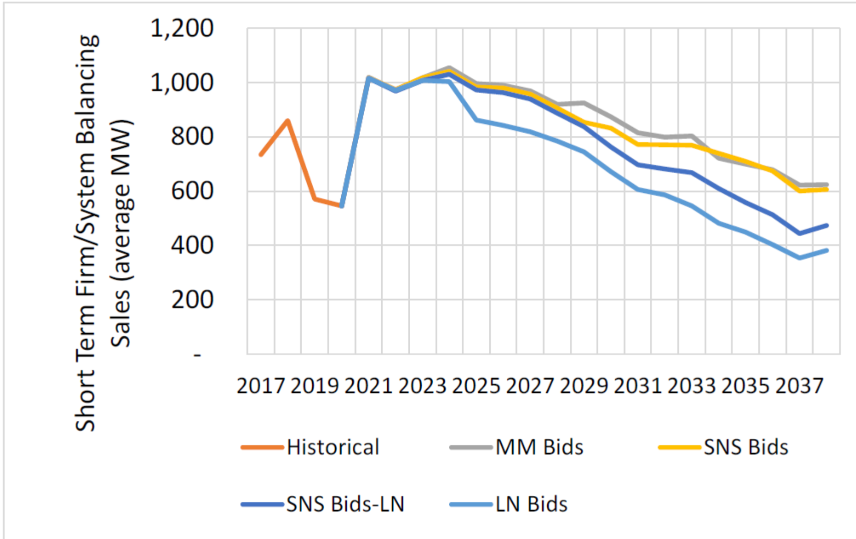
Market Price Risk

Staff has worked with PacifiCorp throughout the 2020AS RFP to consider market price risk through a series of sensitivities and other reporting requests. Staff thanks the Company for its willingness to perform the requested sensitivities and provide the data necessary to assess market price risk. PacifiCorp's FSL filing shows that the Company has taken concerns about market price risk seriously by selecting the bids in one of Staff's requested sensitivities as the RFP shortlist portfolio.

The FSL filing includes charts that are useful in assessing market price risks associated with the FSL and sensitivities. PacifiCorp's Figure 7 shows historical and forecast market sales by year in the Final Shortlist portfolio as well as for key sensitivities. System balancing sales are expected to increase only slightly in 2023 and 2024 after FSL resources come online, and decline throughout the rest of the forecast. The steep increase from historical sales in 2021 does not appear to be attributable to FSL resources because it occurs before any of the FSL resources would be online.

[2] PacifiCorp's August 12, 2021 FSL Filing. Page 11.

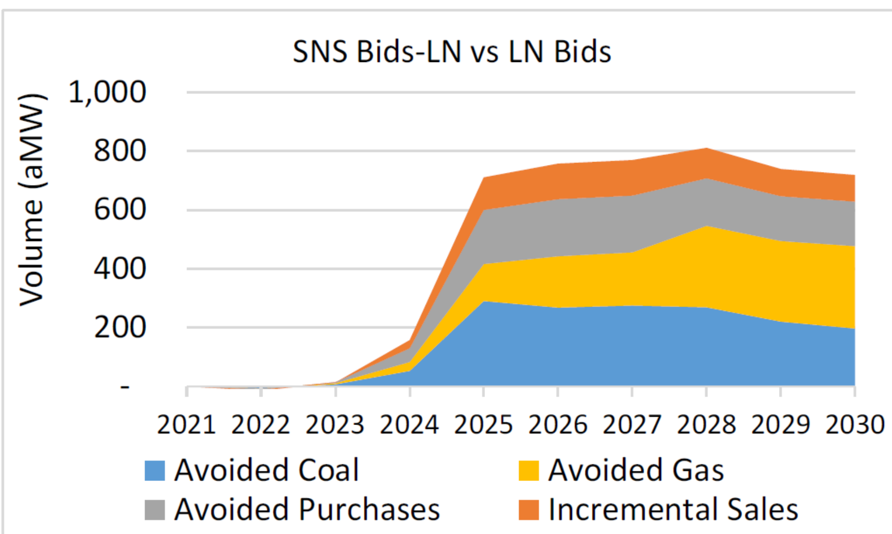
Figure 7 – Market Sales under the MM Price-Policy Scenario



[3]

Market price risk is considered further in Figure 8 in PacifiCorp's FSL filing. Figure 8 shows some of the changes to system energy that would be expected if the SNS Bids were acquired, as compared to the LN bids. As Figure 8 shows, the bids which are present in the FSL but not in the LN case largely develop their value from sources other than market sales. Much of the generation from the FSL bids is in fact helping to displace more expensive forms of generation.

Figure 8 – Changes to System Energy (SNS Bid-LN vs. LN Bid Portfolios) with MM Price-Policy Assumptions



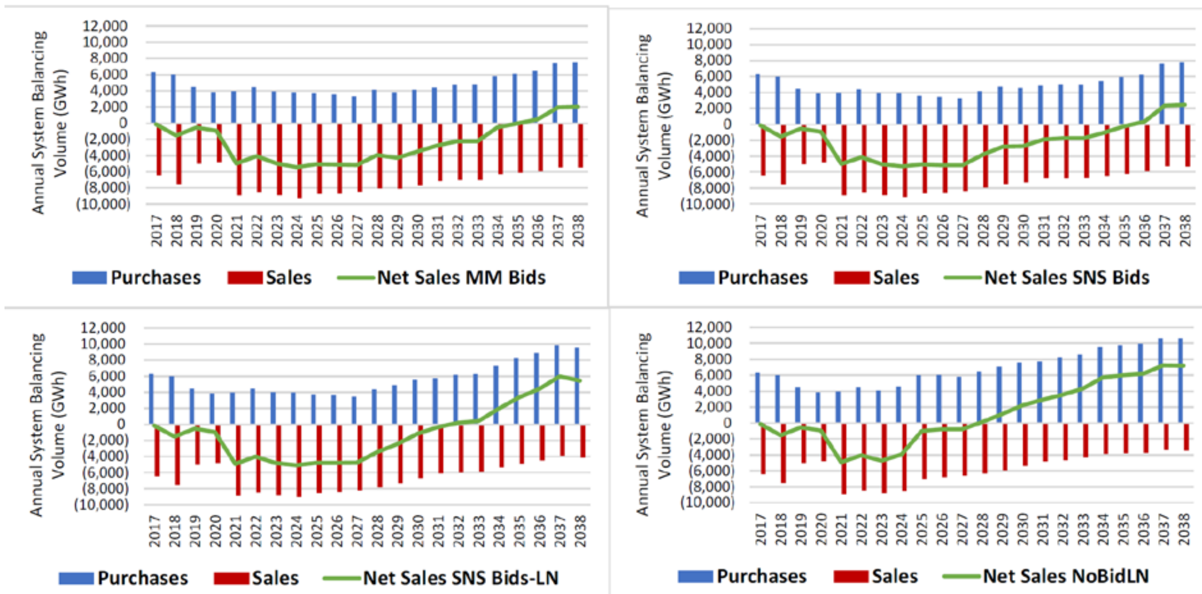
[4]

