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October 30, 2018

Via E-mail and USPS Mail

Public Utility Commission of Oregon

Attn: Filing Center

201 High St. SE, Suite 100

Salem, OR 97301

Re: In the Matter of the Complaint of BLUE MARMOT V LLC, BLUE MARMOT VI LLC,
BLUE MARMOT VII LLC, BLUE MARMOT VIII LLC, BLUE MARMOT IX LLC,
against PORTLAND GENERAL ELECTRIC COMPANY
Docket Nos. UM 1829, UM 1830, UM 1831, UM 1832, UM 1833

Dear Filing Center:

Please find enclosed the replacements for Blue Marmot's Sur-surebuttal Testimony and Exhibit of Keegan Moyer to correct the numbering from Blue Marmot/500-501 to Blue Marmot/600-601. Please completely replace the Testimony and Exhibit filed on September 18, 2018.

The confidential copies of Blue Marmot/600, Moyer/21 were sent to the parties pursuant to Order No. 17-219 via USPS mail.

Please let me know if you have any questions.

Sincerely,



Min Hu

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that I have this day served the confidential copies of Blue Marmot/600, Moyer/21 of Blue Marmot V, VI, VII, VIII, and IX upon the parties shown below by mailing a copy via First Class U.S. Mail.

Dated at Portland, Oregon, this 30th day of October, 2018.

Sincerely,



Min Hu

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**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM 1829, UM 1830, UM 1831, UM 1832, UM 1833

BLUE MARMOT V LLC (UM 1829))
BLUE MARMOT VI LLC (UM 1830))
BLUE MARMOT VII LLC (UM 1831))
BLUE MARMOT VIII LLC (UM 1832))
BLUE MARMOT IX LLC (UM 1833))
 Complainants)
 vs.)
PORTLAND GENERAL ELECTRIC)
COMPANY)
 Defendant)
Pursuant to ORS 756.500.)
_____)

REDACTED SUR-SURREBUTTAL TESTIMONY OF

KEEGAN MOYER

ON BEHALF OF THE

BLUE MARMOT V, VI, VII, VIII, AND IX

September 18, 2018

1 **I. INTRODUCTION AND SUMMARY**

2 **Q. Please state your name for the record.**

3 **A.** My name is Keegan Moyer.

4 **Q. By whom are you employed and in what capacity?**

5 **A.** I am a Principal at the firm of Energy Strategies, LLC. Energy Strategies is an
6 independent consulting firm specializing in economic, policy, and power system
7 analysis applicable to energy production, transmission, and consumption.

8 **Q. Have you previously filed testimony in this matter?**

9 **A.** Yes. On behalf of Blue Marmot V, VI, VII, VIII, and IX (collectively, “Blue
10 Marmots”), I filed a revised version of my Direct Testimony in this docket on
11 December 20, 2017 and Reply Testimony on June 18, 2018. An errata filing for my
12 Reply Testimony was filed on June 24, 2018.

13 **Q. What is the purpose of this testimony?**

14 **A.** This Sur-surrebuttal Testimony continues to support the Blue Marmots’ belief that
15 the Blue Marmots’ have made the proper arrangements to deliver qualified facility
16 (“QF”) output to the Portland General Electric Company (“PGE”) system and, as a
17 result, PGE’s refusal to counter-sign the Blue Marmot power purchase agreements
18 (“PPAs”) and accept the Blue Marmot output is inconsistent with my understanding
19 of Public Utility Regulatory Policies Act (“PURPA”) requirements. In this testimony
20 I address the PGE’s “Policy Surrebuttal Testimony” submitted by Brett Greene, its
21 “Energy Imbalance Market (“EIM”) Surrebuttal Testimony” submitted by Aaron
22 Rodehorst and Geoffrey Moore, and its “Transmission Surrebuttal Testimony”
23 submitted by Sarah Edmonds, Sean Larson, and Matthew Richard.

1 **Q. How is your Sur-surrebuttal Testimony organized?**

2 **A.** The testimony is organized as follows:

3 *SECTION II: RESPONSE TO PGE's POLICY SURREBUTTAL TESTIMONY*

4 *SECTION III: RESPONSE TO PGE's EIM SURREBUTTAL TESTIMONY*

5 *SECTION IV: RESPONSE TO PGE's TRANSMISSION SURREBUTTAL*

6 *TESTIMONY*

7 As in the case of my Reply Testimony, to the extent PGE's Policy Surrebuttal
8 Testimony addresses technical issues covered in more detail within its EIM
9 Surrebuttal Testimony or its Transmission Surrebuttal Testimony, I address those
10 topics within those specific sections.

11 **Q. Please summarize your Sur-surrebuttal Testimony.**

12 **A.** The goal of my Sur-surrebuttal Testimony is to respond to only certain issues raised
13 by PGE in its Surrebuttal Testimony. The main points of my response are broken out
14 by section below.

15 **Response to PGE's Policy Surrebuttal Testimony**

16 PGE's policy position is that it cannot accept any scenario in which it incurs
17 additional costs caused by accepting the Blue Marmot output at the PACW-PGE
18 interface. This policy position explains PGE's actions, or lack of actions, that support
19 one of my conclusions, which is that PGE has not thoroughly investigated the options
20 that it has to accept the Blue Marmot output. For example, PGE's initial study effort
21 to identify transmission alternatives to increase the PACW-PGE transfer capability
22 was weak, at best. PGE also did not conduct any serious analysis looking at other
23 options, such as using its existing transmission capacity for both the Blue Marmots
24 and EIM participation. It is possible that there could be no or very minor costs

1 associated with accepting the Blue Marmots' output and in certain circumstances, the
2 incremental costs could be outweighed by benefits. PGE's lack of analysis may have
3 masked these opportunities. PGE's aggressive policy position has resulted in PGE
4 refusing (and hindering the Blue Marmots ability to) analyze of the options available
5 to PGE and the costs and benefits of those options. Whenever possible I have
6 presented information to help the Oregon Public Utility Commission (the
7 "Commission") make an informed decision regarding the options that PGE has to
8 manage the Blue Marmot output at the PACW-PGE interface.

9 Another important point in my response to PGE's Policy Surrebuttal
10 Testimony is that PGE's assertion that the Blue Marmots' cannot schedule their
11 power to PGE presumes a finding that this Commission has not made. If the
12 Commission requires PGE to accept and manage the Blue Marmots' output at the
13 PACW-PGE interface, then the Blue Marmots will be able to submit a complete
14 transmission schedule, disarming PGE's claims. Therefore, PGE's policy position is
15 not logical. The transmission constraint at issue is of PGE's own making and
16 therefore, a ruling by the Commission that requires PGE to manage the constraint that
17 PGE created would be reasonable and would fully unwind PGE's scheduling
18 argument.

19 **Response to PGE's EIM Surrebuttal Testimony**

20 In my response to PGE's EIM-related testimony I agree with PGE that
21 methods it currently uses to participate in the EIM give it the tools it needs to use a
22 portion of its existing transmission rights to accommodate the Blue Marmots' output
23 and "as-available" EIM transfers. No major changes are needed for PGE to
24 implement this approach and any unscheduled portions of the transmission that have

1 been set aside to accommodate Blue Marmots’ output will be available for EIM
2 transfers for a given operating hour.

3 My EIM-related response also debates the appropriate way to characterize the
4 historical utilization of the PACW-to-PGE path in the EIM. I try not to duplicate the
5 debate from my Reply Testimony, but the issue is critical. Examples I provide in this
6 testimony demonstrate that PGE’s hourly-based utilization analysis do not capture
7 appropriate operational synergy between the Blue Marmots’ output and EIM
8 transfers. These examples eventually build into a new analysis that I present,
9 described below.

10 Since neither PGE nor myself had presented an analysis attempting to
11 quantify that actual impact that the Blue Marmots’ weather-based hourly generation
12 schedules might have on EIM transfers, I performed such an analysis and include it in
13 this testimony. The analysis is based on PGE’s historical EIM operations and
14 assumes that: 1) the Blue Marmots have been operating since PGE joined the EIM;
15 and 2) PGE used 50 megawatts (“MW”) of its existing transmission rights to
16 accommodate the Blue Marmots’ output, but made the unscheduled portion of that
17 transmission capacity available to the EIM for the operating hour. This second
18 assumption is consistent with how PGE currently participate in the EIM. The analysis
19 shows that by accommodating the Blue Marmots’ output using PGE’s existing rights,
20 EIM transfers on the PACW-to-PGE path are only *1% lower* than the historical
21 business-as-usual scenario. Based on two different bookend-methods, my analysis
22 estimates that PGE’s EIM benefits would be reduced by \$25,000 - \$63,000 annually
23 on account of reduced EIM transfers caused by PGE accommodating the Blue

1 Marmots output at the PACW-PGE interface. This equates to an estimated 0.16% to
2 0.40% reduction in PGE's anticipated annual EIM benefits, which indicates that PGE
3 can accept the Blue Marmot output at the PACW-PGE interface and continue to
4 accrue significant benefits in the EIM.

5 My EIM response concludes by addressing PGE's claim that the Blue
6 Marmots will directly cause it to lose Market Based Rate ("MBR") Authority. PGE is
7 mistaken because the Federal Energy Regulatory Commission ("FERC") did not
8 require PGE to dedicate as much transmission to the EIM as PGE purports.
9 Furthermore, *even if* FERC did require the level of transmission claimed by PGE (276
10 MW), the timing of the Blue Marmots' LEO allows PGE to exempt the Blue
11 Marmots' from its dedicated EIM-capacity so, in essence, the Blue Marmots can cut
12 into the 276 MW without any impact to PGE's MBR Authority so long as the Blue
13 Marmots do not cause PGE to go under 200 MW. Since PGE's merchant currently
14 has 310 MW of rights on this path, this will not happen and PGE will still have 260
15 MW of firm EIM transfer capacity.

16 **Response to PGE's Transmission Surrebuttal Testimony**

17 The main purpose of PGE's Transmission Surrebuttal Testimony appears to
18 be to convince the Commission that PGE did everything it possibly could to identify
19 transmission upgrades that would increase the transfer capability of the PACW-PGE
20 interface. I remain unconvinced for several reasons. First, the fact that PGE
21 considered only one realistic transmission alternative in its original study does not
22 support this conclusion. Second, in my Reply Testimony I made PGE aware of
23 several potential transmission alternatives that could potentially increase the transfer
24 capability of the PACW-to-PGE path and PGE performed no technical analysis of

1 these options. Instead, PGE said that the transmission alternatives were not feasible
2 from a permitting and constructability standpoint and that they *may* not cause the
3 anticipated increased in transfer capability because PGE would need to review the
4 interactions the transmission additions would have with other paths. These are not
5 new planning challenges unique to these alternatives and PGE could have updated its
6 original transmission study to provide this Commission with more information on the
7 proposed transmission options. As a transmission provider, PGE has an obligation to
8 drive toward these types of definitive conclusions. Another reason that PGE gave for
9 not considering the alternatives is economics. PGE said that my proposed alternatives
10 would cost more than a BPA wheel to the PGE-BPA interface. I found this reason for
11 not studying the proposed upgrades inappropriate given that PGE, the transmission
12 provider, has an obligation to seek to provide transmission service on its system even
13 when it requires a system upgrade. PGE also fails to provide any analysis regarding
14 the potential benefits associated with any transmission upgrades.

