BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

LC 73

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY, 2019 Integrated Resource Plan.	THE RENEWABLE ENERGY COALITION'S OPENING COMMENTS

I. INTRODUCTION

The Renewable Energy Coalition (the "Coalition") respectfully submits these Opening Comments for consideration by the Oregon Public Utility Commission (the "Commission" or "OPUC") in the matter of Portland General Electric Company's ("PGE's") 2019 Integrated Resource Plan ("IRP").

PGE's 2019 integrated resource plan ("IRP") fails to: 1) account for the uncertainties of QFs reaching their scheduled commercial operation dates or reaching the scheduled commercial operation dates on-time; 2) reasonably forecast and consider the likelihood that QFs will renew or enter new contracts with PGE at the end of their current contracts; and 3) reasonably forecast and account for its low and high QF sensitivities. For the reasons articulated below, the Commission should not acknowledge PGE's IRP QF assumptions and direct PGE to perform such analysis in its IRP update and in future IRPs. For this IRP, the Commission should assume that between 25% and 50% of new QFs with contracts to sell power to PGE will become commercially operational, and that 100% of existing QFs currently selling power to PGE will continue to sell power to PGE in the future.

PGE's IRP inappropriately assumes that 100% of its QFs under contract will become commercially operational by their scheduled commercial operation date ("COD") in their power purchase agreement. While PGE has an unprecedented number of new QFs the most of which have scheduled CODs in the future, both experience with other utilities and PGE's data so far demonstrate that this number is wildly inaccurate. Historic precedent shows that only 26% of QFs that contracted with PGE have been able to energize and hit their scheduled commercial operation date,[1] and only 23% of QFs that contracted with PGE starting 2016 had commenced commercial operation at all, none of which actually met their scheduled COD.[2] New QFs have a one year cure period to reach COD, but it appears that between a quarter to half of the QFs that entered into contracts in 2016 and that have scheduled CODs in December 2018 will actually operate. The best historic information we have today supports a 25% success rate; however, given that many QF are in their one year cure period and the ingenuity of developers to overcome near insurmountable obstacles should not be underestimated, the Coalition supports a success rate range of 25-50%.

While this low success rate has impacts on the utility resource planning, the bigger story is the difficulty of constructing and financing new QFs in PGE's service territory. QFs in general are more risky to develop because the majority are smaller unsophisticated developers like irrigation and water districts, cities, counties, small business people, farmers, universities, etc. Unlike utility resources which may complete

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1 *See infra* at 6.
2 *See infra* at 9.

construction if they are overbudget or poorly perform because ratepayers can absorb the cost increases, QFs are financed by private or public capital, which often will not throw good money after bad.

However, this does not explain the unique difficulty of developing QFs in PGE's service territory. PacifiCorp, which does not have a reputation as being a QF friendly utility, in recent years across its six state service territory, has had about a 75% success rate (i.e., three quarters of the QFs able to obtain a PPA actually become operational).[3] The biggest problem in PGE's service territory is that PGE does not want to purchase the power and has taken aggressive actions and makes efforts to ensure that QFs do not operate. On top of these contracting challenges are the unprecedented difficulties associated with PGE's interconnection process, including delays, wildly inaccurate cost estimates, expensive and unnecessary equipment, the inability to understand the basis for PGE's interconnection upgrades, no ability to control or hire third parties to perform interconnection work, and the lack of meaningful ability to obtain relief from the Commission on interconnection disputes. The real surprise is that even a smaller number of QFs have been able to become operational in PGE's service territory.

On the other hand, PGE assumes that *no* existing and operating QFs will continue to sell power to PGE after the expiration of their current PPAs. This is an even more inaccurate assumption as the majority of QFs selling power to their utility continue to sell

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3 *See In re Application of Rocky Mountain Power for a Modification of Avoided Cost Methodology and Reduced Term of PURPA Power Purchase Agreements*, Pub. Serv. Comm'n of Wyo. Docket No 20000-545-ET-18, Record No. 15133, Brief of Renewable Energy Coalition at 19 (Aug. 8, 2019).

power in the future because they have few other options. In addition, the QF PPA term is not based on the economic life of the contract (this is different from utility resources which are included in rates for their expected economic life), but on a much shorter term. The combination of no other off takers and economic lives that exceed their contract term means that, absent changes in regulatory policy, the vast majority of QFs that are able to operate will continue to sell power to their host utility.

II. COMMENTS

A. PGE's Assumptions That All QFs Will Become Operational on Their Scheduled Commercial Operation Dates is Not Reasonable

It is unreasonable to assume that all QFs will become operational on their scheduled commercial operation dates. Utilities are required to consider risk and uncertainty in their IRPs.[4] Here, PGE does not appropriately consider the uncertainty of the scheduled commercial operation date in its QF contracts. PGE accounts for all QF contracts executed as of December 18, 2018 within its needs assessment and portfolio analysis.[5] This includes 132 QF contracts totaling approximately 601 MW.[6] PGE's treatment of contracted QFs for its portfolio analysis include QF selling electricity starting in the month the QF is scheduled to reach commercial operation.[7]

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4 *Re Commission Investigation into Integrated Resource Planning*, Docket No. UM 1056, Order No. 07-002 (Appendix A at 1) (Jan. 8, 2007).

5 PGE 2019 IRP at 103.

6 *Id.* at 281.

7 *See e.g.* Attachment A (PGE's Response to Staff Data Request No. 12 and excerpts of Attachment A to PGE's Response to Staff Data Request No. 12) ("[T]he column 'PGE_share' indicates the months when each contract is included in analysis") (Auburn Solar PGE_Share column includes this project commencing in July 2021); *See also* Auburn Solar PPA at § 2.2.2 ("By July 2, 2021 Sell shall have completed all requirements under Section 1.5 and shall have established the

It is not reasonable for PGE to assume that all QFs will become commercially operational at all or that all QFs will become operational on their scheduled commercial operation date. This is so for a variety of reasons. First, the nature of all generating facilities means that there is some inherent risk in their development and not all developers are successful or on-time. Second, PGE is currently and has been engaged in litigation with QFs over their contracts that reduces the likelihood that those or other QFs will become operational and may result in delaying projects.[8] Third, PGE and QFs are engaged in a number of contract disputes which have not reached official litigation, but are likely to make it difficult for the QFs to reach commercial operation on time. Finally, PGE's interconnection process has and is likely to in the future cause some delay in commercial operation dates, and may cause some projects to fail completely.[9] Essentially, PGE is taking aggressive efforts to interpret its contracts, enforce its contracts, and otherwise take action which harms QFs and reduces the likelihood that they will be able to sell power to PGE.

PURPA was enacted to "encourage the development of cogeneration and small power production facilities" at a time when such facilities and technologies were not

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Commercial Operation Date") available at https://edocs.puc.state.or.us/efdocs/HAQ/re143haq115045.pdf.

8 *See e.g. Blue Marmot V, LLC et. al. v. PGE*, Docket Nos. 1829-1833; *PGE v. Covanta Marion, LLC*, Docket No. UM 1887; *PGE v. Pacific Northwest Solar, LLC*, Docket No. UM 1894; *PGE v. Alfalfa Solar, LLC et. al.*, Docket No. 1931.

9 *See e.g. Pacific Northwest Solar, LLC v. PGE*, Docket Nos. UM 1902, 1904-1907; *Butler Solar, LLC v. PGE*, Docket No. UM 1903; *Dunn Rd. Solar, LLC v. PGE*, Docket No. UM 1963; *Sandy River Solar, LLC v. PGE*, Docket No. 1967; *Waconda Solar, LLC v. PGE*, Docket No. 1971.

widespread.[10] "Congress believed that increased use of these sources of energy would reduce the demand for traditional fossil fuels."[11] While some technologies are used more widely now than when PURPA was initially enacted, there are still inherent risks in developing such facilities, compounded by PGE's contracting and interconnection processes.

The likelihood that projects will meet their scheduled commercial operation dates can be evidenced by PGE's own PURPA contracting queue, which shows that only 26% of QFs are able to timely reach their CODs and no QFs that have executed contracts since 2016 have been able to timely reach their CODs—largely due to PGE's contracting and interconnection actions and policies. For example, of PGE's Schedule 201 QF contracts, 45 had scheduled commercial operation dates that occurred prior to December 18, 2018 (PGE's snapshot date for inclusion in its IRP analysis).[12] Of those 45, only 25 had actually achieved commercial operation, leaving 20 that had not achieved their scheduled commercial operation date (so were late), but that had also not yet been terminated.[13] Of the 25 that actually achieved commercial operation, 13 had a commercial operation date that was later than their scheduled commercial operation date.[14] That leaves only 12 of

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10 *FERC v. Miss*, 456 U.S. 742 at 750 (1982).