This helps address Staff's concern that a large, near-term renewables acquisition might depend too heavily on expected market prices for its value. PacifiCorp's FSL filing states that about 16 percent of the

[3] PacifiCorp's August 12, 2021 FSL Filing. Page 16.
[4] PacifiCorp's August 12, 2021 FSL Filing. Page 17.

change in energy through 2027 is attributable to incremental sales. When the three extra bids in the MM bid portfolio are included, that amount would increase to 23 percent of the change in system energy in 2025-2027. In short, this additional analysis helps to assuage Staff's concerns about the potential risks associated with an over reliance on market sales by the FSL.

Additionally, a more detailed graph of market purchases and sales was provided in PacifiCorp's August 4, 2021 filing, along with a few years of historical data. All data is in reference to a MM price-policy scenario:



[5]

Staff appreciates the detailed data and responsiveness to the request in the Commission's July 8 public meeting agenda. The charts show that in a no-bid scenario, the Company becomes a net purchaser of energy in 2028, whereas in the FSL portfolio, the Company remains a net seller through 2032 (SNS Bids-LN) or 2036 (SNS Bids). The Company's net long position increases substantially in each portfolio compared to the historical data from 2017 through 2020. However, the initial increase is not due to FSL resources, as it occurs in 2021 and FSL resources will not be online until 2023/2024.

The net sales position charts help to address Staff's previous concerns that the 2020AS RFP would cause the Company to develop an excessively long portfolio. In fact, any increase in market sales in response to 2020AS RFP FSL bids appears to be modest. A quick check demonstrates that the charts in the August 4, 2021 presentation reflect the charts from the updated FSL filing above. Figure 8 in the Company's FSL filing shows an approximately 100 aMW increase in market sales starting in 2025. That translates to about 876 GWh of energy per year, which is a relatively small amount in comparison to the approximately 5,000 GWh of net sales already expected to occur starting in 2021.

Energy Gateway South

The SNS portfolio builds Energy Gateway South (EGS) in 2024. The line is selected in each portfolio except the LN portfolio. EGS allows the interconnection of substantial Wyoming wind resources and

[5] PacifiCorp's presentation filed August 4, 2021. Page 14.

allows PacifiCorp to build a more efficient, cost-effective 500 kV transmission line instead of a smaller line that would likely be required in the absence of EGS.[6] PacifiCorp's presentation filed August 4, 2021, includes more explanation and background on this topic. PacifiCorp's FSL filing states that there are also benefits to the EGS line that the IRP models do not capture, including facilitating the interconnection of new renewable generation in southern Utah.

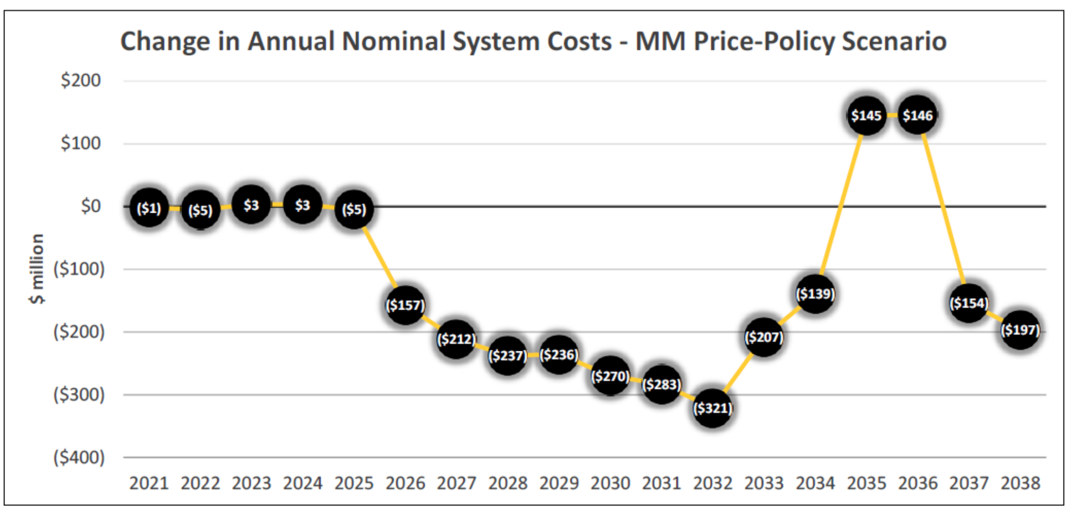
Transmission Costs

PacifiCorp provided a table of interconnection costs associated with each bid in the FSL in its filing on August 4, 2021.[7] This filing also included a table of up-to-date cost estimates for each transmission project selected in the RFP.[8] Staff appreciates this transparency and expects that in future RFPs with substantial transmission costs, this information will be provided by default, since it is an important element in the RFP portfolio's cost to ratepayers. Stakeholders should be allowed to review these costs and transparently compare them to the eventual costs incurred when the transmission resources are actually constructed.

Revenue Requirement

PacifiCorp provided a variety of information on potential impacts to revenue requirement in its FSL filing. Figure 11 shows that, compared to a portfolio with no RFP bids, the FSL portfolio provides lower costs to customers in most years of the planning timeframe. This assessment is inclusive of variable and fixed operating costs as well as capital costs of the new projects:

Figure 11 – Change in Nominal Annual Revenue Requirement



[9]

Staff's understanding is that the portfolios are similar in cost through 2025 because the FSL bids are similar in cost to the other market purchase or proxy resource options available to meet energy and capacity needs during that time. Additionally, because the no-bids portfolio selects EGS and the nearby

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[6] PacifiCorp's presentation filed August 4, 2021. Pages 6 – 10.
[7] PacifiCorp's Presentation filed August 4, 2021. Page 11.
[8] PacifiCorp's Presentation filed August 4, 2021. Page 13.
[9] PacifiCorp's August 12, 2021 FSL Filing. Page 25.

D.1 transmission line in 2026, but without the benefit of maximum PTC value, the relative value of the no-bids portfolio decreases sharply beginning in 2026.[10] The steep increase in cost in 2035 and 2036 reflects the expiration of PTCs associated with FSL resources. It is significant, but should not be seen to invalidate the other benefits of the FSL bids.