15 **Q. Does your testimony respond to all the issues raised in PGE's testimony?**

16 **A.** No. PGE has submitted two rounds of testimony and this is the Blue Marmots' third
17 round of testimony. There is no need to repeat all of PGE's and the Blue Marmots'
18 arguments, and my silence on any argument or facts raised by PGE should not be
19 taken as agreement.

20 **II. RESPONSE TO PGE's POLICY SURREBUTTAL TESTIMONY**

21 **Q. Please summarize PGE's Policy Surrebuttal Testimony.**

22 **A.** PGE's Policy Surrebuttal Testimony submitted by Mr. Greene responds to arguments
23 I made in my Reply Testimony, which supports the Blue Marmots' position that they
24 have made the appropriate transmission reservations to deliver output to PGE's

1 system and PGE must make transmission arrangements beyond that point. I believe
2 PGE's options for making those transmission arrangements should include: 1)
3 consideration of all viable transmission upgrades to increase the capacity of the
4 constrained PACW-to-PGE path; 2) using a more flexible approach for transmission
5 currently dedicated to the EIM transmission such that it can be used for the EIM *and*
6 delivery of the Blue Marmots' output; and 3) PGE arranging for an additional
7 transmission wheel over BPA's system such that PGE can receive the power at a
8 location that is more convenient for PGE. I also believe that PGE has options to sell
9 the output off-system.

10 PGE's Policy Surrebuttal Testimony disagrees that PGE should have to
11 choose between these options. More specifically, the Policy Surrebuttal Testimony
12 asserts that:

13 (1) The options that PGE has available to accept the Blue Marmots' output will
14 cause harm to PGE customers. That harm comes in the form of costs
15 associated with transmission upgrades, an unquantified reduction in EIM
16 benefits, or the funding of a BPA transmission wheel. PGE asserts that the
17 acceptance of any of these additional costs results in harm to its customers.¹

18 (2) PGE has considered all potential options that would allow it to accept the
19 Blue Marmot output, including the one realistic transmission alternative
20 considered in the PGE System Impact Study ("SIS") and the Blue Marmots'
21 proposed transmission alternatives. PGE sees any impact to its EIM
22 operations as unreasonable since it needs to protect that capacity for PGE's

¹ PGE/400, Greene/3, line 6.

1 strategic and operational interests, and it does not see merit in off-system sale
2 of the power. It has determined that any transmission upgrade that is more
3 expensive than a wheel on BPA's system to the PACW-PGE interface is
4 uneconomic.

5 (3) Because the Blue Marmots have made transmission reservations to the edge
6 of PGE's system on PacifiCorp-owned transmission, the Blue Marmots
7 cannot schedule their output for delivery to PGE because of the constraint
8 and therefore PGE claims that the Blue Marmots have not discharged their
9 transmission-related obligations as a QF.

10 PGE also argues that it was right to reserve the transmission capacity it did for
11 EIM purposes and, potentially, for use by other qualifying facilities both before and
12 after providing the Blue Marmots with executable power purchase agreements. PGE
13 also addresses policy arguments made by other Blue Marmot witnesses pertaining to
14 Legally Enforceable Obligations ("LEO") and PGE's actions during Blue Marmot
15 PPA negotiations.

16 **Q. Please state your response.**

17 **A.** In this testimony I address only items (1), (2), and (3) listed above. First, PGE claims
18 that the options the Blue Marmots have proposed for it to accept and manage the Blue
19 Marmots' output will harm PGE's customers. In response, I make the same policy
20 observation that I made in my Reply Testimony, which is that PGE could have
21 proactively considered some or all of these costs in its avoided cost rate and therefore
22 these cost factors should be considered on a going-forward basis – not retroactively
23 as PGE insists.

1 Second, I continue to disagree that PGE has given due consideration to all the
2 options that would enable it to accept the Blue Marmots' output. PGE assumes that
3 the option to wheel the power to the BPA-PGE interface is the definitive low-cost
4 option against which other options should be compared when, in fact, there may be
5 other lower-cost options, such as transferring a small portion of the transmission
6 rights currently used for EIM to accommodate *both* EIM transfers and the Blue
7 Marmots' output. PGE continues to argue against using any of its EIM-dedicated
8 transmission capacity but does so only on a policy basis and does not produce any
9 meaningful economic analysis estimating actual cost consequences. My analysis of
10 this solution indicates that PGE would incur an approximate reduction of \$25,000-
11 \$63,000 in its annual EIM benefits as a result of using a portion of its existing
12 capacity to participate in the EIM *and* accept the Blue Marmot output. PGE built a
13 case to join the EIM through economic studies of EIM benefits and could have
14 studied a scenario in which it quantifies the reduction in its EIM benefits due to
15 reducing the dedicated transmission capacity to accommodate the Blue Marmots'
16 output. PGE has not conducted analyses like this or proactively tried to identify
17 reasonable transmission expansion options, like the ones I present in my Reply
18 Testimony. It has also failed to perform any follow-up analysis on the transmission
19 alternatives I proposed. PGE's lack of motivation to find a workable solution is
20 apparent given it has not attempted to exhaust, or even fully consider the known
21 options to accept the Blue Marmot output.

22 Third, in my Reply Testimony I addressed PGE's scheduling argument related
23 to whether or not the Blue Marmots' have made appropriate transmission

1 arrangements. To recap, as off-system QFs the Blue Marmots do not make
2 transmission reservations on the system of the utility to which they are selling – the
3 Blue Marmots’ obligation is to deliver to the edge of that system. Therefore, the Blue
4 Marmots made a transmission reservation to the edge of the PGE system on
5 PacifiCorp’s system. This is the only transmission reservation that was appropriate
6 for the Blue Marmots to make. Regardless, PGE has argued that the Blue Marmots
7 will not be able to schedule their output, and I contend that the only reason the Blue
8 Marmots would not be able to do so is because PGE has decided not to arrange
9 transmission service on its system to accept the Blue Marmots’ output at the PACW-
10 PGE interface. PGE claims that in transmission constrained circumstances, PGE does
11 not need to address transmission for QFs. This means that PGE’s policy on what
12 constitutes delivery of off-system QF power depends on the conditions of the system.
13 When the system is *unconstrained*, PGE agrees with the Blue Marmots’ definition of
14 delivery as the edge of the PGE system and in this scenario, PGE is willing to make
15 transmission arrangements. However, when the system is *constrained*, PGE
16 implicitly changes its definition of delivery to some point within its system.² Notably,
17 the system constraint was created by PGE’s Merchant function when it reserved all of
18 the transmission capacity on the PACW-to-PGE path to maximize transfer capability
19 for the EIM, including capability that become available after PGE refused to purchase
20 the Blue Marmots net output. The constraint is, therefore, one that can and should be
21 managed by PGE when it comes to accepting Blue Marmot deliveries. Also, since
22 PGE has testified that it can, in effect, reserve point-to-point transmission without

² PGE/400, Greene/21.

1 cost consequence, this transmission availability-contingent policy used to define
2 acceptable QF delivery locations is an effective approach to avoid the obligation to
3 accept delivery from off-system QFs.³ If the Commission directs PGE to use
4 transmission currently dedicated to the EIM for both the Blue Marmots and EIM
5 participation, the Blue Marmots will be able to schedule their output across the
6 interface. PGE’s scheduling argument presumes a determination that this
7 Commission has not yet made and therefore should be disregarded.

8 **Q. Are there other areas of PGE’s Policy Surrebuttal Testimony that you would**
9 **like to address?**

10 **A.** Yes. In my Reply Testimony I stated that PGE’s Response Testimony characterized
11 the Blue Marmots’ transmission service request (“TSR”) on PGE’s system from
12 PACW to PGE as something the Blue Marmots were obligated to request from PGE
13 when I understand that PURPA indicates that PGE Merchant is the appropriate
14 transmission service customer.⁴ Mr. Greene says that I took this position without

³ PGE/400, Rodehorst-Moore/23: “In this case, PGE Merchant is the customer that has reserved the transmission capacity on the PACW-to-PGE path. Regardless of whether that capacity is allocated for the EIM—as PGE argues it should be—or allocated for QF use—as the Blue Marmots argue it should be—it will be paid for by PGE Merchant to PGE Transmission. The payment by PGE Merchant to PGE Transmission is equal and offsetting and has no impact on PGE’s revenue requirement calculation (i.e., PGE excludes the equal and offsetting transactions from the revenue requirement calculation). Therefore, there is no incremental cost to PGE’s customers associated with PGE Merchant’s reservation of that capacity for the EIM.”

⁴ See PGE/300, Afranji-Larson-Richard/20: PGE states that the Blue Marmots would be responsible to fund Direct Assignment Facilities identified in the System Impact Study. If PGE did not want to represent the Blue Marmots as a potential transmission service customer on PGE’s system, PGE should have described these Direct Assignment Facilities as the responsibility of the party that was to arrange transmission service on PGE’s system. The testimony continuously refers to the Blue Marmots making a decision to construct the upgrades, which implies that they are the only entity that is to be the transmission service customer. This is a mischaracterization of the original intent of the study.

1 basis. Mr. Greene states that PGE and the Blue Marmots agreed, based on settlement
2 discussions, that the Blue Marmots would submit the TSR and request the SIS in
3 order to determine what upgrades were needed on the PACW-to-PGE path. Mr.
4 Greene is correct in that I did not attend these negotiations, although I do understand
5 that it was agreed that the Blue Marmots would request the TSR and SIS. Even with
6 this general understanding, my position on how PGE characterized the SIS results is
7 not based on settlement negotiations and is instead based on my review of PGE's
8 answers to the complaints and testimony which refer to post-SIS decisions as
9 decisions the Blue Marmots, as an implicit transmission customer, would need to
10 make. I continue to view this as a mischaracterization of the purpose of the study that
11 needlessly complicated the record.

12 **III. RESPONSE TO PGE's EIM SURREBUTTAL TESTIMONY**

13 **Q. For added context, please summarize the key points from your Reply Testimony**
14 **and highlight any new analyses you plan to present in this Sur-Surrebuttal**
15 **Testimony.**

16 **A.** My Reply Testimony asserted that PGE's EIM-dedicated transmission on the PACW-
17 to-PGE import path is not well utilized and that the path could accommodate the Blue
18 Marmots' output without major impacts to PGE's EIM operations.⁵ I also argued that
19 using 50 MW of transmission for the Blue Marmots and EIM operations would not
20 directly impact PGE's MBR Authority in the EIM. At the core of my Reply
21 Testimony was an historical analysis of EIM transfers on the PACW-to-PGE import
22 path. This analysis, which summarized EIM imports in the 5- and 15-minute market

⁵ Since the last round of filings, PGE's EIM-dedicated transmission rights on the path have increased from 295 MW to 310 MW through an addition 15 MW point-to-point reservation. PGE continues to reserve additional transmission for itself at the same location that it refuses to accept the Blue Marmot net output.

