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December 3, 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:

Attached for filing in the above-captioned docket is Portland General Electric Company's Cross Examination Exhibits.

Please contact this office with any questions.

Sincerely,

Wendy McIndoo
Office Manager

Attachment

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM 1829

Blue Marmot V LLC
Blue Marmot VI LLC
Blue Marmot VII LLC
Blue Marmot VIII LLC
Blue Marmot IX LLC,
Complainants,

v.

Portland General Electric Company,
Defendant.

**PORTLAND GENERAL
ELECTRIC COMPANY'S CROSS-
EXHIBIT LIST**

Portland General Electric Company (PGE) hereby submits this list of pre-filed and cross-examination exhibits.

PRE-FILED EXHIBITS	
PGE/100	Response Testimony of Brett Greene and Geoffrey Moore
PGE/101	Exhibit Accompanying Response Testimony of Greene-Moore (Blue Marmots' Response to PGE Data Request 3)
PGE/102	Exhibit Accompanying Response Testimony of Greene-Moore (Blue Marmots' Response to PGE Data Request 18)
PGE/103	Exhibit Accompanying Response Testimony of Greene-Moore (Blue Marmots' Response to PGE Data Request 2)
PGE/200	Response Testimony of Brett Sims, Aaron Rodehorst, and Pam Sporborg
PGE/201	Exhibit Accompanying Response Testimony of Sims-Rodehorst-Sporborg (PGE Energy Imbalance Market Addendum: 2018 Scenario)
PGE/300	Response Testimony of Frank Afranji, Sean Larson, and Matthew Richard
PGE/301	CONFIDENTIAL Exhibit Accompanying Response Testimony of Afranji-Larson-Richard (System Impact Study)
PGE/302	Exhibit Accompanying Response Testimony of Afranji-Larson-Richard (Review of Import Path Ratings and ATC Methodologies)
PGE/400	Revised Surrebuttal Testimony of Brett Greene
PGE/401	Exhibit Accompanying Revised Surrebuttal Testimony of Brett Greene (Blue Marmots' Revised Response to PGE Data Request 2, Blue Marmots' Response to PGE Data Requests 28, 33, and 35)
PGE/500	Revised Surrebuttal Testimony of Aaron Rodehorst and Geoffrey Moore

PGE/501	Exhibit Accompanying Revised Surrebuttal Testimony of Rodehorst-Moore (PGE's Response to Blue Marmot's Data Request 152)
PGE/502	Exhibit Accompanying Revised Surrebuttal Testimony of Rodehorst-Moore (EIM Transfers to Date Figures)
PGE/600	Surrebuttal Testimony of Sarah Edmonds, Sean Larson, and Matthew Richard
PGE/601	CONFIDENTIAL Exhibit Accompanying Surrebuttal Testimony of Edmonds-Larson-Richard (Blue Marmots' Response to PGE Data Requests 24, 25, and 27)
PGE/700	Replacement Supplemental Testimony of Aaron Rodehorst and Geoffrey Moore
PGE/701	Exhibit Accompanying Replacement Supplemental Testimony of Rodehorst-Moore (Tables Comparing Transfer Scenarios)
CROSS-EXAMINATION EXHIBITS	
PGE/800	Blue Marmots' Response to PGE's Data Request 32
PGE/801	Blue Marmots' Response to PGE's Data Request 33
PGE/802	Blue Marmots' Response to PGE's Data Request 36
PGE/803	Blue Marmots' Supplemental Response to PGE's Data Request 40
PGE/804	Blue Marmots' Response to PGE's Data Request 44
PGE/805	Blue Marmots' Response to PGE's Data Request 45
PGE/806	Blue Marmots' Response to PGE's Data Request 46
PGE/807	Blue Marmots' Response to PGE's Data Request 56
PGE/808	Blue Marmots' Response to PGE's Data Request 57
PGE/809	Blue Marmots' Response to PGE's Data Request 58
PGE/810	PGE's Response to Blue Marmots' Data Request 190
PGE/811	PGE's Response to Blue Marmots' Data Request 192

Dated: December 3, 2018.

