

REDACTED

Rocky Mountain Power

Exhibit RMP____(RTL-3SR)

Docket No. 17-035-40

Witness: Rick T. Link

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

REDACTED

Exhibit Accompanying Surrebuttal Testimony of Rick T. Link

Solar RFP IE Report

May 2018

Privileged and Confidential- Not for Bidder Access

INDEPENDENT EVALUATOR'S CLOSING REPORT ON PACIFICORP'S 2017 SOLAR RFP

Prepared for

PacifiCorp

By



London Economics International LLC

717 Atlantic Ave Suite 1A

Boston, MA 02111

March 29, 2018

Privileged and Confidential – Not for Bidder Access

Independent evaluator's closing report on PacifiCorp's 2017 Solar RFP

Prepared for PacifiCorp by London Economics International LLC

March 29, 2018



London Economics International ("LEI") was engaged by PacifiCorp to serve as Independent Evaluator ("IE") for its 2017 Solar Request for Proposals ("2017S RFP") to ensure that the procurement process is competitive, fair, and managed according to procurement best practices such that the resulting acquisition of solar resources is price competitive. LEI provides this closing report evaluating the initial and final shortlist evaluation process, and the final outcome of the RFP process.

LEI finds that the 2017S RFP was consistent with the RFP documents. It was conducted in a fair and unbiased manner. It attracted a large number of bidders, which helps ensure that any resulting acquisition of solar resources would be price competitive and offer the most potential benefit to retail ratepayers. PacifiCorp's evaluation process was thorough, reasonable, and reflected industry best practices.

In an unusual RFP outcome, PacifiCorp ultimately did not select any of the 2017S RFP bids to the final shortlist, in spite of the potential customer net benefits which PacifiCorp's baseline analysis showed. LEI did not find PacifiCorp's decision not to accept any solar bids to be unreasonable. PacifiCorp believes that bid prices reflected a risk premium based on uncertainty over looming tax and tariff changes during late 2017 and early 2018; the company believes that benefits to consumers will be higher once the uncertainty fades. Therefore, PacifiCorp plans to re-assess the potential benefits of solar resources in its 2019 IRP, with a view to potentially conducting another solar RFP in 2018.

To ensure another robust turn-out of bidders, LEI recommends that PacifiCorp clearly explain to all bidders and to the broader community of solar developers why no bids were chosen for the FSL as part of this procurement process.

Table of Contents

1	EXECUTIVE SUMMARY	4
1.1	KEY FINDINGS	4
1.2	RECOMMENDATIONS	5
2	CONTEXT AND OBJECTIVES.....	7
2.1	THE ROLE OF THE INDEPENDENT EVALUATOR	7
3	PACIFICORP'S EVALUATION PROCESS	8
3.1	MINIMUM ELIGIBILITY REQUIREMENTS	8
3.2	COST AND BENEFIT EVALUATION MODELS	10
3.2.1	Screening model.....	10
3.3	NON-PRICE EVALUATION	12

Privileged and Confidential – Not for Bidder Access

4	PACIFICORP’S ISL RESULTS	13
4.1	ISL SELECTION	13
4.2	LEI’S ASSESSMENT OF THE ISL.....	14
5	PACIFICORP’S FSL RESULTS	16
5.1	BEST AND FINAL BIDS	16
5.2	PACIFICORP’S FSL EVALUATION PROCESS	17
5.2.1	<i>Defining baseline scenario assumptions.....</i>	<i>18</i>
5.2.2	<i>SO model created portfolios of cost-effective solar bids for the nine baseline scenarios.....</i>	<i>19</i>
5.2.3	<i>PaR model examines risk profile of portfolios.....</i>	<i>19</i>
5.3	PACIFICORP CHOSE TWO PORTFOLIOS FOR FURTHER TESTING.....	20
5.4	BASILINE SCENARIO RISK ANALYSIS OF THE TOP TWO PORTFOLIOS.....	21
5.5	ADDITIONAL SENSITIVITY ANALYSES.....	23
5.5.1	<i>Hourly price profile sensitivity</i>	<i>23</i>
5.5.2	<i>Capacity contribution sensitivity</i>	<i>25</i>
5.6	PACIFICORP’S FSL FINAL RECOMMENDATION: NO WINNERS.....	27
6	CONCLUSION: 2017S RFP WAS CONDUCTED FAIRLY AND IN ACCORDANCE WITH INDUSTRY BEST PRACTICES	28
6.1	RECOMMENDATIONS.....	29
7	APPENDIX A: PACIFICORP INITIAL SHORTLIST DETAILED RESULTS.....	30
8	APPENDIX B: ROLE OF THE SOLAR INDEPENDENT EVALUATOR.....	31

Table of figures

FIGURE 1. PACIFICORP MODELS USED IN ISL AND FSL EVALUATION.....	9
FIGURE 2. PACIFICORP AVERAGE ACC (NPV) BY STATE	11
FIGURE 3. PACIFICORP’S NON-PRICE WEIGHTING FACTORS	12
FIGURE 4. NET BENEFITS OF PACIFICORP ISL BIDS.....	13
FIGURE 5. COMPARISON BETWEEN LEI INDICATIVE ISL AND PACIFICORP ISL	14
FIGURE 6. ACC VALUE OF ENERGY AND CAPACITY (NPV 2018-2042) VS ISL PPA PRICES	15
FIGURE 7. ISL AND BEST AND FINAL PRICING COMPARISON	17
FIGURE 8. PACIFICORP’S PRICE-POLICY SCENARIOS.....	19
FIGURE 9. NINE BID PORTFOLIOS SELECTED BY SO BASELINE MODEL.....	20
FIGURE 10. SELECTED PORTFOLIOS.....	21
FIGURE 11. BASELINE SCENARIO RISK ANALYSIS RESULTS: SO MODEL (MILLION DOLLARS)	22
FIGURE 12. BASELINE SCENARIO RISK ANALYSIS RESULTS: STOCHASTIC-MEAN PAR (MILLION DOLLARS).....	22
FIGURE 13. SCENARIO RISK ANALYSIS RESULTS: RISK-ADJUSTED PAR (MILLION DOLLARS)	23
FIGURE 14. HOURLY PRICE PROFILE SENSITIVITY	24
FIGURE 15. HOURLY PRICE-PROFILE SENSITIVITY RESULTS (MILLION DOLLARS).....	24
FIGURE 16. CAPACITY CONTRIBUTION OF SOLAR RESOURCES REPRESENTED AS A PERCENTAGE OF RESOURCE	26
FIGURE 17. CAPACITY CONTRIBUTION SENSITIVITY RESULTS (MILLION DOLLARS)	26
FIGURE 18. PACIFICORP ISL	30

Privileged and Confidential – Not for Bidder Access

1 Executive summary

On November 15, 2017, PacifiCorp issued a Request for Proposals (“RFP”) for solar photovoltaic (“PV”) resources (“2017S RFP”).¹ PacifiCorp was seeking bids for up to approximately 2,000 MW of aggregate solar capacity in its service territory.

London Economics International (“LEI”) was engaged by PacifiCorp to serve as the Independent Evaluator (“IE”) for its 2017S RFP to ensure that the procurement process was competitive, fair, and managed according to procurement best practices, such that the resulting acquisition of solar resources would be price competitive and offer the most potential benefit to retail ratepayers.

On January 8, 2018, PacifiCorp selected an initial short list (“ISL”) of 25 bids, covering 11 projects, with an aggregate solar capacity of 1,530 MW.² The bidders selected in the ISL were given an opportunity to provide best and final pricing, before PacifiCorp considered bids for the final short list (“FSL”). At the conclusion of the FSL evaluation process (discussed in detail in Section 5 of this report), PacifiCorp decided not to select any of the bids to its final short list.

1.1 Key findings

The 2017S RFP was conducted under unusual circumstances. It was conducted at the recommendation of the Utah Public Service Commission,³ rather than as the result of a business strategy developed in the context of PacifiCorp’s then-current IRP. The timing of the procurement was accelerated to match as closely as possible the timing of PacifiCorp’s wind RFP (2017R RFP).

In this context, LEI found that:

- **PacifiCorp’s 2017S RFP process was conducted in accordance with its RFP documents.** PacifiCorp accurately followed the process that was outlined in its RFP documents. LEI monitored all communications with bidders; PacifiCorp evinced no bias for or against any bidder.
- **PacifiCorp’s process for selecting the ISL was conducted in a fair and unbiased manner.** LEI’s analysis confirmed that the bids included in the ISL represent the best value considering both price and non-price factors, from all the bids received during the RFP

¹ PacifiCorp. “RFP 2017S Solar RFP Main Document.” November 15, 2017.

<http://www.pacificorp.com/content/dam/pacificorp/doc/Suppliers/RFPs/2017S_RFP/Main_Documents/RFP_2017S_SOLAR_RFP_MAIN_DOCUMENT.pdf>

² London Economics International LLC. “Independent evaluator’s report on initial shortlist selection process: PacifiCorp’s 2017S RFP.” January 26, 2018.

