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Erin E. Apperson
Assistant General Counsel

November 27, 2019

Public Utility Commission of Oregon
Attention: Filing Center
P.O. Box 1088
Salem, OR 97308-1088

Re: LC 73 – Portland General Electric Company’s 2019 Integrated Resource Plan (IRP)

Dear Filing Center:

Enclosed for filing today in the above-referenced docket is Portland General Electric Company’s (“PGE”) 2019 Integrated Resource Plan Updated Needs Assessment.

Thank you in advance for your assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Erin Apperson", with a long horizontal flourish extending to the right.

Erin E. Apperson
Assistant General Counsel

EEA:al

Integrated Resource Plan

NOVEMBER 2019

Addendum to PGE's 2019 Integrated Resource Plan
Updated Needs Assessment



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1 Introduction

Consistent with the commitments outlined in PGE’s Reply Comments, the Company has updated the IRP need assessments to capture refreshed information about loads and resources. The need assessments in the 2019 IRP were based on an econometric load forecast from September 2018 and a contract snapshot from December 2018. In this supplemental filing, PGE provides an updated look at the need assessments with more current information. While the update identifies some changes to resource needs over time, it does not change the substantive findings of the 2019 IRP and does not necessitate revisions to the Action Plan.

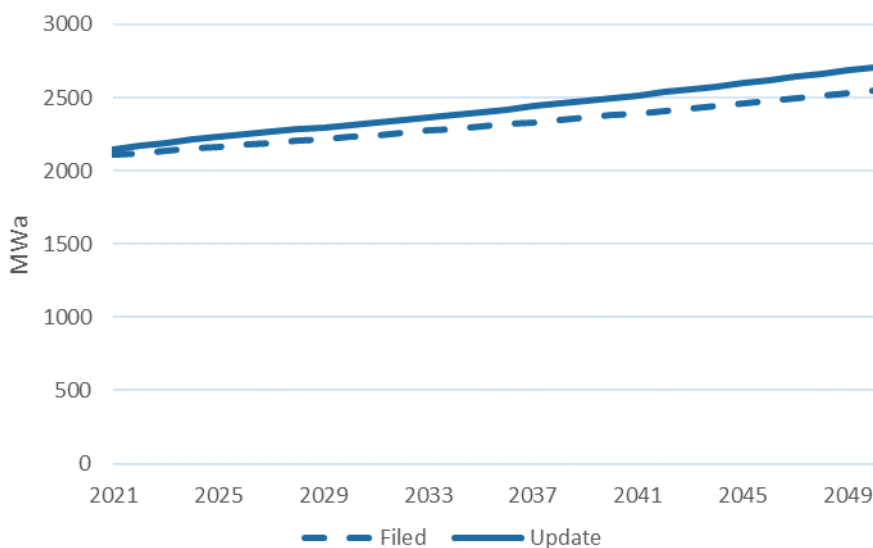
In addition to this supplemental filing, PGE shared information about the updated need assessments with Staff and stakeholders at the public IRP Roundtable meeting on November 21, 2019. The presentation is available on PGE’s website.¹

The need assessments were updated for load and resource information as described below.

1.1 Load Forecast

The Reference Case top-down econometric load forecast was updated to the September 2019 forecast. This forecast updates the near-term regression model to reflect the August 2019 economic forecast from the Oregon Office of Economic Analysis, historical data through July 2019 and September 2019 long-term direct access elections. Additionally, the peak demand model has been updated and reflects refinement to model structure. No changes were made to the long-term energy growth rates. Figure 1 compares the September 2019 Reference Case cost-of-service supply econometric forecast (Update) to the September 2018 forecast (Filed).

Figure 1: Comparison of Reference Case econometric load forecasts



¹ IRP Roundtable 19-3, <https://www.portlandgeneral.com/our-company/energy-strategy/resource-planning/integrated-resource-planning/irp-public-meetings>.

As discussed in Section 4.1.4 of the 2019 IRP, in IRP analysis, the econometric forecast is combined with the forecasts for distributed photovoltaics (PV), electric vehicles (EV), and non-dispatchable customer storage to create the IRP Load Forecast. The forecasts for distributed PVs, EVs, and non-dispatchable storage remain as filed in the 2019 IRP. The low and high econometric load forecasts, which factor in the Low and High Need Futures, were also not updated.