11 *Id.*

12 *See* Attachment B (PGE's Response to the Coalition's Data Request No. 1 and Attachment D to PGE's Response to the Coalition's Data Request No. 1) (Note that PGE did not include projects labeled as "terminated" or "expired but not renewed").

13 *See Id.*

14 *See Id.*

the total 45 projects, or approximately 26%, that actually achieved commercial operation on or before their scheduled commercial operation date.

When you look at PGE's more recent history the numbers are even worse. For the 13 contracts executed since 2016 with scheduled commercial operation dates before the snapshot date, six have been terminated, four have missed their scheduled CODs but not online yet, and the remaining three began operations but missed their scheduled CODs.[15] Therefore, history would show that PGE's assumption that 100% of QFs will achieve their scheduled commercial operation date is not reasonable. In light of these uncertainties, PGE should be directed to account for such uncertainties when performing its needs assessment and portfolio analysis.

B. PGE's Assumption That No QFs Will Continue Operating Beyond Their Current PPAs is Also Unreasonable

It is not reasonable to assume that no QFs will continue operating and delivering power to PGE beyond their current PPA. Utilities "should consider all costs with a reasonable likelihood of being included in rates over the long term, which extends beyond the planning horizon and the life of the resource."[16] Here, PGE stops including QFs in its needs assessment and portfolio analysis on the date their current contract terminates.[17]

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15 *See Id.*

16 Docket No. UM 1056, Order No. 07-002 (Appendix A at 2) (Jan. 8, 2007).

17 *See e.g.* Attachment A (PGE's Response to Staff Data Request No. 12 and excerpts of Attachment A to PGE's Response to Staff Data Request No. 12) ("[T]he column 'PGE_share' indicates the months when each contract is included in analysis") (Auburn Solar PGE_Share column includes this project ending in June 2041); *See also* Auburn Solar PPA at § 2.3 ("This Agreement shall terminate July 1, 2041.").

It is more likely than not that a QF will renew or seek to enter a new contract with PGE at the conclusion of its current contract. While, PGE's historical track record for renewing contracts is not great, it has historically only had very few PURPA contracts so there is not a good representative sample. Further, because PURPA requires that PGE purchase from QFs, it is likely that QFs will renew or seek to enter new contracts at the conclusion of their current contracts. This is especially true for QFs that are already operating. Once operational, the QF has few options to sell their electricity, and therefore even more likely that it will renew or enter a new contract with PGE. Therefore, PGE should be required to consider the likelihood that contracts will renew in its IRP and modify its assumptions accordingly.

C. PGE's QF Sensitivity Analysis Does Not Remedy the Concerns Raised Herein

While PGE has performed a QF sensitivity analysis to "provide insight" into uncertainty about its QF assumptions, that analysis only does just that—*provides insight*. The sensitivity analysis does not impact PGE's capacity adequacy assessment or resource procurement decisions. As PGE correctly notes, it simply provides "informative bookends." However, those bookends are not based in any real indicators about what a likely future looks like.

PGE's low QF sensitivity is not based in any reasonable factual data or forecasts. PGE's low QF sensitivity excludes 50% of the projects that were not online as of the snapshot date of December 18, 2018.[18] PGE chose 50% because it says it "provides a

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[18] PGE 2019 IRP at 120.

meaningful comparison to the 50% low QF sensitivity in the 2016 IRP Update."[19] Notably absent from PGE's rationale for choosing this 50% is any indication that it is based on any reasonable forecasts or expectations about about the likelihood that projects will become commercially operational and PGE provides no such estimate about the percentage it expects to become operational.[20] Rather, PGE points us to its response to the Coalition's first data request to determine the status of the contracts as of the snapshot date.[21]

As discussed above, history shows that PGE's assumptions may not be accurate. Eleven of the 42 contracts that have scheduled commercial operation dates prior to the snapshot date have been terminated prior to reaching commercial operation, and another 9 have missed their scheduled commercial operation dates and therefore are at risk of being terminated.[22] When you narrow the results to the contracts executed in 2016 or later (when PGE started experiencing a greater number of QF contracts), 13 total contracts were executed with scheduled commercial operation dates before the December 18, 2018 snapshot date.[23] Six of those terminated prior to reaching the commercial operations and another four had not yet achieved operations, and were therefore at risk of termination, leaving only three successful projects, or approximately 23%.[24] This is not to say that PGE's 50% is necessarily inaccurate, but PGE should be required to

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19 Attachment B (PGE's Response to the Coalition's Data Request No. 9)
20 Attachment B (PGE's Response to the Coalition's Data Request No. 10)
21 *Id.*
22 Attachment B (PGE's Response to the Coalition's Data Request No. 1 and Attachment D to PGE's Response to the Coalition's Data Request No. 1).
23 *Id.*
24 *Id.*

reasonably forecast or estimate its low QF sensitivity and account for such analysis in its IRP.

Similarly, PGE's high QF sensitivity does not appear to be based in any reasonable factual data or forecasts. PGE simply "includes all of the generation from potential QF projects that were active in progressing toward contract execution in the 90 days prior to the contract snapshot date."[25] However, PGE provides no analysis about whether this is a reasonable assumption. PGE says that it "does not forecast future executions of PURPA qualifying facility (QF) contracts across the planning horizon."[26] Because the high QF sensitivity does not forecast long term QF contract executions and its near-term projection is not based in any reasonable assumptions, PGE should similarly be required to reasonably forecast its high QF sensitivity and account for such analysis in its IRP.

III. CONCLUSION

For the reasons articulated herein, the Commission should not acknowledge PGE's IRP assumptions and direct PGE to, in its next IRP update and future IRPs: 1) account for the uncertainties of QFs reaching their scheduled commercial operation dates or reaching the scheduled commercial operation dates on-time; 2) reasonably forecast and consider the likelihood that QFs will renew or enter new contracts with PGE at the end of their current contracts; and 3) reasonably forecast and account for its low and high QF sensitivities.

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25 PGE 2019 IRP at 121.

26 Attachment B (PGE's Response to the Coalition's Data Request No. 4)

Dated this 11th day of October 2019.

Respectfully submitted,

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Attachment A

PGE's Response to Staff Data Request No. 012
Excerpt of Attachment A to PGE's Response to Staff Data Request No. 012
(Cells 8-2311, and 2696-49947 omitted)

July 8, 2019

TO: JP Batmale
Public Utility Commission of Oregon

FROM: Jay Tinker
Director, Rates and Regulatory Affairs

PORTLAND GENERAL ELECTRIC
LC 73
PGE Response to OPUC Data Request No. 012
Dated June 24, 2019

Request:

Please provide the forecast(s) of QF capacity (MW) used in PGE's draft IRP portfolio modeling.

Response:

In the draft 2019 IRP, PGE's treatment of existing and contracted resources for portfolio analysis included all Schedule 201 and Schedule 202 qualifying facilities (QFs) contracts executed as of December 18, 2018. A list of the Schedule 201 contracts with project capacity is included in Attachment A. The Schedule 202 contracts are provided in Attachment B. In both files, the column "PGE_share" indicates the months when each contract is included in analysis.

Attachment B is protected information subject to Protective Order No. 19-186.

PGE notes that one QF contract (Coffin Butte, 5.7 MW), was included in the energy and RPS analysis, but was not included in the capacity adequacy assessment in error. PGE will include this contract in future updates to the capacity adequacy assessment if it remains in PGE's portfolio. PGE anticipates that including this contract in the capacity adequacy assessment would have a very small impact (approximately 5 MW) on the identified capacity need.

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Attachment 012-A

Provided in Electronic Format Only

Schedule 201 Contracts

Source ALIS_2019IRP Database
Table Energy_QF_Executed_121818
Query Date 3/23/19
Contract Typ Standard

