

**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.)
_____)

SUPPLEMENTAL TESTIMONY OF

KEEGAN MOYER

ON BEHALF OF THE

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

October 30, 2018

1 **I. INTRODUCTION AND SUMMARY**

2 **Q. Please state your name.**

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

4 **Q. By whom are you employed?**

5 **A.** I am a Principal at the firm of Energy Strategies, LLC.

6 **Q. Have you previously filed testimony in this docket?**

7 Yes. On behalf of Blue Marmot V, VI, VII, VIII, and IX (collectively, “Blue
8 Marmots”), I filed a revised version of my Direct Testimony on December 20, 2017,
9 Reply Testimony on June 18, 2018, and Sur-surrebuttal Testimony on September 18,
10 2018.¹

11 **Q. What is the purpose of this Supplemental Testimony?**

12 **A.** The purpose of this testimony is to respond to PGE’s Supplemental Testimony in
13 which PGE critiques the Energy Imbalance Market (“EIM”) benefit-impact study
14 included in my Sur-surrebuttal Testimony. I also respond to the EIM benefit-impact
15 scenario analysis that PGE performed.

16 **Q. Please summarize this Supplemental Testimony.**

17 **A.** One of the options PGE has to accommodate the Blue Marmots’ net output entails
18 PGE using its existing transmission rights on the PACW-PGE path. If PGE were to
19 do so, there is the potential that the Blue Marmots might impact PGE’s EIM
20 operations. PGE has argued that, if required to accommodate the Blue Marmots’
21 output at the PACW-PGE interface, the impact to its customers will be significant
22 and that it will no longer be able to meaningfully participate in the EIM.² In advance

¹ Errata filings for my Reply Testimony were filed on June 29, 2018 and July 25, 2018.
² PGE/200, Sims-Rodehorst-Sporborg/4, line 19 and 23.

1 of my Sur-surrebuttal testimony, PGE and I performed utilization analyses to
2 demonstrate the usage of the PACW-PGE path in the EIM to demonstrate the degree
3 to which PGE's imports on the PACW-PGE path may be impacted by the Blue
4 Marmots. These analyses did not account for (1) when and how much the Blue
5 Marmots will actually generate, (2) PGE's ability to use unscheduled transmission
6 capacity for EIM purposes, or (3) the economic impact associated with reduced EIM
7 imports on the PACW-PGE path. The EIM benefit-impact analysis I presented in my
8 Sur-surrebuttal Testimony addressed these deficiencies. The goal of the analysis was
9 to help identify the lowest-cost option that PGE has available to accommodate the
10 Blue Marmot output.

11 PGE critiques my EIM benefit-impact analysis in its Supplemental
12 Testimony. PGE's primary EIM argument is that the Commission should adopt its
13 positions in this case because there is a large and significantly harmful impact on its
14 EIM benefits if it accepts the Blue Marmots' net output at the PACW-PGE interface.
15 PGE also argues that my analysis was inappropriate and premature, and that it is not
16 possible to accurately estimate the alleged loss of benefits because PGE began EIM
17 operations only roughly a year ago. PGE cannot have it both ways by recommending
18 that the Commission make a decision based on unsubstantiated claims of significant
19 harm, while simultaneously arguing that it is inappropriate to quantify the alleged
20 harm or lost opportunity cost associated with using a portion of its EIM transmission
21 to accept the power from the Blue Marmots.

22 Turning to the technical aspects of the analysis, PGE's view is that I
23 underestimated the impact the Blue Marmots will have on PGE's EIM operations

1 because of two assumptions dealing with the potential for increases in EIM transfers
2 and the exacerbating effect of accommodating qualifying facilities (“QFs”) other than
3 the Blue Marmots that may seek to deliver their output via the PACW-PGE interface.
4 PGE had several other technical critiques of my methods and assumptions, all of
5 which have very minor impacts to my original analysis. In addition to this critique,
6 PGE introduced new scenario analyses to demonstrate its concerns with my
7 assumptions surrounding EIM transfer levels and other QFs. PGE’s scenario analysis
8 is intended to show that PGE’s EIM benefits will go down as more off-system QFs
9 are accommodated and as EIM imports increase.