Additionally, in PacifiCorp's presentation filed August 4, 2021, the Company provided the following table showing the detailed revenue requirement associated with FSL resources in the first years they are online:

TOTAL COMPANY ($ million)	2025	2026	2027
GWS/D.1/Network Upgrades	$191.8	$220.3	$213.2
Resource Capital	$122.0	$113.7	$107.7
Resource Non-Capital Fixed Costs	$9.3	$9.5	$9.7
PTC Benefit	($40.0)	($42.3)	($43.7)
PPA Costs	$280.5	$280.7	$280.8
RFP FSL Costs	$563.6	$581.9	$567.8
NPC Fuel Savings	($135.1)	($139.2)	($143.0)
NPC Market Savings	($101.9)	($116.3)	($129.2)
CO2 Cost Savings	($50.0)	($55.1)	($64.2)
"NPC" Benefits	($287.0)	($310.5)	($336.4)
Net (Benefit)/Cost	$276.6	$271.4	$231.4
OR ALLOCATED* ($ million)	2025	2026	2027
Net (Benefit)/Cost	$69.2	$67.8	$57.8
Approved Base Rates	$1,203	$1,203	$1,203
%(Decrease)/Increase	5.7%	5.6%	4.8%
* Assumes 25% allocation of RFP bids/transmission to Oregon			

[11]

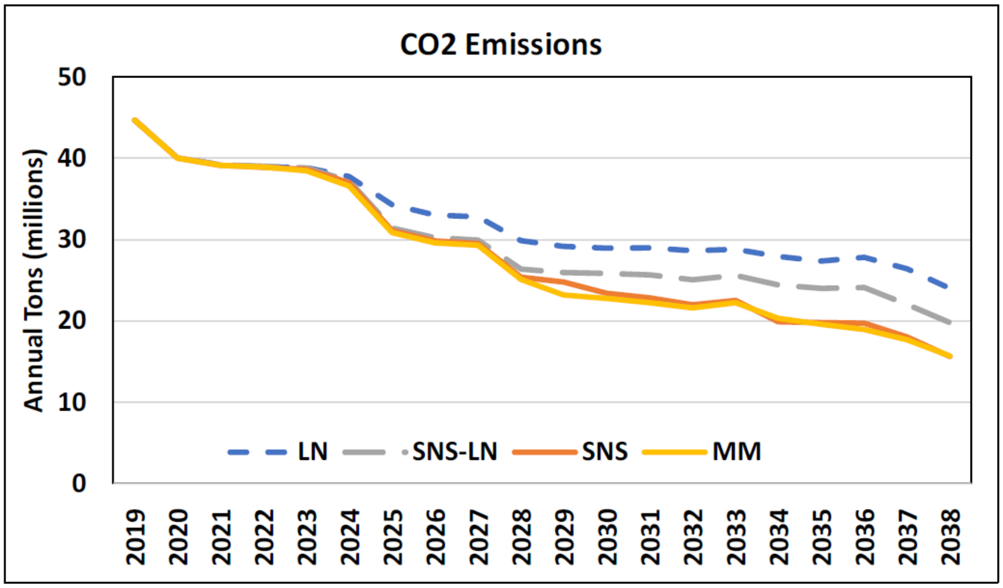
Staff thanks the Company for this accessible data that will help stakeholders think about potential near-term revenue requirement impacts. While the table could appear to indicate that rates could increase as much as 5.7 percent starting in 2025 as a result of FSL acquisition, Staff understands that this interpretation does not consider the counterfactual scenario. There are costs that would be incurred in the absence of FSL resources, such as other near-term reliability resources and any transmission alternatives to EGS. A certain amount of cost increase may be 'baked in' to PacifiCorp rates in the near future regardless of whether FSL bids are acquired, and the entire amount is not necessarily avoidable if FSL bids are not acquired.

Carbon Dioxide Emissions

PacifiCorp's Figure 10 shows a chart of greenhouse gas emissions by year for four RFP portfolios:

[10] PacifiCorp's June 15, 2021 FSL filing. Page 23.
[11] PacifiCorp's Presentation filed August 4, 2021. Page 15.

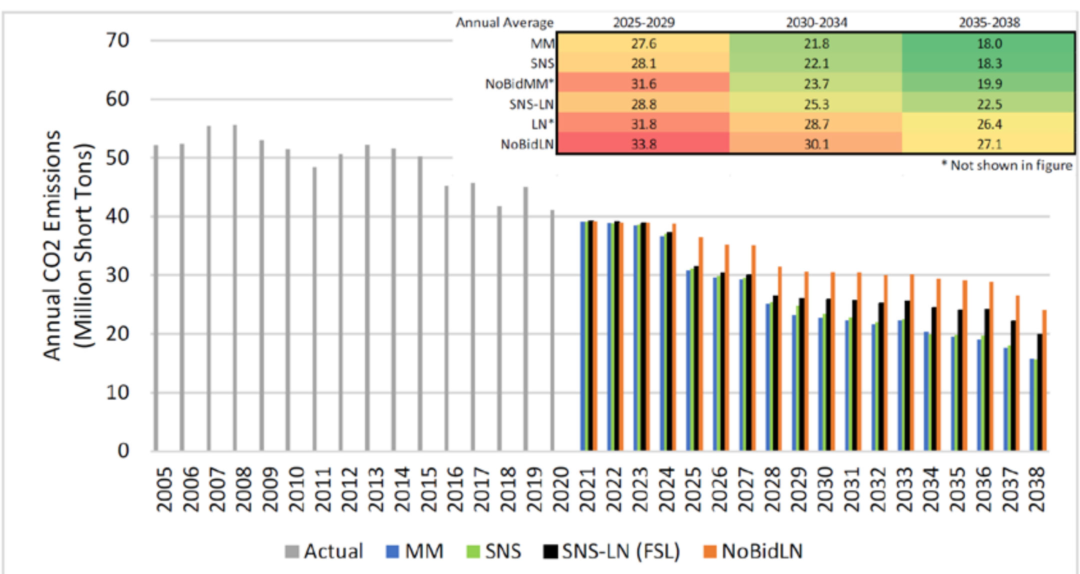
Figure 10 – Annual CO_2 Emissions



[12]

This chart shows that the emissions associated with the SNS portfolio are similar to those from the MM portfolio. While the SNS-LN portfolio shows an increase in emissions beginning in 2027, this would only occur if LN planning assumptions prevailed throughout the planning timeframe. In this scenario, emissions would still be significantly reduced from the LN portfolio through the selection of the SNS bids.

Additionally, in response to the July 8, 2021 public meeting agenda, PacifiCorp provides the following chart in its August 4, 2021 presentation:



[13]

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[12] PacifiCorp's August 12, 2021 FSL Filing. Page 19.
[13] PacifiCorp's Presentation filed August 4, 2021. Page 16.