1.2 Resource Updates

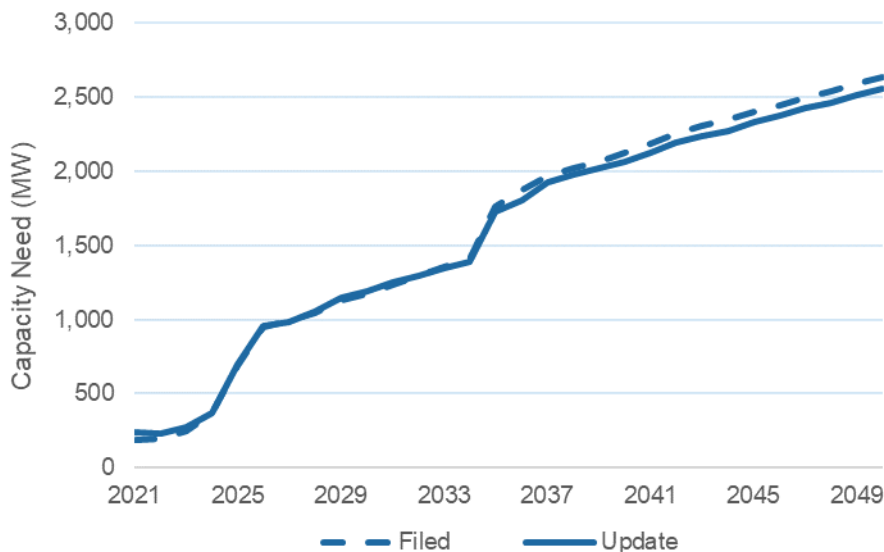
The following resource updates were incorporated into the capacity, energy, and RPS need assessments in the Reference Case as well as the Low and High Need Futures:

- PGE’s first Green Tariff offering. Note that as discussed in the 2019 IRP and PGE’s Reply Comments,² the Green Tariff resource brings energy and capacity contributions, but PGE does not receive the RECs associated with the resource.
- PURPA Qualifying Facility (QF) contracts executed as of September 19, 2019 and those QF projects referred to in OPUC Order No. 19-322.
- Additional miscellaneous resource and contract updates, including the forecast for incremental RECs associated with Faraday Repowering.

2 Capacity Need

PGE incorporated the updated load and resource information into RECAP and prepared an updated capacity need assessment. There is a minor increase to capacity need in the near-term and a slight decrease in the outer years, as shown in Figure 2.

Figure 2: Comparison of Reference Case capacity need



² See Section 4.7.2 of the 2019 IRP and Section 4.8 of PGE’s Reply Comments.

In the Reference Case in the year 2025, capacity need increased from 685 MW to 697 MW. Figure 3 shows the relative impacts from the resource updates and the load forecast update.