10 This testimony is my response to PGE’s critique and scenario analysis. First, I
11 dispute PGE’s claims that the EIM benefit-impact analysis is untimely and based on
12 insufficient data. The analysis relies on the best data available, one year of PGE EIM
13 operations, and the analysis is needed at this time because, absent this quantification,
14 the Commission will have no insight into the costs associated with PGE
15 accommodating the Blue Marmot output *and* continuing EIM operations on the
16 PACW-PGE path.

17 My testimony also responds to the technical portions of PGE’s critique. PGE
18 contends that my original analysis should have considered increasing EIM imports
19 and the potential for additional QF’s delivering at the PACW-PGE interface – these
20 are PGE’s primary complaints and PGE performs scenario analysis to capture their
21 effects. I agree that additional renewables may cause imports on the path to increase,
22 and that this scenario is worth considering, but the approach PGE takes in evaluating
23 this potential future is flawed, so I propose a more reasonable method. As for other

1 QFs delivering at PACW-PGE, their relevance and entitlement to the Blue Marmots'
2 rights requires a legal interpretation that I am not prepared to make. I continue to
3 assert that in this proceeding, analysis that isolates the impact of the Blue Marmots
4 creates the most informative record. I do, however, use the results of the analysis that
5 PGE performed to suggest how PGE could handle uncontracted QFs seeking to
6 deliver at the PACW-PGE interface. In addition, PGE likely overstates the number
7 and megawatts of QFs that are likely to become commercially operational, so even if
8 one were to accept the relevancy of the scenario analysis, its applicability is
9 undermined by its underlying assumptions.

10 PGE raises several other minor technical issues, some of which I disagree
11 with and some of which have merit. However, in summation, these critiques do not
12 significantly impact the findings of the analysis. Regardless of whether you accept
13 my original assumptions or the revised assumptions posed by PGE, the Blue Marmots
14 stand to impact PGE's EIM benefits by less than 2-4% annually, when you exclude
15 PGE's inaccurate and inappropriate consideration of increased EIM transfers and
16 additional QFs (explained above).

17 **Q. Have you changed your conclusions?**

18 **A.** No. In fact, the additional analysis presented by PGE and the updated analysis in this
19 testimony supports the overall reasonableness of my study and allows me to reach
20 more firm conclusions. PGE can accept the Blue Marmot output at the PACW-PGE
21 interface and continue to retain almost all of its EIM benefits, even with increased
22 EIM transfers on the path. In fact, using my methods to account for an increase in
23 EIM imports on PACW-PGE, and accepting several of PGE's other assumptions, an
24 updated version of my analysis shows that the Blue Marmots might reduce PGE's

1 *current* EIM benefits by up to 3.8%. This equates to a cost of \$1.48/MWh of Blue
2 Marmot generation.³ This is my estimate for the *maximum opportunity cost* the Blue
3 Marmots might cause PGE in the long-run, assuming PGE accepts the Blue Marmots’
4 net output at the PACW-PGE interface, and facilitates increasing levels of EIM
5 imports. In the near-term, since transfers will not ramp up by 20% immediately, it is
6 more likely that the Blue Marmots’ annual impact to PGE’s EIM benefits will be less
7 than 2%, which is equivalent to a cost of \$0.67/MWh of Blue Marmot generation.
8 This means that, using PGE’s existing transmission rights on PACW-PGE may be a
9 cost-effective means by which PGE can manage the Blue Marmots’ net output.