plant_ID	plant_name	technology_type	ownership	year	month	capacity_MW	PGE_share	executionStatus
12688	Auburn Solar	Solar	QF	2019	1	1.26	0	Executed
12689	Auburn Solar	Solar	QF	2019	2	1.26	0	Executed
12690	Auburn Solar	Solar	QF	2019	3	1.26	0	Executed
12691	Auburn Solar	Solar	QF	2019	4	1.26	0	Executed
12692	Auburn Solar	Solar	QF	2019	5	1.26	0	Executed
12693	Auburn Solar	Solar	QF	2019	6	1.26	0	Executed
12694	Auburn Solar	Solar	QF	2019	7	1.26	0	Executed
12695	Auburn Solar	Solar	QF	2019	8	1.26	0	Executed
12696	Auburn Solar	Solar	QF	2019	9	1.26	0	Executed
12697	Auburn Solar	Solar	QF	2019	10	1.26	0	Executed
12698	Auburn Solar	Solar	QF	2019	11	1.26	0	Executed
12699	Auburn Solar	Solar	QF	2019	12	1.26	0	Executed
12700	Auburn Solar	Solar	QF	2020	1	1.26	0	Executed
12701	Auburn Solar	Solar	QF	2020	2	1.26	0	Executed
12702	Auburn Solar	Solar	QF	2020	3	1.26	0	Executed
12703	Auburn Solar	Solar	QF	2020	4	1.26	0	Executed
12704	Auburn Solar	Solar	QF	2020	5	1.26	0	Executed
12705	Auburn Solar	Solar	QF	2020	6	1.26	0	Executed
12706	Auburn Solar	Solar	QF	2020	7	1.26	0	Executed
12707	Auburn Solar	Solar	QF	2020	8	1.26	0	Executed
12708	Auburn Solar	Solar	QF	2020	9	1.26	0	Executed
12709	Auburn Solar	Solar	QF	2020	10	1.26	0	Executed
12710	Auburn Solar	Solar	QF	2020	11	1.26	0	Executed
12711	Auburn Solar	Solar	QF	2020	12	1.26	0	Executed
12712	Auburn Solar	Solar	QF	2021	1	1.26	0	Executed
12713	Auburn Solar	Solar	QF	2021	2	1.26	0	Executed
12714	Auburn Solar	Solar	QF	2021	3	1.26	0	Executed
12715	Auburn Solar	Solar	QF	2021	4	1.26	0	Executed
12716	Auburn Solar	Solar	QF	2021	5	1.26	0	Executed
12717	Auburn Solar	Solar	QF	2021	6	1.26	0	Executed
12718	Auburn Solar	Solar	QF	2021	7	1.26	1	Executed
12719	Auburn Solar	Solar	QF	2021	8	1.26	1	Executed
12720	Auburn Solar	Solar	QF	2021	9	1.26	1	Executed
12721	Auburn Solar	Solar	QF	2021	10	1.26	1	Executed
12722	Auburn Solar	Solar	QF	2021	11	1.26	1	Executed
12723	Auburn Solar	Solar	QF	2021	12	1.26	1	Executed
12724	Auburn Solar	Solar	QF	2022	1	1.26	1	Executed
12725	Auburn Solar	Solar	QF	2022	2	1.26	1	Executed
12726	Auburn Solar	Solar	QF	2022	3	1.26	1	Executed
12727	Auburn Solar	Solar	QF	2022	4	1.26	1	Executed
12728	Auburn Solar	Solar	QF	2022	5	1.26	1	Executed
12729	Auburn Solar	Solar	QF	2022	6	1.26	1	Executed
12730	Auburn Solar	Solar	QF	2022	7	1.26	1	Executed
12731	Auburn Solar	Solar	QF	2022	8	1.26	1	Executed
12732	Auburn Solar	Solar	QF	2022	9	1.26	1	Executed
12733	Auburn Solar	Solar	QF	2022	10	1.26	1	Executed
12734	Auburn Solar	Solar	QF	2022	11	1.26	1	Executed
12735	Auburn Solar	Solar	QF	2022	12	1.26	1	Executed
12736	Auburn Solar	Solar	QF	2023	1	1.26	1	Executed
12737	Auburn Solar	Solar	QF	2023	2	1.26	1	Executed
12738	Auburn Solar	Solar	QF	2023	3	1.26	1	Executed
12739	Auburn Solar	Solar	QF	2023	4	1.26	1	Executed
12740	Auburn Solar	Solar	QF	2023	5	1.26	1	Executed
12741	Auburn Solar	Solar	QF	2023	6	1.26	1	Executed
12742	Auburn Solar	Solar	QF	2023	7	1.26	1	Executed
12743	Auburn Solar	Solar	QF	2023	8	1.26	1	Executed
12744	Auburn Solar	Solar	QF	2023	9	1.26	1	Executed
12745	Auburn Solar	Solar	QF	2023	10	1.26	1	Executed
12746	Auburn Solar	Solar	QF	2023	11	1.26	1	Executed
12747	Auburn Solar	Solar	QF	2023	12	1.26	1	Executed
12748	Auburn Solar	Solar	QF	2024	1	1.26	1	Executed
12749	Auburn Solar	Solar	QF	2024	2	1.26	1	Executed
12750	Auburn Solar	Solar	QF	2024	3	1.26	1	Executed

12751	Auburn Solar	Solar	QF	2024	4	1.26	1	Executed
12752	Auburn Solar	Solar	QF	2024	5	1.26	1	Executed
12753	Auburn Solar	Solar	QF	2024	6	1.26	1	Executed
12754	Auburn Solar	Solar	QF	2024	7	1.26	1	Executed
12755	Auburn Solar	Solar	QF	2024	8	1.26	1	Executed
12756	Auburn Solar	Solar	QF	2024	9	1.26	1	Executed
12757	Auburn Solar	Solar	QF	2024	10	1.26	1	Executed
12758	Auburn Solar	Solar	QF	2024	11	1.26	1	Executed
12759	Auburn Solar	Solar	QF	2024	12	1.26	1	Executed
12760	Auburn Solar	Solar	QF	2025	1	1.26	1	Executed
12761	Auburn Solar	Solar	QF	2025	2	1.26	1	Executed
12762	Auburn Solar	Solar	QF	2025	3	1.26	1	Executed
12763	Auburn Solar	Solar	QF	2025	4	1.26	1	Executed
12764	Auburn Solar	Solar	QF	2025	5	1.26	1	Executed
12765	Auburn Solar	Solar	QF	2025	6	1.26	1	Executed
12766	Auburn Solar	Solar	QF	2025	7	1.26	1	Executed
12767	Auburn Solar	Solar	QF	2025	8	1.26	1	Executed
12768	Auburn Solar	Solar	QF	2025	9	1.26	1	Executed
12769	Auburn Solar	Solar	QF	2025	10	1.26	1	Executed
12770	Auburn Solar	Solar	QF	2025	11	1.26	1	Executed
12771	Auburn Solar	Solar	QF	2025	12	1.26	1	Executed
12772	Auburn Solar	Solar	QF	2026	1	1.26	1	Executed
12773	Auburn Solar	Solar	QF	2026	2	1.26	1	Executed
12774	Auburn Solar	Solar	QF	2026	3	1.26	1	Executed
12775	Auburn Solar	Solar	QF	2026	4	1.26	1	Executed
12776	Auburn Solar	Solar	QF	2026	5	1.26	1	Executed
12777	Auburn Solar	Solar	QF	2026	6	1.26	1	Executed
12778	Auburn Solar	Solar	QF	2026	7	1.26	1	Executed
12779	Auburn Solar	Solar	QF	2026	8	1.26	1	Executed
12780	Auburn Solar	Solar	QF	2026	9	1.26	1	Executed
12781	Auburn Solar	Solar	QF	2026	10	1.26	1	Executed
12782	Auburn Solar	Solar	QF	2026	11	1.26	1	Executed
12783	Auburn Solar	Solar	QF	2026	12	1.26	1	Executed
12784	Auburn Solar	Solar	QF	2027	1	1.26	1	Executed
12785	Auburn Solar	Solar	QF	2027	2	1.26	1	Executed
12786	Auburn Solar	Solar	QF	2027	3	1.26	1	Executed
12787	Auburn Solar	Solar	QF	2027	4	1.26	1	Executed
12788	Auburn Solar	Solar	QF	2027	5	1.26	1	Executed
12789	Auburn Solar	Solar	QF	2027	6	1.26	1	Executed
12790	Auburn Solar	Solar	QF	2027	7	1.26	1	Executed
12791	Auburn Solar	Solar	QF	2027	8	1.26	1	Executed
12792	Auburn Solar	Solar	QF	2027	9	1.26	1	Executed
12793	Auburn Solar	Solar	QF	2027	10	1.26	1	Executed
12794	Auburn Solar	Solar	QF	2027	11	1.26	1	Executed
12795	Auburn Solar	Solar	QF	2027	12	1.26	1	Executed
12796	Auburn Solar	Solar	QF	2028	1	1.26	1	Executed
12797	Auburn Solar	Solar	QF	2028	2	1.26	1	Executed
12798	Auburn Solar	Solar	QF	2028	3	1.26	1	Executed
12799	Auburn Solar	Solar	QF	2028	4	1.26	1	Executed
12800	Auburn Solar	Solar	QF	2028	5	1.26	1	Executed
12801	Auburn Solar	Solar	QF	2028	6	1.26	1	Executed
12802	Auburn Solar	Solar	QF	2028	7	1.26	1	Executed
12803	Auburn Solar	Solar	QF	2028	8	1.26	1	Executed
12804	Auburn Solar	Solar	QF	2028	9	1.26	1	Executed
12805	Auburn Solar	Solar	QF	2028	10	1.26	1	Executed
12806	Auburn Solar	Solar	QF	2028	11	1.26	1	Executed
12807	Auburn Solar	Solar	QF	2028	12	1.26	1	Executed
12808	Auburn Solar	Solar	QF	2029	1	1.26	1	Executed
12809	Auburn Solar	Solar	QF	2029	2	1.26	1	Executed
12810	Auburn Solar	Solar	QF	2029	3	1.26	1	Executed
12811	Auburn Solar	Solar	QF	2029	4	1.26	1	Executed
12812	Auburn Solar	Solar	QF	2029	5	1.26	1	Executed
12813	Auburn Solar	Solar	QF	2029	6	1.26	1	Executed
12814	Auburn Solar	Solar	QF	2029	7	1.26	1	Executed
12815	Auburn Solar	Solar	QF	2029	8	1.26	1	Executed
12816	Auburn Solar	Solar	QF	2029	9	1.26	1	Executed
12817	Auburn Solar	Solar	QF	2029	10	1.26	1	Executed
12818	Auburn Solar	Solar	QF	2029	11	1.26	1	Executed
12819	Auburn Solar	Solar	QF	2029	12	1.26	1	Executed
12820	Auburn Solar	Solar	QF	2030	1	1.26	1	Executed