1 since PGE joined the EIM, showed that there were many intervals in which the path
2 was not well utilized and that the market infrequently used the full capacity. The goal
3 of this analysis was to demonstrate this lack of historical utilization. The goal was not
4 to assess, in any detailed manner, how those imports would be impacted by the Blue
5 Marmots' output. Since my Reply Testimony was drafted in early-June and the
6 PACW-to-PGE path had only a couple months of summer operation data and
7 therefore, I decided the sample size was too small to conduct a meaningful
8 assessment surrounding the exact effects Blue Marmot output might have on transfers
9 on the PACW-to-PGE path. Given that a few months have passed and the sample size
10 has increased, this Sur-surrebuttal Testimony includes an analysis that calculates the
11 degree to which PGE's EIM transfers would have been impacted if PGE's
12 transmission rights were used to accommodate *both* the Blue Marmot output and "as-
13 available" EIM participation. PGE's Surrebuttal Testimony confuses these two
14 analyses – the utilization analysis simply looks at how the path is historically used for
15 transfers in the market (and PGE and myself disagree on how this should be
16 represented), and the other builds on this transfer data but also uses an hourly solar
17 generation profile that represents the most probable Blue Marmot output to determine
18 if PGE's EIM transfers would have had to be reduced from the status quo to accept
19 the Blue Marmot output. The second analysis trumps the first because it replaces
20 conjecture about how much transmission the Blue Marmots *might* need with detailed
21 analysis representing the *actual* need.

22 **Q. Please summarize PGE's EIM Surrebuttal Testimony.**

23 PGE responds to the EIM-portions of my Reply Testimony with three primary
24 arguments. First, PGE argues that since QFs schedule hourly, sub-hourly

1 transmission cannot be made available for the EIM and therefore, the sub-hourly
2 analysis I performed regarding past EIM usage is not helpful. Second, PGE states that
3 it would not be “comfortable” with the idea of using a portion of its transmission
4 capacity for both Blue Marmot deliveries and EIM participation because PGE insists
5 that QFs are incented to schedule deliveries at their full nameplate capacity for any
6 hour in which they expect to generate, which will further erode EIM benefits. Third,
7 PGE says that its MBR authority is “key” to its ability to maximize EIM benefits for
8 its customers and using transmission capacity to both accept Blue Marmot output and
9 participate in the EIM will place that MBR authority in jeopardy. PGE introduces
10 updated analyses related to the utilization of the PACW-to-PGE path for EIM
11 transfers and in doing so asserts that my analysis of the same is misleading and
12 understates the level of transfers that have occurred on the path. PGE also states that
13 it expects transfers on the PACW-to-PGE path to increase over time, but does not
14 present any new evidence to that effect.

15 **Q. Do you address all of these points in this testimony?**

16 **A.** No. My Reply Testimony responded to the idea that transfers on the PACW-to-PGE
17 will increase over time. I address most of PGE’s other arguments and introduce new
18 analysis that supports my conclusion that PGE can still accrue almost all of its EIM
19 benefits if it uses a portion of its existing transmission rights to participate in the EIM
20 *and* accept Blue Marmot output.

21 **Q. Please summarize your response.**

22 **A.** The first portion of my response clarifies PGE’s position on EIM participation
23 methods. In short, I agree with PGE that the methods that PGE currently uses to
24 participate in the EIM on the PACW-to-PGE import path will allow PGE to

1 accommodate the Blue Marmot output. We also agree that PGE's current
2 participation methodology will allow any unscheduled Blue Marmot-dedicated
3 transmission to be available for EIM transfers for a given operating hour.

4 Next, my testimony addresses PGE's claims that the Blue Marmots will
5 overschedule their output by submitting schedules equal to their nameplate capacity.
6 PGE provides no data or analysis that supports its claim that the Blue Marmots are
7 incited to overschedule and in fact, the data it did produce indicates the opposite.
8 Furthermore, the Blue Marmots' PPAs with PGE require the Blue Marmots to submit
9 schedules equal to their expected output and this is what the Blue Marmots plan to
10 do. PGE's claims that the Blue Marmots will overschedule should be dismissed for
11 these reasons.

12 My testimony also addresses the hourly utilization analysis that PGE
13 performed on the PACW-to-PGE interface. My prior testimony explains why I
14 disagree with this methodology. In this testimony, I give several examples that
15 demonstrate exactly why PGE's methods do not account for a number of operational
16 scenarios in which the Blue Marmots will have no or very little impact on PGE's
17 EIM operations. I also explain how PGE's methods artificially inflate the opportunity
18 cost associated with accepting the Blue Marmots' output. This critique helps to set up
19 my own analysis that appropriately captures how PGE can operate in the EIM while
20 also accepting Blue Marmot output.

21 The new analysis that I present is designed to improve on the utilization
22 analysis that PGE and I have performed. The new analysis assumes an anticipated
23 hourly generation profile for the Blue Marmots, which sets the Blue Marmots' hourly

1 schedule. The analysis considers how that schedule would have impacted PGE’s EIM
2 operations to date in terms of reduced transfers and reduced benefits. The analysis
3 concludes that imports on the PACW-to-PGE path would have been 1% lower than
4 they were historically had the Blue Marmots been operational and had PGE used 50
5 MW of its reserved capacity to both accept the Blue Marmot output *and* participate in
6 the EIM. The analysis estimates that PGE’s EIM benefits would be reduced by
7 \$25,000 - \$63,000 annually as a result of PGE accepting the Blue Marmots’ output.
8 This cost equates to an estimated 0.16% to 0.40% reduction in PGE’s anticipated
9 annual EIM benefits. This finding indicates that PGE can accept the Blue Marmot
10 output and continue to argue almost all of its EIM benefits.

11 I conclude my response by addressing PGE’s claims that the Blue Marmots
12 will cause PGE to lose MBR Authority. PGE is wrong because FERC did not require
13 PGE to set aside as much transmission for the EIM as PGE claims, and even if FERC
14 did require that level of transmission, the timing of the Blue Marmots’ LEO would
15 allow PGE to exempt the Blue Marmots’ from its dedicated EIM-capacity.

16 **PGE’s EIM Participation Methodology**

17 **Q. PGE says that it “...rejects the notion that it could engage in robust**
18 **participation in the EIM using solely the ATC approach.” Do you agree with**
19 **this representation of your position?**

20 **A.** No – this is important to clarify before going any further. I have not argued that PGE
21 transition *entirely* to the Available Transfer Capability (“ATC”), or “as-available”,
22 methodology for the purposes of EIM participation. I do not think this is necessary to
23 accommodate the Blue Marmot output. My recommendation is that, assuming the
24 Commission determines that using PGE’s existing transmission rights to accept the
25 Blue Marmots’ output is the most appropriate course, PGE should participate in the

1 EIM using both methods, as it currently does today, with “firm participation” in the
2 EIM under the Interchange Right Holder (“IRH”) Methodology for 260 MW for
3 EIM-only use, and on an “as-available” basis using the ATC Methodology for the
4 remaining 60 MW (of summer capacity). Of these 60 MW, 50 MW should be
5 prioritized for Blue Marmot output, but in any hour the 50 MW is not fully utilized
6 by Blue Marmot output, the unused portion will be available for EIM transfers. The
7 260 MW of EIM-dedicated transmission will allow PGE to far exceed its
8 commitments to FERC regarding MBR Authority and there will be many hours in
9 which the EIM transfer limit for the PACW-to-PGE import path will be greater than
10 260 MW. Using *both* the ATC and IRH Methodologies would *not* be a deviation
11 from PGE’s current practices and this is the type of participation I recommend.⁶

12 **Q. Please summarize your current understanding of the parties’ positions**
13 **regarding EIM participation methods.**

14 **A.** PGE and the Blue Marmots agree that PGE currently participates in the EIM on the
15 PACW-to-PGE path using both the ATC and IRH Methodologies. Therefore, PGE
16 would not need to change its participation approach to accommodate the Blue
17 Marmots’ output using its rights on the PACW-to-PGE path, though it would change
18 the quantity of transmission used under the IRH and ATC methodologies.

19 **QF Scheduling Practices**

20 **Q. Please summarize PGE’s arguments related to scheduling of the Blue Marmot**
21 **output on the PACW-to-PGE path and how it impacts PGE’s EIM**
22 **participation.**

23 **A.** Confusing language in PGE’s EIM Surrebuttal Testimony implies that if PGE used
24 50 MW of its existing transmission rights to accept the Blue Marmots’ output,

⁶ See PGE/200, Sims-Rodehorst-Sporborg/12, and PGE/500, Rodehost-Moore/6.

1 unscheduled capacity could *not* be used in the EIM. This interpretation is supported
2 by PGE’s statements below:

3 (1) “...because QFs schedule hourly, EIM transfers and QF deliveries cannot
4 occur using the same transmission capacity in the same hour.”⁷

5 (2) “To the extent Mr. Moyer is suggesting that EIM transfers and QF deliveries
6 could occur within the same hour under the ATC approach, this is not
7 correct. If Mr. Moyer is instead saying that PGE could use the capacity for
8 EIM transfers in hours in which the Blue Marmots have not scheduled
9 deliveries, this is technically true under either the ATC or the Interchange
10 Rights Holder approach.”⁸

11 (3) “...if PGE gives up transmission capacity to the Blue Marmots and other
12 QFs, as Mr. Moyer suggests, the practical impact would be to remove the full
13 amount of QF capacity from PGE’s transmission dedicated to the EIM *for the*
14 *entire hour* when a QF has submitted a schedule for delivery of its output.”⁹

15 These statements, among others, are confusing because they imply that all
16 transmission capacity prioritized to accommodate Blue Marmot output will be
17 entirely unavailable for the EIM for the entirety of any hour in which the Blue
18 Marmots schedule delivery of their output. This is inconsistent with PGE’s
19 description of the ATC Methodology and with how the EIM works. The Blue
20 Marmots asked PGE to clarify its position in Blue Marmot Data Request No. 189, in

⁷ PGE/500, Rodehorst-Moore/4.

⁸ PGE/500, Rodehorst-Moore/7.

⁹ PGE/500, Rodehorst-Moore/9 (emphasis in original).

1 response to which PGE produced more clear language that walked back to PGE's
2 original position:¹⁰

3 *Once a QF has scheduled a set amount of capacity for an hour, that amount of*
4 *capacity cannot be used for EIM purposes. For example, if the Blue Marmots*
5 *schedule 50 MW, PGE would lose 50 MW of transfer capability under the ATC*
6 *methodology. If the Blue Marmots schedule 0 MW, PGE would retain 50 MW*
7 *of transfer capability under the ATC methodology.*

8 Based on PGE's response, and notwithstanding the seemingly contradictory
9 language contained within PGE's EIM Surrebuttal Testimony, I agree with PGE that:

- 10 (a) If the Blue Marmots were to submit a non-zero hourly schedule, that
11 amount of *scheduled* transmission capacity **cannot** be used for EIM
12 transfers in the hour for which that schedule was submitted; and
13 (b) If the hourly schedule is less than 50 MW, the remaining capacity, or
14 difference between the schedule and 50 MW, *can* be used for EIM
15 transfers.