10 **II. RESPONSE TO PGE’s CRITIQUE**

11 **Q. Please summarize PGE’s critique of the EIM benefit impact analysis included in**
12 **your Sur-surrebuttal Testimony.**

13 **A.** PGE makes three principal arguments in its critique. First, PGE disagrees with the
14 entire premise of the EIM benefit-impact analysis on the basis that it is “premature”
15 and is based on “insufficient data”.⁴ Second, PGE disagrees with assumptions I made
16 in performing the EIM benefit-impact analysis. Because PGE anticipates that EIM
17 imports on PACW-PGE will increase over time, PGE believes it was not reasonable
18 to use un-adjusted, historic EIM transfer data as a means to estimate the impact of the
19 Blue Marmots. PGE also contends that, in addition to the Blue Marmots’ impact, the

³ This value conservatively assumes that PGE’s EIM benefits do not increase despite an increase in transfers (using PGE’s \$5 million value as PGE’s EIM benefits). It also assumes that the 20% increase in transfers is due to the combination of increased existing transfers and new transfers. It excludes winter transfers and includes PGE’s over-scheduling assumptions. The analysis uses the same data and workpapers generated by PGE for its Supplemental Testimony.

⁴ PGE/700, Rodehorst-Moore/5.

1 analysis should have accounted for at least 67 MW of QFs that have executed
2 contracts and wish to deliver output via the PACW-PGE path. In addition to these
3 major critiques, PGE also argues against less critical assumptions I made relating to:⁵

4 (1) Scheduling practices – My analysis assumed that the Blue Marmots will
5 submit transmission schedules as close as possible to expected output, a
6 practice that is required by the Blue Marmots’ power purchase agreements
7 (“PPAs”) with PGE. PGE continues to believe, without basis, that the Blue
8 Marmots will schedule more than their expected output and that this should
9 have been accounted for in the analysis.

10 (2) Winter transfers – My analysis excluded winter transfers because at the time
11 when PGE first refused to accept deliveries from the Blue Marmots, the
12 PACW-PGE path was not constrained during that season. PGE believes any
13 EIM benefit-impact should be considered in the analysis, regardless of
14 season.

15 (3) EIM transfer valuation method – PGE disagrees with the methods I used to
16 value EIM imports on the PACW-PGE path. However, the value that PGE
17 arrives at, \$12/MWh, is within the \$5-13/MWh range that I calculated.

18 (4) PGE’s total EIM benefits – To frame the amount of potential EIM costs
19 caused by the Blue Marmots, my analysis compared the value of lost EIM
20 benefits to PGE’s total EIM benefits. PGE believes the benefits it accrued in

⁵ PGE also included in its critique my exclusion of September data, even though PGE recognizes that data was not available when I performed my analysis. I included the September data in my Supplemental Testimony and do not seek to add any new October data.

1 its first 11 months of operations is \$5.7 million versus the 12-month, \$15.7
2 million benefit I estimated based on CAISO EIM Benefit Reports. However,
3 PGE did not use the \$5.7 million number but instead assumes a total annual
4 benefit of \$5 million based on its most recent general rate case (Docket No.
5 UE 335).

6 Finally, as the third component of PGE's Supplemental Testimony, PGE
7 presents scenario analyses in an attempt to estimate the effects of future increases in
8 EIM transfers and delivery of other contracted and uncontracted QFs on the PACW-
9 PGE path. I address the results of the scenario analyses in a separate section later in
10 this testimony.

11 **Q. What is the net effect of PGE's critique of the less critical assumptions listed**
12 **above?**

13 **A.** Setting aside PGE's scenario analysis, which deals with increasing EIM imports and
14 other QFs, the balance of PGE's critique has a relatively small impact on the
15 conclusion offered by my original analysis. My original analyses estimated a
16 \$25,000-\$63,000 per year decrease in EIM benefits due to the Blue Marmots, which
17 equates to less than a 1% reduction in PGE's annual EIM benefits.⁶ After adjusting
18 my analysis to include September data and PGE's proposed assumptions regarding
19 EIM benefits (\$5 million annually), QF scheduling practices, and consideration of
20 winter transfers, PGE estimates a Blue Marmot-driven annual EIM benefit reduction

⁶ Assuming my original estimate valuing transfers somewhere between \$5-13/MWh and \$15.7 million in annual EIM benefits, the reduction is between 0.21% and 0.53%. This data excludes consideration of increased transfers and additional QFs and is consistent with my Sur-surrebuttal Testimony.