³ The Utah PSC order recommending the solar RFP aligned with the Wind RFP COD was issued on September 22, 2017. Docket 17-035-23. <<https://pscdocs.utah.gov/electric/17docs/1703523/2969071703523oarfpwsm9-22-2017.pdf>>

Privileged and Confidential – Not for Bidder Access

process. LEI believes that the initial shortlist accurately identified the bids that would result in the largest net benefit to customers across PacifiCorp's service territory.

- **PacifiCorp's quantitative modeling and analysis for the FSL process was fair and reflected industry best practices.** The FSL process included scenario analysis as well as stochastic risk analysis, which reflects industry best practices. PacifiCorp's baseline scenario analysis showed the results for the impact of the solar portfolio on system costs were generally positive. Benefits in the baseline were resilient with respect to stochastic outcomes, too.
- **PacifiCorp's additional sensitivity analysis, applied to stress-test the baseline results, was reasonable.** PacifiCorp additionally stress-tested the top-performing portfolio of bids using two sensitivity analyses. This aspect of the evaluation process was not explicitly communicated to bidders in the RFP documents but was nevertheless consistent with the RFP documents. And in the context of the unusual circumstances of the RFP noted above, LEI believes that it represented a prudent approach. The stress tests showed that projected benefits of the top-performing portfolio might be overstated.
- **PacifiCorp's decision not to award any bids in this RFP was not inconsistent with the process outlined in its RFP documents,** which state "PacifiCorp reserves the right, without limitation or qualification and in its sole discretion, to reject any or all bids, and to terminate or suspend this RFP in whole or in part at any time."⁴

LEI did not find PacifiCorp's decision not to accept any solar bids to be unreasonable. Without the opportunity to vet a solar procurement in the context of its IRP, it is reasonable that PacifiCorp might have been concerned that the 2017S RFP might not ultimately provide net benefits for its customers. PacifiCorp expressed concern that conditions in the solar market at the time of the bidding reflected uncertainties over tax reform and tariffs on solar equipment.⁵ These were reasonable concerns, in light of PacifiCorp's view of market conditions at the time. PacifiCorp believes that the net benefits to its customers of a solar procurement would be higher if it runs a new procurement later in 2018.

1.2 Recommendations

The 2017S RFP was conducted in a manner that was consistent with general procurement best practices, as we have stated above. At the same time, LEI does have recommendations about future RFP processes.

⁴ PacifiCorp. "RFP 2017S Solar RFP Main Document." Page 10. November 15, 2017.
<http://www.pacificorp.com/content/dam/pacificorp/doc/Suppliers/RFPs/2017S_RFP/Main_Documents/RFP_2017S_SOLAR_RFP_MAIN_DOCUMENT.pdf>.

⁵ PacifiCorp. "PacifiCorp 2017S Request for Proposals: Final Shortlist. Confidential." March 12, 2018.

Privileged and Confidential – Not for Bidder Access

It is possible that by not choosing any winning bidders as part of this RFP that in future procurements, fewer potential bidders might respond. PacifiCorp is considering conducting another solar RFP later in 2018. PacifiCorp has said it expects the market environment for solar to improve over 2018, so that potential bidders in a future RFP can offer lower prices; it also cited the opportunity for solar bids to potentially incorporate storage; and allow more bidders to be further along in the process of permitting, site control, and transmission interconnection. PacifiCorp noted that an RFP initiated in mid-2018 would allow enough lead time for projects to be capable of commercial operation by the end of 2021 (before the Investment Tax Credit (“ITC”) declines to its 10% floor).

To ensure that bidders would come back to the table, LEI recommends that PacifiCorp explain clearly and to all bidders, and indeed to the broader solar development community, its rationale for not selecting any bids to the FSL, and underscore that the main issue was the timing (as that seems to be the case) rather than a fundamental concern about solar power.

LEI also suggests that PacifiCorp be more explicit about the stress-testing that it may or may not conduct as part of its bid assessment to be more transparent about how bids will be evaluated as part of the bid evaluation process.

Privileged and Confidential – Not for Bidder Access

2 Context and objectives

PacifiCorp's 2017S RFP was conducted in response to a suggestion by the Utah Public Service Commission to add solar to PacifiCorp's 2017R Wind RFP that began in 2017.⁶ The schedule of the wind RFP was fixed to meet specific regulatory milestones and those could not be extended to accommodate the addition of solar to the wind RFP. Therefore, PacifiCorp offered a separate solar RFP, with a compressed schedule to align with the commercial online date ("COD") established in the 2017R Wind RFP, so that PacifiCorp would be able to solicit wind and solar offers for the same COD.

2.1 The role of the Independent Evaluator

The IE's role is to ensure the fair, proper, and consistent evaluation of proposals received. See Section 8 (Appendix B) for additional details of the IE's role, as prescribed by PacifiCorp. The involvement of an IE was the option of PacifiCorp, as an IE was not required. This points to a disposition on the part of PacifiCorp to conduct business in a transparent and open manner, which is a credit to PacifiCorp

LEI's task was not to create the ISL or the FSL, but to evaluate the process to ensure PacifiCorp's bid evaluation process was fairly applied across the bidders and resulted in an FSL which provide the most potential value for PacifiCorp customers. LEI undertook the following activities in evaluating the RFP process and outcomes:

- Reviewed and assessed the draft RFP documents;
- Ensured the same information was provided to all bidders;
- Participated in bidder's conference;
- Reviewed bids' compliance with Minimum Eligibility Requirements;
- Monitored all communications between PacifiCorp and bidders after receipt of bids;
- Ensured there was no bias in the procurement process that unjustly favored bids;
- Reviewed in detail PacifiCorp's proprietary models used in the bid evaluation process;
- Assessed the ISL and FSL process to determine if the evaluation criteria, methods, and models were consistently and appropriately applied to all bids and were performed as laid out by PacifiCorp in the RFP; and
- Documented the development of the 2017S RFP process with three reports: First Status Report, ISL Report, and the Closing Report.

⁶ Public Service Commission of Utah. "Application of Rocky Mountain Power for Approval of Solicitation Process for Wind Resources." November 9, 2017. Docket no. 17-035-23

Privileged and Confidential – Not for Bidder Access

3 PacifiCorp's evaluation process

This section summarizes PacifiCorp's evaluation process. LEI found this process to be consistent with PacifiCorp's RPF documents and industry best practices, and fair to bidders.

PacifiCorp's bid evaluation process began with establishing whether a bid met the minimum eligibility requirements. The eligibility criteria help to ensure ratepayers would not be stuck with projects that would encounter unnecessary delays – and to ensure a bidder had the wherewithal to complete a project. Bids that passed this threshold were then considered for the ISL. Bids that made it to the ISL were then further analyzed to project their potential impacts on the PacifiCorp system, to arrive at a projection of net benefits.

3.1 Minimum eligibility requirements

Before performing ISL evaluation, PacifiCorp eliminated 35 bids which clearly did not meet the minimum eligibility criteria laid out by PacifiCorp. Key minimum requirements were:

- demonstration of ability to meet the commercial online date;
- evidence of interconnection;
- evidence of site control; and
- bidder's credit information.

As noted in the LEI First Status report, PacifiCorp's minimum criteria were reasonable and consistent with other renewable resource RFPs.⁷ LEI observed that the bids which were disqualified were disqualified based on important and non-trivial criteria:

- ***COD after 2020:*** Failure to demonstrate a commercial online date prior to December 31, 2020 (17 bids disqualified);
- ***Lack of prospect of timely interconnection:*** Failure to provide evidence that the proposed project had a signed interconnection request with PacifiCorp transmission to execute an interconnection feasibility study agreement (15 bids disqualified); and
- ***Lack of site control:*** Failure to provide documentation of site control (3 bids disqualified).

Any bid which was not disqualified was then eligible for the ISL, and PacifiCorp evaluated these bids based on its ISL methodology.

After the bids were evaluated to assess their conformance with the minimum requirements, PacifiCorp's bid evaluation and selection process occurred in two phases:

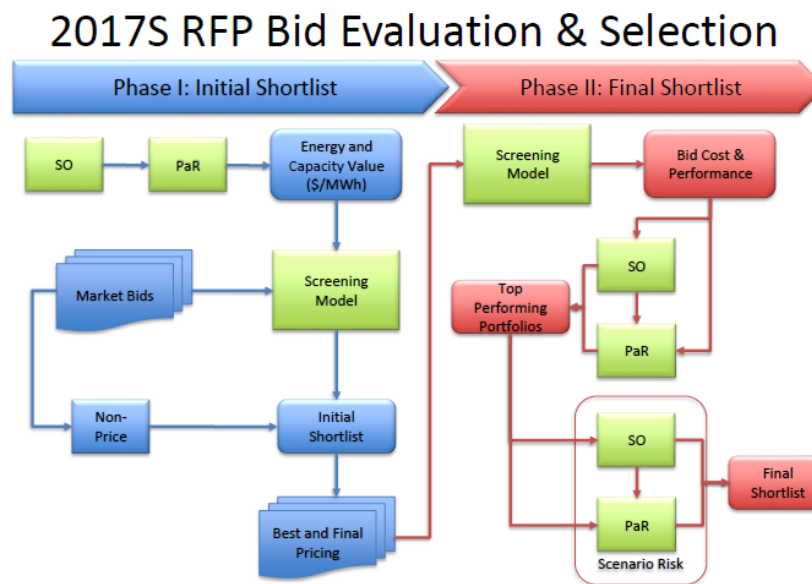
⁷ London Economics International LLC. "First Status Report - LEI - PacifiCorp Solar RFP 2017." January 10, 2018.