16 This language clarifies the statements made by PGE above. Blue Marmot
17 schedules *and* EIM transfers can both occur in a given hour and the Blue Marmots'
18 total expected output will drive the transmission schedule and therefore the amount of
19 the 50 MW of transmission that remains available for EIM transfers. PGE's language
20 implies that the Blue Marmots will always be entitled to 50 MW of capacity when in
21 reality, the Blue Marmots will only use as much transmission capacity as is needed to
22 accommodate their schedule, which will equal the Blue Marmots' expected output.

23 **Q. PGE argues that the Blue Marmots will be “economically incented” to submit**
24 **hourly schedules at their full nameplate capacity for any hour in which they**
25 **expect to generate. Do you agree?**

¹⁰ Blue Marmot/501, Moyer/1-2.

1 **A.** No. PGE’s argument is not factual and PGE presents no policy or technical analysis
2 to support it. In fact, the PPAs that the Blue Marmots’ have executed specifically
3 prohibit this behavior by stating the following:

4 Seller shall make commercially reasonable efforts to schedule in any hour an
5 amount equal to its expected Net Output for such hour.

6 This means that, generally speaking, the Blue Marmots’ will use a weather-based
7 forecast to determine the amount of power they anticipate to generate for a given
8 hour, and this information will be used to inform the transmission schedule for that
9 hour.¹¹ If the Blue Marmots anticipate generating 30 MW-hours in a given hour, they
10 will submit a 30 MW hourly schedule in accordance with the PPAs. There will be
11 many hours in which the Blue Marmots schedule below their nameplate capacity,
12 which means that unused transmission will be available for the EIM, contrary to
13 PGE’s position. For example, based on the expected solar generation profile, the Blue
14 Marmots will submit hourly schedules that are:

- 15 • Less than 40 MW in 79% of all hours;
- 16 • Less than 20 MW in 68% of all hours; and
- 17 • Less than 10 MW in 61% of all hours.

18 In fact, the full 50 MW of transmission will only be used in 13% of hours in
19 the year. This means most of the 50 MW of capacity will be available in most hours
20 for EIM transfers.

21 The information that PGE uses to support its nameplate capacity scheduling
22 theory is woefully inadequate and does not support the conclusion that PGE draws.

¹¹ This is in reference to general industry practice based on my experience and is not specific to EDPR scheduling practices, which I have not reviewed.

1 PGE has four off-system QFs that have achieved commercial operation. Only one of
2 the QFs scheduled near its nameplate capacity, and this QF is known to be a
3 baseload/dispatchable resource with very few changes in its output. Since the Blue
4 Marmots' are a weather-dependent resource, PGE's evidence that QF's schedule at
5 their nameplate capacity appears to be based on its experience with *one* of these four
6 QFs, which is a non-dispatchable wind-powered QF.¹² Since the wind QF began
7 operations in 2016 it has submitted schedules that equate to roughly a [REDACTED] scheduled
8 capacity factor, [REDACTED]
9 [REDACTED]. For PGE's
10 assertion to be correct, the scheduling data for this wind QF project should show a
11 scheduled capacity factor close to 100%. This would represent the generator
12 scheduling at its nameplate. PGE's only evidence, a sample of a single non-
13 dispatchable QF resource, directly contradicts PGE's position that QFs schedule at
14 their nameplate and therefore PGE's claims on this point should be disregarded.

Review of PGE's Utilization Analysis

16 **Q. Please summarize PGE's analysis of EIM transfers on the PACW-to-PGE path**
17 **and why PGE disagrees with the sub-hourly analysis you conducted in your**
18 **Reply Testimony.**

19 **A.** PGE did not change its methods since I issued my critique in my Reply Testimony
20 and therefore PGE continues to grossly overstate the utilization of the PACW-to-PGE
21 interface. When PGE performs its utilization analysis, it identifies the highest EIM
22 transfer on the PACW-to-PGE path for *all* of the intervals in a given operating hour
23 and represents the import in that single 5- or 15-minute interval as the utilization of

¹² The other three of PGE's QFs are baseload resources.

1 the path for the full hour. I continue to assert that PGE’s analysis is without technical
2 merit and, as I explained in my Reply Testimony and again below, does not capture
3 either: 1) the actual historical performance of the path; and 2) the impacts the Blue
4 Marmots’ hourly schedules might have on sub-hourly EIM operations.

5 **Q. Please address PGE’s analysis and conclusions from its Table 1: EIM transfers**
6 **for the PACW-to-PGE path.**

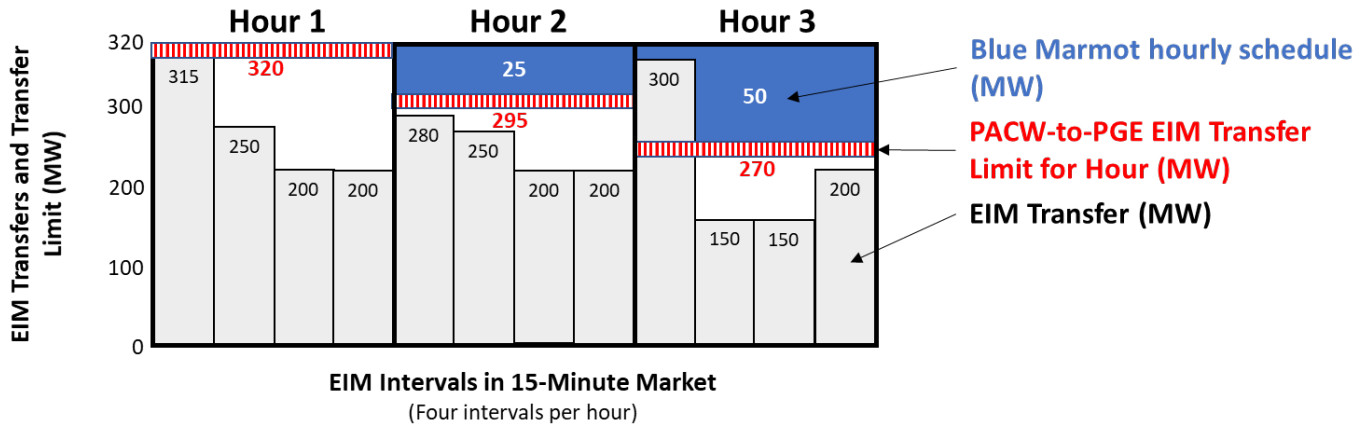
7 **A.** This analysis is updated to include additional months and on-peak hours. PGE says
8 that it presented the data on an hourly basis because the “practical impact” of
9 accommodating the Blue Marmot output would be a removal of the “full amount of
10 QF capacity” from PGE’s transmission dedicated to the EIM when a QF submits a
11 schedule for delivery of its output.¹³ As I discussed earlier, PGE is mistaken since the
12 only time the “full amount of QF capacity” will not be available to the EIM is when
13 the Blue Marmots schedule at their full amount. In *all other conditions* some of the
14 transmission capacity shared by the Blue Marmots and the EIM will be available for
15 EIM transfers, and the amount that is available will depend on the expected output of
16 the Blue Marmots. PGE ignores this fact.

17 PGE concludes from its Table 1 that imports occur in a significant majority of
18 the hours, and that there are hours where imports exceed 276 MW. Without analyzing
19 when the Blue Marmots are likely to generate, PGE concludes that a significant
20 number of transfers would not be able to occur “whenever” the Blue Marmots
21 schedule deliveries. PGE presents this data in this fashion because it implies an
22 artificially high opportunity cost associated with accepting the Blue Marmot output
23 when in fact, that opportunity cost is low or, in many instances, zero. What PGE fails

¹³ PGE/500, Rodehorst-Moore/9.

to account for in its analysis is that there has been and will be many EIM intervals that will not at all be affected by the Blue Marmots' scheduled output. This concept is summarized in **Figure 1**.

Figure 1: Blue Marmot Impacts to PACW-to-PGE EIM Imports



The diagram shows hypothetical summer-season 15-minute market EIM transfers (grey bars), the Blue Marmots' hypothetical hourly schedule (blue area) for the operating hour, and the resulting PACW-to-PGE EIM transfer limit (red horizontal striped line) for the operating hour, which captures the reduction in EIM transmission availability resulting from the Blue Marmots' hourly schedule. Hour 1 demonstrates that when the Blue Marmots' are not expected to generate, which will be the case roughly half of the hours in a given year, there will be *no impact* to imports. In this hour, PGE's EIM operations continue under the status quo. Hour 2 demonstrates that there will be conditions when the Blue Marmots do generate but their scheduled capacity will be small enough such that it will have *no impact* to imports that, absent the Blue Marmots, would have occurred. Here we represent a 25 MW hourly schedule from the Blue Marmots, which reduces the EIM transfer limit to 295 MW. Since optimal EIM transfers in this hypothetical hour are less than 295 MW, there is

1 no impact to the transfers. The Blue Marmots will schedule *less than 25 MWs in*
2 *71% of hours*, and PGE’s analysis entirely fails to capture this scenario, which will
3 occur very frequently. PGE’s hourly analysis would represent that the 280 MW
4 transfer would not be possible since the path TTC (320 MW) minus the *nameplate* of
5 the Blue Marmots (50 MW) would result in an EIM transfer limit that is less than the
6 280 MW transfer. PGE’s analysis fails to account for the fact that there will be many
7 hours in which the Blue Marmots’ generate less than their nameplate and in those
8 hours PGE’s EIM operations may not be impacted.

9 It is true that there will be certain hours in which the Blue Marmots schedule
10 at their nameplate capacity of 50 MW.¹⁴ This scenario is demonstrated in Hour 3 in
11 the diagram. In this hour, the EIM transfer limit for the operating hour is reduced to
12 270 MW (320 MW *less* the Blue Marmots’ 50 MW schedule). If we assume that
13 under the future (or historical) status quo absent the Blue Marmots the EIM imported
14 300 MW in the first interval, that import would not be possible with the Blue
15 Marmots operating since it is greater than the 270 MW EIM transfer limit. PGE’s
16 analysis implies that the “cost” of this constraint is that no EIM imports occur in that
17 *entire hour*, and the lost transfer is 300 MW. PGE is wrong. In actuality, the 300
18 MW import would not disappear completely, it would just be reduced to the transfer
19 limit, which is 270 MW for the hour. The opportunity cost in the first interval is
20 therefore 30 MW (300 MW *less* 270 MW) for the single 15-minute interval which, in
21 energy equates to 7.5 MWh of impacted transfers. PGE’s analysis also implies that

¹⁴ This scenario also applies to any condition in which transfers that would have otherwise occurred cannot occur because of the Blue Marmots scheduled output.