1 of \$89,790, which equates to a 1.8% reduction in PGE EIM benefits.⁷ Most of PGE’s
2 criticisms do not substantively move the needle and the analyses performed by both
3 parties indicate that the Blue Marmots will impact PGE’s EIM benefits by less than
4 2%.⁸ This conclusion is especially true for the near-term when major increases in
5 EIM imports are less likely to occur.

6 **A. Need for the Benefit-Impact Analysis**

7 **Q. PGE contends that the EIM benefit-impact analysis was “premature” and**
8 **founded on “insufficient data”. How do you respond?**

9 **A.** I disagree. Historical data is the best data we have to estimate expected future
10 impacts. I recognize that, ideally, years of EIM data would be available to draw upon
11 but this proceeding is unfolding now and data-supported findings are more useful
12 than qualitative sentiments about what may or may not transpire. The EIM benefit-
13 impact analysis was and still is needed because it helps to quantify the impact
14 associated with one of the options PGE has to manage the Blue Marmot output.

15 **B. Response to PGE’s Critique of Assumptions Used to Perform the Analysis**

16 **Q. PGE states that assuming the “level of EIM transfers will not change in the**
17 **future” was one of “two important and incorrect assumptions” that cause you to**
18 **underestimate EIM benefit impacts.⁹ How do you respond?**

19 **A.** PGE believes that EIM transfers (and benefits) are likely to increase in the coming
20 years due to the combination of more EIM Entities joining the market and additional
21 renewables coming online. PGE uses this logic to support scenario analysis where

⁷ PGE/700, Rodehorst – Moore/16. PGE’s testimony assumes an estimate of \$5 million in annual EIM benefits and values transfers at \$13/MWh, consistent with PGE’s Supplemental Testimony. This data point excludes consideration of increased transfers and additional QFs.

⁸ Before accounting for increased EIM transfers or other QFs.

⁹ PGE700, Rodehorst – Moore/6-7.

1 *existing* EIM transfers are 20% higher. I recognize that there is a potential for future
2 EIM imports on the PACW-PGE path to increase from their 2017-18 levels, but I
3 disagree with the assumptions PGE made to reflect this scenario since increased
4 renewables do not *exclusively* cause increases to *existing* EIM transfers, as PGE has
5 assumed. I fully address this topic when I respond to PGE’s scenario analysis later in
6 this testimony, at which point I will introduce a more reasonable assumption to
7 account for the impacts of additional renewables.

8 **Q. The other important assumption PGE contests is your exclusion of other QFs**
9 **seeking to deliver via the PACW-PGE path. How do you respond?**

10 **A.** My analysis excluded the 67 MWs of QFs with executed contracts seeking to deliver
11 via the PACW-PGE path. Since the scope of this proceeding is limited to the Blue
12 Marmots, I focused on the Blue Marmots’ direct impact to PGE’s EIM benefits.
13 Since I am not a lawyer, I am not in a position to opine on the extent to which other
14 QFs are entitled to the relief requested by the Blue Marmots. Since I am not aware of
15 such an entitlement, I did not include the QFs in the EIM benefit-impact analysis.

