

Portland General Electric Company Legal Department 121 SW Salmon Street • Portland, Oregon 97204 503-464-2461 • Facsimile 503-464-2200

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, 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 l	light loading conditions (spring). In the models, the distributed solar (aggregate 76 MW) was
19	turr	ned "on" and "off" to calculate the difference in distribution system losses.
20	The	e 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	loss	ses calculated for summer conditions were 33.337 MW (no solar) and 31.858 MW (fixed

23 output of 76 MW solar).

UM 1912 - Resource Value of Solar - Direct Testimony

1

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

6

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

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

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

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

UM 1912 – Resource Value of Solar – Direct Testimony