Figure 3: Capacity impacts of resource and load updates

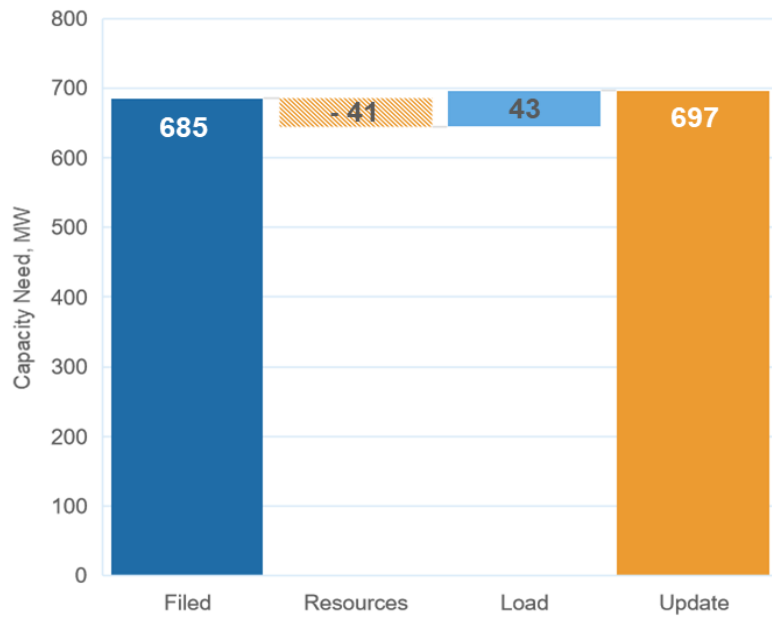
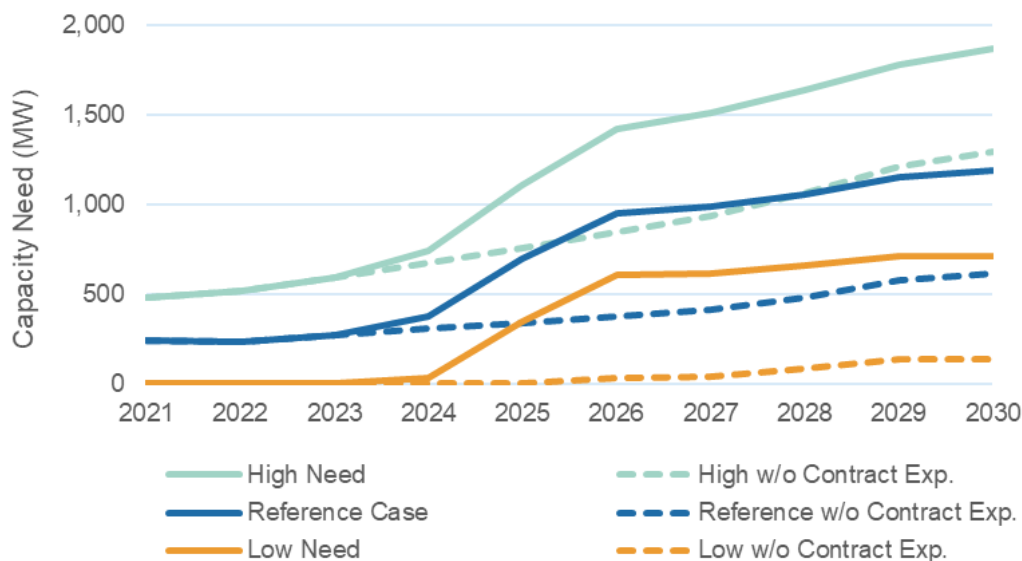


Figure 4 shows the updated capacity need in the Low, Reference, and High Need Futures. It also shows the need if the contracts expiring through the end of 2025 are assumed to be renewed or replaced with other existing resources of equal size. Note that as discussed in Section 1, the Low and High Need Futures reflect updated resource information and do not have updated load forecasts. This updated analysis continues to identify that PGE has significant forecasted capacity needs in the Reference Case with a large range of uncertainty in the mid-2020s, and that contract expirations drive a substantive portion of that need. This update does not necessitate a change to PGE’s staged capacity action in the Action Plan.

Figure 4: Capacity need across Need Futures and impact of contract expirations



Capacity need is discussed in Section 4.3 of the 2019 IRP and in Section 4.4 of PGE’s Reply Comments.

3 Energy Need

The need update resulted in a minor increase in the Reference Case energy shortage to market in the near-term and a larger increase in the outer years. Figure 5 compares the updated energy position to the assessment in the 2019 IRP.

