BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UM 1934

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY, 2018 Request for Proposals for Renewable Resources.	Staff Comments [Redacted]

Introduction

The following are the opening comments from the Oregon Public Utility Commission Staff (Staff) on Portland General Electric's (PGE or Company) Request for Acknowledgment of the Final Short List of Bidders in PGE's 2018 Request for Proposals for Renewable Resources. These comments are preliminary and focus on the competitiveness of the final shortlist and compliance with the Commission's guidelines for competitive bidding. Before issuing Staff's final recommendations in its Staff Report to be filed on November 21, 2018, Staff will continue to review the terms of the Company's final RFP with the modifications required by Order No. 18-171, responses to all information requests, and comments from both PGE and stakeholders.

In general, Staff is concerned that PGE's Request for Proposals (RFP) process might not have been conducted fairly. As such, Staff will be investigating a number of issues described below. PGE must justify how their RFP process encouraged competition and how PGE appropriately evaluated all submitted bids, both in its responses to information requests, as well as its November 25 reply comments.

In this analysis, Staff revisits salient issues from the earlier part of this RFP process. Below are the current issues that have raised the most concern for Staff, all of which will receive further scrutiny going forward.

RFP Review per Previous Orders

On May 21, 2018, the Commission issued Order No. 18-171, deciding a number of salient questions in the earlier Commission approval process for PGE's final draft RFP. The issues detailed in the order are discussed below. PGE has complied with the Commission's order in each of these issues, however there remain noteworthy aspects of each described below.

Specified Energy

The Commission determined that bidders were able to omit or edit specified energy provisions in any PPA. In this RFP, six bidders did choose to modify contracts around the issue of specified energy.[1,2]

Redlines Diminishing Non-Price Scores

The Commission determined that any bid with redlines to the specified energy provisions in the PPA could not have the non-price score penalized. PGE has stated that there were no penalties associated[3], a claim the IE has verified.

Conditional Firm Bridge

Originally bidders could rely on conditional transmission products for one year until firm transmission was available to be secured, but following stakeholder concern, PGE voluntarily increased it to two years. The Commission in its order further increased the time available for this conditional firm bridge to three years. When asked directly, PGE did not say whether any bid proposed to utilize three years of conditional products.[4] PGE did explain that of the several bids that did propose to use any conditional transmission products, only one was found to meet RFP requirements.[5] Staff looks to PGE to clarify this in their Reply Comments.

Generic Fill

The Commission adopted a clarification from the IE that it would include in its Final Report a sensitivity which tested the effects of contract length (when evaluating shorter contracts, less generic fill is added, and vice versa). The IE did add a sensitivity which varied the length of the Portfolio Analysis. Overall, timeframe results do not significantly modify portfolio ordering.

Additionally, PGE tested the source of the assumed fill costs, changing the reference case (where generic fill come from IRP values) to the average costs of shortlist bids. The latter are significantly cheaper, which leads to the Portfolio Analysis selecting smaller portfolios, as opportunity costs are low. PGE discounts the results, as those average costs from shortlist bids include the PTC, whereas generally resources will not include the PTC after 2020.[6]

RFP Final Shortlist Analysis

Staff is concerned with six issues from both PGE's Request for Acknowledgement as well as the Final IE Report. These concerns are explained below.

Final Shortlist Ordering

[1] Attachment #1 - OPUC #28
[2] Also see Attachment #2 - NIPPC #3, and PGE's Highly Confidential Attachment 003-A for more information
[3] See Attachment #3 - NIPPC #4.
[4] Attachment #4 - OPUC #19.
[5] *Ibid.*
[6] PGE Request for Acknowledgment, pp. 25-26.

Of all the issues raised below in Staff's Opening Comments, this has the most impact on the outcome of the final shortlist. However as Staff's analysis makes several references to highly confidential material, the analysis is available in Highly Confidential Appendix B for those who have signed the modified protective order issued in this docket.

Competitiveness

PGE's Table 1 in its Request for Acknowledgment nicely summarizes the pathway its RFP analysis took, from total solicitation bids to final shortlist creation. It is worth highlighting that of the 26 total bids (from 8 companies), half have been disqualified from this RFP for not meeting RFP requirements on transmission and interconnection.[7,8] Further, **[Begin Confidential]** [redacted] **[End Confidential]** It is important to note that PGE conferred with the IE on each of these disqualifications, and the IE has agreed with each of PGE's decisions.