1 the other transfers that occur in Hour 3 do not matter – PGE is only concerned with
2 the maximum transfer in the hour based on how it represents the utilization data. This
3 Hour 3 example demonstrates why representing maximum hourly transfers overstates
4 the implications of accommodating the Blue Marmots’ output. In the first interval of
5 Hour 3 there would indeed be an impact to EIM operations, as explained above, but
6 there are three other intervals with significant transfers *that would not be impacted*
7 by the Blue Marmots. These unaffected imports in the final three 15-minute intervals
8 total 125 MWh of transfers, which mutes the 7.5 MWh of transfers in the first
9 interval that would be infeasible because of the Blue Marmots.¹⁵ In total, Hour 3
10 demonstrates how, in this example, a 50 MW Blue Marmot schedule can be
11 accommodated and still allow for more than 96% of the energy transfers that would
12 have otherwise occurred.¹⁶

13 PGE’s hourly analysis ignores this concept entirely. My prior sub-hourly
14 analysis does a better job since it captured the *potential* sub-hourly opportunity cost
15 more accurately, but it does not go so far as to actually incorporate the Blue
16 Marmots’ generation profile which drives the Blue Marmots’ expected output, which
17 in turn drives the Blue Marmots’ hourly schedule, which in turn drives the true
18 impacts to PGE’s EIM operations caused by accommodating the Blue Marmots’
19 output.

¹⁵ 125 MWh is based on: (15-minute * 150 MW) + (15-minute * 150 MW) + (15-minute * 200 MW)

¹⁶ Absent the Blue Marmots the hour would have had a total energy transfer of 200 MWh. The Blue Marmots’ caused 7.5 MWh of transfers to not occur. Therefore 96% of the original transfers were unaffected.

1 **Review of PGE’s Critique of the Blue Marmots’ Utilization Analysis**

2 **Q. Please summarize PGE’s critique of the sub-hourly analysis you included in**
3 **your Reply Testimony.**

4 **A. PGE’s approach of representing the maximum transfer in a given hour as the implied**
5 ***value* of that transmission *for the full hour* was misleading, I presented my own**
6 **utilization analysis where I kept the 5- and 15-minute market data in its original form**
7 **and compared the transfers against their EIM transfer limit for each market interval.**
8 **This analysis showed that imports did not occur frequently and that it was very rare**
9 **for a given interval to have imports above 200 MW, and even more rare for imports**
10 **to go beyond 276 MW.**

11 PGE refutes my analysis on the basis that the Blue Marmots will schedule
12 hourly, not sub-hourly, and argues that EIM transfers should be looked at hourly. As
13 demonstrated by my example in Figure 1 in this Sur-surrebuttal Testimony, PGE is
14 wrong on this point. PGE also implies that my analysis assumes that QF output and
15 EIM transfers can share capacity in any one hour, which it does not since my analysis
16 focused on the historical utilization of the PACW-to-PGE path and it did not
17 consider, in any detailed way, how historic EIM transfers would be impacted by Blue
18 Marmot output. I agree that EIM transfers and QF output cannot use the *same*
19 transmission at the *same* time, but they can share the same transmission allocation so
20 long as the QF is not using the entire capacity in a given hour.

21 As I explained above, neither my sub-hourly analysis nor PGE’s hourly-
22 analysis considered the true implications of the Blue Marmots’ output. This is why I
23 present new analysis to address this.

1 **Q. PGE also disagrees with the example in your Reply Testimony in which you**
2 **stated that PGE’s hourly analysis overstates transfers that might occur in a**
3 **single interval within the hour. Please respond.**

4 **A.** I presented that example to demonstrate that PGE’s methods overstate the *magnitude*
5 of the total energy import and therefore, overstate the impact of accommodating Blue
6 Marmot deliveries. PGE misunderstands the analysis and confuses energy and
7 capacity terminologies. I did not imply that the same benefit could be achieved with
8 12.5 MW of *capacity*, I simply stated that representing the transfer for the entire hour
9 as 150 MW (when it actually occurs for only 5-minutes), is not representative of the
10 true benefit of the transfer, which only served 12.5 *MW-hours* of PGE load.

11 **Q. PGE critiques your sub-hourly analysis of historic EIM transfers on the basis**
12 **that it does not capture the Blue Marmots’ scheduling requirements. Please**
13 **address PGE’s critique.**

14 **A.** PGE argues that my sub-hourly analysis of the historic utilization of the PACW-to-
15 PGE path is not helpful or relevant because it does not capture the Blue Marmots’
16 current requirement to schedule hourly. I agree with PGE that new analysis that
17 considers the impacts of the Blue Marmots’ hourly schedules is necessary given the
18 terms of the PPAs and PGE’s refusal to allow 15-minute scheduling. I disagree that
19 my sub-hourly analysis is not useful because, as I explain above, analysis on a sub-
20 hourly basis allows the demonstration of how frequently the EIM is actually utilizing
21 the transmission made available by PGE on the PACW-PGE path and illustrates that
22 the use of the path is relatively infrequent.

23 **Q. How does PGE’s argument relate to sub-hourly scheduling?**

24 **A.** My examples above assume hourly scheduling which, I understand, is what the Blue
25 Marmots’ PPAs envision and what PGE has reiterated it will require. Above, I show
26 that transmission capacity not scheduled by the Blue Marmots will be available for

1 sub-hourly EIM transfers for the entirety of the operating hour. PGE's critique of my
2 sub-hourly analysis may have intended to state that adjustments to EIM transfer
3 capability *within the hour* is not possible since the Blue Marmots will submit hourly
4 schedules, and I agree with this under the current construct of the PPAs. For example,
5 if the Blue Marmots schedule 20 MW for a given hour, 30 MW of the 50 MW Blue
6 Marmot-dedicated capacity will be available for the EIM under the ATC
7 Methodology *even if* 20 MWh worth of energy is anticipated to be delivered in the
8 first 30 minutes and the last 30 minutes will not have any expected output or physical
9 transfers. It is worth noting that by this same logic, if the Blue Marmots generated
10 more than the 20 MW schedule in a given interval, the 30 MW of transmission
11 capacity should still be available to the EIM (barring a situation where actual physical
12 flows are reaching a reliability limit). It is also worth noting that it is PGE's choice
13 whether or not to accept 15-minute scheduling, which is illustrative of PGE's refusal
14 to consider reasonable options to accept the Blue Marmots' net output.

15 **Q. Should sub-hourly scheduling be an option for the Blue Marmots?**

16 **A.** Yes. Now that PGE is operating in the EIM and that the CAISO appears to be able to
17 accommodate sub-hourly EIM transfer limits,¹⁷ allowing the Blue Marmots to
18 schedule sub-hourly (versus hourly) deserves consideration since it would increase

¹⁷ See CAISO EIM Business Practice Manual, Section 11.1.4, which states: "Each EIM Entity Scheduling Coordinator shall determine and send to the CAISO market system the EIM intertie transmission right limits, static limits, dynamic incremental limits and any updates through the EIMDynamicLimitData file submitted to CAISO as changes to these limits are required by the EIM Entity Scheduling Coordinators (i.e., the EIM Transfer limit). This should be finished prior to the start of the next Dispatch Interval by the EIM Entity Scheduling Coordinator." Because Dispatch Intervals are sub-hourly, the CAISO should be able to accommodate subhourly EIM Transfer Limits.

1 the granularity of QF transmission schedules and therefore make better use of unused
2 transmission capacity provided PGE can coordinate this information with the CAISO.
3 In the example above, 15-minute sub-hourly scheduling would allow the Blue
4 Marmots to submit two 15-minute schedules at 20 MWs (leaving 30 MW available
5 for the EIM during those periods), and two 15-minute schedules at 0 MW (leaving 50
6 MW of capacity available for the EIM in those periods).¹⁸

7 **Q. Should PGE generally accommodate 15-minute scheduling?**

8 **A.** First, I want to reiterate that the point of this proceeding is whether PGE has
9 exhausted all options to accept the Blue Marmots' net output and not whether PGE
10 should accept all QF power with 15-minute scheduling. The Blue Marmots are QFs
11 that PGE admits have LEOs and to whom PGE provided executable PPAs, which are
12 distinguishable from QFs seeking PPAs. That said, there are strong arguments for
13 PGE accepting 15-minute scheduling from all QFs. While PGE argues that
14 accommodating 15-minute scheduling would increase costs to customers, this
15 argument is without basis. That is because PGE is generally required to accept 15-
16 minute schedules from variable energy resources, per FERC Order 764.¹⁹ As a result
17 of that Order, PGE (and other FERC jurisdictional transmission providers) updated its
18 transmission tariff to accommodate the submission of intra-hour (four intervals of 15-
19 minutes) schedules. Given that PGE must accept 15-minute schedules as a
20 transmission provider, PGE should be able to accommodate 15-minute scheduling for

¹⁸ In these examples, I am not addressing the remaining 270 MW of PGE's transmission rights, which will *always* be available in the EIM.

¹⁹ See 18 CFR Part 35 Integration of Variable Energy Res., 39 FERC ¶ 61, 246, at P.25 (2012). Order 764 requiring transmission providers to offer intra-hourly transmission scheduling.

1 QFs and other resources without increasing costs to customers. Furthermore, PGE's
2 customers already pay for the Port Westward 2 facility, which is a 220 MW gas-fired
3 power plant that PGE justified in its 2009 IRP as a means to deal with intermittency
4 and flexibility issues on its system. This asset is already imbedded in PGE's rate base,
5 so much of the cost for PGE to accommodate intra-hour scheduling has already been
6 allocated to ratepayers.

7 **New Analysis of Blue Marmots' Impact on PGE EIM Operations**

8 **Q. What is the purpose of this analysis?**

9 **A.** The goal of this analysis is to determine the degree to which PGE's historical EIM
10 operations would have been impacted had the Blue Marmots' been delivering power
11 to PGE at the PACW-PGE interface since PGE joined the EIM in October of 2017.
12 The analysis first estimates the impact to EIM transfers and then applies a value to
13 reduced transfers to provide an indication of the cost (or reduced benefit) associated
14 with PGE using a portion of its EIM-dedicated transmission rights to accommodate
15 both EIM participation and the Blue Marmot output.

16 **Q. Please explain the data sources, key assumptions, and methodology used to**
17 **perform the analysis.**

18 **A.** There were two primary data sources used for the analysis. The first was 5- and 15-
19 minute EIM transfer and EIM transfer limit data for the PACW-to-PGE EIM tie from
20 October 2017 (when PGE joined the EIM), through the end of August (the last full
21 month of PGE EIM operations). This data is available from the CAISO OASIS. The
22 second core data piece is a "P50" hourly generation profile for the total 50 MW of
23 Blue Marmot capacity. The P50 is in reference to a 50% exceedance probability,
24 which means the generation profile used for the assessment represents the most likely

1 output for a year of Blue Marmot operations and this hourly data is what I used to
2 represent the Blue Marmots' expected output and transmission schedules. The Blue
3 Marmots provided this 8760-hour generation profile, although similar weather-based
4 solar profiles are available from public tools made available by the National
5 Renewable Energy Research Lab ("NREL"), among other sources. Given this, all of
6 the data required to conduct this portion of the analysis would have been available to
7 PGE when it filed its Surrebuttal Testimony.