Figure 5: Comparison of Reference Case energy need

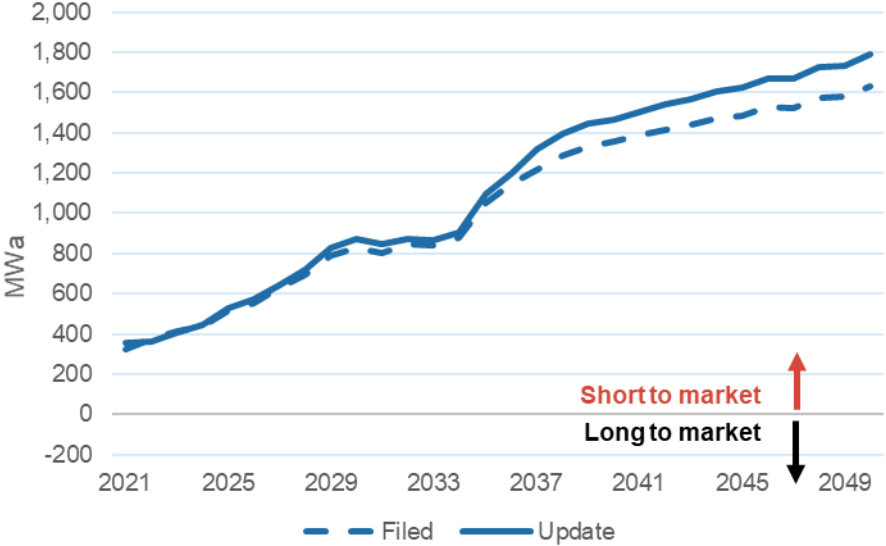


Table 1 compares change in the energy shortage to market in 2025 for the Reference Case and 10th and 90th percentiles. In the Reference Case, the energy shortage increased from 515 MWA to 527 MWA. For the 10th and 90th percentiles, note that as discussed in Section 1, the Low and High Need Futures reflect updated resource information and do not have updated load forecasts.

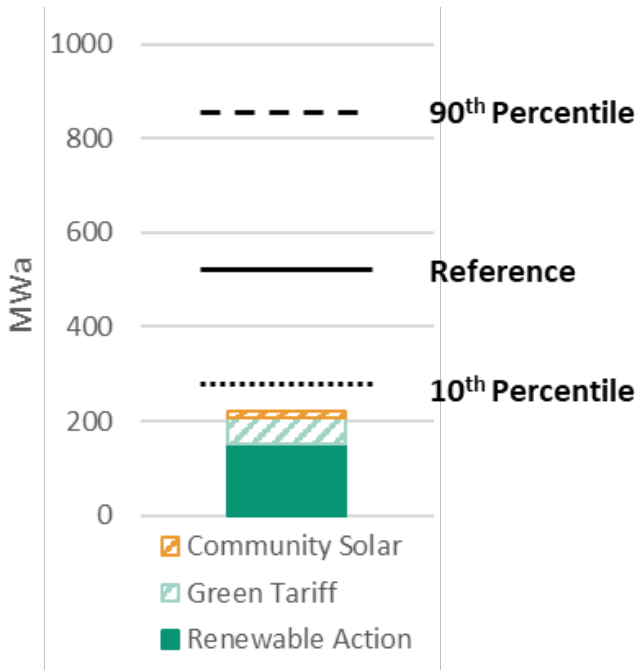
Table 1: Energy shortage to market in 2025 (MWA)

	Filed	Update
Reference Case	515	527
10 th Percentile	344	285
90 th Percentile	907	848

Figure 6 compares the 2025 energy position distribution (90th percentile, Reference, and 10th percentile) to the energy from the Renewable Action plus the updated Voluntary Renewable Programs Sensitivity C (Community Solar and the remaining portion of the previously-approved Green Tariff, see Section 5.1). The total additional renewable energy (approximately

220 MWa), is less than the 10th percentile of the energy position and approximately 307 MWa less than the Reference Case.

Figure 6: Energy shortage distribution compared to Renewable Action and voluntary program sensitivity



Energy need is discussed in Section 4.4 of the 2019 IRP and Section 4.6 of PGE’s Reply Comments.

4 RPS Need

Figure 7 compares the updated physical RPS shortage to the previous forecast from the 2019 IRP in the Reference Case. There is a minor increase to the shortage in 2030 and a slightly larger increase in the outer years. As noted in Section 1.2, the Green Tariff resource does not provide RECs to PGE.