Privileged and Confidential – Not for Bidder Access

- **Phase I:** PacifiCorp established and ranked an ISL based on both price and non-price factors. Price accounted for 80% of the score and non-price factors for 20% (or a maximum of 20 points). Bids with the highest total score (price and non-price), representing up to 2,000 MW of aggregate capacity at any given location, were considered for the ISL. Bids selected for the ISL were then given an opportunity to provide best and final pricing;
- **Phase II:** PacifiCorp established its FSL based on an analysis of net customer benefit of the ISL bids with updated pricing. This net benefits analysis simulated PacifiCorp's system costs with and without ISL bids and compared the two outcomes to quantify the net benefits of the bids. In this phase, PacifiCorp calculated the expected net present value revenue requirement impacts of proposed solar projects.

PacifiCorp used its proprietary model (Screening model) and two models licensed from third parties (the SO model, and the PaR model), all discussed below, to perform quantitative analysis and rank the bids to create both the ISL and the FSL (see Figure 1). The method used to evaluate and select bids was consistent with the methods that were used in the IRP.⁸

Figure 1. PacifiCorp models used in ISL and FSL evaluation



Source: PacifiCorp 2017S Solar Request for Proposals, Bidders' Conference, November 21, 2017.

⁸ PacifiCorp. "RFP 2017S Solar RFP Main Document." Pages 18 and 19. November 15, 2017.
<http://www.pacifiCorp.com/content/dam/pacifiCorp/doc/Suppliers/RFPs/2017S_RFP/Main_Documents/RFP_2017S_SOLAR_RFP_MAIN_DOCUMENT.pdf>.

Privileged and Confidential – Not for Bidder Access

3.2 Cost and benefit evaluation models

The primary model used for the ISL was the Screening Model, an excel-based model that calculates the net present value (“NPV”) of the net benefits of each bid. PacifiCorp provided LEI with copies of the Screening Model for each bid which was included in the ISL.

3.2.1 Screening model

PacifiCorp’s Screening model uses system-wide energy and capacity costs as inputs. These energy and capacity costs are estimated outside of the Screening model, by PacifiCorp’s System Optimizer Model (“SO”) and its Planning and Risk model (“PaR”)⁹. In terms of their use to support the Screening models for the ISL:

- **SO model:** This model is run twice, to calculate system-wide energy and capacity costs with, and without, a proxy generic solar resource of 100 MW. The cost of this resource is assumed to be zero, in order that the SO model run with the capacity resource will be sure to include it. Thus, the difference in system costs on a \$/MWh basis resulting from the two model runs reflects the benefit of having the solar resource on the system.
- **PaR:** This model is also run twice. The outputs of the SO models (energy and capacity costs) are fed into the PaR; the PaR creates 50 Monte Carlo simulations based on stochastic characteristics of natural gas prices, power prices, load, hydropower availability, and thermal outages. This is performed for the SO output which includes the proxy solar resource, and the SO output which does not.

The risked values (the average energy and capacity prices from the PaR model runs with and without the generic solar resource) are then incorporated into the Screening Model. These provide the Screening model with the estimated benefits of a generic solar resource, on a \$/MWh basis for energy and capacity. These avoided costs of energy and capacity (“ACC”) are the quantified benefits of a generic solar resource.

With the inputs derived from the SO and PaR models, the Screening model calculates the cost of a single bid and compares the cost to the ACC. It does this by calculating the real levelized (discounted) revenue requirement cost and the real levelized (discounted) benefit for each bid, where revenue requirement costs are reported as a negative value and customer benefits are reported as a positive value.¹⁰ The Screening model is applied to each bid, separately.

The Screening model allows for different ACC values for each of five different market zones (Idaho, Oregon, Utah, Washington and Wyoming) (see Figure 2). This allows the avoided energy

⁹ These models are the same models used by PacifiCorp to develop resource portfolios in the 2017 IRP. Source: PacifiCorp. “2017 Integrated Resource Plan.” Volume 1. April 14, 2017. These two models are discussed in more detail in Section 5 in the context of the FSL.

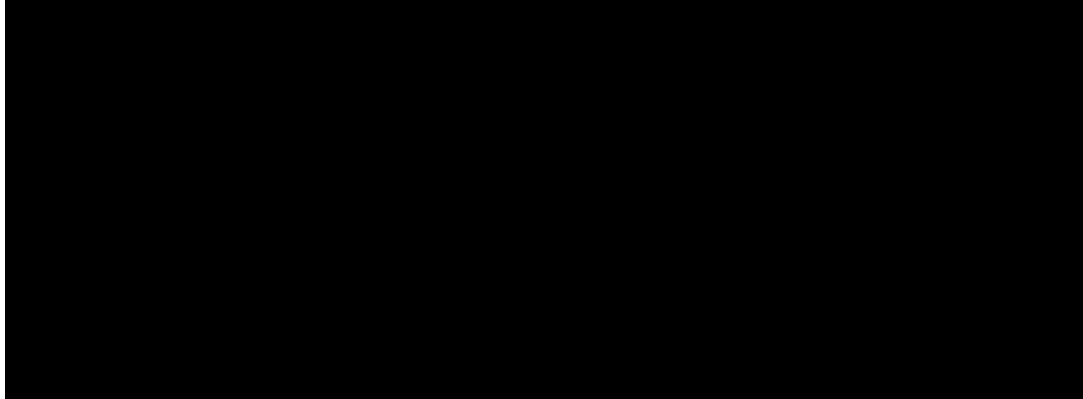
¹⁰ PacifiCorp includes terminal value in the nominal levelized delivered benefit, however, it does not impact the model as the terminal value is zero (terminal value equals the residual value of assets minus decommissioning cost).

REDACTED

Privileged and Confidential – Not for Bidder Access

and supply costs to vary across the market zones. An offer for a project located in a market zone with a higher avoided cost such as Washington would provide a greater benefit (higher avoided cost) than a project in a market zone such as Utah with low avoided costs, all else equal. LEI found this to be a reasonable approach.

Figure 2. PacifiCorp average ACC (NPV) by state



Source: Screening model version dated December 12, 2017

PacifiCorp used the results of the Screening model (the benefits and costs) to create a net cost calculation (in \$/MWh) to score each bid individually. PacifiCorp created two different scoring methods:

- **Scoring Method I:** Net Cost/(Benefit) ["NC/(B)"] = Net Cost –Benefit
 - Scores were scaled so that the lowest NC/(B) was awarded 80 points, and the highest NC/(B) was awarded 0 points.
 - Bidder Score_x = $[(NC/(B)_{\text{Highest}} - NC/(B)_{\text{Bidder}_x}) - (NC/(B)_{\text{Highest}} - NC/(B)_{\text{Lowest}})] \times 80$ Points
- **Scoring Method II:** Net Cost/Benefit ["NC/B"] = Net Cost / Benefit
 - Scores were scaled so that the lowest NC/B was awarded 80 points, and the highest NC/B was awarded 0 points.
 - Bidder Score_x = $[NC/B_{\text{Highest}} - NC/B_{\text{Bidder}_x}] / (NC/B_{\text{Highest}} - NC/B_{\text{Lowest}}) \times 80$ Points

If the two methods resulted in different initial shortlists, PacifiCorp included bids supported by either method in its ISL.

LEI believes that this is a reasonable approach. Scoring Method I favors bids in which the absolute size of the benefit less the cost is largest (the "impact" of the bid); Scoring Method II favors bids which have the most attractive ratio of benefits to costs (the "efficiency") of the bid. By including bids that are acceptable under either methodology, PacifiCorp is including both impactful and efficient bids.

Privileged and Confidential – Not for Bidder Access

3.3 Non-price evaluation

The total non-price score accounts for up to 20% of the total bid score in ISL. It incorporates the relative development, construction and operational characteristics, and associated risks of each bid (see Figure 3).

Figure 3. PacifiCorp's non-price weighting factors

Non-Price Factor	Non-Price Factor Weighting
<u>Conformity to RFP Requirements:</u> <ul style="list-style-type: none"> Bids provided all required RFP information pursuant to RFP instructions and schedule, including the accuracy of such information. Bids provided complete and accurate required RFP information of but not limited to documentation of site control and permitting process, environmental compliance plan, and interconnection or transmission arrangements. Bidder's development and construction experience related to large scale solar projects. 	6%
<u>Project Deliverability:</u> <ul style="list-style-type: none"> Bids demonstrated the commercial operation date would be achieved by December 31, 2020. Bids provided sufficient detail, including schedule(s) and documentation, to demonstrate the ability of meeting all of the project's site control, environmental compliance, permits, and equipment procurement. Bids demonstrate and provide sufficient detail regarding access to generation equipment and well defined O&M plan and financing plan. Bids included documentation that projects qualify for and would receive the full or partial value of the federal ITC as interpreted by applicable guidelines and rules of the Internal Revenue Service at commercial operation. 	6%
<u>Transmission Progression:</u> <ul style="list-style-type: none"> Bids provided sufficient detail, including schedule(s) and documentation for completing project interconnection and securing any required third party transmission service to support December 31, 2020 commercial operation date. 	8%

Source: PacifiCorp 2017S RFP Bidders' Conference November 21, 2017

LEI believes that the 20% weighting is reasonable, as mentioned in the IE ISL Report.¹¹ Non-price scores were not taken into consideration in the FSL.