8 The analysis required several core assumptions, which were:

9 (1) Scheduling – The Blue Marmots will be required to submit hourly schedules.

10 (2) EIM Participation Methodology – PGE will continue to operate in the EIM
11 using both the ATC Methodology and the IRH Methodology. Specifically, 50
12 MW of PGE's current transmission rights are prioritized first for Blue
13 Marmot deliveries and second for EIM usage under the ATC Methodology.
14 In other words, any unscheduled portions of the 50 MW prioritized for Blue
15 Marmots will be available for EIM transfers on an hourly basis. This means
16 that the analysis assumes no change to the approach that PGE already uses to
17 participate in the EIM, it just decreases the amount of IRH Methodology
18 capacity and increases the amount of ATC Methodology capacity.

19 (3) Seasons – Since the PACW-to-PGE import path is *not constrained* during the
20 Winter season and the PGE SIS says that 50 MW of transmission service can
21 be provided to the Blue Marmots during that season, we assumed that there
22 would be no impact to PGE's EIM operations during this period, which runs
23 from November 1st through the end of March.

1 The analytical method calculates what impact, if any, there would have been to
2 imports on the PACW-to-PGE path had PGE used the path for both EIM participation
3 and the Blue Marmots' output. The Blue Marmots' expected output was determined
4 by the hourly generation shape described earlier. The EIM transfer limit was reduced
5 by the Blue Marmots' expected output.²⁰ This calculation results in a revised transfer
6 limit that accurately reflects the reduction in EIM transfer capability required to
7 accommodate the Blue Marmot hourly schedule. This revised transfer limit was then
8 compared against the 5- and 15-minute transfers that occurred in the market, much
9 like what was contemplated in Figure 1, above. If a sub-hourly transfer in a given
10 hour exceeded the revised transfer limit, then the transfer amount above the limit was
11 deemed infeasible and was retroactively "curtailed" on account of the Blue
12 Marmots.²¹ If the transfer in a given interval within a given hour was less than the
13 transfer limit for that interval, then the Blue Marmots did not have any effect on that
14 transfer and it was left unchanged.

15 **Q. Please present the results of the first portion of the assessment.**

16 **A.** A summary of the results from the first portion of the impact analysis is presented
17 below in Figure 2. The results show that imports on the PACW-to-PGE path would
18 have been reduced by *roughly 1%* had the Blue Marmots been operating since PGE
19 joined the EIM in October 2017. The extent of the reduction, which is between
20 approximately 4,500 MWh and 5,000 MWh depending on the market interval, is

²⁰ In the summer season, the transfer limit is almost always 320 MW, which is the TTC of the path.

²¹ I use the term "curtailed" in this context when referring to the portion of a historical EIM transfer that would have not been able to occur due to the Blue Marmots' scheduled output.

1 equivalent to a 0.6 MW-nameplate generator running at full nameplate capacity
2 during the time period.

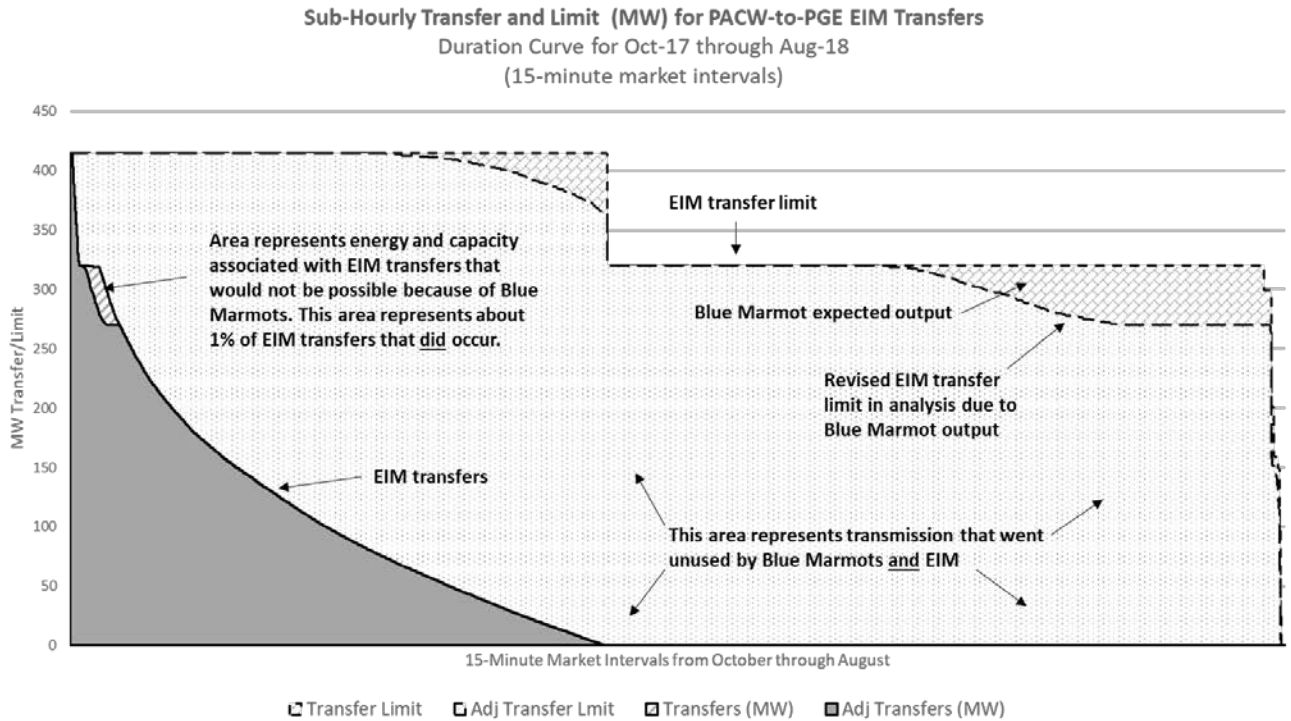
3
4 *Figure 2: Impacts to Imports on PACW-to-PGE Path*

	15-Minute Market	5-Minute Market
Historical EIM Imports (MWh) <i>prior to considering Blue Marmot impacts</i>	414,545	427,792
Change in EIM Transfers (MWh) <i>caused by Blue Marmots</i>	(4,913)	(4,426)
Percentage Change in EIM Transfers (%) <i>caused by Blue Marmots</i>	1.19% reduction	1.03% reduction

5
6 In Figure 3, below, I present an updated duration curve that shows the results
7 in visual form. The figure shows how the EIM transfer limit was revised to
8 accommodate the Blue Marmot expected output. It also shows that the vast majority
9 of EIM transfers to date could have occurred even if PGE were accepting the Blue
10 Marmots' output in this manner. There is a very small area in the top left that shows
11 the 1% of EIM transfers that were not possible because of PGE's theoretical
12 acceptance of the Blue Marmots' output. This chart shows how imports on the
13 PACW-to-PGE path are impacted only during certain summer conditions in which
14 the imports, prior to considering the Blue Marmots output, were more than 300 MW.
15 In all of these high import conditions a significant import as still achieved, which
16 helped mitigate the impact that the Blue Marmots had on EIM operations. It is also
17 worth noting that even when the Blue Marmots and the EIM share 50 MW of

1 capacity, significant amounts of PGE’s transmission rights go unused by both the
2 Blue Marmots and the EIM.

3 *Figure 3: EIM Transfers and Limit (MW) for PACW-to-PGE Transfer (October - August, 15-minute market)*



4

5 **Q. What are your findings regarding the Blue Marmots’ impact to imports on the**
6 **PACW-to-PGE path?**

7 **A.** Based on this analysis I conclude that my original position was correct and the Blue
8 Marmots will have minimal impact on PGE’s EIM operations. If PGE were to use 50
9 MW of its current 310 MW of transmission rights to accommodate both the Blue
10 Marmot output and EIM operations, there would be a very minor, almost negligible,
11 impact to PGE’s EIM operations.

12 **Q. Please explain how you developed an estimated value to assign a reduction in**
13 **EIM transfers on the path.**

14 **A.** There is limited data available to uncover the costs associated with minor reductions
15 in EIM imports on the PACW-to-PGE path. I employ two different methodologies to

1 establish bookends that estimate potential impacts to PGE’s EIM benefits. The first
2 approach is based on PGE’s EIM operations and benefits, and the second approach is
3 based on the shadow price of the PACW-to-PGE import path.

4 The first method used data from the CAISO’s EIM benefits reports.²² PGE’s
5 EIM benefits, as calculated by the CAISO, are due to intra-regional dispatch (e.g.,
6 dispatch within the PGE BAA) and inter-regional dispatch (though the CAISO
7 benefits reports focus on quantification of inter-regional dispatch). These benefits
8 take the form of either cost savings, profit, or their combination. PGE’s total benefits,
9 as reported by CAISO, through June 2018 are \$11.81 million. The benefit reports also
10 include the sum of imports and exports between PGE and the market for the 15- and
11 5-minute markets. Assuming that there are *no benefits* from intra-regional dispatch
12 (which is highly unlikely), and assuming that PGE’s benefits are distributed along its
13 EIM transfer paths in accordance with flows on those paths, it can be estimated that
14 the benefits of EIM transfers into or out of the PGE balancing area are \$13/MWh
15 (\$11.81 million divided by the sum of 15-minute EIM imports or 5-minute
16 imports).²³ This approach may overstate the value of imports on the PACW-to-PGE
17 path, but it gives an order-of-magnitude indication of their value given PGE’s broader
18 EIM operations and benefits to date.

19 The second approach is specific to imports into PGE on the PACW-to-PGE
20 import path. To estimate the value of the transfers on the path, I gathered shadow

²² Reports are available here:
<https://www.westerneim.com/Pages/documentsbygroup.aspx?GroupID=5180B3C9-2B88-4678-B6AD-2A6B55CE8DEB>

²³ This analysis assumes the average of the two import levels.

1 price data for PGE imports for both market intervals for the summer months between
2 April and August 2018.²⁴ Shadow prices occur when transmission constraints “bind”
3 or have flows at their limit. The shadow price is zero when the constraint is not
4 binding and is non-zero when it is binding. The shadow price represents the
5 incremental reduction in system cost that could be achieved by relaxing the
6 transmission constraint by 1 MW. Therefore, it is an indicator of the economic value
7 of imports along a constrained path. If the path has a high shadow price additional
8 transmission capacity would be very helpful in reducing system costs. If the shadow
9 price is low, the additional capacity would be less economic. The average shadow
10 price for imports into the PGE balancing area on the PACW-to-PGE interface is
11 about \$5/MWh.

