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Erin E. Apperson
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December 5, 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") Errata to PGE's Reply Comments. Upon further review of PGE's Reply Comments dated November 5, 2019, PGE discovered that Table 1 on page 32 contained calculation errors. Specifically, the values depicting the difference associated with the PTC value only incorporated the first 10 years of benefits and were incorrectly discounted. The final updated Table 1 is attached.

The differences between PTC values in the updated table (third column) are greater than the differences in NPVRRs (second column), resulting in values in the fourth column that exceed 100%. This is observed because there are offsetting factors that drive the NPVRR down when renewable additions are deferred from 2023 to 2024. Specifically, the NPVRR of the portfolios with renewable additions in 2024 reflect the benefits associated with one year of capital cost reductions and one year of deferral. The benefits of accelerating renewable additions from 2024 to 2023, including the PTC value as well as one additional year of energy value and capacity value, are larger than those offsetting factors.

Please direct any questions regarding this filing to Seth Wiggins at seth.wiggins@pgn.com or (503) 464-2366.

Thank you in advance for your assistance.

Sincerely,

Erin E. Apperson
Assistant General Counsel

EEA: dm

Table 1: Differences in Renewable Size & Timing Portfolios, 2023 versus 2024

MWa Addition	COD2024-2023 NPVRR (millions $2020)	Approximate Difference of PTC Value (millions $2020)	Percent of Value Difference Attributable to PTCs
50	16	25~~13~~	155.5%~~83.4%~~
100	31	49~~26~~	161.5%~~86.6%~~
150	45	73~~39~~	162.5%~~87.1%~~
200	59	98~~52~~	164.5%~~88.2%~~
250	73	122~~65~~	167.3%~~89.7%~~

1.1. Capacity Factors

Parties' Comments

Staff and AWEC both commented on the capacity factors used in PGE's portfolio analysis. AWEC stated "none of PGE's wind resources currently operate at a 40 percent capacity factor and so PGE is likely optimistic about the new wind resource operating capability."[1] Staff raised concerns about the impact of capacity factor assumptions, and questioned "whether the Company's sensitivity analysis should have been performed on the Mixed Full Clean portfolio to help characterize the risk of acquiring near-term wind assets based primarily on economic performance."[2]

PGE's Response

PGE clarifies that the values for the proxy wind resources were estimated by third-party contractor HDR based on wind resource quality and industry trends.[3] Historical performance of existing wind generation does not provide the best prediction of capacity factors associated with new resources due to continued evolutions in wind turbine technologies.

PGE agrees with Staff that the economics of wind resources are an important consideration in this IRP, as many portfolios add significant wind capacity through 2050. To test how changing capacity factors affect the preferred portfolio in response to Staff's Recommendation 20, PGE ran a sensitivity where capacity factors of wind resources are reduced proportionally to the capacity factors used in the capacity factor sensitivity from Section 6.5 – Capacity Factor Sensitivities.[4] Error! Reference source not found. shows these reductions.

[1] LC 73 Opening Comments of AWEC at 8, Footnote 7.
[2] LC 73 Opening Comments of Staff at 34.
[3] The methodology used to create renewable shapes is available in External Study D of the 2019 IRP. Characterizations of Supply Side Resources.
[4] The associated capacity contribution values (ELCCs) were adjusted downward as well. However, rather than rerunning the RECAP model 40 times to estimate new ELCCs associated (10 x 100 MW addition under each four capacity factor sensitivities), PGE used a heuristic which modeled the ELCC decrement as a proportional decrease to that found in other internal resource analysis. While this method does not provide as exact results, PGE feels that given the lack of movement of the results, this heuristic is appropriate.

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