¹¹ London Economics International LLC. "Independent evaluator's report on initial shortlist selection process: PacifiCorp's 2017S RFP." January 26, 2018.

Privileged and Confidential – Not for Bidder Access

4 PacifiCorp's ISL results

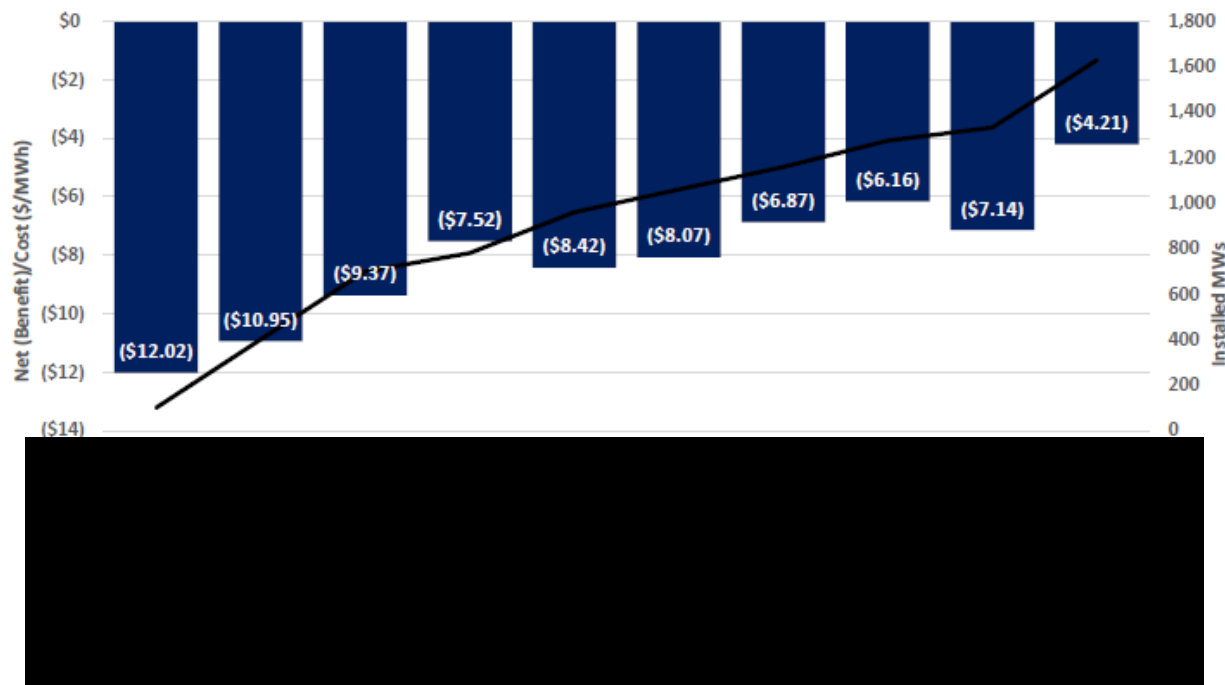
PacifiCorp 2017S RFP had a robust level of response, with over 100 bids offered. After disqualifying bidders which did not meet the minimum criteria, PacifiCorp followed the price and non-price ranking methodology described above and selected an ISL of 25 bids, covering 11 projects, with an aggregate solar capacity of 1,530 MW.

4.1 ISL selection

The two different price scoring methods described in Section 3 selected the same bid resources (albeit with a slightly different ranking between the bids). This means that the ISL was supported by both price scoring methodologies. Details on the bids and PacifiCorp's rankings are provided in Section 7 (Appendix A).

The ISL included projects with positive net benefits (negative costs) ranging between about \$12/MWh and \$4/MWh (see Figure 4). The ISL allowed up to approximately 2,000 MW of aggregate solar capacity, but at about \$4/MWh of net benefit PacifiCorp saw a breakpoint and decided to close the ISL.

Figure 4. Net benefits of PacifiCorp ISL bids



Source: PacifiCorp 2017S RFP Initial Shortlist. January 8, 2018.

* Cove Mountain Expansion includes the Cove Mountain project (58 MW)

Privileged and Confidential – Not for Bidder Access

4.2 LEI’s assessment of the ISL

As noted in Section 2, LEI’s task was to evaluate the RFP process, not the ISL or the individual bids themselves. However, so that LEI could be confident that our analysis was independent as well as comprehensive, LEI’s methodology did not begin with PacifiCorp’s ISL, and then work backward through PacifiCorp’s process. Instead, LEI began by using limited but common-sense criteria for evaluation of the bids, to arrive at LEI’s own “indicative” initial shortlist. The limited criterion LEI used was solely the levelized cost of the bid price for the PPA term. LEI refers to its initial shortlist as “indicative” because LEI did not analyze the bids based on a cost-benefit analysis or based on their geographic value.

PacifiCorp provided LEI with all the bid responses, including all documents and attachments. From this material, LEI created its indicative ISL. LEI then compared its indicative ISL to PacifiCorp’s ISL.

LEI’s indicative ISL was consistent with PacifiCorp’s ISL, with the exception of bids in zones with high energy prices: [REDACTED] in Washington, and [REDACTED] in Oregon (see Figure 5).

Figure 5. Comparison between LEI indicative ISL and PacifiCorp ISL

Bid Resource	State	LEI Rank	PacifiCorp Rank
[REDACTED]	WA	not selected	1
	UT	1	3
	UT	4	2
	UT	3	6
	UT	7	4
	UT	6	9
	UT	2	5
	UT	8	10
	OR	not selected	8
	UT	9	7
	UT	5	11

LEI’s indicative ISL provided an unbiased guide to what the PacifiCorp ISL might look like. LEI would not expect 100% overlap, but bids that did not make LEI’s ISL point to the importance of

REDACTED

Privileged and Confidential – Not for Bidder Access

PacifiCorp’s criteria other than price, in creating the PacifiCorp ISL. PacifiCorp’s Screening model calculated the net benefit for each bid based on the resource location. Washington has the highest ACC value, followed by Oregon, allowing bids located in those states to have a higher net customer benefits, even with higher bid prices (see Figure 6). Capitas High Top Solar was the only bid resource offered in Washington, and Invenergy Prineville and Millican Solar Energy Center was the cheapest bid offered in Oregon. Resources were offered in Wyoming, but prices were not competitive. No resources were offered in Idaho.

LEI found the PacifiCorp ISL process to be fair, unbiased and reasonable, and the outcome represented the best value to customers given the Phase (I) of the evaluation process.

Figure 6. ACC Value of Energy and Capacity (NPV 2018-2042) vs ISL PPA prices

State	Indicative ACC	Minimum PPA price	Maximum PPA price
Idaho		n/a	
Oregon			
Utah			
Washington			
Wyoming		not shortlisted	

Sources:

ACC = Excel spreadsheet “2017S RFP Solar Energy and Capacity Benefits.xlsx” version dated December 12, 2017

PPA prices = Bid submission (first-year PPA price)

Privileged and Confidential – Not for Bidder Access

5 PacifiCorp's FSL results

LEI believes the FSL results represent an unbiased evaluation that reflects the process described to the bidders in the bid documents. PacifiCorp made reasonable assumptions for key value drivers such as future natural gas and carbon prices. PacifiCorp used appropriately sophisticated modeling tools.

5.1 Best and final bids

As mentioned earlier, PacifiCorp gave bids selected to the ISL the opportunity to provide best and final pricing for the FSL evaluation process. PacifiCorp received best and final pricing on February 1, 2018. Best and final pricing had to meet two requirements:

- provide same site using the same or similar project equipment as original proposal, and
- not exceed 10% of the original total bid cost (assess on a nominal levelized present value revenue requirement basis).

If best and final pricing increased the total bid cost by more than 10%, PacifiCorp could either reject the best and final proposal or replace the short-listed bid with another bid not originally selected to the ISL.

The majority of the bidders selected to the ISL maintained their original bid price, with the exception of [REDACTED], who decreased their initial bid price between 1% and 3%, and [REDACTED], who increased their initial bid price by 5% (see Figure 7).

REDACTED

Privileged and Confidential – Not for Bidder Access

Figure 7. ISL and best and final pricing comparison

Bidder Name	Project/Alternative	ISL		B&F	
		PPA price (1st year)	PPA price annual growth	PPA price (1st year)	PPA price change (%)

Source: PacifiCorp 2017S Request for Proposals Final Shortlist. March 12, 2018

5.2 PacifiCorp’s FSL evaluation process

The following section outlines PacifiCorp’s FSL evaluation process. LEI reviewed PacifiCorp’s evaluation process in detail: PacifiCorp presented the methodology of the SO and PaR models and LEI asked detailed questions related to them;¹² and LEI reviewed PacifiCorp’s key input assumptions. LEI did not acquire copies of the SO and PaR models. LEI believes the process was conducted fairly and was consistent with the process outlined in the RFP documents, assumptions used in the models were reasonable, and the quantitative analysis was consistent with industry best practices.