12 **Q. Based on this information, what is the cost of PGE using its existing**
13 **transmission rights to accommodate both the Blue Marmot output and EIM**
14 **transfers?**

15 **A.** If we assume that PGE’s benefits, or savings, associated with a MWh of imports on
16 the PACW-to-PGE path are between \$5-13/MWh, as established above, and we apply
17 that value to the historical analysis where I estimated the volume of historic EIM
18 imports that would not have been possible because of the Blue Marmots’ output, the
19 cost of accepting the Blue Marmot output would be approximately \$22,500 to
20 \$58,500. Since these values capture only 11 months of EIM operations, the annual
21 cost would be slightly higher, within the \$25,000 - \$63,000 range.²⁵

²⁴ This data is from CAISO OASIS and the “Scheduling Constraint Shadow Prices” tab.
²⁵ The annualized values assume a straight-line extrapolation of these costs to cover the month of September. The costs were increased by ~8%, or 1/12 of the year.

1 **Q. How do these costs compare to PGE's EIM benefits to date?**

2 **A.** The best data available on PGE's EIM benefits is also from the CAISO EIM benefits
3 report and the reports state that PGE has accrued \$11.81 million in EIM benefits
4 since joining the market in 2017. A reduction of \$25,000 - \$63,000 caused by
5 accepting the Blue Marmot output equates to roughly a 0.21%-0.53% decrease in
6 benefits for PGE. This calculation is conservative because it does not capture *benefits*
7 beyond June of 2018, though it does capture costs through the end of September
8 (which would be a full year of PGE EIM operations). If we assume that PGE's
9 benefits in Q3 of 2018 are the average of the prior three quarters of participation, the
10 Blue Marmots impact to PGE's first full year of EIM benefits which, I estimate to be
11 \$15.7 million, would have been on the order of 0.16% to 0.40%, depending on the
12 methodology. This demonstrates that PGE can continue to accrue the extreme
13 majority of its EIM benefits while still accommodating the Blue Marmot output.

14 **Q. Could PGE have conducted this analysis or a similar analysis to estimate**
15 **potential impacts to its EIM benefits?**

16 **A.** Yes. While there was insufficient information available at the time I prepared my
17 Reply Testimony to conduct this analysis, PGE had access to the requisite EIM
18 market information at the time it submitted its Surrebuttal Testimony, and PGE could
19 have made reasonable assumptions regarding the hourly solar profile for the Blue
20 Marmot output based on the public data source I mention earlier. Additionally, PGE
21 has previously performed economic benefit studies to support its decision to join the
22 EIM. PGE could have re-performed these studies to estimate the degree to which its
23 current or future EIM benefits might be impacted by the Blue Marmots. Therefore,
24 PGE could have chosen to perform an analysis similar to the one I present above.

MBR Authority

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Q. Please summarize PGE’s arguments as they relate to its MBR authority.

A. I have argued that, since PGE has 310 MW of EIM-dedicated import capacity on the path, PGE could allocate 50 MW of transmission capacity to the Blue Marmots without jeopardizing losing its MBR authority. This can occur because FERC required PGE to submit a change in status filing for MBR authority “if there is a decrease in the amount of firm transmission capacity committed to EIM transfers between PACW and Portland”²⁶ and in its filing, PGE committed 200 MW of capacity to EIM transfers. PGE rejects this notion because: 1) it says it will have to treat other similarly situated QFs the same and the total capacity of other similarly situated QFs plus the Blue Marmots’ capacity would cause PGE to drop below its 200 MW commitment (to 197 MW); and 2) PGE “pledged” to FERC that it would commit an additional 76 MW of firm reservations on the path to the EIM, subject to usage for reliability purposes or existing contracts.²⁷

Q. Please respond to PGE’s arguments related to other QFs that desire to deliver output on the PACW-to-PGE path.

A. I have already responded in my Reply Testimony to the issue related to the other QFs.

Q. Do you have an additional response as it relates to PGE’s commitment for the additional 76 MW of EIM-dedicated capacity?

A. Yes. I do not see this “pledge” by PGE as relevant. The FERC’s Order accepting PGE’s market-based filing and authorizing PGE to transact at market-based rates in the EIM reminds PGE to submit a change in status filing for MBR authority “if there

²⁶ Portland General Electric Company, 160 FERC ¶ 61,131 at P.18 (2017).
²⁷ PGE/500, Rodehorst-Moore/25.

1 is a decrease in the amount of firm transmission capacity *committed to EIM transfers*
2 between PACW and Portland”²⁸. The Order also states that “Portland’s merchant
3 holds 276 MW of firm transmission rights [on the PACW-PGE path], 200 MW of
4 which it has *committed for EIM transfers*.”²⁹ While the Order notes that PGE’s
5 additional 76 MW, plus any additional Available Transfer Capability, will be made
6 available for EIM transfers, FERC’s Order is clear that the amount “committed to
7 EIM transfers” is what would necessitate a change in status filing and that FERC’s
8 understanding of what PGE committed to EIM transfers on this path is 200 MW.³⁰
9 FERC does not state that additional firm capacity beyond the 200 MW is necessary
10 for PGE to obtain MBR authority nor that a decrease below the 276 MW PGE
11 mentioned in its filing would necessitate a change in status filing regarding PGE’s
12 MBR authority in the EIM. In essence, PGE made an offering of 76 MW that was not
13 formally accepted and today it is using that original offering as a reason to not accept
14 the Blue Marmots’ output. For this reason, the second aspect of PGE’s MBR
15 authority argument should be rejected.

16 **Q. Is the timing of PGE’s 76 MW offering also important?**

17 **A.** Yes. When PGE made the 76 MW offering to FERC, it did so through its MBR
18 authority request that was filed on June 16, 2017.³¹ In the transmittal letter, PGE says
19 that the 76 MW offering on top of the 200 MW commitment was subject to “...usage
20 for reliability or servicing *existing contractual arrangements*.” Assuming that the

28

Id.

29

Id. at P.8 (emphasis added).

30

Id. at P.16.

31

Portland General Electric Co., Docket No. ER10-2249-____ Notice of Change in Status (June 16, 2017).

1 “existing contractual arrangements” is in reference to those contracts that were in
2 place at the time of filing, to the extent this Commission determines that the Blue
3 Marmots established a LEO, and that this LEO occurred at the end of March 2017
4 when the Blue Marmots signed and delivered their PPAs to PGE, then PGE’s
5 reference to *existing contractual arrangements* in its FERC MBR filing should
6 include the Blue Marmot PPAs. Therefore, if the Commission or FERC finds that the
7 Blue Marmots are one of those existing contractual arrangements, then it is
8 completely unreasonable for PGE to argue that it cannot assign a portion of the 76
9 MW to the Blue Marmots since the Blue Marmots would have constituted a
10 contractual commitment along this path at the time the MBR filing was made.

11 **Q. What is your conclusion regarding PGE’s commitment to reserve an additional**
12 **76 MW of EIM-dedicated transmission on the PACW-to-PGE path.**

13 **A.** My conclusion is that FERC did not require the 76 MW of additional capacity as a
14 prerequisite for PGE obtaining MBR authority and that use of a portion of that 76
15 MW for the Blue Marmots does not constitute a change in the amount of firm
16 transmission on the PACW-PGE path committed to the EIM (a condition which
17 would trigger a requirement for PGE to make a change of status filing regarding its
18 MBR authority with FERC). Moreover, even if, hypothetically, FERC did somehow
19 formally require more than 200 MW of firm transmission committed to the EIM in
20 authorizing PGE’s MBR authority in the EIM, if the Blue Marmot PPAs were in
21 effect at the time of PGE’s filing, then they should be included as a contractual
22 commitment in PGE’s “subject to” clause. This means that a portion of the 76 MW of
23 capacity can be used to accommodate the Blue Marmot output without FERC
24 recourse or MBR authority impact, contrary to PGE’s claims.

1 **Q. Are there other aspects of PGE’s MBR authority filing that you would like to**
2 **address?**

3 **A.** Yes. The market power analysis conducted by PGE’s consultants in support of its
4 MBR authority filing analyzed the ability of other EIM participants to serve
5 imbalance demand in PGE’s area subject to transmission limitations. Since the
6 PACW-to-PGE path is the primary way for generators outside of the PGE balancing
7 area to import power to serve PGE imbalance, the MBR authority assessment was, in
8 part, performed to ensure that there would be sufficient import capacity on the path so
9 that PGE would not have market power within its sub-market (the PGE balancing
10 area). PGE’s need for import capability is what drove the analysis and it was an
11 assessment of PGE’s imbalance needs that drove the commitment of 200 MW of firm
12 transmission rights to EIM transfers.

13 PGE’s consultants determined, and FERC accepted, that 95% of the time the
14 amount of either excess imbalance energy or demand for imbalance energy in the
15 PGE BAA will be less than 183 MW. The study also found that demand for
16 imbalance energy inside the PGE balancing area would exceed 200 MW only 1.6% of
17 the time. FERC’s Order regarding PGE’s MBR authority summarizes PGE’s analysis
18 and states that “...demand for imbalance energy in the Portland [PGE] balancing area
19 is likely to average 45.10 MW and fall within a range of plus or minus 117 MW
20 during 95 percent of all 15 minute market intervals.”³² FERC agreed with PGE that
21 200 MW of firm transmission committed to EIM transfers “will allow sufficient

³² See Portland General Electric Company, 160 FERC ¶ 61,131 at P.16 (2017).

1 competing imbalance energy to enter the Portland balancing authority area”.³³ This
2 finding supports FERC’s decision to grant PGE MBR authority.

3 The problem with PGE’s logic is that throughout this proceeding they have
4 been arguing both sides. On one hand, PGE argues that it is vital it maintain MBR
5 authority and, commensurately, retain at least 200 MW of EIM-dedicated
6 transmission as this amount of transmission was deemed appropriate by FERC to
7 retain PGE’s MBR authority without a change in status filing. The 200 MW was
8 determined necessary because, in virtually all instances, imbalance demand in PGE
9 would be much smaller than 200 MW.³⁴ This position requires PGE to support
10 analysis filed in the MBR authority case at FERC demonstrating its balancing area
11 will have relatively low imbalance needs and, therefore, *there will be relatively low*
12 *imports on the PACW-PGE path*. However, at the same time, in this proceeding,
13 PGE is arguing that it needs much more than 200 MW of import capability along the
14 path and that it cannot accept the Blue Marmots’ output without risking its EIM MBR
15 authority and, consequently any benefits associated with that authority. At one point
16 PGE sought out 418 MW of import capability on the path. It is highly unlikely that
17 this amount of capacity could be necessary to support PGE’s need for imbalance
18 energy, as analysis supported by PGE itself demonstrates that its imbalance needs
19 would only exceed 200 MW 1.6% of the time.

³³ Id. at P.17.

³⁴ See Portland General Electric Company, Docket No. ER10-2249-____ , Affidavit of Matthew E. Arenchild. Attachment B to Portland General Electric Company filing for Market-Based Rate Authority, at 10 (June 16, 2017).