16 However, even if, hypothetically, one were to agree that the consideration of
17 the other contracted QFs is relevant to the Blue Marmots, PGE has overstated the
18 potential amount of QFs that are likely to come online. In PGE’s resource planning
19 and procurement decisions, PGE recognizes that 100% of contracted QFs may not
20 come on-line.¹⁰ While I lack information on the current status of and PGE’s plan for
21 the 67 MW of QF projects, publicly available information indicates that all of this

¹⁰ Re PGE 2016 Integrated Resource Plan, Docket No. LC 66, Revised Renewable
Action Plan at 17-18 (Nov. 9, 2017). Available at:
<https://edocs.puc.state.or.us/efdocs/HAH/lc66hah111459.pdf>

1 power may not become commercially operational. One of the QFs, the Obsidian
2 Lakeview 10 MW project, has a commercial operation date of May 30, 2018¹¹ and to
3 my knowledge the project has not met this target. Additionally, PGE has been unable
4 to contact the one of the contracted QFs, OM Power.¹² Assuming that 100% of the
5 contracted QFs come online is unrealistic, and by including all of the projects, PGE
6 represents the maximum level of cost that is possible and there is a reasonable chance
7 this degree of cost will not occur.

8 In addition to analyzing the impact of the Blue Marmots and 67 MW of
9 executed-contract QFs, PGE also considered the impact of additional uncontracted
10 QFs delivering at the PACW-PGE interface. First, it is not reasonable for PGE to
11 extend its analysis to uncontracted QFs because PGE is no longer issuing PPAs for
12 off-system QFs that intend to deliver at the PACW-PGE interface, which means there
13 is no EIM benefit-impact risk to PGE.¹³ However, if the Commission does believe
14 there is a risk, despite PGE's current policy, there are ways in which PGE could
15 address this issue. While I am not opining on how or whether this approach would
16 work under PURPA or Oregon's implementation policies, PGE could seek to price an
17 EIM benefit-impact cost into the avoided cost pricing extended to new QFs delivering
18 at the PACW-PGE interface. Using high-end numbers from PGE's analysis that

¹¹ Lakeview PPA, Section 2.2.2. The PPA is available at:
<https://edocs.puc.state.or.us/efdocs/RPA/re143rpa16420.pdf>

¹² PGE/400, Greene/22.

¹³ PGE's website states: "The following points are not acceptable points of delivery for Qualifying Facility contracts: PACW, Roundbutte." Available at:
<https://www.portlandgeneral.com/business/power-choices-pricing/renewable-power/install-solar-wind-more/sell-power-to-pge>

1 assumes a 20% increase in *existing* transfers and a \$13/MWh import valuation, if 193
2 MW of new, uncontracted QFs were to be accommodated on the PACW-PGE path *in*
3 *addition* to the Blue Marmots and the 67 MW of other contracted QFs, PGE
4 calculates an incremental \$1.51 million per year reduction in EIM benefits.¹⁴ Given
5 that these QFs would combine to generate about 550,000 MWh of output annually,
6 PGE could offer these QFs an avoided cost price that is reduced by \$2.74/MWh in
7 order to account for reductions to PGE's EIM benefits.¹⁵ If the Commission is
8 concerned about the impact that uncontracted QFs might have on PGE's EIM
9 participation, the avoided cost pricing for new QFs could be adjusted through this
10 type of methodology to help ensure customers are economically indifferent to the
11 QFs.

12 **Q. Please respond to PGE's critique of assumptions regarding scheduling practices,**
13 **winter transfers, transfer valuation methods, and PGE's total EIM benefits.**

14 **A.** I respond to each item separately. Before I do so, note that collectively, these factors
15 have a minor impact on my original analysis, as discussed above.

16 PGE believes that it was incorrect for my analysis to assume that the Blue
17 Marmots will round up or down from their expected output to establish a whole-
18 number transmission schedule. PGE does not provide evidence to support its position,
19 and notwithstanding the rebuttal I presented in my Sur-surrebuttal Testimony on this

¹⁴ PGE/701, Rodehorst-Moore/1. The incremental \$1.51 million reduction in PGE's EIM benefits due to uncontracted QFs can be calculated by subtracting the value in the second column of row B in the second table (\$643,028) from the value in the second column of row G in the same table (\$2,154,270). This subtraction isolates the incremental EIM impact of only the uncontracted QFs in PGE's analysis.