Staff appreciates this additional table, which allows projected CO_2 emissions of the RFP portfolios to be compared with PacifiCorp's historical emissions.

Sensitivities

PacifiCorp's FSL filing shows the difference in value between a portfolio with SNS bids and a portfolio with no SNS bids in various price-policy scenarios, demonstrating that, as compared to a portfolio that obtained no bids in the 2020AS RFP, the SNS bids create a benefit of $472 million to $630 million in the MM case and $528 to $960 million in the HH case.[14] These benefits are of a scale that would be substantial to customers, if realized.

In the LN scenario, the SNS bids result in a $351 million to $1,148 million decrease in benefits, as compared to a No Bid portfolio. This could also represent a substantial risk to customers. However, the LN scenario results make two assumptions that may not be realistic moving forward. First, the No Bid portfolio is able to rely on substantial energy and capacity from low-cost market purchases, while the 2021 IRP development process has provided some evidence that the 2019 IRP assumption that 1,450 MW will always be from the market is no longer reasonable. [15] As a result, PacifiCorp plans to use significantly lower limits for FOT availability in the 2021 IRP. Second, benefits of the No Bid portfolio rely on the Company's ability to site and construct new gas plants. It is not clear that this will be simple or even possible throughout the planning timeframe, and in the 2021 IRP, the Company is considering restricting the construction of new gas resources for this reason. Therefore, Staff finds that the decrease in value to customers that could occur if LN assumptions prevailed throughout the planning timeframe is not a highly probable outcome of this RFP.

Market Reliance Risk

To help address the risk of relying on FOTs, PacifiCorp performed an additional sensitivity that limited FOT availability to 500 MW in the summer and 1000 MW in the winter, consistent with the 2021 IRP currently in development. In this sensitivity, the LN bids portfolio loses about $1.25 billion of its value because of its reliance on market purchases.

Table 8 – FOT Sensitivity PVRR Results

PaR Stochastic Mean PVRR and Impact of Reduced FOT Limit ($ millions)				
Price Policy	RFP Bids (MW)	2019 IRP FOT Limits	2021 IRP FOT Limits	Delta
LN Bids	1,156	23,828	25,078	1,249
MM Bids	3,722	~~23,968~~ 23,763	~~24,076~~ 23,872	109
SNS Bids	3,445	~~23,893~~ 23,689	~~24,079~~ 23,875	186

[16]

[14] PacifiCorp's Updated FSL filing of August 4, 2021. Table 10. Page 24.
[15] PacifiCorp's October 22, 2020 IRP Public Input Meeting presentation. Pages 36 – 43.
[16] PacifiCorp's August 12, 2021 FSL Filing. Page 21.

Staff's understanding is that the LN portfolio is significantly impacted by the reduced FOT purchase limit because it relies heavily on FOTs for its value, while the MM and SNS portfolios are less reliant on market purchases.

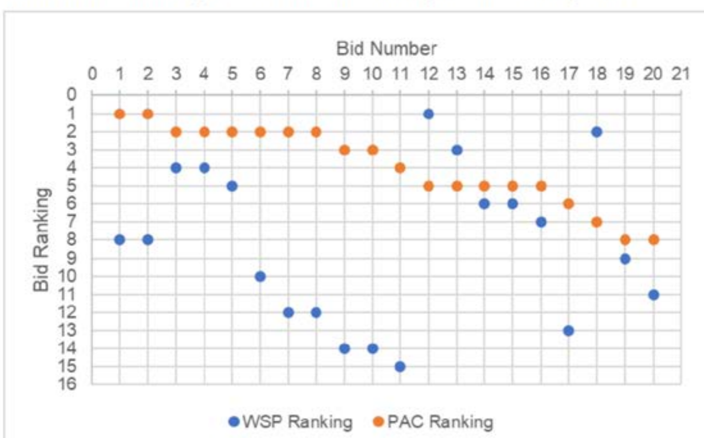
Independent Evaluator's Report on FSL Selection

PA Consulting has helped ensure that the 2021AS RFP has been conducted fairly and resulted in a competitive outcome. PA has actively monitored all communications between PacifiCorp and bidders during the 2021AS RFP. In addition, PA extensively reviewed the cost assumptions for bids and the results of the IRP models that performed bid selection. In this context, PA then evaluated the reasonableness of PacifiCorp's decision of final shortlist resources.

One issue raised by the IE in the closing report is that of the uncertainty expressed by PacifiCorp's independent engineering reviewer regarding battery storage. PA described these concerns as, "consistent with the immaturity of this technology type."[17] The independent engineering reviewer recommended that PAC continue its technical diligence through the process of contracting and construction to de-risk project delivery to the extent possible.[18] Staff appreciates the IE's input on this topic and supports the IE's recommendation to take delivery risk for battery projects seriously, especially in contracting with PPAs.

The IE has provided a chart comparing the engineering reviewer's ranking of bids to PacifiCorp's non-price scoring:

Figure 4-2: WSP Technical ranking vs. PAC Non-Price ranking of Solar + Storage bids



[19]

Staff requests that PacifiCorp report in its reply comments whether any of the six bids with the lowest engineering score have been included in the final shortlist. If they have, Staff requests PacifiCorp provide a detailed explanation of the engineering reviewer's reasoning for the low ranking. Additionally, if any of

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[17] PA Consulting's Closing Report. Page 29.
[18] PA Consulting's Closing Report. Page 29.
[19] PA Consulting's Closing Report. Page 29.

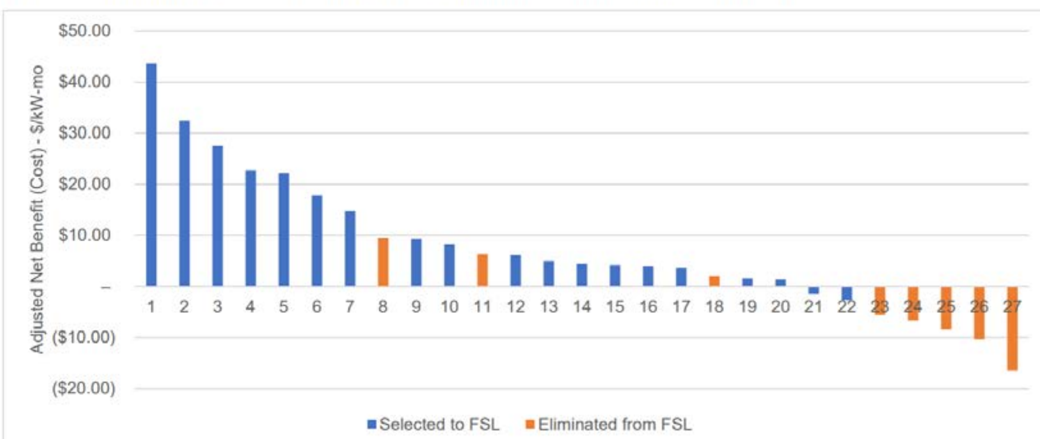
the lowest scoring bids have been included in the FSL, PacifiCorp should consider engaging an engineering consultant during the contracting and construction process, with a focus on the low-scoring bids.

