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October 22, 2018

VIA ELECTRONIC FILING

Attention: Filing Center
Public Utility Commission of Oregon
201 High Street SE, Suite 100
P.O. Box 1088
Salem, Oregon 97308-1088

Re: Docket UM 1829 – In the Matter of Blue Marmot V LLC vs Portland General Electric Company

Attention Filing Center:

Portland General Electric Company (PGE) requests that the enclosed Errata—**pages 8, 15, 18 and 19** of the Rodehorst-Moore Supplemental Testimony (PGE/700) and Exhibit PGE/701—be substituted for the corresponding pages.

These Errata are filed to correct the following:

- As the result of a calculation error, PGE's \$11/MWh value for transfers lost is being corrected to \$12/MWh on pages 8 and 15 of the Rodehorst-Moore Supplemental Testimony (PGE/700), and the corresponding values in Exhibit PGE/701 have been updated;
- The description of the transfer scenarios compared on pages 18-19 of the Rodehorst-Moore Supplemental Testimony (PGE/700), and associated detail in footnote 33, are being corrected because the original calculations inadvertently compared the incorrect scenarios.

If you have any questions regarding these corrections, please contact this office.

Sincerely,

Alisha Till
Legal Assistant

Attachment

UM 1829

REDLINED VERSION

ERRATA PAGES 8, 15, 18-19

**SUPPLEMENTAL TESTIMONY OF AARON RODEHORST AND
GEOFFREY MOORE (PGE/700)**

ERRATA EXHIBIT 701

**SUPPLEMENTAL TESTIMONY OF AARON RODEHORST AND
GEOFFREY MOORE (PGE/701)**

1 CAISO and Mr. Moyer's workpapers.

2 **Q. As you revised Mr. Moyer's analysis to determine the impact of your critiques, did**
3 **you use the same methodology as Mr. Moyer?**

4 A. Generally speaking, yes. We first determined the quantity of transfers lost, and then
5 multiplied that quantity by Mr. Moyer's estimated value of \$13/MWh of transfers lost. As
6 we will explain in more depth in the next subsection of our testimony, Mr. Moyer's
7 methodology resulting in the \$13/MWh estimate is flawed, because it is based upon the
8 CAISO's benefits reports,¹³ which overestimate PGE's EIM benefits. However, because
9 our estimated value of \$124/MWh is not significantly different from Mr. Moyer's, and for
10 the sake of making comparisons to Mr. Moyer's results, we will use Mr. Moyer's
11 \$13/MWh estimate as we explain our corrections and changes to his analysis.

12 As we reproduce, update, and revise Mr. Moyer's analysis, we assign the \$13/MWh
13 value to only the 15-minute market transfer data for simplicity. In contrast, Mr. Moyer
14 assigns value to the approximate average of the 5- and 15-minute markets.¹⁴ Although we
15 assign value to slightly different quantities of transfers lost than Mr. Moyer does,¹⁵ the
16 differences are not material to the outcomes of our analysis. In essence, both PGE and
17 Mr. Moyer are using simplified methods that account for *total* quantities of transfers lost,
18 but effectively ignore the actual value of *incremental* changes in the lost-transfer quantity
19 that occur in the 5-minute market.¹⁶ While we acknowledge that there is monetary value

¹³ Blue Marmot/500, Moyer/35.

¹⁴ Blue Marmot/500, Moyer/35 n.23.

¹⁵ While Mr. Moyer used 4,500 MWh (i.e., an approximate average of 4,913 MWh in the 15-minute market and 4,378 MWh in the 5-minute market), PGE is using 4,913 MWh as the quantity of transfers lost, prior to any of PGE's updates or revisions to the transfer analysis.

¹⁶ For example, if the quantity of transfers lost in the 15-minute market was 100 MW and the related quantity in the 5-minute market was 105 MW, PGE's method would assume 100 MW was lost, while Mr. Moyer's method would

1 **Q. What value for the EIM transfers lost does PGE believe is correct, and how did you**
2 **arrive at this number?**

3 A. PGE believes \$~~124~~/MWh is a more accurate estimate of the value of transfers that would
4 have been lost in the first year of the EIM's operations if PGE had given up 50 MW of
5 capacity on the PACW-PGE path to a 50-MW solar QF such as the Blue Marmots. PGE
6 arrived at this number by using a software tool (i.e., PCI P&L Analyzer) to compile CAISO
7 settlement data (i.e., the charges and credits that apply to PGE's participation in the EIM)
8 and compare the CAISO settlement data to the costs of the associated incremental
9 generation that PGE either incurs or avoids to produce an assessment of actual benefits.
10 To derive the \$~~124~~/MWh, PGE calculated the implied margin specific to generator
11 movement in the 15-minute market. From October through August, the margin has been
12 as small as approximately \$~~34~~/MWh and as large as approximately \$22/MWh. The
13 margin, weighted by volume, is approximately \$~~124~~/MWh.

14 **5. Incorrect Total Benefits**

15 **Q. Please explain your fifth criticism—that Mr. Moyer's conclusion regarding the**
16 **percent impact is wrong because he relies upon the CAISO's reported benefits.**

17 A. Mr. Moyer calculates the percent impact to PGE's EIM benefits using the CAISO's
18 estimate of PGE's total EIM benefits, which is significantly higher than both PGE's
19 estimated and actual EIM benefits. We would note that, in the past, the Commission has
20 supported a utility's use of an actual-results benefit methodology, rather than relying on
21 the CAISO's reported benefits.²⁷

²⁷ *In the Matter of PacifiCorp, dba Pacific Power, 2017 Transition Adjustment Mechanism*, Docket No. UE 307, Order No. 16-482 at 14-16 (Dec. 20, 2016).