12821	Auburn Solar	Solar	QF	2030	2	1.26	1	Executed
12822	Auburn Solar	Solar	QF	2030	3	1.26	1	Executed
12823	Auburn Solar	Solar	QF	2030	4	1.26	1	Executed
12824	Auburn Solar	Solar	QF	2030	5	1.26	1	Executed
12825	Auburn Solar	Solar	QF	2030	6	1.26	1	Executed
12826	Auburn Solar	Solar	QF	2030	7	1.26	1	Executed
12827	Auburn Solar	Solar	QF	2030	8	1.26	1	Executed
12828	Auburn Solar	Solar	QF	2030	9	1.26	1	Executed
12829	Auburn Solar	Solar	QF	2030	10	1.26	1	Executed
12830	Auburn Solar	Solar	QF	2030	11	1.26	1	Executed
12831	Auburn Solar	Solar	QF	2030	12	1.26	1	Executed
12832	Auburn Solar	Solar	QF	2031	1	1.26	1	Executed
12833	Auburn Solar	Solar	QF	2031	2	1.26	1	Executed
12834	Auburn Solar	Solar	QF	2031	3	1.26	1	Executed
12835	Auburn Solar	Solar	QF	2031	4	1.26	1	Executed
12836	Auburn Solar	Solar	QF	2031	5	1.26	1	Executed
12837	Auburn Solar	Solar	QF	2031	6	1.26	1	Executed
12838	Auburn Solar	Solar	QF	2031	7	1.26	1	Executed
12839	Auburn Solar	Solar	QF	2031	8	1.26	1	Executed
12840	Auburn Solar	Solar	QF	2031	9	1.26	1	Executed
12841	Auburn Solar	Solar	QF	2031	10	1.26	1	Executed
12842	Auburn Solar	Solar	QF	2031	11	1.26	1	Executed
12843	Auburn Solar	Solar	QF	2031	12	1.26	1	Executed
12844	Auburn Solar	Solar	QF	2032	1	1.26	1	Executed
12845	Auburn Solar	Solar	QF	2032	2	1.26	1	Executed
12846	Auburn Solar	Solar	QF	2032	3	1.26	1	Executed
12847	Auburn Solar	Solar	QF	2032	4	1.26	1	Executed
12848	Auburn Solar	Solar	QF	2032	5	1.26	1	Executed
12849	Auburn Solar	Solar	QF	2032	6	1.26	1	Executed
12850	Auburn Solar	Solar	QF	2032	7	1.26	1	Executed
12851	Auburn Solar	Solar	QF	2032	8	1.26	1	Executed
12852	Auburn Solar	Solar	QF	2032	9	1.26	1	Executed
12853	Auburn Solar	Solar	QF	2032	10	1.26	1	Executed
12854	Auburn Solar	Solar	QF	2032	11	1.26	1	Executed
12855	Auburn Solar	Solar	QF	2032	12	1.26	1	Executed
12856	Auburn Solar	Solar	QF	2033	1	1.26	1	Executed
12857	Auburn Solar	Solar	QF	2033	2	1.26	1	Executed
12858	Auburn Solar	Solar	QF	2033	3	1.26	1	Executed
12859	Auburn Solar	Solar	QF	2033	4	1.26	1	Executed
12860	Auburn Solar	Solar	QF	2033	5	1.26	1	Executed
12861	Auburn Solar	Solar	QF	2033	6	1.26	1	Executed
12862	Auburn Solar	Solar	QF	2033	7	1.26	1	Executed
12863	Auburn Solar	Solar	QF	2033	8	1.26	1	Executed
12864	Auburn Solar	Solar	QF	2033	9	1.26	1	Executed
12865	Auburn Solar	Solar	QF	2033	10	1.26	1	Executed
12866	Auburn Solar	Solar	QF	2033	11	1.26	1	Executed
12867	Auburn Solar	Solar	QF	2033	12	1.26	1	Executed
12868	Auburn Solar	Solar	QF	2034	1	1.26	1	Executed
12869	Auburn Solar	Solar	QF	2034	2	1.26	1	Executed
12870	Auburn Solar	Solar	QF	2034	3	1.26	1	Executed
12871	Auburn Solar	Solar	QF	2034	4	1.26	1	Executed
12872	Auburn Solar	Solar	QF	2034	5	1.26	1	Executed
12873	Auburn Solar	Solar	QF	2034	6	1.26	1	Executed
12874	Auburn Solar	Solar	QF	2034	7	1.26	1	Executed
12875	Auburn Solar	Solar	QF	2034	8	1.26	1	Executed
12876	Auburn Solar	Solar	QF	2034	9	1.26	1	Executed
12877	Auburn Solar	Solar	QF	2034	10	1.26	1	Executed
12878	Auburn Solar	Solar	QF	2034	11	1.26	1	Executed
12879	Auburn Solar	Solar	QF	2034	12	1.26	1	Executed
12880	Auburn Solar	Solar	QF	2035	1	1.26	1	Executed
12881	Auburn Solar	Solar	QF	2035	2	1.26	1	Executed
12882	Auburn Solar	Solar	QF	2035	3	1.26	1	Executed
12883	Auburn Solar	Solar	QF	2035	4	1.26	1	Executed
12884	Auburn Solar	Solar	QF	2035	5	1.26	1	Executed
12885	Auburn Solar	Solar	QF	2035	6	1.26	1	Executed
12886	Auburn Solar	Solar	QF	2035	7	1.26	1	Executed
12887	Auburn Solar	Solar	QF	2035	8	1.26	1	Executed
12888	Auburn Solar	Solar	QF	2035	9	1.26	1	Executed
12889	Auburn Solar	Solar	QF	2035	10	1.26	1	Executed
12890	Auburn Solar	Solar	QF	2035	11	1.26	1	Executed