Another important topic raised by the IE in its closing report is that of the cluster study interconnection timelines. Ten bids that participated in the cluster study received interconnection timelines of 72 months. It is Staff's understanding that this was a general estimate on behalf of PacifiCorp Transmission, and that some projects may be able to interconnect in less time.

PA Consulting monitored conversations with several bidders on this topic, and provided a recommendation that PacifiCorp might be able to accept bids with a 72 month interconnection timeline into the FSL, while placing the interconnection timing risk on the generator and specifying damages. Staff expects that, in future RFPs, PacifiCorp will prevent bid elimination due to generalized, non-specific interconnection timelines.[20] Staff supports the IE's recommendation that PacifiCorp allow cluster study participants to remain in the RFP, subject to acceptance of the schedule risk through contractual provisions. Additional recommendations are included below in the Staff Recommendations section of these comments.

The IE's report showed that, although the cluster study interconnection timeline did eliminate some bids from FSL consideration, those bids were not generally expected to provide more value to the system than other bids:

Figure 6-2: Ranking of FSL Selected vs. FSL Eliminated bids (Adj. Net Benefit[14])



[21]

However, the IE warned that providing the greatest number of options to the IRP models will result in the best portfolio for customers. The IE determined that the elimination of the cluster study bids, while undesirable, did not represent any bias on behalf of the PAC RFP team.

In reviewing the FSL itself, the IE found that PacifiCorp applied the RFP rules in an unbiased manner and communicated transparently with the Independent Evaluators, and that the RFP resulted in a diverse portfolio of competitive resources.

[20] IE Closing Report. Page 33.

[21] PA Consulting's Closing Report. Page 38.

The IE expressed some concern about curtailment risk for Eastern Wyoming wind resources, given the limited transmission capacity on the EGS line. Staff requests the Company include in its reply comments an explanation of whether/how the IRP modeling considers curtailment risk, and whether there is any additional analysis that could shed more light on the question of curtailment risk.

PA Consulting was supportive of PacifiCorp's decision to select the SNS portfolio instead of the larger MM portfolio, since the marginal economics of the additional bids might not compensate for the project performance risk.

The IE suggested that in future RFPs, PacifiCorp could more clearly provide information on its capacity need, as well as solar/wind penetration levels that could help bidders formulate the best bids for PacifiCorp's unique system need.[22] Staff supports this recommendation and requests that PacifiCorp include in its next RFP a section detailing the capacity need and renewables penetration levels on its system, as well as the most recently calculated capacity contribution values for various resources.

The IE evaluated whether PacifiCorp's scoring models had any bias toward Build Transfer Agreement (BTA) resources over contracted resources. The IE found that, in fact, the scoring models consistently scored PPA options more favorably than corresponding BTA options, and concluded that scoring did not favor BTAs. Further, the IE found that the inputs to the IRP models were generated in an unbiased fashion, and that the BTA bids that were included in the FSL "were not included out of any favoritism or model bias."[23]

The IE reviewed the calculations of revenue requirements for BTA bids and observed that BTA bids were consistently modeled by PAC, with no bias toward BTAs. The IE paid special attention to the capital cost and the Operations and Maintenance (O&M) expense as modeled in the IRP models, noting that O&M costs are inherently based on PacifiCorp's estimates of the costs it would incur in operating a BTA project. PA determined that the O&M cost inputs and methodology used by PacifiCorp for BTA models represented a "commercially reasonable and defensible approach to estimating such expenses."[24] Staff reviewed the revenue requirement workpapers from the IRP models and confirmed that the fixed and variable costs of the BTAs were represented appropriately. PPAs' revenue requirements were represented by a fixed PPA price per MWh.

[22] PA Consulting's Closing Report. Page 42.
[23] PA Consulting's Closing Report. Page 46.
[24] PA Consulting's Closing Report. Pages 44-46.

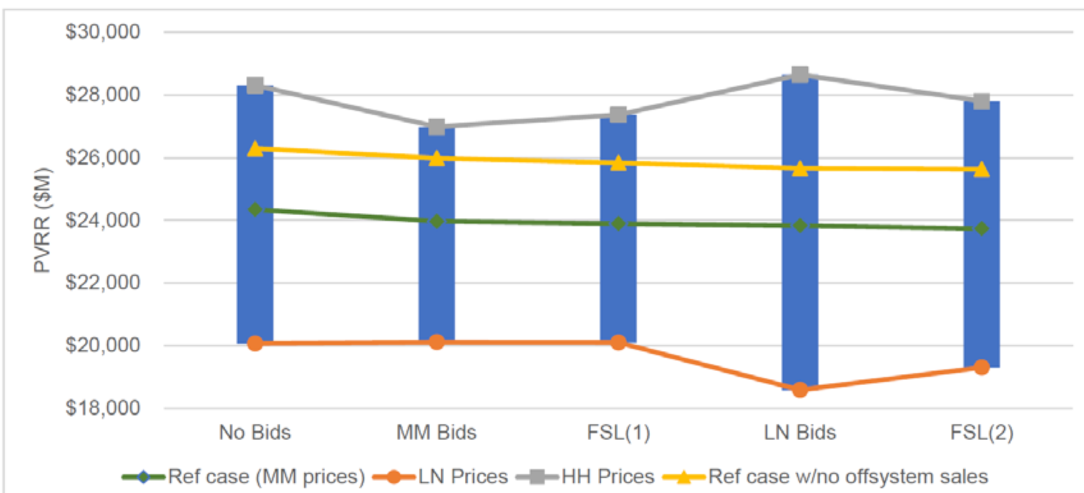
The IE Report on Sensitivities

The IE's report on sensitivities looks into the sensitivities modeled by PacifiCorp and provides PA Consulting's perspective on their implications for Commission review of the Final Shortlist. The sensitivities report represents an expansion of the usual IE duties in an RFP, since PA Consulting has been asked to evaluate how the sensitivities can help ensure just and reasonable rates for ratepayers, and not simply evaluate whether they were performed in a way that was consistent with a competitive and fair RFP.