¹⁵ Assumes 100% capacity factor for the 10 MW baseload resource and 29% capacity factor for the remaining 183 MW of solar resources. Note that the reduction in EIM benefits contemplated here is the incremental impact for only those QFs beyond the 117 MW of contracted QFs.

1 topic, PGE continues to declare that QFs will overschedule. However, in this
2 instance, PGE assumes a milder and inconsequential amount of overscheduling,
3 essentially a rounding up from the expected output to the nearest whole number for
4 scheduling purposes. Since this has almost no effect on the analysis, I will use PGE's
5 assumption in my analysis. The results of PGE's analysis show that if the Blue
6 Marmots were to schedule above (to the nearest whole number) their expected output,
7 the decision to do so would not materially impact PGE's EIM benefits.¹⁶

8 PGE argues the analysis should have considered the Blue Marmots' impact to
9 PGE's EIM benefits during the winter season. I continue to disagree because at the
10 time when PGE refused to accommodate the Blue Marmot output, there was
11 Available Transfer Capability ("ATC") on the PACW-PGE path that PGE could have
12 used to accept the Blue Marmots' net output.¹⁷ The path was unconstrained in the
13 winter and therefore, in accordance with PGE's own policy on making transmission
14 arrangements for off-system QFs, PGE could have reserved transmission capacity for
15 the Blue Marmots had the path not been constrained in the summer.¹⁸ Therefore,
16 impacts to PGE's EIM benefits attributable to the Blue Marmots during winter are

¹⁶ Based on the Workpapers PGE provided with its Supplemental Testimony, the annual reduction in EIM benefits due to over-scheduling is only \$735, using PGE's proposed assumptions.

¹⁷ PGE Confidential Exhibit 301, Afranji-Larson-Richard/3 (System Impact Study Transmission Service Request #PTP-70, dated November 17, 2017: "As of the date of this study, 60 MW of Firm Point-to-Point Transmission Service from PACW to PGE is available in the winter months from November through April."). The quoted information is not confidential.

¹⁸ PGE/400, Greene/21 ("...PGE agrees that, in the absence of a constraint, PGE would be responsible for reserving transmission capacity on which the QF could schedule.").

1 irrelevant – PGE was never entitled to the 50 MW of winter-season transmission
2 given the Blue Marmots’ legally enforceable obligations. Furthermore, based on
3 PGE’s revised version of my analysis, only 4% of PGE’s calculated benefit-impact
4 associated with accepting the Blue Marmots’ output at the PACW-PGE interface
5 occurs during the winter months.¹⁹ Notwithstanding the immaterial nature of the
6 assumption, I disagree with PGE and recommend excluding impacts to winter EIM
7 transfers from the EIM benefit-impact analysis.

8 I am receptive to PGE’s critique of my PACW-PGE EIM import valuation
9 method. My analysis used a bookend approach, relying on two different metrics to
10 establish a range of value to assign to imports on the PACW-PGE path. While PGE
11 disagrees with my methods, PGE’s value (\$12/MWh) was within the range I
12 estimated (\$5-13/MWh), which supports the conclusions I made in my Sur-
13 surrebuttal Testimony based on the higher-end of my valuation range. I do not debate
14 PGE’s proposed approach and concede that the two strongest analytical methods used
15 to value lost imports push the valuation toward the higher end of the range I provided.
16 For this reason, I assume a \$13/MWh value in my updated analysis presented in this
17 testimony.

18 Finally, PGE counters my use of the CAISO EIM Benefit Report data as a
19 source to estimate total annual EIM benefits because, for a number of reasons, PGE
20 believes that the CAISO overstates EIM benefits. The annual benefits value is
21 important because it is used to add context to Blue Marmot-driven reductions to

¹⁹ PGE/700, Rodehorst – Moore/16. Of the \$89,790 of lost benefits cited by PGE, only \$3,821 (4%) occur due to the Blue Marmots’ net output in the winter months based on PGE’s workpapers.