12891	Auburn Solar	Solar	QF	2035	12	1.26	1	Executed
12892	Auburn Solar	Solar	QF	2036	1	1.26	1	Executed
12893	Auburn Solar	Solar	QF	2036	2	1.26	1	Executed
12894	Auburn Solar	Solar	QF	2036	3	1.26	1	Executed
12895	Auburn Solar	Solar	QF	2036	4	1.26	1	Executed
12896	Auburn Solar	Solar	QF	2036	5	1.26	1	Executed
12897	Auburn Solar	Solar	QF	2036	6	1.26	1	Executed
12898	Auburn Solar	Solar	QF	2036	7	1.26	1	Executed
12899	Auburn Solar	Solar	QF	2036	8	1.26	1	Executed
12900	Auburn Solar	Solar	QF	2036	9	1.26	1	Executed
12901	Auburn Solar	Solar	QF	2036	10	1.26	1	Executed
12902	Auburn Solar	Solar	QF	2036	11	1.26	1	Executed
12903	Auburn Solar	Solar	QF	2036	12	1.26	1	Executed
12904	Auburn Solar	Solar	QF	2037	1	1.26	1	Executed
12905	Auburn Solar	Solar	QF	2037	2	1.26	1	Executed
12906	Auburn Solar	Solar	QF	2037	3	1.26	1	Executed
12907	Auburn Solar	Solar	QF	2037	4	1.26	1	Executed
12908	Auburn Solar	Solar	QF	2037	5	1.26	1	Executed
12909	Auburn Solar	Solar	QF	2037	6	1.26	1	Executed
12910	Auburn Solar	Solar	QF	2037	7	1.26	1	Executed
12911	Auburn Solar	Solar	QF	2037	8	1.26	1	Executed
12912	Auburn Solar	Solar	QF	2037	9	1.26	1	Executed
12913	Auburn Solar	Solar	QF	2037	10	1.26	1	Executed
12914	Auburn Solar	Solar	QF	2037	11	1.26	1	Executed
12915	Auburn Solar	Solar	QF	2037	12	1.26	1	Executed
12916	Auburn Solar	Solar	QF	2038	1	1.26	1	Executed
12917	Auburn Solar	Solar	QF	2038	2	1.26	1	Executed
12918	Auburn Solar	Solar	QF	2038	3	1.26	1	Executed
12919	Auburn Solar	Solar	QF	2038	4	1.26	1	Executed
12920	Auburn Solar	Solar	QF	2038	5	1.26	1	Executed
12921	Auburn Solar	Solar	QF	2038	6	1.26	1	Executed
12922	Auburn Solar	Solar	QF	2038	7	1.26	1	Executed
12923	Auburn Solar	Solar	QF	2038	8	1.26	1	Executed
12924	Auburn Solar	Solar	QF	2038	9	1.26	1	Executed
12925	Auburn Solar	Solar	QF	2038	10	1.26	1	Executed
12926	Auburn Solar	Solar	QF	2038	11	1.26	1	Executed
12927	Auburn Solar	Solar	QF	2038	12	1.26	1	Executed
12928	Auburn Solar	Solar	QF	2039	1	1.26	1	Executed
12929	Auburn Solar	Solar	QF	2039	2	1.26	1	Executed
12930	Auburn Solar	Solar	QF	2039	3	1.26	1	Executed
12931	Auburn Solar	Solar	QF	2039	4	1.26	1	Executed
12932	Auburn Solar	Solar	QF	2039	5	1.26	1	Executed
12933	Auburn Solar	Solar	QF	2039	6	1.26	1	Executed
12934	Auburn Solar	Solar	QF	2039	7	1.26	1	Executed
12935	Auburn Solar	Solar	QF	2039	8	1.26	1	Executed
12936	Auburn Solar	Solar	QF	2039	9	1.26	1	Executed
12937	Auburn Solar	Solar	QF	2039	10	1.26	1	Executed
12938	Auburn Solar	Solar	QF	2039	11	1.26	1	Executed
12939	Auburn Solar	Solar	QF	2039	12	1.26	1	Executed
12940	Auburn Solar	Solar	QF	2040	1	1.26	1	Executed
12941	Auburn Solar	Solar	QF	2040	2	1.26	1	Executed
12942	Auburn Solar	Solar	QF	2040	3	1.26	1	Executed
12943	Auburn Solar	Solar	QF	2040	4	1.26	1	Executed
12944	Auburn Solar	Solar	QF	2040	5	1.26	1	Executed
12945	Auburn Solar	Solar	QF	2040	6	1.26	1	Executed
12946	Auburn Solar	Solar	QF	2040	7	1.26	1	Executed
12947	Auburn Solar	Solar	QF	2040	8	1.26	1	Executed
12948	Auburn Solar	Solar	QF	2040	9	1.26	1	Executed
12949	Auburn Solar	Solar	QF	2040	10	1.26	1	Executed
12950	Auburn Solar	Solar	QF	2040	11	1.26	1	Executed
12951	Auburn Solar	Solar	QF	2040	12	1.26	1	Executed
12952	Auburn Solar	Solar	QF	2041	1	1.26	1	Executed
12953	Auburn Solar	Solar	QF	2041	2	1.26	1	Executed
12954	Auburn Solar	Solar	QF	2041	3	1.26	1	Executed
12955	Auburn Solar	Solar	QF	2041	4	1.26	1	Executed
12956	Auburn Solar	Solar	QF	2041	5	1.26	1	Executed
12957	Auburn Solar	Solar	QF	2041	6	1.26	1	Executed
12958	Auburn Solar	Solar	QF	2041	7	1.26	0	Executed
12959	Auburn Solar	Solar	QF	2041	8	1.26	0	Executed
12960	Auburn Solar	Solar	QF	2041	9	1.26	0	Executed

12961	Auburn Solar	Solar	QF	2041	10	1.26	0	Executed
12962	Auburn Solar	Solar	QF	2041	11	1.26	0	Executed
12963	Auburn Solar	Solar	QF	2041	12	1.26	0	Executed
12964	Auburn Solar	Solar	QF	2042	1	1.26	0	Executed
12965	Auburn Solar	Solar	QF	2042	2	1.26	0	Executed
12966	Auburn Solar	Solar	QF	2042	3	1.26	0	Executed
12967	Auburn Solar	Solar	QF	2042	4	1.26	0	Executed
12968	Auburn Solar	Solar	QF	2042	5	1.26	0	Executed
12969	Auburn Solar	Solar	QF	2042	6	1.26	0	Executed
12970	Auburn Solar	Solar	QF	2042	7	1.26	0	Executed
12971	Auburn Solar	Solar	QF	2042	8	1.26	0	Executed
12972	Auburn Solar	Solar	QF	2042	9	1.26	0	Executed
12973	Auburn Solar	Solar	QF	2042	10	1.26	0	Executed
12974	Auburn Solar	Solar	QF	2042	11	1.26	0	Executed
12975	Auburn Solar	Solar	QF	2042	12	1.26	0	Executed
12976	Auburn Solar	Solar	QF	2043	1	1.26	0	Executed
12977	Auburn Solar	Solar	QF	2043	2	1.26	0	Executed
12978	Auburn Solar	Solar	QF	2043	3	1.26	0	Executed
12979	Auburn Solar	Solar	QF	2043	4	1.26	0	Executed
12980	Auburn Solar	Solar	QF	2043	5	1.26	0	Executed
12981	Auburn Solar	Solar	QF	2043	6	1.26	0	Executed
12982	Auburn Solar	Solar	QF	2043	7	1.26	0	Executed
12983	Auburn Solar	Solar	QF	2043	8	1.26	0	Executed
12984	Auburn Solar	Solar	QF	2043	9	1.26	0	Executed
12985	Auburn Solar	Solar	QF	2043	10	1.26	0	Executed
12986	Auburn Solar	Solar	QF	2043	11	1.26	0	Executed
12987	Auburn Solar	Solar	QF	2043	12	1.26	0	Executed
12988	Auburn Solar	Solar	QF	2044	1	1.26	0	Executed
12989	Auburn Solar	Solar	QF	2044	2	1.26	0	Executed
12990	Auburn Solar	Solar	QF	2044	3	1.26	0	Executed
12991	Auburn Solar	Solar	QF	2044	4	1.26	0	Executed
12992	Auburn Solar	Solar	QF	2044	5	1.26	0	Executed
12993	Auburn Solar	Solar	QF	2044	6	1.26	0	Executed
12994	Auburn Solar	Solar	QF	2044	7	1.26	0	Executed
12995	Auburn Solar	Solar	QF	2044	8	1.26	0	Executed
12996	Auburn Solar	Solar	QF	2044	9	1.26	0	Executed
12997	Auburn Solar	Solar	QF	2044	10	1.26	0	Executed
12998	Auburn Solar	Solar	QF	2044	11	1.26	0	Executed
12999	Auburn Solar	Solar	QF	2044	12	1.26	0	Executed
13000	Auburn Solar	Solar	QF	2045	1	1.26	0	Executed
13001	Auburn Solar	Solar	QF	2045	2	1.26	0	Executed
13002	Auburn Solar	Solar	QF	2045	3	1.26	0	Executed
13003	Auburn Solar	Solar	QF	2045	4	1.26	0	Executed
13004	Auburn Solar	Solar	QF	2045	5	1.26	0	Executed
13005	Auburn Solar	Solar	QF	2045	6	1.26	0	Executed
13006	Auburn Solar	Solar	QF	2045	7	1.26	0	Executed
13007	Auburn Solar	Solar	QF	2045	8	1.26	0	Executed
13008	Auburn Solar	Solar	QF	2045	9	1.26	0	Executed
13009	Auburn Solar	Solar	QF	2045	10	1.26	0	Executed
13010	Auburn Solar	Solar	QF	2045	11	1.26	0	Executed
13011	Auburn Solar	Solar	QF	2045	12	1.26	0	Executed
13012	Auburn Solar	Solar	QF	2046	1	1.26	0	Executed
13013	Auburn Solar	Solar	QF	2046	2	1.26	0	Executed
13014	Auburn Solar	Solar	QF	2046	3	1.26	0	Executed
13015	Auburn Solar	Solar	QF	2046	4	1.26	0	Executed
13016	Auburn Solar	Solar	QF	2046	5	1.26	0	Executed
13017	Auburn Solar	Solar	QF	2046	6	1.26	0	Executed
13018	Auburn Solar	Solar	QF	2046	7	1.26	0	Executed
13019	Auburn Solar	Solar	QF	2046	8	1.26	0	Executed
13020	Auburn Solar	Solar	QF	2046	9	1.26	0	Executed
13021	Auburn Solar	Solar	QF	2046	10	1.26	0	Executed
13022	Auburn Solar	Solar	QF	2046	11	1.26	0	Executed
13023	Auburn Solar	Solar	QF	2046	12	1.26	0	Executed
13024	Auburn Solar	Solar	QF	2047	1	1.26	0	Executed
13025	Auburn Solar	Solar	QF	2047	2	1.26	0	Executed
13026	Auburn Solar	Solar	QF	2047	3	1.26	0	Executed
13027	Auburn Solar	Solar	QF	2047	4	1.26	0	Executed
13028	Auburn Solar	Solar	QF	2047	5	1.26	0	Executed
13029	Auburn Solar	Solar	QF	2047	6	1.26	0	Executed
13030	Auburn Solar	Solar	QF	2047	7	1.26	0	Executed

