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January 16, 2018

Via Electronic Filing and U.S. Mail

Oregon Public Utility Commission
Attention: Filing Center
PO Box 1088
Salem OR 97308-1088

Re: UM 1912– PGE, Resource Value of Solar

Attention Filing Center:

Enclosed for filing in Docket UM 1912 please find the correction pages for PGE's Direct Testimony of Darren Murtaugh (PGE/400). Please replace the previously filed Pages 4 and 5 of PGE's 400 with the attached, corrected pages in UM 1912, to be electronically filed today. PGE's Direct Testimony and Exhibits in this docket were originally filed December 4, 2017.

Thank you in advance for your assistance.

Sincerely,

A handwritten signature in blue ink that reads "Lucy Heil".

Lucy Heil

Enclosure

- 1 1. Seasonal differentiation; and
- 2 2. Heavy loading and light loading to analyze difference in losses based on T&D
- 3 system constraint;

4 **Q. How did PGE establish system configuration and net load for each period?**

5 A. PGE captured general system configuration for each loading period through records from
6 the System Control Center. The distribution system was modeled via distribution planning
7 software (CYMDIST) to reflect the configuration, and the loading level was provided at the
8 distribution feeder level via PI Processbook. Net system load was estimated in collaboration
9 with PGE's internal transmission planning function.

10 **Q. Was existing distributed solar generation modeled in the line loss studies?**

11 A. Yes. CYMDIST was used to scale loads appropriately per distribution power transformer
12 and distribution feeder. Two separate cases were analyzed: a case modeled with distributed
13 solar "on" throughout the service territory and a case with distributed solar "off." This
14 analysis was achieved by incorporating active solar generation on a per feeder basis. Results
15 of this analysis are included with this filing as workpapers.

16 **Q. Please summarize the results of the distribution loss study:**

17 A. The distribution system was evaluated during peak loading conditions (summer) as well
18 as light loading conditions (spring). In the models, the distributed solar (aggregate 76 MW) was
19 turned "on" and "off" to calculate the difference in distribution system losses.

20 The summer studies considered a PGE net system load of 3519 MW, with on-peak losses at
21 71.386 MW (no solar) and on-peak losses of 68.218 (76 MW of solar output). The average daily
22 losses calculated for summer conditions were 33.337 MW (no solar) and 31.858 MW (fixed
23 output of 76 MW solar).

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2 The spring studies considered a PGE net system load of 2192 MW, with on-peak losses at 36.480
3 MW (no solar) and on-peak losses of 34.506 (76 MW of solar output). The average daily losses
4 calculated for summer conditions were 17.036 MW (no solar) and 16.114 MW (fixed output of
5 76 MW solar).

6

7 **Q. Commission Order No. 17-357, page 10, reads: “We do not expect a true hourly value**
8 **to this element, but ask the utilities to provide the most granular value they reasonably**
9 **can inclusive of daytime and seasonal variation...”. What analysis or studies would be**
10 **required if PGE is to calculate a more granular hourly value in the future?**

11 A. PGE would need to undertake a study of the T&D system and assigning net system load
12 estimates by hour throughout the year. Studying each hour’s load/loss in a single year
13 would correspond with 8,760 individual studies of the T&D systems to accurately measure
14 loss characteristics at each system load level.

15 A more expedient option would be to calculate a handful of representative samples
16 based on net system load estimates. This is similar to the studies that PGE has produced for
17 the initial proposal of the line loss element, but with additional seasonal/daytime variation.

18 If PGE is asked to conduct studies to reach a more granular line loss value – including
19 perhaps hourly values – PGE requests specific guidance regarding what level of detail is
20 required.