However, Staff is concerned this process does not meet the competitive bidding guidelines established in Commission Order No. 14-149.[9] Guideline 9(b) states: "Selection of the final shortlist of bids should be based, in part, on the results of modeling the effect of candidate resources on overall system costs and risks." To this end, the Commission approved PGE's RFP in May in Order No. 18-171, which specified RFP procedures going forward. One of these steps was to have a 150 percent of the total solicitation energy in the initial shortlist. This comes from Section 9 of the RFP (Final Short List Determination).[10]

Section 9 of the RFP also clearly lays out the criteria for bids moving from the initial shortlist to the final shortlist:

1. Review of Capacity Factor Assumptions;
2. Security for Performance Requirements;[11] and
3. Portfolio Analysis.

These three analytical tools were not used to create the final shortlist, which causes concern that both Guideline 9(b), as well as the requirements in the Commission approved RFP, were not followed. As described in the IE report on pages 19-21, PGE removed three projects (totaling five bids) from the initial shortlist due to failure to meet transmission and interconnection requirements. Stated another way, according to PGE the final shortlist was created by selecting the only viable projects from the initial shortlist. **[Begin Confidential]** [redacted] **[End Confidential]**

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[7] See Attachment #5 - OPUC #14, IE Final Report pp. 19-21.

[8] 11 and two bids were disqualified for not meeting transmission and interconnection requirements, respectively.

[9] In August of 2018, the Commission adopted new competitive bidding rules in Docket AR 600, Order No. 18-324. However, the Commission clarified in that order that the rules apply prospectively, namely "only to RFPs filed after the rules become effective when filed with the Secretary of State." Because PGE's RFP process was already well underway, Staff applies the former competitive bidding guidelines outlined in Order No. 14-149 to this docket.

[10] PGE Docket No. UM 1934's Initial Application, p. 32.

[11] A detailed credit risk evaluation.

The IE also stated concern over this process, stating that the initial (and then final) shortlist should have only been comprised of viable projects. In proceeding as PGE did, the IE highlighted the possibility that an initial shortlist selection process like this could potentially "crowd out" attractive, viable projects.[12] Had PGE done all its due diligence in determining which projects were actually viable, one could argue that other projects could have made it the initial shortlist, and potentially the final list as well. The IE did not see this as a concern in this RFP, however, as the IE did not believe any project not included on the initial shortlist could potentially compete with the final shortlist projects.

That said, the Commission-approved transmission and interconnection requirements and the timing of the initial and final shortlist creations are concerning to Staff. PGE does not appear to have followed its own process, outlined above, to determine the final shortlist. Further, PGE did not have sufficient viable, non-benchmark aMWs on its initial shortlist. As a result, the Competitive Bidding Guidelines in Commission Order No. 14-149 and RFP conditions in Order No. 18-171 may not be met. The arguments that PGE acted appropriately in their disqualifications and that the lowest cost and risk projects are still being selected only partially mitigates Staff's concern that PGE did not follow Commission-approved RFP procedures.

<u>Load Forecast</u>

In its Portfolio Analysis, PGE takes the final shortlist bids of three projects and creates every possible combination to form 23 portfolios.[13] It then submits each to a 3x3x3 cube of futures over the period of analysis (2019-2051), with reference, high and low scenarios for hydro conditions, gas prices, and carbon compliance prices. Staff believes using this type of analysis will leave out the significant uncertainty associated with the load forecast. The potential impact of not including this major driver of uncertainty is that PGE's portfolios might not be robust to probably futures.

Created using both historical and projected data, the load forecast estimates what demand PGE will face into the future. When forecasting over this timeframe, there is considerable uncertainty from both the econometric modeling employed, as well as the explanatory parameters selected. While load forecast point estimates are easily conveyed, the difference in probability between the forecasted values and say a few percent above or below is quite small. Each year's estimate could be displayed with a normal distribution, with the highest value over the point estimate, but significant probability lies above and below the forecasted estimate. This error (when displayed) grows as the forecast moves further into the future.[14] The uncertainty surrounding the load forecast is important, but appears to be missing from PGE's analysis.

When asked about running a load forecast sensitivity, PGE responded by stating that Qualified Facilities (QF) sensitivities result in far greater differences on PGE's forecasted 2021 energy

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[12] IE Final Report, p. 21.
[13] Bid variants (such as the three from the benchmark bid) are not considered together.
[14] Uncertainty is not often displayed in forecasts, which Staff believes is an egregious error.

and capacity needs.[15] While appreciating this point, Staff does not believe it to be relevant; to say QF sensitivities have a larger effect does not infer that load forecasting sensitivities are irrelevant. Further, PGE states the difference between the zero load growth sensitivity and the reference case is small. This approach misses two important points. The first is that zero load growth might not be an accurate lower bound of the load forecast. The second is that the Portfolio Analysis evaluate costs and benefits over the 32 years of analysis; even when discounting values back to the present, the considerable uncertainty in the load forecast might make tangible changes to portfolio ordering.

That said, PGE could be correct that varying the load forecast would produce similar results. Accordingly, Staff recommends the Company do the following:

1. Run a sensitivity where the load forecast is varied among credibly high and low estimates[16] with the reference cases for natural gas, carbon, and hydro conditions;
2. Report whether that sensitivity yields noticeable differences in bid ordering; and
3. If Step #2 reveals tangible changes, run those three load forecast scenarios (reference, high, and low) among all other sensitivities to re-rank bids.