The IE sensitivities report addresses the issue of Energy Gateway South by comparing the LN portfolio, in which EGS is not chosen, to other sensitivity portfolios. The IE notes that the revenue requirement difference between the sensitivities is only about 1 percent of the value of the portfolios, but that risk considerations can also vary substantially between portfolios, particularly the risk of acquiring excess energy that the market cannot absorb through market sales. The IE performed analysis to show that the FSL portfolio would maintain a small cost advantage, even under "no sales" assumptions. This analysis was performed before PacifiCorp provided its updated EGS cost data the further improved the economics of the FSL.

The IE's report included an assessment of risk through visualization of the range of PVRR outcomes by portfolio:

Figure 2-2: Portfolio Risk (Range of PVRR outcomes by portfolio)



[25]

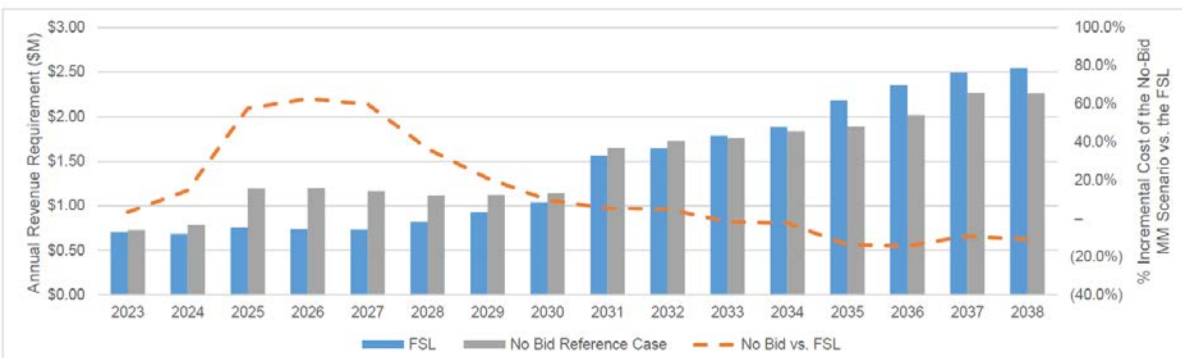
The chart shows that the LN portfolio carries with it both the opportunity of substantial cost savings if LN assumptions prevail, and simultaneously an especially high risk of low performance in a HH scenario. However, the IE's report was filed before PacifiCorp's second correction to its final shortlist, and so the chart above does not reflect the cost decreases to the MM and FSL portfolios resulting from the significant reduction in the cost of Energy Gateway South.

[25] PA Consulting's Sensitivities Report. Page 12.

The IE report assessed the risk of the LN portfolio further, showing that it would perform 22 percent better under LN assumptions than under MM assumptions, and about 20 percent worse under HH assumptions than under MM assumptions. The HH portfolio had a lower range of performance variation, from 13.5 percent worse to 12.5 percent better.

The IE's analysis of the NPVRR of various sensitivities concluded that there appears to be more "cushion" to err on the side of under-procurement with the LN portfolio. This is because, as compared to the LN portfolio under a MM price-policy scenario, the increase in benefits of the LN portfolio in an LN world is greater than the increase in costs of the LN portfolio in a HH world. The IE attributes this in part to the avoidance of construction costs for EGS. However, the IE cautions that an LN portfolio could be burdened with a "severe misalignment" between the substantial gas buildout in that portfolio and the price of carbon in a HH price-policy scenario. Staff agrees with the IE's assessment that, on the basis of cost alone, the LN portfolio is attractive, especially in an LN price-policy scenario. However, the heavy reliance on market purchases and gas generation in the LN portfolio significantly increases risks associated with market liquidity issues and carbon policy outcomes. The market liquidity issue is especially concerning because it could impact system reliability.

In its Figure 3.5, the IE provides a comparison of the annual revenue requirement of the FSL, as compared to a portfolio with no bids constructed using MM assumptions:



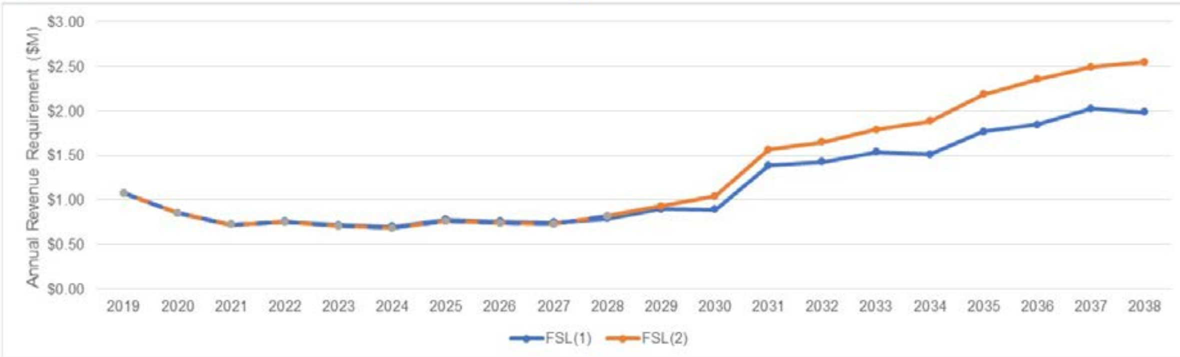
26

It is Staff's understanding that this chart does not include the levelized fixed Operations and Maintenance costs of either portfolio. This is why the No Bid case, appears to be more expensive in the near term. Staff's understanding is that, in fact, the inclusion of fixed costs would cause the chart to more closely resemble the revenue requirement assessment provided by PacifiCorp in Figure 11 of its FSL filing.

The IE's Figure 3-6 performs a similar comparison between the FSL as modeled under SNS assumptions and the FSL as modeled under LN assumptions after the 2024 bids are selected. The IE refers to these as FSL(1) and FSL(2). Figure 3-6 shows that, beginning in about 2028, the FSL(2) portfolio begins constructing more gas, which increases operating costs as compared to the FSL(1) which included more low-variable-cost renewable generation:

[26] PA Consulting's Sensitivities Report. Page 17.