PacifiCorp used the same models for the FSL price evaluation as it used in the ISL process. The best and final pricing was put into the Screening model to produce the cost and performance data which the SO and PaR models require. These production cost models were then used to perform a net customer benefit analysis by simulating PacifiCorp’s system costs with and without the ISL bids under nine baseline scenarios. Both SO model and PaR simulations were run over a 20-year planning horizon (2017-2036), which aligns with the planning horizon used in the 2017 IRP.

¹² Conference call, PacifiCorp and LEI, March 2, 2018.

Privileged and Confidential – Not for Bidder Access

In the ISL process, each bid was tested individually and in a single scenario; whereas, in the FSL process, the bids as a group were tested across nine scenarios (based on combinations of natural gas prices and CO₂ prices). PacifiCorp then selected the solar resource portfolio composed of the bid resources that were most consistently selected among the nine scenarios, for stochastic analysis using the PaR model. This process was explained to bidders, in the document provided for the bidders' conference.

In addition, PacifiCorp ran two sensitivities (discussed in more detail below). This process was not explicitly documented for the bidders, but was not inconsistent with the RFP guidelines and, in LEI's view, was applied fairly.

5.2.1 Defining baseline scenario assumptions

Based on three different outlooks for natural gas prices, and three different outlooks for CO₂ prices, PacifiCorp developed nine scenarios (referred to by PacifiCorp as "price-policy" scenario assumptions). These are conceptually consistent with those used in the 2017 IRP, but updated to reflect PacifiCorp's assessment of the most current information.¹³ These baseline scenarios were defined by assumptions of low, medium, and high alternatives for natural gas and CO₂ pricing (see Figure 8). The natural gas outlooks were based on the forward market for 72 months (in the medium case), and after that, on forecasts developed by third-parties. PacifiCorp noted that the increase in the gas price outlook from 2023 to 2025 was based on assumptions about rising liquefied natural gas ("LNG") exports. The CO₂ price outlooks were based on forecasts developed by third parties.

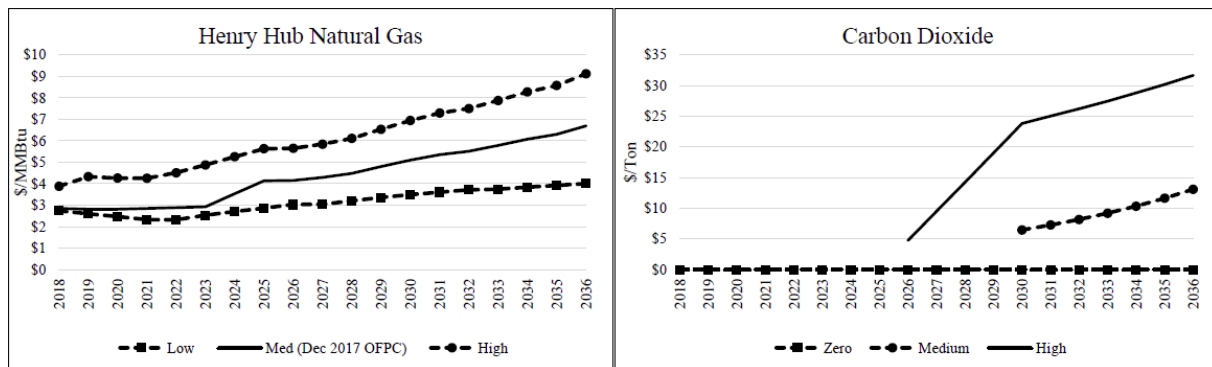
Given the characteristic uncertainty over the future of natural gas prices and CO₂ policy, LEI believes that conducting a scenario-based analysis was reasonable and prudent. Scenario analysis helps ensure that decisions are robust across a range of future outcomes; and use of scenarios reflects industry best practices for long-term strategic planning and investment.

¹³ PacifiCorp. "RFP 2017S Solar RFP Main Document." Page 23, footnote 9. November 15, 2017.

<http://www.pacificorp.com/content/dam/pacificorp/doc/Suppliers/RFPs/2017S_RFP/Main_Documents/RFP_2017S_SOLAR_RFP_MAIN_DOCUMENT.pdf>

Privileged and Confidential – Not for Bidder Access

Figure 8. PacifiCorp's price-policy scenarios



Source: PacifiCorp 2017S Request for Proposals Final Shortlist. March 12, 2018

5.2.2 SO model created portfolios of cost-effective solar bids for the nine baseline scenarios

PacifiCorp ran the SO model with the complete ISL (and all other assumed available resources) for each of the nine scenarios. The model selected new solar capacity at any level that reduced system costs, and it could select all, some, or none of the bids.

The group of bids selected was referred to by PacifiCorp as the “resource portfolio.” Each of the nine scenarios produced its own resource portfolio of cost-effective bids, though many bids appeared in nearly all the portfolios (see Figure 9). Five bids were selected in all nine scenarios, one bid was selected in eight scenarios, and two bids were selected in four scenarios.

Then PacifiCorp ran the SO model nine more times, once for each scenario, and in each case, without the portfolio of selected bids. This provided a baseline (or, rather, nine different baselines) against which to test the impact on the present value revenue requirement (“PVRR”) (including all relevant transmission interconnection costs) of the solar resource portfolio, in each scenario. The results of comparing each baseline scenario with and without the resource portfolio is shown in the row labelled “SO Model PVRR (difference) (Benefit)/cost (\$m)” in Figure 9.

5.2.3 PaR model examines risk profile of portfolios

In the next step, PacifiCorp used the PaR model to analyze the risk of each resource portfolio developed with the SO model. PaR captures stochastic risk in its production cost estimates, without altering the resource portfolio, by using Monte Carlo sampling of the following stochastic variables: load, wholesale electricity and natural gas prices, hydro generation, and thermal unit outages. The PaR model calculated the stochastic mean and the risk-adjusted present value revenue requirement differential with and without the bid portfolio for each scenario. PacifiCorp was interested in two metrics:

- **Stochastic mean metric:** the average of system net variable operating costs for 50 iterations, combined with the real levelized capital costs and fixed costs taken from the SO model;

REDACTED

Privileged and Confidential – Not for Bidder Access

- **Risk-adjusted metric:** adds 5% of system variable costs from the 95th percentile to the stochastic mean. The risk-adjusted metric incorporates the expected value of low-probability, high-cost outcomes.

Figure 9. Nine bid portfolios selected by SO baseline model

Bid	1	2	3	4	5	6	7	8	9
	Low Gas Zero CO ₂	Low Gas Med CO ₂	Low Gas High CO ₂	Med Gas Zero CO ₂	Med Gas Med CO ₂	Med Gas High CO ₂	High Gas Zero CO ₂	High Gas Med CO ₂	High Gas High CO ₂
	n/s	n/s	n/s	n/s	n/s	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓	✓
	n/s	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓	✓
	n/s	n/s	n/s	n/s	n/s	✓	✓	✓	✓
	✓	✓	n/s	n/s	n/s	n/s	n/s	n/s	n/s
	n/s	n/s	✓	✓	✓	✓	✓	✓	✓
Total Capacity	1,042 MW	1,122 MW	1,320 MW	1,320 MW	1,320 MW	1,535 MW	1,535 MW	1,535 MW	1,535 MW
SO Model PVRR(difference) (Benefit)/Cost (\$m)	(\$127)	(\$155)	(\$250)	(\$227)	(\$247)	(\$385)	(\$520)	(\$529)	(\$559)
PaR Stochastic-Mean PVRR(difference) (Benefit)/Cost (\$m)	(\$79)	(\$106)	(\$188)	(\$135)	(\$174)	(\$303)	(\$338)	(\$348)	(\$501)
PaR Risk-Adjustedn PVRR(difference) (Benefit)/Cost (\$m)	(\$83)	(\$112)	(\$197)	(\$141)	(\$183)	(\$318)	(\$354)	(\$365)	(\$525)

Source: PacifiCorp 2017S Request for Proposals Final Shortlist. March 12, 2018

The results of comparing the risked baseline to the resource set with the bids are shown in row “PaR Model Stochastic-Mean PVRR (difference) (Benefit)/cost (\$m)” and in row “PaR Model Risk-Adjusted PVRR (difference) (Benefit)/cost (\$m)” in Figure 9.