Net Customer Benefit

The original justification of the RFP was that the expiration of federal tax credits provided a unique economic opportunity to acquire renewable resources. Any focus should be whether the benefits of acquiring these resources outweigh the current costs; whether or not customers save money could miss the counterfactual of how much better off customers would be if this RFP is pursued. However, both PGE and the IE added analyses to their Request for Acknowledgment and Final IE Report which estimates of the net costs that customers will face as a result of this RFP. Staff has minor concerns with both of these estimates.

PGE's analysis presented in Figure 2 estimates the incremental costs associated with the top five performing portfolios, which reduce rates in all but the worst future scenarios. [17,18] Left off of these costs are the costs and benefits associated with any energy and capacity fill necessary for the portfolio to meet the RFP design, which Staff believes to be inconsistent with the RFP; if in the RFP it is necessary to acquire a specific amount of energy, capacity, and RECs, then the total costs associated will meeting those goals is the relevant metric to determine cost-effectiveness. In a response to a data request on this issue, PGE stated that the incremental costs are the preferred metric because the resources that make up the fill will not be acquired by this RFP.[19] While Staff disagrees with this point, PGE also provided the total cost estimates for the Portfolios when including these values, and the change is minimal.[20]

[15] See Attachment #6 - OPUC #20, with helpful relative MW differences between QF and zero load growth sensitivities.
[16] 95 percent confidence intervals of econometric models including both model and parameter uncertainty would be a transparent method of doing so. Staff is also open to alternative ideas from the Company.
[17] Request for Acknowledgment, p. 24.
[18] High hydro, low natural gas, low carbon prices.
[19] Attachment #7 - OPUC #29
[20] See Confidential Attachment 029-A (not attached to this document).

The IE's estimates do include fill, but the source is those costs are the average of all final shortlist bidders, rather than PGE's IRP Update values. PGE has provided justifications why the average fill does not provide an accurate view into the future.[21] There is one additional point about the IE's analysis that includes highly confidential information, and is explained in Appendix C.

Portfolio Analysis

Staff has two additional concerns about the Portfolio Analysis employed in this RFP. As PGE's methods have already been approved in Commission Order No. 18-171, Staff highlights these concerns as an opportunity to improve this RFP and as a method to inform future RFP analysis.

Cost / Risk Metric

To measure how a given portfolio performs under uncertain futures, PGE wisely considers both the expected costs and risks of a given portfolio. However, PGE's choice of how to measure these factors is flawed. As described in both its initial application (Appendix H) and final shortlist acknowledgement, PGE weights the expected cost of a Portfolio as well as its standard deviation, creating one metric by dividing both the mean and standard deviation by two and adding them together. This metric has been used elsewhere in Company analysis[22], and no other metric drives PGE's Portfolio Analysis.[23]

Staff's concern with this metric is that it misidentifies all risk as bad. Indeed, downside risk is a good thing; the chance that rates will be lower in the future from the portfolio being evaluated should be credited toward the portfolio, rather than deducted from it. Consider the two hypothetical portfolios, whose distributions[24] can be drawn for emphasis, available in Appendix A. Portfolio #1 (dashed line) has a mean 1750 and a standard deviation of 300, creating a cost/risk value of 1025. With a smaller mean 1500 and a larger standard deviation of 600, Portfolio #2 (solid line) has a cost/risk value of 1050. With its lower cost/risk value, Portfolio #1 is preferred.

The problem is that Portfolio #2 is nearly always superior. Consider these distributions above in Figure 1, with three distinct areas. In area A, a region of lower costs, Portfolio #2 is more likely than Portfolio #1. In the higher cost area B, Portfolio #1 is more likely than #2. Only in area C, where Portfolio #2 is more likely, is Portfolio #1 preferable. The likelihood that costs end up in Area C is between 4 to 9.8 percent.[25] Applied to these two options, PGE's Portfolio Analysis would select an inferior portfolio in more than 90 percent of all futures.

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[21] See Attachment #8 - OPUC #22b: "As was required by the Commission's Competitive Bidding Guideline 9, PGE relied upon modeling and decision criteria 'consistent with the modeling and decision criteria used to develop the utility's acknowledged IRP Action Plan.'" PGE Request for Acknowledgment, Pg. 26: "…PGE appreciates but does not overly emphasize the portfolio results associated with the average bid cost energy fill study assumption."

[22] Attachment #9 - OPUC #26.

[23] Attachment #10 - OPUC #25.

[24] Assumed normal, as PGE does not say anything different.

[25] Z-scores of 1.75 or 1.29, respectively.

This problem is exacerbated as PGE's method of Portfolio Analysis penalizes portfolios due to their size. Standard deviations are incomplete measures of risk, especially given a portfolio's risk is relative to its size.[26] A useful tool for evaluating the relative risk of a given portfolio is its standard deviation divided by the mean, called the coefficient of variation (CV). If two portfolios have the same CV, their risk is similar. By weighting the standard deviation as half of the cost/risk metric, PGE's Portfolio Analysis necessarily selects away from larger projects, which indeed happened in this RFP.[27]

Accordingly, Staff believes PGE should run an additional sensitivity which tests this cost/risk metric. One way to do this would be to vary the mean/standard deviation weighting. Staff welcomes other suggestions the Company or other stakeholders could develop.