MCDOWELL RACKNER GIBSON PC



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PORTLAND GENERAL ELECTRIC COMPANY

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Attorneys for Portland General Electric
Company

Oregon Public Utility Commission
OPUC Dockets UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
August 10, 2018
Blue Marmots' Response to PGE Data Request 32

PGE Data Request 32

Please refer to Blue Marmot/400, Moyer/26, lines 11-12 (“My understanding is that most market participants that do have MBR Authority submit cost based bids into the market.”). Please provide the basis for Mr. Moyer’s statement and provide any and all supporting documentation.

Response to PGE Data Request 32

This statement is based on my understanding of EIM participation based on discussions with EIM participants, the details of which are confidential. Additionally, this statement is generally supported by a 2014 FERC Staff report (available here: <https://www.ferc.gov/legal/staff-reports/2014/AD14-14-mitigation-rto-iso-markets.pdf>) which indicated that in energy markets:

- “More than half of all resource offers have no markup above reference levels.” (p.2)
- “Resource offers in the portion of the supply curve that includes the marginal resource (ignoring transmission constraints) tend to have relatively low markups.” (p.2)
- “The observation that offers are concentrated at levels very close to marginal cost is consistent with either the suggestion that market forces are putting competitive pressure on resource offers or that a resource is inclined to offer close to its reference level to avoid mitigation.” (p. 2-3)

PGE Data Request 33

Please refer to Blue Marmot/400, Moyer/36, Table 2.

- a) Is it the Blue Marmots' position that it would be reasonable for PGE to construct a 15 mile line from Marion to Bethel in order to realize a 75 MW increase in TTC?
- b) Are the Blue Marmots prepared to pay the costs associated with building a 15 mile line from Marion to Bethel if it would result in PGE's ability to accommodate the Blue Marmots' output?

Response to PGE Data Request 33

- a) Mr. Moyer's testimony does not recommend that PGE construct a specific transmission alternative presented in Table 2. Mr. Moyer's scope was to assess the PGE SIS and its conclusions. His scope was not to recommend that PGE's construct or not construct certain transmission projects. Therefore, Table 2 in Mr. Moyer's testimony summarizes transmission study results for transmission alternatives that could have been considered by PGE when it was evaluating options to increase the TTC of the PACW-PGE interface.
- b) Mr. Moyer's testimony does not contemplate the Blue Marmots' willingness to pay for costs associated with specific transmission alternatives considered in his assessment.

Oregon Public Utility Commission
Docket No. UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
September 14, 2018
Blue Marmots' Response to PGE Data Request 36

Docket UM 1829
PGE/802
Page 1 of 1

PGE Data Request 36

If PGE identified transmission upgrades would allow the Blue Marmots to deliver the full output of all five projects to PGE via the PACW-PGE interface at a cost of \$20 million, would the Blue Marmots be willing to pay for those upgrades?

Response to PGE Data Request 36

The Blue Marmots object to this data request on the grounds of relevance, and to the extent that production of the requested data would reveal information protected by the attorney-client privilege, the work product doctrine, or any other privilege.

Notwithstanding these objections, the Blue Marmots provide the following:

The Blue Marmots have not made a determination regarding the payment for any upgrades at the PACW-PGE point of delivery.

Oregon Public Utility Commission
Docket No. UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
October 16, 2018
Blue Marmots' Supplemental Response to PGE Data Request 40

PGE Data Request 40

Please refer to Blue Marmot/400, Moyer/36, Table 2 and Blue Marmots' Response to PGE's Data Request 33 ("Mr. Moyer's scope was to assess the PGE SIS and its conclusions.").