13031	Auburn Solar	Solar	QF	2047	8	1.26	0	Executed
13032	Auburn Solar	Solar	QF	2047	9	1.26	0	Executed
13033	Auburn Solar	Solar	QF	2047	10	1.26	0	Executed
13034	Auburn Solar	Solar	QF	2047	11	1.26	0	Executed
13035	Auburn Solar	Solar	QF	2047	12	1.26	0	Executed
13036	Auburn Solar	Solar	QF	2048	1	1.26	0	Executed
13037	Auburn Solar	Solar	QF	2048	2	1.26	0	Executed
13038	Auburn Solar	Solar	QF	2048	3	1.26	0	Executed
13039	Auburn Solar	Solar	QF	2048	4	1.26	0	Executed
13040	Auburn Solar	Solar	QF	2048	5	1.26	0	Executed
13041	Auburn Solar	Solar	QF	2048	6	1.26	0	Executed
13042	Auburn Solar	Solar	QF	2048	7	1.26	0	Executed
13043	Auburn Solar	Solar	QF	2048	8	1.26	0	Executed
13044	Auburn Solar	Solar	QF	2048	9	1.26	0	Executed
13045	Auburn Solar	Solar	QF	2048	10	1.26	0	Executed
13046	Auburn Solar	Solar	QF	2048	11	1.26	0	Executed
13047	Auburn Solar	Solar	QF	2048	12	1.26	0	Executed
13048	Auburn Solar	Solar	QF	2049	1	1.26	0	Executed
13049	Auburn Solar	Solar	QF	2049	2	1.26	0	Executed
13050	Auburn Solar	Solar	QF	2049	3	1.26	0	Executed
13051	Auburn Solar	Solar	QF	2049	4	1.26	0	Executed
13052	Auburn Solar	Solar	QF	2049	5	1.26	0	Executed
13053	Auburn Solar	Solar	QF	2049	6	1.26	0	Executed
13054	Auburn Solar	Solar	QF	2049	7	1.26	0	Executed
13055	Auburn Solar	Solar	QF	2049	8	1.26	0	Executed
13056	Auburn Solar	Solar	QF	2049	9	1.26	0	Executed
13057	Auburn Solar	Solar	QF	2049	10	1.26	0	Executed
13058	Auburn Solar	Solar	QF	2049	11	1.26	0	Executed
13059	Auburn Solar	Solar	QF	2049	12	1.26	0	Executed
13060	Auburn Solar	Solar	QF	2050	1	1.26	0	Executed
13061	Auburn Solar	Solar	QF	2050	2	1.26	0	Executed
13062	Auburn Solar	Solar	QF	2050	3	1.26	0	Executed
13063	Auburn Solar	Solar	QF	2050	4	1.26	0	Executed
13064	Auburn Solar	Solar	QF	2050	5	1.26	0	Executed
13065	Auburn Solar	Solar	QF	2050	6	1.26	0	Executed
13066	Auburn Solar	Solar	QF	2050	7	1.26	0	Executed
13067	Auburn Solar	Solar	QF	2050	8	1.26	0	Executed
13068	Auburn Solar	Solar	QF	2050	9	1.26	0	Executed
13069	Auburn Solar	Solar	QF	2050	10	1.26	0	Executed
13070	Auburn Solar	Solar	QF	2050	11	1.26	0	Executed
13071	Auburn Solar	Solar	QF	2050	12	1.26	0	Executed

Attachment B

PGE's Response to the Coalition's Data Request No. 001

Attachment D to PGE's Response to the Coalition's Data Request No. 001

PGE's Response to the Coalition's Data Request No. 004

PGE's Response to the Coalition's Data Request No. 009

PGE's Response to the Coalition's Data Request No. 010

September 20, 2019

TO: Irion Sanger
Renewable Energy Coalition

FROM: Jay Tinker
Director, Rates and Regulatory Affairs

PORTLAND GENERAL ELECTRIC
LC 73
PGE Response to REC Data Request No. 001
Dated July 23, 2019

Request:

Please provide a complete list of qualifying facility contracts that have entered into PPA with PGE since 1980 including the following information, and please provide all workpapers in original electronic format:

a. **Project Name**
b. **PPA execution date**
c. **Resource Type**
d. **Nameplate Capacity**
e. **Actual Commercial Operation Date**
f. **Contracted Commercial Operation Date**
g. **Type of PPA (Standard or Non-Standard)**
h. **Current PPA Expiration date**
i. **Whether the contract is for a new or existing project, and if renewing, then the dates for each contract**

Response (Dated July 23, 2019):

PGE objects to this request because it is vague, overly broad, unduly burdensome, and seeks information not relevant to this docket. Without waiving these objections, PGE responds as follows:

Attachment A provides information about the executed PURPA contracts included in the 2019 IRP. Attachment A contains protected information subject to Protective Order No. 19-186.

Supplemental Response 01 (Dated September 6, 2019):

PGE continues to object to this request to the extent that it is vague, overly broad, unduly burdensome, and seeks information not relevant to this docket. Without waiving these objections, PGE responds as follows:

As discussed with REC, PGE is providing information for active or executed QF contracts between 2010 and December 18, 2018 (the 2019 IRP QF snapshot date) in Attachment 001-B and Attachment 001-C of this supplemental response. Attachment 001-B provides information for Schedule 201 contracts and Attachment 001-C provides information for Schedule 202 contracts.

Attachment 001-C contains protected information subject to Protective Order No. 19-186.

Supplemental Response 02 (Dated September 20, 2019):

PGE continues to object to this request to the extent that it is vague, overly broad, unduly burdensome, and seeks information not relevant to this docket. Without waiving these objections, PGE responds as follows:

Upon further review and discussion with REC via electronic communication, PGE is supplementing this response with information for "active or operating" QFs between 2010 and December 18, 2018 (the 2019 IRP QF snapshot date). The following attachments are included with this supplemental response:

- Attachment 001-D, which contains the information provided in Attachment 001-B plus information for the City of Portland – Mt Tabor (row 2). The title of column I was also changed from "PPA Expired but not Renewed" to "Renewal".
- Attachment 001-E, which contains the information provided in Attachment 001-C plus an entry for an expired contract (row 2). The title of column I was also changed from "PPA Expired but not Renewed" to "Renewal". Attachment 001-E is protected information subject to Protective Order No. 19-186.