<u>Ordinal Futures</u>

Staff's second concern about PGE's Portfolio Analysis comes from the weighting of portfolios in different futures. As mentioned above, PGE creates a 3x3x3 cube of futures, with medium, high, and low scenarios for hydro conditions, gas prices, and carbon compliance prices. In each of these futures, the Portfolio Analysis simply counts how many times a given portfolio is among the top five portfolios.

This is an ordinal (rather than cardinal) measure, as the difference between portfolios is not measured or utilized. Staff's concern is that there could be significant differences both between the top five and the next bid, and/or the same bid ordering could reflect million dollar differences between bids, or pennies. To remove this ambiguity, PGE could instead take the cost savings of that portfolio over the total RFP average or average of top performing portfolios. Neither option is a perfect solution, as both have remaining ambiguity. However, both would be significantly improved over the simplistic approach employed by PGE.

<u>Conclusion</u>

Staff is greatly appreciative of both the IE and PGE, who have both been very helpful in understanding the particularities of this RFP and resulting short list. However, Staff is concerned that this RFP has not adequately allowed for competition as set forth in the Commission Orders No. 14-149 and 18-171. Specifically, Staff is concerned that:

- PGE did not follow the Commission-approved procedure of having 150 percent of the 100MWa target on the final shortlist;
- The portfolios selected might not be robust to plausible futures with predictable difference in load;
- Customers might face higher costs associated with this 100 MWa target, as estimates presented did not include fill; and
- PGE's Portfolio Analysis improperly values portfolios based on cost estimates and risk.

[26] Compare the risk of plus or minus a million dollars on a billion dollar portfolio versus a $2 million project.
[27] IE Final Report, page 4.

Staff looks forward to working with PGE and stakeholders in resolving these issues, to ensure that PGE meets its energy, capacity, and RPS compliance needs while providing the best deal for Oregon ratepayers.

Staff requests the following from PGE, listed in order of appearance in this document:

- Clarify whether any bids utilized three years of conditional transmission products;
- Perform a sensitivity analysis on the load forecast, in the steps outlined above;
- Perform a sensitivity analysis on the cost/risk metric;
- Modify its portfolio ranking process; and
- Update the Commission and stakeholders as to the issue raised in Appendix B.

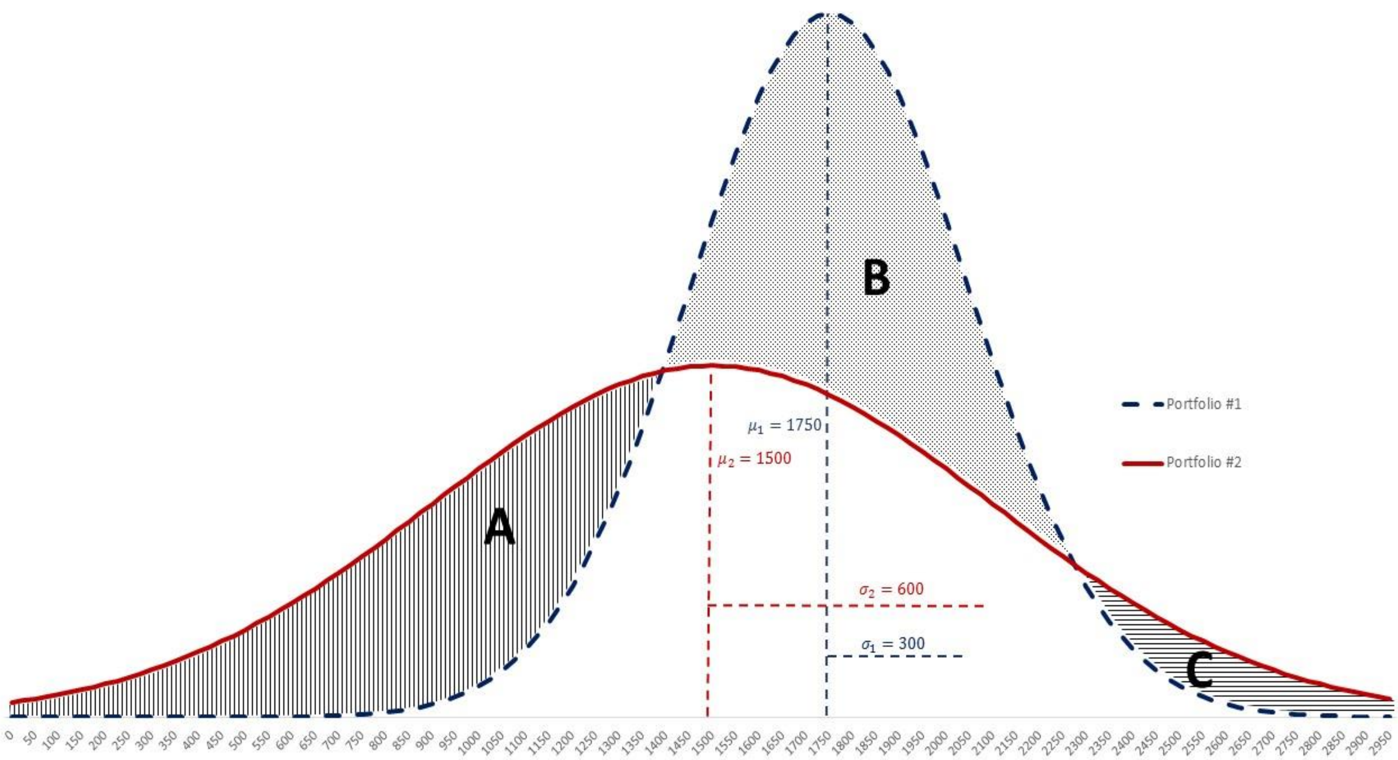
This concludes Staff's comments.