- a) In regard to the transmission alternatives that were not considered in PGE's SIS that Mr. Moyer contends PGE should have considered, what additional studies do the Blue Marmots believe would be required to determine whether these alternatives are viable?
- b) Are Mr. Moyer and his firm capable of performing these studies using the information PGE provided? If not, what additional information would be required to perform these studies? If PGE provided such additional information, would Mr. Moyer and his firm be capable of performing the necessary studies?
- c) Have the Blue Marmots estimated the cost of the alternatives Mr. Moyer identified? If not, are the Blue Marmots or Mr. Moyer capable of determining the estimated costs?.

Response to PGE Data Request 40

- a) PGE, as the transmission provider, is the appropriate entity to determine the detailed scope of studies required to evaluate the technical viability of a transmission alternative. Notwithstanding this, the Blue Marmots' assume that the requisite studies would include a transmission service system impact study to evaluate the solutions' ability to increase the TTC of the PACW-PGE interface. To the extent that PGE were to determine that the solutions would require PGE to re-evaluate its TTC methods for the PACW-PGE interface and/or the BPA-PGE interface, the Blue Marmots' assume that PGE would also need to perform this evaluation.
- b) The Blue Marmots object to this data request on the grounds of relevance, and that it requests that the Blue Marmots assume a hypothetical that is not relevant.

Notwithstanding these objections, the Blue Marmot provide the following:

Please see the response to Data Request 40-a. The Blue Marmots are unclear of the context that underlies this question and do not know what information would be required given the Blue Marmots response to Data Request 40-a. Under a hypothetical in which Mr. Moyer and his firm are requested to perform studies for the Blue Marmots, they would seek to adopt a study approach and technical methods that align with the intent of the study.

- c) The Blue Marmots object to this data request on the grounds of relevance, and that it requests that the Blue Marmots assume a hypothetical that is not relevant.

Notwithstanding these objections, the Blue Marmot provide the following:

No. When Mr. Moyer's clients request that his firm estimate the cost of transmission projects, his firm makes its best efforts to use using industry-vetted costs and cost estimation tools to develop reasonable approximations.

Supplemental Response to PGE Data Request 40(b).

The Blue Marmots assumes that PGE's Data Request 40(b) also asked the following question: "Assuming that PGE cooperated by providing the necessary information to conduct the study, does Mr. Moyer's firm have the technical capability to perform the assessment?"

The Blue Marmots response to this question is yes. Mr. Moyer's firm has the technical capability to perform the studies Mr. Moyer speculates might be required in the original response to PGE Data Request 40(a), but it would be very difficult for Mr. Moyer's firm to independently conduct those studies with any degree of accuracy without more information from PGE regarding: (1) study methodology; (2) power flow base cases; and (3) ancillary study inputs/assumptions/documentation. If PGE was able to assist by providing this information, Mr. Moyer's firm would be well positioned to conduct the studies PGE is referencing in its question.

Oregon Public Utility Commission
Docket No. UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
September 26, 2018
Blue Marmots' Response to PGE Data Request 44

PGE Data Request 44

Please refer to Blue Marmot/300, Moyer/26, line 6. Please confirm that PGE's standard avoided cost prices at issue in this case do not account for the location of the QF.

Response to PGE Data Request 44

The Blue Marmots object to this data request on the grounds that Mr. Moyer is not an expert on all the details regarding the calculation of Oregon avoided cost rates, and Mr. Moyer has not reviewed the Oregon avoided cost workpapers to determine whether PGE's standard avoided cost prices at issue in this case account for the impact of transmission congestion at the interface between PGE and PacifiCorp.

Notwithstanding these objections, the Blue Marmot provide the following:

Mr. Moyer understands that PGE's standard avoided cost prices are set administratively and thus, the prices generally do not account for the location of the QF. Mr. Moyer also understands that standard Oregon avoided cost rates are not project specific. Mr. Moyer has no knowledge regarding the details of how PGE's non-standard avoided cost rates are set. Based on these assumptions and his current understanding, Mr. Moyer does not believe that they take into account transmission congestion.

Oregon Public Utility Commission
Docket No. UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
September 26, 2018
Blue Marmots' Response to PGE Data Request 45

PGE Data Request 45

Please refer to Blue Marmot/300, Moyer/26, line 6. Please confirm that PGE's standard avoided cost prices at issue in this case do not account for the impact of transmission congestion at the interface between PGE and PacifiCorp.