Figure 7: Comparison of Reference Case physical RPS Shortage

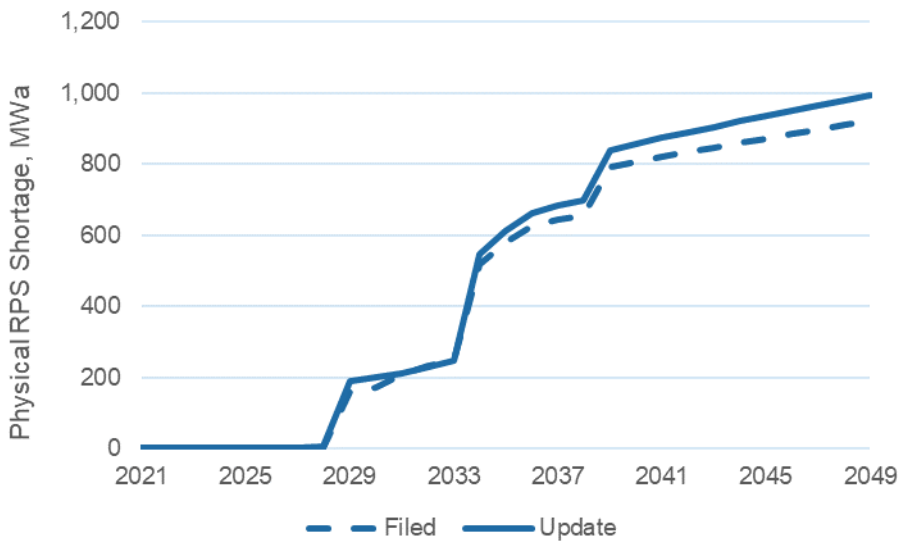


Table 2 shows the physical RPS shortage in 2030 in the Reference Case and in the Low and High Need Futures. In 2030, the Reference Case shortage increased from 161 MWa to 190 MWa.

Table 2: Physical RPS shortage in 2030 (MWa)

	Filed	Update
Reference Case	161	190
Low Need	47	48
High Need	282	283

RPS need is discussed in Section 4.5 of the 2019 IRP and Section 4.5 of PGE’s Reply Comments.

5 Sensitivities

5.1 Voluntary Renewable Programs

In Section 4.7.2 of the 2019 IRP, PGE provided information for three sensitivities of potential impacts to need from participation in voluntary renewable programs. The largest scenario of participation was presented in Sensitivity C, which included 93 MW of Community Solar and 300 MW of Green Tariff resources.

Table 3 provides an updated summary of Sensitivity C. As discussed in Section 1.2, the resource associated with the initial Green Tariff offering is included in the updated resource stack and therefore the Green Tariff portion of Sensitivity C was updated to reflect the remaining portion of the previously-approved 300 MW (135 MW).

Table 3: Voluntary Program Sensitivity C

Program	Installed Capacity MW	Generation MWa	Capacity Contribution MW	2030 Avoided RPS MWa
Community Solar	93	12	15	4
Green Tariff (unsubscribed)	135	58	28	0
Total	228	70	42	4

Table 4 summarizes PGE’s capacity, energy, and RPS needs under the 2019 IRP Sensitivity C (Filed) and the updated Sensitivity C (Update). Please see Figure 6 for a comparison of the energy position to the combined energy associated with Sensitivity C and the proposed Renewable Action.

Table 4: Comparison of capacity, energy, and RPS need under Sensitivity C

2025 Capacity Need (MW)	Sensitivity C Filed	Sensitivity C Update
Reference Case	617	655
Low Need	241	305
High Need	997	1068

2025 Energy Need (MWa)	Sensitivity C Filed	Sensitivity C Update
Reference Case	374	457
10 th Percentile	203	215
90 th Percentile	767	778

2030 Physical RPS Shortage (MWa)	Sensitivity C Filed	Sensitivity C Update
Reference Case	157	186
Low Need	43	44
High Need	277	278

5.2 PURPA Qualifying Facilities

In Section 4.7.1 of the 2019 IRP, PGE examined low and high QF sensitivities. The low QF sensitivity excluded 50 percent of the generation from the executed QF contracts that were not online as of the contract snapshot date. The high QF sensitivity included all generation from potential QFs that were active in progressing toward contract execution in the 90 days prior to the contract snapshot date (in addition to all generation from executed QF contracts).

Table 5 provides a summary of the updated sensitivity results. The base QF is the Reference Case view (all QF contracts executed as of the snapshot date and the QF projects referred to in OPUC Order No. 19-322).

Table 5: Resource needs across QF sensitivities

	High QF	Base QF	Low QF
2025 Capacity Need (MW)	671	685	738
2025 Energy Shortage (MWa)	135	58	28
2030 RPS Physical Shortage (MWa)	228	70	42

6 Conclusion

The updates to the need assessments resulted in some changes to the capacity, energy, and RPS positions, but those changes are small relative to the magnitude of PGE’s resource needs and are well within the margin of uncertainty considered within the 2019 IRP. PGE continues to recommend the actions described in the Action Plan and as modified in PGE’s Reply Comments filed on November 5, 2019.