Dated at Salem, Oregon, this 25th day of October, 2018

JP Batmale for S.W.

Seth Wiggins
Senior Utility Analyst
Energy Resources and Planning Division

Appendix A: Table 1



Appendix B: Highly Confidential

[Begin Highly Confidential]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[End Highly Confidential]

[redacted]

Appendix C: Highly Confidential

[Begin Highly Confidential]

[redacted]

[End Highly Confidential]

[redacted]

October 16, 2018

TO: Mark Brown
Public Utility Commission of Oregon

FROM: Jimmy Lindsay
Manager, Resource Strategy

PORTLAND GENERAL ELECTRIC
UM 1934
PGE Response to OPUC Data Request No. 028
Dated October 23, 2018

Request:

Did any bidder omit or edit the specified energy provisions in the PPA?

Response:

Out of 21 PPA bids, six bids indicated their intention to omit or edit the specified energy provisions in the Form PPA Contract.

October 22, 2018

TO: Iron Sanger
Northwest and Intermountain Power Producers Coalition

FROM: Jimmy Lindsay
Manager, Resource Strategy

PORTLAND GENERAL ELECTRIC
UM 1934
PGE Response to NIPPC Data Request No. 003
Dated October 17, 2018

Request:

Regarding PGE's response to Staff data request 28, please identify the Bid Number for the bidder(s) that omitted or edited the specified energy provisions in the PPA.

Response:

Please see Highly Confidential Attachment 003-A. Highly Confidential Attachment 003-A is subject to Modified Protective Order No. 18-366.

UM 1934

Highly Confidential Attachment 003-A

Provided in Electronic Format only

Protected Information Subject to Modified Protective Order 18-366

October 22, 2018

TO: Iron Sanger
Northwest and Intermountain Power Producers Coalition

FROM: Jimmy Lindsay
Manager, Resource Strategy

PORTLAND GENERAL ELECTRIC
UM 1934
PGE Response to NIPPC Data Request No. 004
Dated October 17, 2018

Request:

Regarding PGE's response to Staff data request 28, please confirm PGE's view that bidders were required by PGE in this process to use the specified energy provisions in its RFP PPA. If PGE's view is not that bidders were required by PGE in this process to use the specified energy provisions in its RFP PPA, please explain what consequences would apply (or did apply) during the evaluation process for bidders that modified, edited, or omitted the specified energy provisions in the PPA.

Response:

In the Final RFP, PGE did not require bidders to use the specified energy provisions in the form PPA contract. Furthermore, there were no consequences during the evaluation process for bidders that modified, edited, or omitted the specified energy provisions in the form PPA contract. During the design of the RFP in response to the Commission, Staff, Stakeholders, and the IE, PGE removed non-price deductions for redlines to the form PPA contract terms and conditions relating to specified energy.

October 15, 2018

TO: Mark Brown
Public Utility Commission of Oregon

FROM: Jimmy Lindsay
Manager, Resource Strategy

PORTLAND GENERAL ELECTRIC
UM 1934
PGE Response to OPUC Data Request No. 019
Dated October 8, 2018

Request:

Did any bids utilize three years of conditional firm bridge transmission? Please explain.

Response:

Several bidders indicated their intent to receive and use conditional firm or conditional firm bridge transmission service until long-term firm transmission became available for their respective project(s). PGE's RFP evaluation team reviewed each bidder's proposal and issued follow-up questions to ascertain the status and viability of the bidders' transmission plans.

One bid proposing use of conditional firm bridge service was found to meet PGE's RFP requirements. After consulting with the Independent Evaluator, PGE determined that the remaining bids proposing use of conditional firm or conditional firm bridge transmission were not in compliance with Section 4.3 of the RFP[1] as the bids relied upon BPA's 2019 Cluster Study process to receive conditional firm bridge service. See response to OPUC Data Request No. 18.

[1] See PGE 2018 RFP for Renewable Resources Section 4.3
"Bidders relying on BPA for Transmission Service are required, as minimum, to have a schedule that allows transmission service commitments by December 31, 2018. For bidders relying on the TSR Study and Expansion Process (TSEP) or Individual Study Process, transmission service commitments will be deemed demonstrated by completion of phase four (Record of Decision issued) or completion of the facility study respectively."