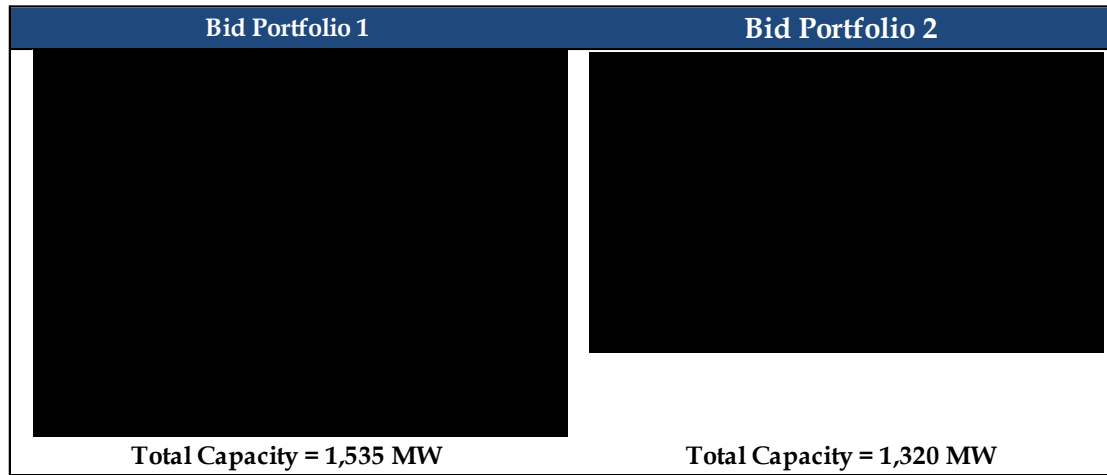
LEI believes adding a risk-adjusted component to the analysis, as PacifiCorp did using the PaR model, was reasonable and prudent, as it provided additional insight into the potential value of a solar resource portfolio.

5.3 PacifiCorp chose two portfolios for further testing

PacifiCorp chose the bid resources consistently selected among the nine scenarios and created two 2017S RFP solar resource portfolios (see Figure 10). Bid portfolio 1 contained all the bids SO selected in any scenario; Bid Portfolio 2 contained only the bids that SO selected in all the scenarios.

Privileged and Confidential – Not for Bidder Access

Figure 10. Selected portfolios



Source: PacifiCorp 2017S Request for Proposals Final Shortlist. March 12, 2018

These top-performing bid portfolios were further analyzed in the scenario risk analysis phase of the FSL bid evaluation process.

5.4 Baseline scenario risk analysis of the top two portfolios

This step of the evaluation process identified whether the two top-performing portfolios would experience poor performance under any of the scenarios. The two bid portfolios were analyzed under all nine scenarios, using the SO and PaR models.¹⁴

First, in the SO model, PacifiCorp calculated the present value revenue-requirement differential between two model runs – one with and one without the solar PPAs – for each scenario. The SO model results showed greater benefits from Bid Portfolio 2 compared to Bid Portfolio 1 in five out of the nine scenarios: all the low gas scenarios, the medium gas/zero CO₂ price scenario, and the medium gas/medium CO₂ price scenario (see Figure 11).

¹⁴ All simulations included PacifiCorp's new wind and transmission investments.

Privileged and Confidential – Not for Bidder Access

Figure 11. Baseline scenario risk analysis results: SO model (million dollars)

Price-Policy Scenario	Bid Portfolio 1 (Benefit)/Cost	Bid Portfolio 2 (Benefit)/Cost	Difference
Low Gas, Zero CO ₂	(\$80)	(\$115)	(\$36)
Low Gas, Medium CO ₂	(\$118)	(\$148)	(\$30)
Low Gas, High CO ₂	(\$232)	(\$250)	(\$18)
Medium Gas, Zero CO ₂	(\$216)	(\$227)	(\$11)
Medium Gas, Medium CO ₂	(\$240)	(\$247)	(\$8)
Medium Gas, High CO ₂	(\$385)	(\$370)	\$15
High Gas, Zero CO ₂	(\$520)	(\$483)	\$37
High Gas, Medium CO ₂	(\$529)	(\$493)	\$35
High Gas, High CO ₂	(\$559)	(\$517)	\$43

Source: PacifiCorp 2017S Request for Proposals Final Shortlist. March 12, 2018

To determine how system operations might impact the value of the portfolios, PacifiCorp analyzed the stochastic-mean and risk-adjusted PaR results for each scenario (see Figure 12 and Figure 13).

Figure 12. Baseline scenario risk analysis results: Stochastic-mean PaR (million dollars)

Price-Policy Scenario	Bid Portfolio 1 (Benefit)/Cost	Bid Portfolio 2 (Benefit)/Cost	Difference
Low Gas, Zero CO ₂	(\$1)	(\$45)	(\$44)
Low Gas, Medium CO ₂	(\$43)	(\$84)	(\$41)
Low Gas, High CO ₂	(\$159)	(\$188)	(\$29)
Medium Gas, Zero CO ₂	(\$110)	(\$135)	(\$25)
Medium Gas, Medium CO ₂	(\$142)	(\$174)	(\$31)
Medium Gas, High CO ₂	(\$303)	(\$294)	\$9
High Gas, Zero CO ₂	(\$338)	(\$320)	\$19
High Gas, Medium CO ₂	(\$348)	(\$329)	\$19
High Gas, High CO ₂	(\$501)	(\$473)	\$28

Source: PacifiCorp 2017S Request for Proposals Final Shortlist. March 12, 2018

Privileged and Confidential – Not for Bidder Access

Figure 13. Scenario risk analysis results: risk-adjusted PaR (million dollars)

Price-Policy Scenario	Bid Portfolio 1 (Benefit)/Cost	Bid Portfolio 2 (Benefit)/Cost	Difference
Low Gas, Zero CO ₂	(\$2)	(\$48)	(\$46)
Low Gas, Medium CO ₂	(\$46)	(\$89)	(\$43)
Low Gas, High CO ₂	(\$168)	(\$197)	(\$29)
Medium Gas, Zero CO ₂	(\$115)	(\$141)	(\$26)
Medium Gas, Medium CO ₂	(\$150)	(\$183)	(\$33)
Medium Gas, High CO ₂	(\$318)	(\$309)	\$9
High Gas, Zero CO ₂	(\$354)	(\$335)	\$20
High Gas, Medium CO ₂	(\$365)	(\$345)	\$20
High Gas, High CO ₂	(\$525)	(\$511)	\$13

Source: PacifiCorp 2017S Request for Proposals Final Shortlist. March 12, 2018

Bid Portfolio 2 (the smaller portfolio) relative to Bid Portfolio 1 had greater benefits both in the stochastic-mean PaR and the risk-adjusted PaR results. Based on the SO model and PaR results, PacifiCorp identified Bid Portfolio 2 as preferable to Bid Portfolio 1.

5.5 Additional sensitivity analyses

PacifiCorp informed LEI of its intention to run additional sensitivity analyses in a March 2, 2018 conference call with LEI. In addition, PacifiCorp had informed bidders that it may take into consideration other factors that are not expressed in the RFP document when deciding the final shortlist.¹⁵ PacifiCorp ultimately ran two additional sensitivity analyses: 1) hourly price profiles, and 2) capacity contribution sensitivities. PacifiCorp performed these sensitivity analyses on Bid Portfolio 2 for two of the baseline scenarios: medium gas/medium CO₂ and low gas/zero CO₂.

5.5.1 Hourly price profile sensitivity

For the baseline analysis described above, PacifiCorp used average hourly price profiles derived from historical Powerdex data (five years of on peak and off-peak data). The hourly market price profiles vary by month and day type (weekdays, Saturdays, and Sundays/holidays). However, PacifiCorp was concerned that this hourly profile would not reflect system conditions in the future, when the Western Electricity Coordinating Council (“WECC”) region is projected to have more solar in its system.

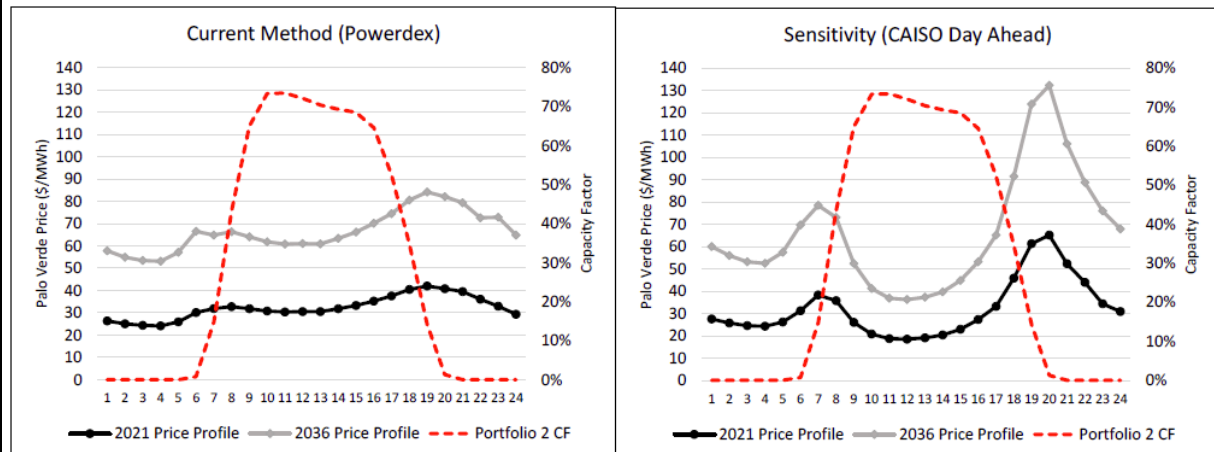
¹⁵ PacifiCorp. “RFP 2017S Solar RFP Main Document.” Page 24. November 15, 2017.

<http://www.pacificorp.com/content/dam/pacificorp/doc/Suppliers/RFPs/2017S_RFP/Main_Documents/RFP_2017S_SOLAR_RFP_MAIN_DOCUMENT.pdf>.