Table 1: Annual Benefit Impact Under Additional-QF Scenarios.

Scenario		Annual Impact ³⁰
A	Only Blue Marmots (50 MW)	\$89,790
B	All Executed QFs (117 MW Total QF)	\$292,378
C	Add 10 MW of Baseload (127 MW Total QF)	\$350,151
D	Add 50 MW of Solar (177 MW Total QF)	\$583,583
E	Add 50 MW of Solar (227 MW Total QF)	\$881,844
F	Add 50 MW of Solar (275 MW Total QF)	\$1,277,223
G	Add 33 MW of Solar (310 MW Total QF) ³¹	\$1,602,754

1 **Q. Please explain how you analyzed the potential impact of increased transfers.**

2 A. We re-ran each of the QF-generation scenarios described above but increased all transfers
 3 that occurred by 20%. We did not, however, add any new transfers. In other words, if
 4 there were 0 MW of transfers during a given interval in the first year of operations, our
 5 scenarios did not add transfers and instead maintained the 0-MW value. This is a very
 6 conservative modeling approach, because we would expect not only increased transfer
 7 magnitude but also increased transfer volume in the future.

8 **Q. How did you decide to model a 20% increase in transfers?**

9 A. We based our estimate on an analysis completed by Energy + Environmental Economics
 10 (E3) when PGE was evaluating joining the EIM.³² As part of that analysis, PGE and E3
 11 evaluated a set of scenarios to examine the benefits of participating in the EIM under
 12 various conditions. In particular, E3 examined a “High RPS Case” relative to a “Base
 13 Scenario” in the same model year. Relative to participating in the EIM in the “Base
 14 Scenario,” participating in the EIM under the “High RPS Case” produced more benefits

³⁰ Dollar values based on Mr. Moyer’s \$13/MWh estimate, for comparison.

³¹ 310 MW is the total capacity of PGE Merchant’s transmission reservations on the PACW-to-PGE path.

³² *In the Matter of Portland Gen. Elec. Co., 2013 Integrated Resource Plan*, Docket No. LC 56, Comparative Analysis of Western EIM and NWPP MC Intra-Hour Energy Market Options (Nov. 6, 2015).

1 (measured in dollars), because the EIM identified generating resources in other EIM BAAs
2 that could manage the additional energy imbalance at a lower cost.

3 To obtain a reasonable estimate for the transfer increase that could be expected with
4 increased renewables, PGE obtained the transfer activity in the modeled scenarios from
5 E3, and we looked at the percentages by which transfers increased in the “High RPS Case”
6 with EIM over the “Base Scenario.” with EIM. Relative to the “Base Scenario,” total
7 annual imports from the PACW BAA under the “High RPS Case” increased by
8 approximately 20%³³ in the study year. As we have noted, there are other factors in
9 addition to increased renewables that could lead to increased transfers in the future, so a
10 20% transfer increase estimate is likely conservative.

11 **Q. How did the impacts to benefits change with increased transfers?**

12 A. As expected, the effect on benefits was much greater in the 20% transfer-increase
13 scenarios, as reflected in the table and figure below.

³³ For the study year, the average increase was 1822%. This percent change varied with on- and off-peak hours and by month. The average transfer increase was +813% in hours that are generally off-peak hours (hours ending 1-6, 23-24) and 2521% increase in hours that are generally on-peak hours (hours ending 7-22). The individual monthly averages also vary, with January and February experiencing transfer increases of 6665% and 7967%, respectively, and July and August experiencing decreases of +217% and 59%, respectively.

Scenario		Annual Impact with Existing Transfers (\$ 112 /MWh)	Annual Impact with Existing Transfers (\$13/MWh)
A	Only Blue Marmots (50 MW)	\$ 82,883,75,976	\$89,790
B	All Executed QFs (117 MW Total QF)	\$ 269,887,247,397	\$292,378
C	Add 10 MW of Baseload (127 MW Total QF)	\$ 323,217,296,282	\$350,151
D	Add 50 MW of Solar (177 MW Total QF)	\$ 538,692,493,801	\$583,583
E	Add 50 MW of Solar (227 MW Total QF)	\$ 814,010,746,175	\$881,844
F	Add 50 MW of Solar (275 MW Total QF)	\$ 1,178,975,1,080,727	\$1,277,223
G	Add 33 MW of Solar (310 MW Total QF)	\$ 1,479,465,1,356,177	\$1,602,754

Scenario		Annual Impact with 20% Increase in Existing Transfers (\$ 112 /MWh)	Annual Impact with 20% Increase in Existing Transfers (\$13/MWh)
A	Only Blue Marmots (50 MW)	\$ 332,637,304,917	\$360,357
B	All Executed QFs (117 MW Total QF)	\$ 593,565,544,101	\$643,028
C	Add 10 MW of Baseload (127 MW Total QF)	\$ 670,218,614,366	\$726,069
D	Add 50 MW of Solar (177 MW Total QF)	\$ 939,527,861,233	\$1,017,821
E	Add 50 MW of Solar (227 MW Total QF)	\$ 1,264,501,1,159,126	\$1,369,876
F	Add 50 MW of Solar (275 MW Total QF)	\$ 1,668,704,1,529,646	\$1,807,763
G	Add 33MW of Solar (310 MW Total QF)	\$ 1,988,557,1,822,844	\$2,154,270

UM 1829

CLEAN VERSION

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