Attachment 001-D

Project Name	PPA Execution Date	Resource Type	Nameplate Capacity	Actual COD	Contracted COD	Type of PPA	PPA Expiration Date	Renewal
City of Portland - Mt Tabor	8/22/83	Hydro	0.17	6/1/85	6/1/85	Standard	5/31/14	Expired but not Renewed
Starbuck Properties	11/2/10	Solar	0.025	1/1/11	1/12/11	Standard	11/2/30	
PaTu Wind	4/29/10	Wind	9	12/1/10	5/31/11	Standard	5/31/31	
Country Village Estates	9/23/11	Solar	0.039	9/23/11	9/23/11	Standard	12/31/15	Expired but not Renewed
JC Biomethane	12/9/11	Biogas	1.6	9/26/13	7/31/12	Standard	12/9/31	
Coffin Butte	7/2/12	Biogas	5.66	10/1/12	10/1/12	Standard	9/30/27	
Northern Wasco PUD	9/29/12	Hydro	5.85	1/1/13	1/1/13	Standard	9/30/15	Expired but not Renewed
FGO	10/25/12	Biogas	0.37	1/1/14	2/1/13	Standard	Terminated	
Tualatin Valley Water District	4/1/13	Hydro	0.112	4/1/13	4/1/13	Standard	3/31/28	
Domaine Drouhin	4/5/13	Solar	0.094	4/5/13	4/5/13	Standard	4/15/28	
Conduit 3	12/17/12	Hydro	0.172	11/15/16	6/15/13	Standard	Terminated	
City of Grehsam Waste Water	1/11/13	Hydro	0.168	11/30/13	11/30/13	Standard	Terminated	
Port of Tillamook	9/20/13	Biogas	1.2	1/1/14	1/1/14	Standard	Terminated	
Minikahda Hydropower Co.	2/14/14	Hydro	0.2	2/14/14	2/14/14	Standard	2/20/29	
Von Family Limited Partnership	2/14/14	Hydro	0.2	2/14/14	2/14/14	Standard	2/19/29	
Steel Bridge Solar	2/19/14	Solar	2.5	2/18/16	8/19/15	Standard	2/19/34	
Bear Creek Butte	11/22/13	Wind	10		10/15/15	Standard	Terminated	
West Butte	11/22/13	Wind	10		10/15/15	Standard	Terminated	
NorWest Energy 16	7/28/15	Solar	2.2		12/31/16	Standard	Terminated	
SP Solar 4	7/28/15	Solar	2.2		12/31/16	Standard	Terminated	
Willamina Solar	11/13/15	Solar	0.5		12/31/16	Standard	Terminated	
Glenn Creek	1/25/16	Solar	2.2		10/31/17	Standard	Terminated	
Fossil Lake	4/29/15	Solar	10		11/30/17	Standard	4/29/35	
NorWest Energy 14	7/28/15	Solar	2.2	2/8/18	12/31/17	Standard	12/31/31	
SP Solar 1	7/28/15	Solar	2.2	2/8/18	12/31/17	Standard	7/28/35	
SP Solar 2	7/28/15	Solar	2.2		12/31/17	Standard	7/28/35	
SP Solar 5	7/28/15	Solar	2.2	2/8/18	12/31/17	Standard	7/28/35	
SP Solar 6	7/28/15	Solar	2.2	8/21/18	12/31/17	Standard	7/28/35	
SP Solar 7	7/28/15	Solar	2.2	6/30/18	12/31/17	Standard	7/28/35	
SP Solar 8	7/28/15	Solar	2.2	2/8/18	12/31/17	Standard	7/28/35	
Sheep Solar	1/25/16	Solar	2.2	2/8/18	12/31/17	Standard	1/25/36	
Silverton Solar	1/25/16	Solar	2.2	2/8/18	12/31/17	Standard	1/26/36	
OE Solar 2	1/25/16	Solar	5		12/31/17	Standard	Terminated	
Fishback Solar	5/20/16	Solar	3		12/31/17	Standard	Terminated	
Evergreen BioPower	5/31/17	Biomass	10	2/1/18	1/1/18	Standard	5/31/32	
Volcano Solar	10/18/17	Solar	0.75		3/1/18	Standard	10/18/37	
Fremont Solar	9/11/13	Solar	8		4/1/18	Standard	9/2/33	
Yamhill Creek Solar	5/31/17	Solar	2.2		4/30/18	Standard	5/31/37	
Lakeview	7/15/15	Solar	10		5/1/18	Standard	7/15/35	
OE Solar 4	3/7/16	Solar	10		6/30/18	Standard	Terminated	
Ballston Solar	5/2/16	Solar	2.2		8/31/18	Standard	5/2/36	
Labish Solar	12/1/16	Solar	2.2		8/31/18	Standard	11/10/36	
Morrow Solar	1/25/16	Solar	10		9/30/18	Standard	Terminated	
St. Helen's Organic Recyling	11/10/15	Biogas	2.4		10/1/18	Standard	11/10/30	
OE Solar 1	1/25/16	Solar	10		10/5/18	Standard	Terminated	
OE Solar 3	1/25/16	Solar	10		12/30/18	Standard	12/30/33	
Tygh Valley Solar	1/25/16	Solar	10		1/25/19	Standard	1/25/32	
Starvation Solar	1/25/16	Solar	10		1/25/19	Standard	1/25/32	
Dayton Solar I	1/25/16	Solar	10		1/25/19	Standard	1/25/32	

Project Name	PPA Execution Date	Resource Type	Nameplate Capacity	Actual COD	Contracted COD	Type of PPA	PPA Expiration Date	Renewal
Wasco Solar 1	1/25/16	Solar	10		1/25/19	Standard	1/25/32	
Boring Solar	1/25/16	Solar	2.2		1/31/19	Standard	1/25/36	
Tickle Creek Solar	8/23/17	Solar	1.85		1/31/19	Standard	8/22/37	
Thomas Creek Solar	5/31/17	Solar	2.2		2/1/19	Standard	5/31/37	
St Louis Solar	6/10/16	Solar	2.2		2/10/19	Standard	6/9/36	
O'neil Creek Solar	6/10/16	Solar	2.2		3/24/19	Standard	6/10/36	
Drift Creek	1/25/16	Solar	2.2		4/1/19	Standard	1/25/36	
Brush Creek Solar	6/23/17	Solar	2.2		4/5/19	Standard	6/23/37	
Fort Rock Solar I	4/27/16	Solar	10		4/27/19	Standard	4/27/32	
Fort Rock Solar II	4/27/16	Solar	10		4/27/19	Standard	4/27/32	
Case Creek Solar	6/22/16	Solar	2.2		5/5/19	Standard	6/20/36	
Energy Partners I	6/21/16	Biomass	10		6/1/19	Standard	6/20/36	
Energy Partners II	6/21/16	Biomass	10		6/1/19	Standard	6/20/36	
Suntex Solar	5/16/16	Solar	10		6/1/19	Standard	12/31/32	
Fort Rock Solar IV	6/26/16	Solar	10		6/26/19	Standard	6/26/32	
Alfalfa Solar	6/26/16	Solar	10		6/26/19	Standard	6/26/32	
Harney Solar I	6/27/16	Solar	10		6/27/19	Standard	6/27/32	
Riley Solar	6/27/16	Solar	10		6/27/19	Standard	6/27/32	
Rafael Solar	6/21/16	Solar	2.2		6/30/19	Standard	6/21/36	
OE Solar 5	11/4/16	Solar	10		6/30/19	Standard	7/26/31	
OE Solar 6	6/15/17	Solar	10		6/30/19	Standard	7/26/31	
Palmer Solar	6/21/16	Solar	2.2		7/1/19	Standard	6/21/36	
Alkali	8/26/16	Solar	10		7/1/19	Standard	7/31/32	
Day Hill Solar	11/10/16	Solar	2.2		7/14/19	Standard	9/7/36	
South Burns Solar I	7/20/16	Solar	10		7/20/19	Standard	7/19/32	
West Hines Solar I	7/20/16	Solar	10		7/20/19	Standard	7/19/32	
Rock Garden	8/26/16	Solar	10		7/31/19	Standard	7/31/32	
Kale Patch Solar	5/10/17	Solar	2.2		7/31/19	Standard	5/10/37	
Willamina Mill Solar	6/21/16	Solar	2.2		8/14/19	Standard	6/21/36	
Townsend Solar	6/4/18	Solar	2.25		9/30/19	Standard	9/30/39	
Ashcroft Solar	6/4/18	Solar	2.25		9/30/19	Standard	9/30/39	
Dunn Rd Solar	4/19/18	Solar	1.85		10/31/19	Standard	10/31/39	
Kaiser Creek Solar	6/4/18	Solar	2		12/1/19	Standard	11/1/39	
Parrott Creek Solar	6/28/18	Solar	2		12/1/19	Standard	11/1/39	
Sandy River Solar	5/25/18	Solar	1.85		12/1/19	Standard	3/1/38	
Brush College Solar	5/25/18	Solar	2		12/1/19	Standard	3/1/38	
Mountain Meadow Solar	5/25/18	Solar	2.5		12/1/19	Standard	3/1/38	
Mt Hope Solar	5/25/18	Solar	2.5		12/1/19	Standard	3/1/38	
River Valley Solar	5/25/18	Solar	2		12/1/19	Standard	3/1/38	
Ridgeway Solar	6/4/18	Solar	2.5		12/1/19	Standard	11/1/39	
Dryland Solar	4/19/18	Solar	2.5		12/1/19	Standard	10/31/39	
Cosper Creek Solar	4/19/18	Solar	2.5		12/1/19	Standard	11/1/39	
Fruitland Creek	5/25/18	Solar	1.75		12/1/19	Standard	3/1/38	
Raven Loop	5/25/18	Solar	2		12/1/19	Standard	3/1/38	
Gun Club Solar	5/8/18	Solar	2.5		12/1/19	Standard	12/1/39	
Zena Solar	6/4/18	Solar	2.5		12/1/19	Standard	12/1/39	
Williams Acres Solar	6/4/18	Solar	2.5		12/1/19	Standard	12/1/39	
Marquam Creek Solar	6/4/18	Solar	2		12/1/19	Standard	Terminated	
Walker Creek Solar	6/4/18	Solar	2.5		12/1/19	Standard	Terminated	
DD - Molalla	4/19/18	Solar	3		12/2/19	Standard	12/1/34	
DF - West Eagle Creek	4/19/18	Solar	2.79		12/2/19	Standard	12/1/34	
AM - West Silverton	4/19/18	Solar	2.97		12/2/19	Standard	12/1/34	
DC - Donald	4/19/18	Solar	2.16		12/2/19	Standard	12/1/34	
SB - South Wilamina	4/19/18	Solar	2.97		12/2/19	Standard	12/1/34	
DB - Bull Run	4/19/18	Solar	2.565		12/2/19	Standard	12/1/34	
PG - West Sheridan	4/18/18	Solar	3		12/2/19	Standard	12/1/34	