October 15, 2018

TO: Mark Brown
Public Utility Commission of Oregon

FROM: Jimmy Lindsay
Manager, Resource Strategy

PORTLAND GENERAL ELECTRIC
UM 1934
PGE Response to OPUC Data Request No. 014
Dated October 8, 2018

Request:

Please provide a timeline of all individual bid disqualifications. There is no need to identify individual bids, but please briefly include the reason for their removal.

Response:

Bidder disqualification occurred following bid submittal or initial shortlist selection due to the failure to meet the RFP requirements.

A. Bid Submittal Threshold Disqualifications

PGE reviewed all bids for conformance with the 2018 RFP bid submittal eligibility requirements. These threshold requirements are outlined in the 2018 RFP Appendix H, Exhibit A, “2018 RFP Scorecard Template Thresholds.” In some cases, PGE sought clarification and additional information from the bidders. The IE reviewed all bid information, the requests for clarification and/or additional information and the responses from the bidders. PGE and the IE identified and agreed that certain bids were non-conforming and failed to meet the 2018 RFP’s bid submittal eligibility requirements. All bids found to be non-conforming with bid submittal requirements were granted a “cure” period, during which the bidders could remedy the shortcomings of their bids (through modification or clarification) to conform to the 2018 RFP requirements. The bidders who were unable to cure were disqualified are listed below:

(1) August 1, 2018: Two bids proposed using PGE’s merchant transmission rights, which was inconsistent with transmission requirements in RFP Section 6.1.6. Additionally, the bids were unable to provide an executed System Impact Study Agreement, which was inconsistent with interconnection requirements in RFP Section 6.2.6. Bidder was informed on July 27, 2018 of PGE’s non-conformance finding and was given until August 1, 2018 to cure. The bidder made no attempt to cure.

(2) August 9, 2018: Two bids were unable to provide an executed System Impact Study Agreement, which was inconsistent with interconnection requirements in RFP Section 6.2.6. Bidder was informed on August 1, 2018 of PGE's non-conformance finding was given until August 3, 2018 to cure. The bidder responded on August 3, 2018. PGE, after discussions with the IE, determined on August 9, 2018 that the two bids remained non-conforming with the RFP design.

(3) August 10, 2018: Four bids relied upon not-yet-secured long-term firm, conditional-firm reassessment, non-firm, and or existing transmission rights held by PGE, which was inconsistent with transmission requirements in RFP Sections 4.3 and 6.1.6. Bidder was informed on August 2, 2018 of PGE's non-conformance finding for nine bids and was given until August 6, 2018 to cure. The bidder responded on August 6, 2018. PGE, after discussions with the IE, determined on August 9, 2018 that five of nine bids were conforming, but that four bids remained non-conforming with the RFP design.

B. Initial Shortlist Threshold Disqualifications

After the bid threshold disqualifications, PGE reviewed all remaining bids for conformance with all 2018 RFP eligibility requirements including those requirements effective prior to selection to the final short list. These threshold requirements are outlined in the 2018 RFP Appendix H, Exhibit A, "2018 RFP Scorecard Template Thresholds." During the due diligence process, PGE sought some clarification and additional information from the bidders. PGE and the IE identified and agreed that certain bids were non-conforming and failed to meet the 2018 RFP's eligibility requirements. Bids that were found to be non-conforming following PGE's initial short-list due diligence were unable to cure and were not offered additional time do so. The bidders who were disqualified are listed below:

(1) September 13, 2018: Two bids were unable to provide a reasonable and achievable plan to receive transmission service commitments from BPA by Dec. 31, 2018, which was inconsistent with transmission requirements in RFP Section 4.3.

(2) September 13, 2018: One bid did not have a reasonable and achievable plan to receive transmission service commitments from BPA by Dec. 31, 2018, which was inconsistent with transmission requirements in RFP Section 4.3. Additionally, the bidder was unable to provide an Interconnection Facilities Study report, which was inconsistent with the interconnection requirements in RFP Section 6.2.6.

(3) September 25, 2018: Two bids did not have a reasonable and achievable plan to acquire long-term firm transmission service to BPAT.PGE prior to the project COD, which was inconsistent with transmission requirements in RFP Section 4.3.

October 15, 2018

TO: Mark Brown
Public Utility Commission of Oregon

FROM: Jimmy Lindsay
Manager, Resource Strategy

PORTLAND GENERAL ELECTRIC
UM 1934
PGE Response to OPUC Data Request No. 020
Dated October 8, 2018

Request:

PGE's IRP update presents capacity and energy needs under a variety of scenarios. The scenario with zero load growth displays tangibly different needs than others. Please explain why load growth sensitivities are not included in the RFP Portfolio Analysis.