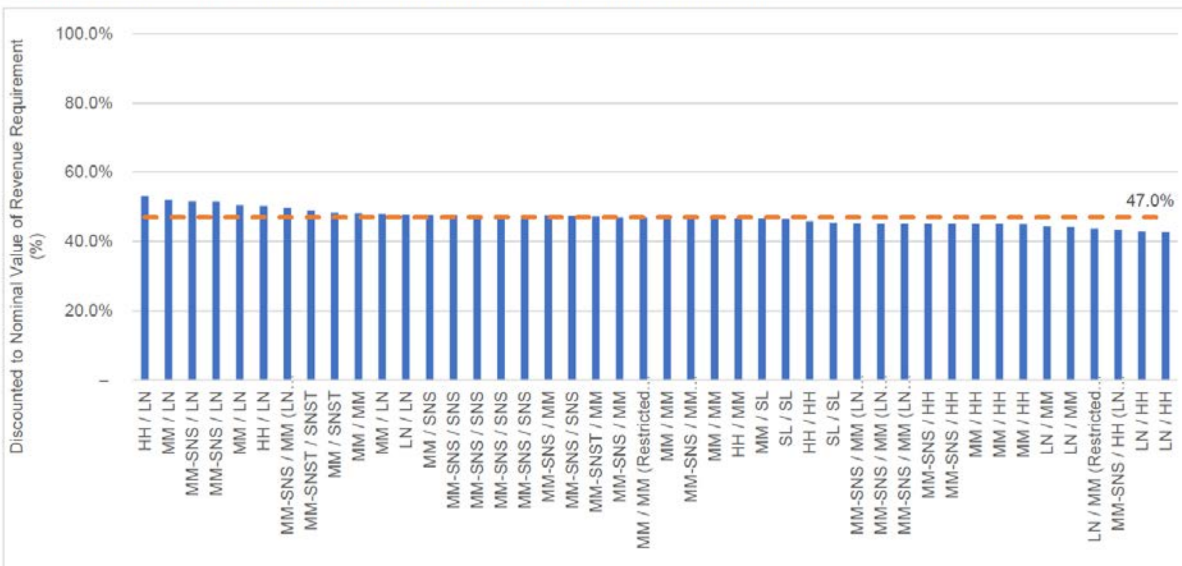
Figure 3-6: Incremental Cost of the FSL without LN Optimized Proxies



[27]

The IE's Figure 3-7 looks at revenue requirement timing and attempts to show whether the portfolio revenue requirement is weighted toward the beginning or the end of the planning horizon:

Figure 3-7: Effect of Scenario Selection on Revenue Requirement Timing[8]



[28]

The bars toward the left of the chart reflect higher costs in the beginning of the planning timeframe, and those at the right reflect higher costs at the end of the planning timeframe. The label "MM-SNS / LN" represents the FSL portfolio evaluated under LN planning assumptions.

The IE's main takeaway from its analysis is that the choice of sensitivity has a negligible impact on the temporal distribution of portfolio revenue requirement compared to the price/policy environment. The IE's chosen metric varies by only a few percentage points between different portfolios under the same price-policy scenario, and the IE does not mention any concern or surprise with its findings. Staff appreciates the IE's analysis and attention to the important issue of intertemporal equity and fairness for ratepayers.

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[27] PA Consulting's Sensitivities Report. Page 12.

[28] PA Consulting's Sensitivities Report. Page 18.

The IE's assessment of market sales in the FSL and sensitivity portfolios shows that revenues from market sales only vary by a few percentage points among portfolio, as a percentage of total revenues. These range from 12 percent in the SL portfolio to 16 percent in the HH portfolio. The IE then estimates the risk associated with market sales by looking at the SNS scenario, which does not allow market sales. The IE's analysis shows that, as compared to the MM portfolio, the smaller RFP acquisitions in the FSL portfolio reduce market sales risk by about $180 million, although it results in a portfolio that is about $100 million more expensive under MM assumptions.

The IE's report considers the possibility of an extension of the ITC/PTC tax credits, finding that it is 'reasonably likely' that these tax credits will be extended again. The bids selected in a tax credit extension sensitivity did not differ from the FSL bid portfolio, however costs in the tax credit extension portfolio were 2.7 percent lower and renewable energy generation was 1.8 percent higher throughout the portfolio timeframe. The IE notes that a tax credit extension could increase the amount of renewable energy on the grid, thus reducing the amount of revenue available from market sales. Staff notes that this impact would not have been reflected in the portfolio modeling in this RFP, so if the tax credits eventually are extended, then further analysis of low market price scenarios will be an important part of future IRPs and RFPs.

The IE reviews the reliability of portfolios, finding that they are generally comparable in terms of reliability. The IE also notes that higher penetrations of renewable energy may present challenges in terms of reliability, and questions whether HB 2021 renewable requirements will affect the risk and value profile of the FSL in a future system with more intermittent resources. In response to the IE's questions, Staff notes that PacifiCorp's requirements for renewable energy under HB 2021 apply only to its Oregon-allocated emissions, and that future cost allocation decisions are expected to allow Oregon to obtain a low- or zero-carbon portfolio, while PacifiCorp's system as a whole will not necessarily be required to achieve the same targets.

The IE's assessment of PacifiCorp's market purchase restriction sensitivity finds that, while a portfolio can save roughly $190 million if it is allowed to purchase at the higher 1,450 MW limit, as compared to the lower limits used in the 2021 IRP development, the risk to ratepayers is from conditions of constrained market liquidity. Staff would expand on the IE's assessment to note that the risks of relying heavily on market purchases include paying much higher prices or sacrificing reliability if market purchases are scarce or unavailable.

In the IE's recommendations it questions whether a reserve margin is enforced in PacifiCorp's modeling throughout the planning timeframe. It is Staff's understanding that a 13 percent planning reserve margin (PRM) is a feature of PacifiCorp's modeling in System Optimizer (SO), while Planning and Risk (PaR) is focused on finding the optimal way to reliably serve load, using the set of system resources provided by SO. The PRM used to inform portfolio design in SO does not get translated precisely into PaR, probably due to differences in the way the models treat the capacity value of renewables. This is why the PaR model may sometimes not meet the full 13 percent PRM from SO. PacifiCorp evaluates all portfolios in PaR to ensure they are reliable, and adds resources to any portfolios that are shown to be unreliable.

The IE's recommendations include a statement that PacifiCorp's workpapers report a levelized capital revenue requirement "which front-loads recovery of later charges."[29] The IE recommended that more detail on revenue requirement timing should be provided in the future.[30]

Staff's understanding is that the levelized revenue requirement for capital costs in PacifiCorp's models provides an accurate reflection of when costs will be incurred by customers. However, Staff is concerned about the IE's suggestion that the capital costs in PacifiCorp's portfolios may be inappropriately weighted, and requests that PacifiCorp respond to the IE's recommendation in its reply comments.

Finally, the IE's report recommends that operational performance of Wyoming wind resources may be a target for Performance Based Ratemaking. Staff agrees that this may be a good instance for the application of PBR, and is interested in further discussion and recommendations from PA Consulting regarding PBR as it may apply to Wyoming wind resources. However, given that the OPUC has not taken steps to begin implementing PBR, it may not be an option that is available in this RFP.