Project Name	PPA Execution Date	Resource Type	Nameplate Capacity	Actual COD	Contracted COD	Type of PPA	PPA Expiration Date	Renewal
KT - Molalla	4/19/18	Solar	2.97		12/2/19	Standard	12/1/34	
Bristol Solar	4/19/18	Solar	3		12/2/19	Standard	12/1/34	
Ashfield Solar	4/19/18	Solar	3		12/2/19	Standard	12/1/34	
SulusSolar6	4/19/18	Solar	3		12/2/19	Standard	12/1/34	
Fairview Solar	4/19/18	Solar	3		12/2/19	Standard	12/1/34	
Milford Solar	4/19/18	Solar	2.97		12/2/19	Standard	12/1/34	
Black Forest Solar	4/19/18	Solar	1.26		12/2/19	Standard	12/1/34	
Kensington Solar	5/8/18	Solar	0.99		12/2/19	Standard	12/1/34	
Greenpark Solar	5/8/18	Solar	1.26		12/2/19	Standard	12/1/34	
Kerry Solar	5/8/18	Solar	2.97		12/2/19	Standard	12/1/34	
Butler Solar	1/25/16	Solar	4		12/31/19	Standard	1/25/36	
Amity Solar	5/20/16	Solar	4		12/31/19	Standard	5/20/36	
Firwood Solar	5/20/16	Solar	10		12/31/19	Standard	5/20/36	
Stringtown Solar	5/20/16	Solar	4		12/31/19	Standard	5/20/36	
Bridgeport Solar	5/20/16	Solar	7		12/31/19	Standard	5/20/36	
Starlight Solar	5/20/16	Solar	4		12/31/19	Standard	5/20/36	
Duus Solar	5/20/16	Solar	10		12/31/19	Standard	5/20/36	
Stark Solar (Solar Star Oregon)	6/2/17	Solar	10		12/31/19	Standard	12/30/34	
Brightwood Solar	3/1/17	Solar	10		12/31/19	Standard	2/1/37	
Eola Solar	1/29/18	Solar	2.2		1/31/20	Standard	11/30/38	
Cow Creek Solar	6/4/18	Solar	1.75		2/1/20	Standard	2/1/40	
Waconda Solar	6/4/18	Solar	2.25		2/1/20	Standard	4/1/38	
SSD Marion 3	10/20/17	Solar	2		4/1/20	Standard	3/31/35	
SSD Clackamas 4	10/20/17	Solar	2		4/1/20	Standard	3/31/35	
SSD Marion 1	5/25/18	Solar	2		4/1/20	Standard	3/31/35	
SSD Marion 5	5/8/18	Solar	2		4/1/20	Standard	3/31/35	
SSD Clackamas 7	5/8/18	Solar	2		4/1/20	Standard	3/31/35	
SSD Marion 6	5/8/18	Solar	2		4/1/20	Standard	3/31/35	
SSD Clackamas 2	10/20/17	Solar	2		4/1/20	Standard	Terminated	
Daisy Solar 1	8/22/17	Solar	10		4/6/20	Standard	Terminated	
OM Power 1	6/21/16	Geothermal	10		6/1/20	Standard	6/21/36	
Liberal Solar	12/27/17	Solar	10		10/31/20	Standard	12/26/32	
Delaney Solar	12/27/17	Solar	2.5		10/31/20	Standard	12/26/32	
Eagle Creek Solar	12/27/17	Solar	5		10/31/20	Standard	12/26/32	
Carnes Creek Solar	8/31/18	Solar	2.5		11/1/20	Standard	11/1/40	
Buckner Creek Solar	11/29/18	Solar	2.5		12/1/20	Standard	12/1/40	
Rock Creek Solar	2/7/18	Solar	2.2		12/31/20	Standard	2/6/33	
Sesqui-C Solar	11/29/18	Solar	2.5		12/31/20	Standard	12/31/40	
Radio Solar	11/29/18	Solar	2.5		12/31/20	Standard	12/31/40	
SulusSolar9	8/31/18	Solar	2.97		7/2/21	Standard	7/1/41	
Gatwick Solar	8/31/18	Solar	2.97		7/2/21	Standard	7/1/41	
Auburn Solar	8/31/18	Solar	1.26		7/2/21	Standard	7/1/41	
Manchester Solar	9/26/18	Solar	1.8		7/2/21	Standard	7/1/41	
Gonzaga Solar	11/29/18	Solar	2.16		7/2/21	Standard	7/1/41	
Clayfield Solar	11/7/18	Solar	2.565		7/2/21	Standard	7/1/41	
Carlow Solar	11/29/18	Solar	2.565		7/2/21	Standard	7/1/41	
SSD Clackamas 1	5/8/18	Solar	4		10/5/21	Standard	10/4/36	

August 6, 2019

TO: Irion Sanger
Renewable Energy Coalition

FROM: Jay Tinker
Director, Rates and Regulatory Affairs

PORTLAND GENERAL ELECTRIC
LC 73
PGE Response to REC Data Request No. 004
Dated July 23, 2019

Request:

Please provide PGE's forecast of new qualifying facilities that it expects to enter into contracts with and be constructed over its planning period. Please provide the expected megawatts, average megawatts and technology type for such new qualifying facilities. If PGE has not performed such a forecast, please explain why.

Response:

PGE objects to this request because it calls for speculation, seeks new analysis, is overly broad, unduly burdensome, and seeks information not relevant to this proceeding. Without waiving these objections, PGE responds as follows:

In the 2019 IRP, PGE does not forecast future executions of PURPA qualifying facility (QF) contracts across the planning horizon. PGE does not speculate as to the future economic considerations of developers, the future QF avoided cost price differentials between regional utilities, or future QF regulations. Resources that are added to the portfolio across the planning horizon beyond the near-term action plan window, including those that may coincide with the expiration of contracts, have cost and performance characteristics based on proxy resource information. This analysis is agnostic to whether resources are added through competitive bidding, bilateral negotiations, or QF contracts.

PGE provided a sensitivity in **Section 4.7.1 QF Sensitivities** of the 2019 IRP that examines the impact on the need assessments of including those projects that were actively progressing toward QF contract execution at the time of the QF snapshot. Attachment A provides the MWa and MW (year-end) values of these projects by year and technology.

August 6, 2019

TO: Irion Sanger
Renewable Energy Coalition

FROM: Jay Tinker
Director, Rates and Regulatory Affairs

PORTLAND GENERAL ELECTRIC
LC 73
PGE Response to REC Data Request No. 009
Dated July 23, 2019

Request:

Please refer to PGE's IRP section 4.7.1 "QF Sensitivities" which states that "[t]he low QF sensitivity excludes 50 percent of the generation from the executed QF contracts that were not online as of the contract snapshot date (December 18, 2018)." Please provide PGE's explanation for choosing 50% as the "low QF sensitivity".

Response:

In the 2019 IRP, PGE examined a low QF sensitivity that excludes 50% of the generation from executed QF contracts that were not online as of the contract snapshot date because this provides a meaningful comparison to the 50% low QF sensitivity in the 2016 IRP Update.

August 6, 2019

TO: Irion Sanger
Renewable Energy Coalition

FROM: Jay Tinker
Director, Rates and Regulatory Affairs

PORTLAND GENERAL ELECTRIC
LC 73
PGE Response to REC Data Request No. 010
Dated July 23, 2019

Request:

Please refer to PGE's IRP section 4.7.1 "QF Sensitivities" which states that "[t]he low QF sensitivity excludes 50 percent of the generation from the executed QF contracts that were not online as of the contract snapshot date (December 18, 2018)." Please identify PGE's best estimate of the percentage of QFs that it expects to become online and commercially operational. In addition, please provide the percentage of projects and MWs of QF that have missed their contracted commercial operation date.

Response:

PGE objects to this request to the extent that it requests speculation, requests new analysis, is unduly burdensome, and seeks information not relevant to this proceeding. Without waiving these objections, PGE responds as follows:

PGE provided information in Section 4.7.1 of the 2019 IRP that examines the potential impacts to the need assessments from a sensitivity that excludes 50% of the generation associated with executed QFs that were not online at the time of the QF snapshot (December 18, 2018) and a sensitivity that included those projects actively progressing toward QF contract execution in addition to executed QF contracts.

Attachment A of PGE's response to REC Data Request No. 001 provides the actual COD and the contractual COD for executed PURPA QF contracts at the time of the QF snapshot for the 2019 IRP. The status of each contract at the time of the snapshot can be determined from this data. Attachment of PGE's response to REC Data Request No. 001 contains protected information subject to Protective Order No. 19-186.