Response:

PGE did not include load growth sensitivities in the RFP Portfolio Analysis because PGE's load growth assumptions have a relatively small effect on PGE's 2021 capacity and energy needs. In the near term, PGE's qualifying facility (QF) completion rate assumptions have a significantly larger impact on PGE's forecasted capacity and energy needs than PGE's load growth assumptions. This result can be observed in Table 5 of the 2016 IRP Update and Table 6 of PGE's Request for 2018 RFP Final Shortlist Acknowledgment. For example, in Table 5 of the 2016 IRP Update the difference between the 2021 capacity and energy need for reference case conditions compared to the 50% proposed QF completion rate (in addition to 100% executed QF contracts) is 80 MW and 135 MWa respectively. The same difference between the reference case condition and the zero load growth sensitivity is 16 MW and 2 MWa. The QF completion rate sensitivities in the RFP provided more meaningful sensitivities to examine the robustness of portfolio performance under different near-term need scenarios.

October 16, 2018

TO: Mark Brown
Public Utility Commission of Oregon

FROM: Jimmy Lindsay
Manager, Resource Strategy

PORTLAND GENERAL ELECTRIC
UM 1934
PGE Response to OPUC Data Request No. 029
Dated October 23, 2018

Request:

Figure 2 on page 24 of the Request for Acknowledgment has the incremental customer costs of the top five bidders through 2051.

a. **Why do the incremental costs of each top five portfolio (without the costs and benefits energy and capacity fill) present a more accurate view of the costs of the RFP than the total costs and benefits of the portfolios? Please explain in detail.**
b. **If the appropriate way to measure both cost and risk is the cost/risk metric, why is PGE only presenting net costs? Please explain in detail.**
c. **Please provide an excel sheet with the data from Figure 2 as well as those with total net costs.**

Response:

PGE has not suggested that incremental costs are a preferred metric for evaluating portfolio performance. Figure 2 identifies the 'incremental customer costs' experienced by customers through 2051. Incremental customer costs include the net costs and benefits of candidate resources but do not include the costs and benefits of the energy fill and capacity fill resources.[1] As can be observed in Figure 2, under most economic futures, incremental customer costs are negative, which reflects forecasted customer savings.

a) Incremental customer costs are not a more accurate metric to identify top performing resources than the total costs and benefits of the portfolio. Incremental customer costs are a useful metric that measures the magnitude of cost impacts associated with a resource addition and provides helpful contextual information about potential impacts to customers. As

[1] 'Incremental customer costs' as referenced in the filing and this response are distinct from the specific meaning of 'Incremental Costs' used in PGE's RPS Compliance Filing and discussed in AR 610.

illustrated in Figure 2, under most economic futures the proposed resource actions lead to significant customer savings. Incremental customer costs include only those costs and benefits that would be introduced to customer rates due to a resource addition from this procurement process. For that reason, incremental customer cost metrics do not include the costs and benefits of energy or capacity fill resources as, in this proceeding, PGE proposes securing only those resources which have been bid into the RFP[2]. Because incremental customer costs do not account for the fill resources that make portfolios comparable on a consistent energy and capacity basis, they are not appropriate for portfolio selection or scoring.

Total net portfolio costs, inclusive of energy and capacity fill resources ('Net Portfolio Costs'), is a more important metric to consider when *comparing* the relative value and benefit of resource additions. Net Portfolio Costs identify the total costs and benefits for a portfolio of resources including capacity and energy fill resources. Including capacity and energy fill resources is essential when comparing portfolios because it allows portfolios to be compared on a volume adjusted basis. Without comparing portfolios on a volume adjusted basis (ensuring fulfillment of minimum energy and capacity targets), the portfolios of greatest value for customers cannot easily be identified because the portfolios may not include targeted procurement volumes identified and acknowledged in the IRP.

b) Figure 2 does not display the cost/risk metric. Figure 2 identifies incremental customer costs in under all economic futures. As described in Appendix H of the RFP, PGE's cost metric is associated with the forecasted Net Portfolio Costs under the reference case future (RRR_RefHydro). PGE's risk metric is associated with the standard deviation of all Net Portfolio Costs observations across all economic futures displayed in Figure 2.

c) Please see Attachment 029-A.

[2] The fill resources are placeholders used to evaluate portfolios on a consistent energy and capacity basis and do not represent proposed procurements in this process.

UM 1934

Attachment 029-A

Provided in Electronic Format only

October 15, 2018

TO: Mark Brown
Public Utility Commission of Oregon

FROM: Jimmy Lindsay
Manager, Resource Strategy

PORTLAND GENERAL ELECTRIC
UM 1934
PGE Response to OPUC Data Request No. 022
Dated October 8, 2018

Request:

In Commission Order No. 18-171, PGE was instructed to complete a sensitivity analysis around generic fill. Please explain:

a. **Why PGE elected to run a generic fill sensitivity whose results it "does not overly emphasize"?**
b. **Were there not better cost assumptions that could be used about renewable resources that would not qualify for federal tax credits? If not, why?**
c. **Could 2019 IRP renewable estimates have been used for a more useful analysis? If so, why were they not used?**

Response:

a. Order No. 18-171 required PGE to include a sensitivity adjusting the cost parameters for the energy fill resource to ensure the effect of generic fill assumptions were visible to the Commission and Stakeholders. PGE included a portfolio analysis study assumption sensitivity in which the energy fill ('generic fill') costs were adjusted to be equal to the average cost and performance of the final short-listed bidders. Using an average shortlist cost as an energy fill assumption allows for visibility into portfolio results unaffected by 'generic fill' costs assumptions originating from alternative analyses.