Staff Recommendations

RFP Complexity and Timeline

Generally, Staff and the IE are both concerned about the implications of the size, complexity, and compressed timeline of the 2020AS RFP. In its closing report, the IE notes:

> The diversity of technologies, geographies, variants, and counterparties represented a clear burden and stress on the RFP process. The number of bids which needed to be evaluated, reconciled, sampled, and run through various forms of modelling tools caused process delays and introduced a highly likelihood of error.

PacifiCorp corrected its FSL analysis several times, creating challenges for parties in assessing the FSL analysis. The IE faced substantial delays receiving the workpapers needed to perform analysis on the FSL and sensitivities, making its task of reviewing PacifiCorp's modeling more difficult and causing the schedule to be extended several times. The FSL analysis was corrected two times, and not all sensitivities were repeated for each corrected FSL, making the IE's job of evaluating the sensitivities substantially more difficult, since instead of simply reviewing the results of sensitivities, the IE had to estimate the results of the new sensitivities using available information about the previous sensitivities and the new model runs.

Staff is concerned that given the RFP scale and timeline, the IE did not have sufficient time or guidance from PacifiCorp to fully evaluate the sensitivity workpapers, which are complex and do not come packaged with support materials. The IE's sensitivities report states that:

> During the FSL analysis PA did not have much contact with PacifiCorp's analysts or analysis and then receive a sizable "data dump". Regular contact during the analysis would help prepare the

[29] PA Consulting's Sensitivities Report. Page 27.
[30] PA Consulting's Sensitivities Report. Page 27.

> IE to review the shortlist, and even more so the sensitivity runs. By comparison, we received very little in the way of background data or "workpaper" file from the ISL analysis.[31]

Staff recommends that, if PacifiCorp plans to do RFPs of a similar scale and complexity in the future, it should acquire more staff and other resources necessary to meet its scheduled deadlines accurately and without delay. Additionally, Staff recommends that in the next PacifiCorp RFP, dates for providing workpapers and results to the IE should be formally included in the RFP docket schedule, with adequate time to process and discuss them with PacifiCorp. A delay in getting these important materials to the IE should result in a similar delay to subsequent events, filing dates, and decision dates in the RFP docket.

Cluster Study Timeline

Staff recommend PacifiCorp take steps to prevent bidders from being disqualified by generalized, imprecise interconnection timelines from the cluster study. This could be done by a) allowing bidders to join the FSL and using contractual provisions to limit COD risk, b) working with PacifiCorp Transmission to provide more specific COD estimates for cluster study participants where possible, and c) allowing enough time in the RFP process for bidders to receive updated interconnection studies from PacifiCorp Transmission that provide project-specific interconnection timelines. There may be additional ways to address this problem, and Staff encourages PacifiCorp to respond in reply comments regarding any preferred method(s).

Price Updates

Some bids in the RFP increased prices substantially in the bid pricing update. However, there was no clear way to differentiate price changes caused by interconnection costs from other types of price increases. Staff supports the IE's recommendation that that bid price updates should be managed by either a) reducing the amount of time the RFP takes to minimize the need for price updates, b) investigating whether a limit can be placed on the amount of price escalation or c) requiring justification for bidders' price escalation.

Engineering Reviewer Ranking

Staff requests that PacifiCorp report in its reply comments regarding whether any of the six bids with the lowest engineering score have been included in the final shortlist. If they have, Staff requests PacifiCorp provide a detailed explanation of the engineering reviewer's reasoning for the low ranking. Additionally, if any of the lowest scoring bids have been included in the FSL, PacifiCorp should consider engaging an engineering consultant during the contracting and construction process, with a focus on the low-scoring bids.

StorageVet

The IE's closing report notes that the StorageVet tool used to determine the value of storage presented some difficulties in the RFP analysis, especially for certain types of resources. Staff supports the IE's recommendation that PacifiCorp participate in the development of the next version of StorageVet and provide feedback to the authors.

[31] PA Consulting's Sensitivities Report. Page 27.

Revenue Requirement

Staff is concerned about the IE's suggestion that the capital costs in PacifiCorp's portfolios may be inappropriately weighted, and requests that PacifiCorp respond to the IE's recommendation in its reply comments.

PTC Extension Portfolio

The IE is uncertain whether the results of the PTC extension sensitivity were the result of the "no-sales" assumption in the SNST portfolio. Staff requests that PacifiCorp reply to the IE's concern in its reply comments.

Wind Curtailment

The IE has noted that wind curtailment could be an issue in Eastern Wyoming given limited transmission capacity. Staff requests PacifiCorp address the potential risk of wind curtailment in Eastern Wyoming in its reply comments. Specifically, Staff would like to know how much wind curtailment occurs in that location in the FSL portfolio, and whether the portfolio modeling has been able to include curtailment risk in its calculation of the NPVRR of RFP portfolios and sensitivities.

RFP Time Horizon

The IE has recommended that, since the RFP portfolio NPVRR is frequently impacted by resource decisions late in the planning horizon, "It is worth exploring ways to put greater evaluation weight on portfolio value earlier in the projection horizon or in certain key years."[32] Staff concurs that this could be a useful exercise, especially given the uncertainty in later years of any forecast. Staff would support the consideration of a higher discount rate applied to a few key portfolios as a sensitivity meant to inform whether the portfolios are heavily influenced by proxy resource decisions late in the portfolio timeframe.

Information and Transparency for Bidders

PacifiCorp's 2020AS RFP did not include an abundance of information about PacifiCorp's system that could be used to bidders to submit the best possible bids. Staff supports the IE's recommendation that PacifiCorp provide information on capacity need and renewables penetration of renewables on its system. Additionally, Staff recommends PacifiCorp provide the most recently calculated capacity contribution values for various resources.

PPA and BTA Price Information

A simple table with the PPA price of the best and final bid from each PPA on the FSL would be helpful to stakeholders in cost recovery proceedings. Staff requests that, as part of PacifiCorp's reply comments, it provide a table with PPA prices under any necessary protective order. Additionally, Staff requests a report on the operations and maintenance assumptions used for each BTA bid on the FSL.

[32] PA Consulting's Sensitivities Report. Page 27.

Conclusion

Staff thanks PA Consulting, PacifiCorp, and stakeholders for the continued participation and hard work that has resulted in the 2020AS RFP Final Shortlist. The work done leading up to this point has helped provide Staff with confidence that the FSL has been thoroughly assessed through a wide range of cost and risk scenarios. Staff's recommendations above will help to ensure that the outcome of this RFP is just and reasonable, while creating a path for further improvements in areas such as transparency, process efficiency, and effective communication in future RFPs.

This concludes Staff's comments on PacifiCorp's 2020AS RFP Final Shortlist and the Independent Evaluator's Closing Report and Sensitivities Report.

Dated at Salem, Oregon, this 19th of August, 2021.

Rose Anderson
Senior Economist
Energy Resources and Planning Division