Response to PGE Data Request 45

The Blue Marmots object to this data request on the grounds that Mr. Moyer is not an expert on all the details regarding the calculation of Oregon avoided cost rates, and Mr. Moyer has not reviewed the Oregon avoided cost workpapers to determine whether PGE's standard avoided cost prices at issue in this case account for the impact of transmission congestion at the interface between PGE and PacifiCorp.

Notwithstanding these objections, the Blue Marmot provide the following:

Mr. Moyer understands that PGE's standard avoided cost prices are set administratively and thus, the prices are generic by resource type. Mr. Moyer also understands that standard Oregon avoided cost rates are not project specific. Mr. Moyer has no knowledge regarding the details of how PGE's non-standard avoided cost rates are set. Based on these assumptions and his current understanding, Mr. Moyer does not believe that they take into account transmission congestion.

Oregon Public Utility Commission
Docket No. UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
September 26, 2018
Blue Marmots' Response to PGE Data Request 46

PGE Data Request 46

Please refer to Blue Marmot/300, Moyer/26, lines 4-6. Please identify all EIM participants that currently participate in the EIM without MBR authority, along with all documents or analysis supporting Mr. Moyer's response.

Response to PGE Data Request 46

When Mr. Moyer's testimony refers to EIM Entities that have operated successfully without MBR authority, Mr. Moyer was making reference to entities that have been *technically* granted MBR Authority by FERC but were restricted to bids no greater than cost-based Default Energy Bids. For instance, APS was granted MBR Authority by FERC "*on the condition that it offer its units that are participating in the EIM at or below each unit's Default Energy Bid.*" ([FERC APS MBR Order, p.1](#)). APS was recently granted full MBR Authority with no bidding restrictions, but successfully participated in the EIM since it joined the market (and accrued benefits since its participation began). NV Energy and PacifiCorp also participated in the EIM with a Default Energy Bid restriction, as well as a requirement to "*facilitate CAISO's enforcement of all internal transmission constraints in the PacifiCorp and NV Energy balancing authority areas*" (FERC Order [here](#), p. 1). These EIM Entities were granted MBR Authority in the EIM without a bid restriction on October 30, 2017 (Order available [here](#)) and, like APS, accrued EIM benefits during the period in which the bid restriction was in effect.

Oregon Public Utility Commission
Docket No. UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
September 26, 2018
Blue Marmots' Response to PGE Data Request 56

PGE Data Request 56

Please refer to Blue Marmot/500, Moyer/21, lines 1-14: Please provide the basis and support for Mr. Moyer's statements regarding the number and nature of PGE's off-system QFs and his conclusions and references to data regarding their scheduling behavior.

Response to PGE Data Request 56

Please see the attached Excel file.

Oregon Public Utility Commission
Docket No. UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
September 28, 2018
Blue Marmots' Response to PGE Data Request 57

PGE Data Request 57

Please refer to Blue Marmot/500, Moyer/27, line 18: "PGE's refusal to allow 15-minute scheduling." Please provide the basis and support for this statement, including any citations to PGE's testimony in this case.

Response to PGE Data Request 57

PGE's response to Blue Marmot Data Request 190 clarifies that PGE "...does not support the implementation of 15-minute scheduling for the Blue Marmots under their current avoided cost prices and the present Schedule 201 contract terms." [emphasis original]. Additionally, PGE's critique of Mr. Moyer's sub-hourly EIM transfer analysis implies a refusal to consider sub-hourly scheduling for the Blue Marmots.

Oregon Public Utility Commission
Docket No. UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
September 28, 2018
Blue Marmots' Response to PGE Data Request 58

PGE Data Request 58

Please refer to Blue Marmot/500, Moyer/29, lines 13-15: "PGE argues that accommodating 15-minute scheduling would increase costs to customers." Please provide the basis and support for this statement, including any citations to PGE's testimony in this case.