   PGE does not overly emphasize the portfolio results associated with the average bid cost energy fill assumption because of the impact of declining and expiring federal tax credits on future resource costs. PGE's IRP analyses have indicated that the cost of renewable resources will increase in the near term, rather than remain constant, after the expiration of federal tax credits.[1] For that reason, it remains appropriate to emphasize results associated with IRP informed energy fill costs.

b. No, better energy fill cost assumptions were not available for use in PGE's portfolio analysis. PGE's portfolio analysis relied upon 2016 IRP Update resource cost estimates that were acknowledged by the Commission on May 1, 2018 - 20 days before the Commission acknowledged PGE's 2018 Renewable RFP. As was required by the Commission's Competitive Bidding Guideline 9, PGE relied upon modeling and decision criteria "consistent with the modeling and decision criteria used to develop the utility's acknowledged IRP Action Plan."[2] PGE does not agree that alternative and not-yet acknowledged long-term resource cost assumptions could be incorporated into PGE's 2018 Renewable RFP.

c. No. PGE's 2019 IRP cost assumptions had neither been completed nor acknowledged by the Commission at the time of the portfolio analysis.

[1] See Table 12-1 of PGE's 2016 IRP and Figure 1 of Attachment B to PGE's LC-66 Reply Comments page 23.
[2] Order No. 14-149 Appendix A Page 3

October 15, 2018

TO: Mark Brown
Public Utility Commission of Oregon

FROM: Jimmy Lindsay
Manager, Resource Strategy

PORTLAND GENERAL ELECTRIC
UM 1934
PGE Response to OPUC Data Request No. 025
Dated October 8, 2018

Request:

The IE report on pg 23-24 present six metrics of portfolio evaluation, but states cost/risk "was the primary ranking metric per the RFP and was calculated as one-half the reference case net cost NPV plus one half the standard deviation net cost NPV across all 27 sensitivities. This was meant to strike a balance between the expected cost of the portfolio and the risk created with a given portfolio."

a. **Were any of these other metrics identified in Appendix H of the initial application?**
b. **Were any of the other six metrics used in the Portfolio Analysis? If so, please explain.**

Response:

a. Yes. Page 7 of Appendix H includes the following statement: "Portfolios will be ranked according to a blended cost and risk metric based 50% on reference case expected cost and 50% upon the standard deviation of portfolio costs. In addition, portfolio risk will be characterized using additional IRP risk metrics including severity, variability, and durability as described in the 2016 IRP Chapter 11."

b. Yes, three of the six metrics identified by the IE were used to rank portfolios in PGE's Portfolio Analysis: 'net cost' (reference case expect cost), 'standard deviation', and 'cost/risk.' The 'cost/risk' metric is the sum of fifty percent of 'net cost' and 'standard deviation' as is described on page 7 of Appendix H. Portfolio performance was ranked according to the 'cost/risk' metric. The 2016 IRP risk metrics of 'variability', 'severity' and 'durability' were used and calculated in PGE's RFP Portfolio Analysis but were not used to determine relative portfolio performance.

October 15, 2018

TO: Mark Brown
Public Utility Commission of Oregon

FROM: Jimmy Lindsay
Manager, Resource Strategy

PORTLAND GENERAL ELECTRIC
UM 1934
PGE Response to OPUC Data Request No. 026
Dated October 8, 2018

Request:

Is the weighting of 50% expected cost and 50% standard deviation used as a decision tool in any other PGE analysis (such as the IRP)? Please also explain why or why not.

Response:

The cost and risk metric has been included in PGE's integrated resource planning and competitive solicitation analysis. The 2016 IRP included analysis that evaluated portfolio performance on an expected cost and standard deviation risk basis and can be reviewed in Appendix L of the 2016 IRP. Use of this cost and risk methodology was included, in part, based on feedback on the Draft 2016 IRP provided by OPUC Staff in meetings prior to filing the 2016 IRP.[1] Following feedback received in the 2016 IRP, PGE's bilateral capacity procurement analysis also evaluated portfolios based on expected cost and standard deviation risk.

[1] See LC 66, Staff's Initial Comments, pg 28, footnote 78.

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CERTIFICATE OF SERVICE

UM 1934

I certify that I have, this day, served the foregoing document upon all parties of record in this proceeding by delivering a copy in person or by mailing a copy properly addressed with first class postage prepaid, or by electronic mail pursuant to OAR 860-001-0180, to the following parties or attorneys of parties.

Dated this 25th day of October, 2018 at Salem, Oregon

Kay Barnes

Kay Barnes
Public Utility Commission
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