1 Assuming that this is not the case and PGE’s actual imbalance demands are
2 not substantially greater than they were anticipated to be, PGE’s motives for
3 increasing its import capability on the path are at best unclear and unsupported by
4 quantitative analysis and at worst, are not related to the EIM and target some other
5 commercial interest, such as preventing QFs like the Blue Marmots from using the
6 capacity.

7 PGE may argue that the additional transmission capacity, beyond its own
8 imbalance needs, can offer benefits to customers from additional import capability for
9 economic EIM imports into the PGE BAA.³⁵ However, PGE has not provided
10 quantitative analysis to support various levels of EIM-dedicated transmission for
11 economic redispatch purposes (as opposed to imbalance demand). PGE may refer to
12 the cost-benefit study performed for use in its 2018 Annual Update Tariff filing that
13 was Exhibit 201 in the EIM Response Testimony. This study *assumed* the maximum
14 level of then-available transmission capacity, which was 276 MW. The study did not
15 consider any other transmission use scenarios.

16 It is worth noting that PGE’s behavior in procuring transmission, particularly
17 for use in the EIM, has been devoid of oversight and its assumption is to always
18 procure whatever transmission is available. There is no entity that is asking if PGE
19 has prudently forecasted its imbalance needs and questioning if it has arranged for

³⁵ The EIM provides imbalance energy, to meet ‘imbalance demand’ between participating EIM Entities. But the EIM also economically redispatches generation to meet demand most cost effectively based on bids submitted by participating resources. Therefore, even in the absence of “imbalance demand”, which is needed to address changes in expected load and generation, the EIM may redispatch generation to more cost effectively meet load requirements, which is known as “economic redispatch.”

1 transmission capacity at a level that is on par with those needs and has appropriately
2 considered the economic and transmission access trade-offs of procuring such
3 transmission. To the contrary, PGE has explained that it can reserve transmission on
4 its system at no cost to its customers, which calls into question fundamental
5 transmission open access issues that, I recognize, are beyond the scope of this
6 regulatory proceeding but should be of concern. A policy of procuring as much
7 transmission as possible simply is not tolerable, especially when PGE refuses to use
8 that transmission to accept power from non-PGE owned resources. There are more
9 sophisticated approaches that would ensure both transmission open access and that
10 ratepayers are receiving the best use, and most benefits, from the transmission system
11 they are funding.

12 **Q. Has PGE quantified the EIM benefits it claims will be lost if it accepts the Blue**
13 **Marmots' output and its MBR authority is impacted?**

14 **A.** No. PGE has discussed impacts to customers from losing its MBR authority, which as
15 stated above, I do not believe would be the case should PGE be required to accept the
16 Blue Marmots' output. PGE has also stated that it will not be able to effectively
17 participate in the EIM without the transmission capability that would be used by the
18 Blue Marmots, but it has not provided any quantitative analysis to support this claim,
19 and my analysis suggests the opposite. Therefore, the Commission should provide no
20 weight to PGE's arguments that any EIM benefits will be lost.

21 **IV. RESPONSE TO PGE's TRANSMISSION SURREBUTTAL TESTIMONY**

22 **Q. Please summarize PGE's Transmission Surrebuttal Testimony.**

23 **A.** PGE's responds to points I made in both my Reply Testimony and confidential report
24 entitled "Review of PACW-PG Transmission Studies" ("Report") that was attached

1 to my Reply Testimony. PGE’s response is comprehensive and my testimony will
2 only reply to the most salient transmission-related issues in this proceeding. Note that
3 in this section, my concerns are directed at PGE’s Transmission Function (“PGE
4 Transmission”).

5 **Q. Do you think the conclusion from your Reply Testimony, which was that there**
6 **were reasonable transmission alternatives that PGE did not (and has not)**
7 **considered, is meaningful?**

8 **A.** Yes. PGE should have considered these options when it conducted the original study
9 to determine if there were any transmission upgrades that could increase the transfer
10 capability at the PACW-PGE interface. PGE also should have considered the
11 alternatives after I made PGE aware of them in June – it is common for transmission
12 providers to update SIS results when new information becomes available since the
13 SIS is the only acceptable form of documentation to demonstrate the transmission
14 provider’s diligence and conclusion. PGE’s failure to fully analyze the options
15 demonstrates a lack of motivation to find a workable transmission solution, which
16 could include other transmission alternatives that I may not have considered. If PGE
17 is going to reject the execution of the Blue Marmots’ PPAs on the basis that there is
18 not sufficient transmission capability, one would think their transmission assessment
19 would include all *viable* options. My analysis shows that there were transmission
20 options that PGE Transmission should have considered, but didn’t.

21 **Q. Is there anything in PGE’s testimony that *definitively* confirms that your**
22 **proposed alternatives are not viable?**

23 **A.** No. Once again, PGE has failed to conduct a complete analysis. Most transmission
24 projects face the challenges PGE describes as being unique to these alternatives.
25 Transmission providers commonly deal with permitting challenges, right-of-way

1 limitations, and impacts to neighboring system and transmission interfaces, among
2 other issues. There almost never “easy-build” options in transmission. I do not know
3 why PGE sees these transmission challenges as unique for the proposed alternatives
4 given PGE’s years of experience as a transmission provider. Given this, I do not think
5 these criticisms of the alternatives provide PGE sufficient cover to reject
6 consideration of the alternatives when, as a transmission provider, PGE Transmission
7 should be working in non-discriminatory fashion to add capability to the system when
8 it is asked to do so by a potential transmission customer. If that requires PGE to
9 conduct an evaluation of its TTC methodologies, it has the tools and capabilities to
10 perform such an evaluation.

11 **Q. PGE also declined to further consider the alternatives based on comparative**
12 **economics. How do you respond?**

13 **A.** In addition to not studying the proposed alternatives on the basis of technical
14 performance (e.g., TTC impacts) and constructability (e.g., cost, permitting), PGE
15 Transmission also cites economics as a reason to not consider the proposed
16 alternatives. PGE rejected the alternatives without conducting any substantive
17 analysis because PGE thought they were likely to be more expensive than wheeling
18 the power on the BPA system to the PGE-BPA interface. As a broad policy matter, it
19 is inappropriate for a transmission provider to point to a neighbor’s system as a
20 “solution” to a request that a potential transmission customer specifically made to that
21 transmission provider.

22 **Q. Are your proposed transmission alternatives and PGE’s Bethel-Parish Gap**
23 **alternative considered “Network Upgrades”?**

24 **A.** Yes. As defined in PGE’s OATT, all of these transmission alternatives, if
25 constructed, would be integrated into PGE’s overall transmission system to the

1 general benefit of all users of the transmission system. For this reason, they would be
2 Network Upgrades. FERC has a policy of requiring all users of the transmission
3 system to pay for Network Upgrades since FERC has determined that they benefit the
4 system as a whole. FERC makes this bright line determination regarding cost
5 responsibility of Network Upgrades to ensure that transmission providers do not
6 discriminate against generation not owned or developed by the transmission
7 provider's affiliate merchant function.

8 **Q. Given that the transmission alternatives are Network Upgrades and are**
9 **integrated into PGE's system, should PGE be refusing to consider reasonable**
10 **transmission alternatives to expand the PACW-PGE interface capacity on**
11 **account of economics (e.g., alternative wheels on BPA's system)?**

12 **A.** No. PGE Transmission's mandate to perform due diligence to expand or modify its
13 transmission system to accommodate a transmission service request is laid out in
14 PGE's Open Access Transmission Tariff ("OATT") under *Section 15.4 Obligation to*
15 *Provide Transmission Service that Requires Expansion or Modification of the*
16 *Transmission System, Redispatch or Conditional Curtailment PGE's OATT.* This
17 section of the OATT explains the options that PGE has when it determines there is
18 not sufficient capacity to accommodate a new transmission service request. Nowhere
19 in this section does FERC allow PGE to refer the transmission customer to a
20 neighboring system based on comparative economics between that providers'
21 wheeling rate and the cost to upgrade PGE's system. PGE Transmission has a FERC-
22 mandate to identify transmission upgrades to accommodate the requested
23 transmission service and their poor initial study effort followed by refusal to give due
24 consideration to the transmission alternatives I propose show that this mandate has
25 not been met.

1 **Q. Did PGE have access to the models you used to evaluate the transmission**
2 **alternatives?**

3 **A.** Yes.

4 **Q. Does this conclude your testimony?**

5 **A.** Yes.

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM 1829, UM 1830, UM 1831, UM 1832, UM 1833

BLUE MARMOT V LLC (UM 1829))
BLUE MARMOT VI LLC (UM 1830))
BLUE MARMOT VII LLC (UM 1831))
BLUE MARMOT VIII LLC (UM 1832))
BLUE MARMOT IX LLC (UM 1833))
 Complainants)
 vs.)
PORTLAND GENERAL ELECTRIC)
COMPANY)
 Defendant)
Pursuant to ORS 756.500.)
_____)

**EXHIBIT BLUE MARMOT/601
PGE DATA RESPONSE**

September 18, 2018

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. 189
Dated September 4, 2018**

Request:

- 189. At PGE/400, Greene/7 line 16 PGE says that EIM transfers and QF deliveries could not occur within the same hour under the ATC approach.**
- a. Please explain if this conclusion assumes that the Blue Marmots' have scheduled 50 MW or less than 50 MW of deliveries.**
 - b. To ensure clarity on the data request, consider this example: Using the ATC methodology for partial EIM participation on the PACW-PGE path, if the Blue Marmots scheduled 25 MW for a given hour, is there any reason why the unused 25 MW would not be made available for EIM transfers under the ATC methodology?**

Response:

PGE objects that PGE/400, Greene/7, line 16 does not contain text stating that EIM transfers and QF deliveries could not occur within the same hour under the ATC approach. Notwithstanding and without waiving this objection, PGE assumes for the purpose of this response that Blue Marmot Data Request No. 189 intended to reference PGE/500, Rodehorst-Moore/7, lines 16 and 17, and PGE responds as follows:

- a. Once a QF has scheduled a set amount of capacity for an hour, that amount of capacity cannot be used for EIM purposes. For example, if the Blue Marmots schedule 50 MW, PGE would lose 50 MW of transfer capability under the ATC methodology. If the Blue Marmots schedule 0 MW, PGE would retain 50 MW of transfer capability under the ATC methodology. PGE explained this in detail in PGE/500, Rodehorst-Moore/11, lines 7 through 15.
- b. In general, if the Blue Marmots scheduled 25 MW for a given hour, the remaining 25 MW could be made available for EIM transfers under the ATC methodology. However, if the Blue Marmots originally scheduled more than 25 MW and then reduced their schedule to 25 MW after the EIM's base schedule submission window had passed (i.e., 40 minutes prior to the trading

hour), then the unused capacity (i.e., the difference between the original schedule and 25 MW) would not be available for EIM transfers in every 15-minute market interval of the hour.