Privileged and Confidential – Not for Bidder Access

Therefore, PacifiCorp developed a sensitivity analysis based on an alternative set of prices derived from one year of day-ahead hourly prices available from the California Independent System Operator (“CAISO”) (see Figure 14).

Figure 14. Hourly price profile sensitivity



Source: PacifiCorp 2017S Request for Proposals Final Shortlist. March 12, 2018

In both charts, the hourly price profile is based on the average hourly prices from representative months (January, April, July, and October) and shown alongside the average hourly capacity profile of bids included in Bid Portfolio 2. This shows that prices would be lower during those hours when the resources in Bid Portfolio 2 are expected to generate electricity.

PacifiCorp used the CAISO hourly prices to run a sensitivity with the PaR model. Results showed that the value of Bid Portfolio 2 was reduced by \$66 million to \$69 million in the medium gas/medium CO₂ scenario and by \$55 million to \$58 million in the low gas/zero CO₂ scenario. In the low gas/zero CO₂ scenario, Bid Portfolio 2 shifted from showing net benefits to showing a net cost when the CAISO hourly price profile was assumed (see Figure 15). Net benefits remained positive in the medium gas price/medium CO₂ price scenario.

Figure 15. Hourly price-profile sensitivity results (million dollars)

Price-Policy Scenario/ PaR	Medium Gas, Medium CO ₂		Low Gas, Zero CO ₂	
	Stochastic-Mean PaR (Benefit)/Cost	Risk-Adjusted PaR (Benefit)/Cost	Stochastic-Mean PaR (Benefit)/Cost	Risk-Adjusted PaR (Benefit)/Cost
Benchmark Case (Current Price Profile)	(\$174)	(\$183)	(\$45)	(\$48)
Hourly Price-Profile Sensitivity	(\$108)	(\$114)	\$10	\$10
Decreased Net Benefit	\$66	\$69	\$55	\$58

Source: PacifiCorp 2017S Request for Proposals Final Shortlist. March 12, 2018

Privileged and Confidential – Not for Bidder Access

PacifiCorp pointed to trends which may impact price profiles even further, and compiled the following findings:¹⁶

- S&P Global Market Intelligence reported solar capacity in the WECC region is expected to grow by 77% in six years, from 16.8 GW in 2017 to 29.8 GW by 2023.
- The Energy Information Administration's Annual Energy Outlook 2018 ("AEO 2018") Reference Case also shows continued growth trends of solar capacity in the WECC, reaching 46.8 GW by 2050.

Thus, PacifiCorp believes that the rapid increase in solar capacity across the WECC region over the past five years has significantly impacted hourly market prices and continued solar capacity growth could further affect the market value of solar energy even beyond the results of the price profile sensitivity.

It is LEI's view that PacifiCorp's alternative price profile was a reasonable way to examine potential downside risks to customers of committing to solar resources. PacifiCorp also informed LEI that it will be evaluating the hourly price profile it will use in the next IRP.¹⁷

5.5.2 Capacity contribution sensitivity

PacifiCorp's SO and PaR modeling relied on the capacity contribution value developed for the 2017 IRP, which was 59.7% for solar resources. In other words, FSL evaluation assumed that the solar resources in Bid Portfolio 2 can displace the need for approximately 788 MW of system capacity (59.7 percent x 1,320 MW).

PacifiCorp believes that as more highly correlated solar generation is added to the system, the energy output from these resources will shift the timing of potential loss-of-load events to evening hours when solar irradiance is low and generation levels are greatly reduced or zero.¹⁸ Consequently, solar capacity contribution values would decline with increasing solar penetration levels (see Figure 16). PacifiCorp informed LEI that the addition of 1,320 MW of solar capacity would increase the percentage of solar on PacifiCorp's system from 5% to 10%.

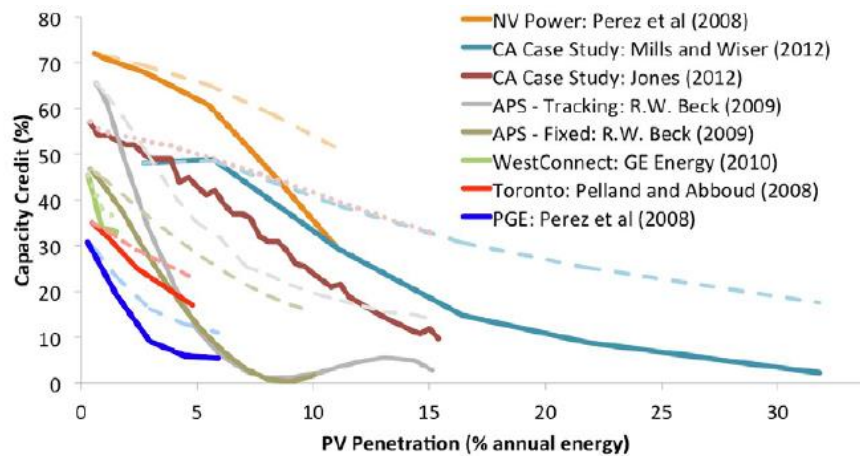
¹⁶ PacifiCorp 2017S Request for Proposals Final Shortlist. Page 14. March 12, 2018.

¹⁷ Conference call LEI and PacifiCorp, March 19, 2018

¹⁸ PacifiCorp 2017S Request for Proposals Final Shortlist. Page 15. March 12, 2018.

Privileged and Confidential – Not for Bidder Access

Figure 16. Capacity contribution of solar resources represented as a percentage of resource



Source: Mills, Andrew, and Ryan Wiser. 2012. "An Evaluation of Solar Valuation Methods Used in Utility Planning and Procurement Processes." LBNL-5933E, Berkeley, CA: Ernest Orlando Lawrence Berkeley National Laboratory.

Source: PacifiCorp 2017S Request for Proposals Final Shortlist. March 12, 2018

Therefore, PacifiCorp ran a sensitivity based on halving the capacity contribution value from 59.7% to 29.9%. This would reduce the amount of system capacity that the Bid Portfolio 2 can displace from 788 MW to 394 MW. This reduced the resource-deferral value of the resources in Bid Portfolio 2, therefore reducing the net benefits of the solar PPA bids (see Figure 17).

Figure 17. Capacity contribution sensitivity results (million dollars)

Price-Policy Scenario/ PaR	Medium Gas, Medium CO ₂		Low Gas, Zero CO ₂	
	Stochastic-Mean PaR (Benefit)/Cost	Risk-Adjusted PaR (Benefit)/Cost	Stochastic-Mean PaR (Benefit)/Cost	Risk-Adjusted PaR (Benefit)/Cost
Benchmark Case (Current Price Profile)	(\$174)	(\$183)	(\$45)	(\$48)
Capacity- Contribution/Hourly Price Profile Sensitivity	(\$69)	(\$73)	\$56	\$58
Decreased Net Benefit	\$105	\$110	\$101	\$106

Source: PacifiCorp 2017S Request for Proposals Final Shortlist. March 12, 2018

The combined effect of the hourly price-profile and capacity-contribution assumptions was to reduce the net benefits by approximately \$105 million to \$110 million in the medium gas/ medium CO₂ scenario and by approximately \$101 million to \$106 million in the low gas/ zero CO₂ scenario.

In LEI's view, the halving of the solar capacity value provides a hypothetical downside sensitivity, but one that may not be easy to defend empirically. As Figure 16 above shows, the relationship between solar capacity and penetration varies widely; and the data referred to in that figure may be out of date, as the reports cited date from 2008-2012.

Privileged and Confidential – Not for Bidder Access

5.6 PacifiCorp's FSL final recommendation: No winners

The bid selection process identified two potential bid portfolios as candidates for the 2017S RFP final shortlist, and the baseline scenario risk analysis phase showed that Bid Portfolio 2 was preferable. However, while analysis (excluding the sensitivity cases) shows that there would be potential customer net benefits, PacifiCorp decided not to award any bids:

- **PacifiCorp noted that its sensitivity analyses showed that there is a risk that projected benefits are overstated.**¹⁹ This refers to the hourly price profile sensitivity analysis and the capacity contribution sensitivity analysis.
- **PacifiCorp felt that bidders' offer prices incorporated a risk premium.** PacifiCorp believes the 2017S RFP bid prices incorporated potential tax reform and tariff-related uncertainties, which were part of the market environment in late 2017 and early 2018. PacifiCorp believes, if a new RFP were to be issued in 2018, it would attract bids for solar projects that could still come online by 2021 (and qualify for the 30 percent ITC), at lower prices. The lower-priced bids would reflect reductions in the cost of solar equipment and avoid the risk premium that was driven by tariff and tax reform uncertainties.
- **PacifiCorp felt that more projects could be viable in the near future.** PacifiCorp also pointed to the possibility that a future RFP would allow time participants to be further along with permitting, site control, or the transmission interconnection process.²⁰
- **PacifiCorp noted a future solicitation could include storage.** With more lead time, a new solicitation could include storage with solar, which could help mitigate valuation risks.²¹

For wind procurement, PacifiCorp had to move quickly to attract projects which could be under way in time to get the full Production Tax Credit ("PTC"). The ITC has more time, as it ramps down from 30% to 26% in 2020, 22% in 2021, and finally to 10% in 2022.²² In the coming months, PacifiCorp surmises that bid prices for PPAs could fall, owing to improvements in technology, or to greater perceived certainty over tax and tariff rules. The solar panel tariff, issued on January 22, 2018, increased tariffs on imported solar cells and modules by 30% for the first year, and will fall by 5% annually, dropping to a 15% tariff in 2021.²³ Thus, by 2021 PacifiCorp may be correct to assume cell and module prices will be lower.