Response to PGE Data Request 58

See PGE's response to Blue Marmot Data Request 190 in which PGE claims that moving to 15-minute scheduling would impose additional costs on PGE and its customers.

September 11, 2018

TO: Irion Sanger
Leslie Freiman
Will Talbott

FROM: Karla Wenzel
Manager, Pricing and Tariffs

**PORTLAND GENERAL ELECTRIC
UM 1829
PGE Response to Blue Marmot Data Request No. 190
Dated September 4, 2018**

Request:

190. Would PGE support the implementation of 15-minute scheduling for QFs?

Response:

PGE objects that this request is vague and ambiguous, poses a hypothetical question regarding what PGE "would do," and seeks information that is not relevant to this case. Notwithstanding and without waiving these objections, PGE responds that PGE does not support the implementation of 15-minute scheduling for *the Blue Marmots* under their current avoided cost prices and the present Schedule 201 contract terms.

PGE's Schedule 201 Power Purchase Agreement (PPA) for off-system QFs (such as the Blue Marmots) contains provisions that require hourly scheduling. Moving to 15-minute scheduling would impose additional costs on PGE and its customers, which are not currently captured in PGE's avoided cost prices or the current Schedule 201 PPA, and would have to be accounted for. Examples of potential costs include:

- Integration costs associated with using PGE resources (e.g. setting aside capacity) to compensate for intra-hour schedule changes and increased forecast error due to the increased frequency of schedule changes.
- Energy Imbalance Market (EIM) charges and credits resulting from schedule changes, which create uninstructed EIM imbalances. Uninstructed imbalance energy is energy produced or consumed above or below a base schedule without any dispatch instruction from the CAISO.
- Costs associated with meeting potential EIM flexible ramping requirement increases due to increased intra-hour variability of schedules.

- EIM charges and credits resulting from market infeasibilities. A market infeasibility occurs when the market reaches an infeasible solution and triggers penalty pricing to reach a feasible solution (i.e., resolve the infeasibility).

September 12, 2018

TO: Irion Sanger
Leslie Freiman
Will Talbott

FROM: Karla Wenzel
Manager, Pricing and Tariffs

**PORTLAND GENERAL ELECTRIC
UM 1829
PGE Response to Blue Marmot Data Request No. 192
Dated September 4, 2018**

Request:

192. At PGE/500, Rodehorst-Moore/4 line 11, PGE says that QFs are “economically incented to schedule deliveries at their full nameplate capacity for any hour in which they expect to generate...”. For all of PGE’s operating off-system QFs, please identify their hourly schedules for each year of operations, and nameplate capacity.

Response:

PGE interprets “operating” to mean those off-system QFs that have achieved commercial operation. Currently, PGE has four off-system QFs that have achieved commercial operation. Three are baseload/dispatchable resources that have the capability to actively manage their output, meaning that they may be able to schedule more accurately than variable-resource QFs, such as the Blue Marmots. Therefore, PGE objects that the requested data from dispatchable QFs are not relevant. Notwithstanding and without waiving this objection, PGE responds as follows:

Please see Confidential Attachment 192-A. Please note PGE’s system for tracking schedules converts and stores data on an hourly basis only and applies the logic or transformations necessary to achieve the hourly granularity.

At present, PGE’s only operational, off-system, variable-resource QF is PaTu (QF 4), which is a wind resource located within the Bonneville Power Administration (BPA) Balancing Authority (BA). PaTu now participates, and has for the last several years, in a BPA committed scheduling program that requires the scheduled output to match a BPA-provided forecast and failing to schedule consistent with the forecast may result in a financial penalty being assessed by the Transmission Provider.

However, as detailed in PGE’s response to Blue Marmot Data Request No. 191, prior to beginning the BPA scheduling program, PaTu significantly and consistently scheduled more than it generated and often scheduled at or even above its nameplate capacity. Please see PGE’s

response to Blue Marmot Data Request No. 191 and Docket No. UM 1566 for a discussion of PaTu's scheduling practices.