¹⁹ PacifiCorp 2017S Request for Proposals Final Shortlist. Page 2. March 12, 2018.

²⁰ PacifiCorp 2017S Request for Proposals Final Shortlist. Page 2. March 12, 2018.

²¹ PacifiCorp 2017S Request for Proposals Final Shortlist. Page 2. March 12, 2018.

²² U.S. Department of Energy. Business Energy Investment Tax Credit (ITC).
<<https://www.energy.gov/savings/business-energy-investment-tax-credit-itc>>

²³ Office of the United States Trade Representative. "Section 201 Cases: Imported Large Residential Washing Machines and Imported Solar Cells and Modules." January 22, 2018.
<<https://ustr.gov/sites/default/files/files/Press/fs/201%20Cases%20Fact%20Sheet.pdf>>

Privileged and Confidential – Not for Bidder Access

6 Conclusion: 2017S RFP was conducted fairly and in accordance with industry best practices

PacifiCorp's 2017S RFP was conducted at the recommendation from the Utah Public Service Commission—it was not a requirement.²⁴ LEI's involvement as the IE was, again, at the option of PacifiCorp, as an IE was not required. These two conditions point to a disposition on the part of PacifiCorp to conduct business in a transparent and open manner.

To summarize LEI's finding in this report, LEI believes the 2017S RFP procurement process was fair and unbiased:

- The 2017S RFP documents were clear and available to all bidders;
- The minimum eligibility requirements were reasonable and applied consistently among bids, eliminating bids unable to demonstrate ability to meet the commercial online date
- The screening factors in the ISL were applied consistently among bids;
- The evaluation was performed consistently among bids and with Commission-approved bidding guidelines;
- All bids selected in to the ISL were given the opportunity to provide best and final pricing for the FSL evaluation process;
- The FSL evaluation process was conducted according to the processes outlined in the RFP;
- All ISL Screening models were provided to the LEI to check inputs, outputs, and results;
- The SO and PaR models were explained to LEI thoroughly and in-depth;
- There were no confidentiality claims or concerns between IE and PacifiCorp during the solicitation process.

LEI finds that the PacifiCorp's FSL evaluation process was conducted in alignment with the guidelines established in the 2017S RFP main document. PacifiCorp was explicit in reserving the right to reject all bids in its sole discretion.²⁵ In addition, PacifiCorp relied on best practices such

²⁴ The Utah PSC order recommending the solar RFP aligned with the Wind RFP COD was issued on September 22, 2017. Docket 17-035-23. <<https://pscdocs.utah.gov/electric/17docs/1703523/2969071703523oarfpwsm9-22-2017.pdf>>

²⁵ PacifiCorp. "RFP 2017S Solar RFP Main Document." Page 10. November 15, 2017.
<http://www.pacifiCorp.com/content/dam/pacifiCorp/doc/Suppliers/RFPs/2017S_RFP/Main_Documents/RFP_2017S_SOLAR_RFP_MAIN_DOCUMENT.pdf>.

Privileged and Confidential – Not for Bidder Access

as examination of multiple scenarios for future net benefits, and stochastic tools for projecting the risks to these benefits.

6.1 Recommendations

LEI did not find PacifiCorp's decision not to accept any solar bids to be unreasonable or unfair. The circumstances around the RFP were unusual, in that the company did not have the opportunity to apply a full IRP process to the decision to offer a solar procurement.

However, the risk of not choosing any winning bidders is that future procurements may attract fewer bidders. PacifiCorp is in the process of developing its 2019 IRP, which may demonstrate that new solar resources provide economic benefits for customers. The new 2019 IRP will incorporate a thorough evaluation of hourly price profiles and capacity contribution risks.²⁶ PacifiCorp has said it expects the market environment for solar to improve over 2018, so that potential bidders in a future RFP can offer lower prices; it also cited the opportunity for solar bids to potentially incorporate storage; and allow more bidders to be further along in the process of permitting, site control, and transmission interconnection.

To ensure that bidders will come back to the table, LEI recommends that PacifiCorp explain clearly and to all bidders, and indeed to the broader solar development community, its rationale for not selecting any bids to the FSL, and underscore that the main issue was the timing rather than a fundamental concern about solar power. In addition, LEI recommends that PacifiCorp add to any future RFP documents that it reserves the right to stress test any final potential portfolios so that bidders are more aware of that potential evaluation process.

²⁶ PacifiCorp 2017S Request for Proposals Final Shortlist. Page 26. March 12, 2018.

REDACTED

Privileged and Confidential – Not for Bidder Access

7 Appendix A: PacifiCorp Initial Shortlist Detailed Results

The initial shortlist consisted of 25 bids, based on over 11 projects with an aggregate solar capacity 1,530 MW (see Figure 18). The different prices for each project represent separate bids.

Figure 18. PacifiCorp ISL

Bid Resource	COD	Location	Capacity	NLDC ¹ (\$/MWh)	NLDB ² (\$/MWh)	Rank	Price Score ³ (%)	Non- price Score (%)
	15-Dec-20	WA	100			1	80	14
	1-Dec-20	UT	100-300			3	71	13
	1-Dec-20	UT	100-300			2	77	13
	31-Dec-20	UT	100			6	67	18
	31-Dec-20	UT	80			4	65	19
	31-Dec-20	UT	58			9	58	18
	31-Dec-20	UT	122			5	68	15
	31-Dec-20	UT	58			10	64	11
	31-Dec-20	OR	115			8	61	17
	30-Nov-20	UT	99			7	63	18
	30-Nov-20	UT	198			11	54	17

¹ NLDC = Nominal Levelized Delivered Cost.

² NLDB = Nominal Levelized Delivered Benefit. The NLDB includes a terminal value of zero.

³ Price Score using method 1.

Privileged and Confidential – Not for Bidder Access

8 Appendix B: Role of the Solar Independent Evaluator

The following material is from PacifiCorp's Appendix M of the 2017S RFP.

- 1) The general role and function of the Independent Evaluator ("IE") are outlined as follows.

The Independent Evaluator will facilitate and monitor communications between PacifiCorp and bidders.

 - a. Review and validate the assumptions and evaluation calculations of any bids.
 - b. Analyze and evaluate bids for reasonableness and consistency with the solicitation process.
 - c. Access all important models in order to analyze, operate and validate all important models, modeling techniques, assumptions and inputs utilized by PacifiCorp in the solicitation process
 - d. Receive copies of bid responses.
 - e. Provide input to PacifiCorp on:
 - i. the development of screening and evaluation criteria, ranking factors and evaluation methodologies that are reasonably designed to ensure that the solicitation process is fair, reasonable and in the public interest in preparing a solicitation and in evaluating the bids;
 - ii. the development of initial screening and evaluation criteria that take into consideration the assumptions included in the PacifiCorp's most recent IRP, any recently filed IRP Update, any Commission order on the IRP or IRP Update;
 - iii. whether a bidder has met the criteria specified in any bidding process and whether to reject or accept non-conforming bid responses;
 - iv. whether and when data and information should be distributed to bidders when it is necessary to facilitate a fair and reasonable competitive bidding process or has been reasonably requested by bidders;
 - v. whether to reject non-conforming bids for any reason or accept conforming changes;
 - vi. whether to return bid fees.
 - f. Ensure that all bids are treated in a fair and non-discriminatory manner.
 - g. Monitor, observe, validate and offer feedback to PacifiCorp on all aspects of the solicitation and solicitation process, including:

Privileged and Confidential – Not for Bidder Access

- i. evaluation and ranking of bid responses;
 - ii. creation of a short list(s) of bidders for more detailed analysis and negotiation;
 - iii. post-bid discussions and negotiations with, and evaluations of, shortlisted bidders, and negotiation of proposed contracts with successful bidders.
- h. Once the competing bids have been evaluated by PacifiCorp and the IE, PacifiCorp and the IE will compare results.
- i. Offer feedback to PacifiCorp on possible adjustments to the scope or nature of the solicitation or requested resources in light of bid responses received.
- j. Solicit additional information on bids necessary for screening and evaluation purposes.
- k. Analyze and attempt to mediate disputes that arise in the solicitation process with PacifiCorp and/or bidders
- l. Coordinate as appropriate and as directed by PacifiCorp with staff or evaluators designated by regulatory authorities from other states served by PacifiCorp.
- 2) The communications between the IE, PacifiCorp, and the bidders shall be conducted in the following manner:
- a. the IE will be included in the communications between the parties.
- 3) The IE shall prepare at least the following confidential reports and provide them to PacifiCorp:
- a. Final reports as soon as possible following the completion of the solicitation process. Final reports shall include analyses of the solicitation, the solicitation process, the PacifiCorp's evaluation and selection of bids and resources, the final results and whether the selected resources are in the public interest.