1 PGE's EIM benefits. I do not take a position on whether PGE or the CAISO more
2 accurately calculates EIM benefits. PGE presented useful analysis and supporting
3 settlement data that indicates the actual benefits it accrued in its first 11 months of
4 operations were \$5.7 million, versus the \$15.7 million I estimated based on CAISO
5 EIM Benefit Reports (estimated for the first 12 months). Ultimately, PGE
6 recommends a \$5 million per year value based on its most recent rate case. PGE is
7 being extremely conservative with this recommendation, choosing to base its future
8 EIM benefits on a January 2018-vintage modeling forecast performed for its rate
9 case, instead of the actual EIM benefits it has accrued over its first 11 months of
10 operations. Assuming PGE's 12th month of EIM operations is similar to the prior 11,
11 PGE will accrue \$6.2 million in gross annual benefits in its first year of operations.²⁰
12 This is 24% higher than PGE's estimate. PGE illogically argues both sides by
13 claiming that its substantive EIM benefits will be lost due to the Blue Marmots, while
14 also representing the lowest available EIM benefit estimate, which in turn inflates the
15 Blue Marmots' perceived impact.

16 Regardless of what total-benefit value is used, the Blue Marmots' impact to
17 PGE's annual benefits is small. Switching to PGE's \$5 million benefit estimate
18 increases the benefit-impact from <1% in my original analysis (which assumed \$15.7
19 million) to <2% in my revised study included in this testimony. I defer to PGE on the
20 best method to calculate its total EIM benefits and use its \$5 million assumption

²⁰ I also note that PGE's \$5 million assumption from its rate case is in 2019 dollars. Converting both the rate case and actual annual benefits into equal-year dollars results in PGE underestimating the single year benefits by \$1.8 million – a 36% underestimation.

1 going forward, despite my grievances above, and I stress that even with this very
2 conservative EIM annual benefits assumption, the Blue Marmots have a very small
3 impact on PGE’s total EIM benefits.

4 In summary, this response refutes PGE’s criticism of assumptions I made
5 regarding winter transfers – I do not think this assumption is appropriate, although it
6 does not materially impact any conclusions. As PGE suggests, it is reasonable to
7 account for minor amounts of overscheduling, although this assumption has almost
8 no impact. I also accept PGE’s EIM transfer valuation method and total EIM benefit
9 methods.

10 I have updated my analysis consistent with my response to PGE’s suggested
11 assumptions. The table below compares my original analysis (included in my Sur-
12 surrebuttal Testimony) with a revised analysis that *excludes* winter transfers, *rounds-*
13 *up* the Blue Marmots’ schedule, assumes a \$13/MWh value for lost EIM imports, and
14 assumes that PGE’s annual EIM benefits are \$5 million. This scenario accounts for
15 only the Blue Marmots, which I believe is the appropriate assumption.

Scenario: Blue Marmots Only	Moyer Original Analysis	Moyer Revised Analysis
EIM Benefit-Impact (\$)	\$25,000 - \$63,000	\$85,969
EIM Benefit-Impact (%)	0.16% - 0.40%	1.7%
Cost per MWh of Blue Marmot Output (\$/MWh)	\$0.19-0.49/MWh	\$0.67/MWh

1 In total, updates to my original analysis based on PGE’s critique cause me to
2 conclude that the Blue Marmots will cause an approximate \$85,969 per year
3 reduction in PGE’s EIM benefits (a 1.7% decrease). Based on the Blue Marmots’
4 expected net output, this represents a cost of \$0.67/MWh. This supports my
5 conclusion that PGE can continue to accrue nearly all of its EIM benefits even if it
6 were required to accommodate the Blue Marmots’ net output at the PACW-PGE
7 interface.

8 **III. REVIEW OF PGE’s SCENARIOS THAT INCLUDE ADDITIONAL QFs and**
9 **INCREASED EIM TRANSFERS**

10 **Q. Please describe the scenario analysis that PGE performed.**

11 **A.** PGE’s view is that the EIM benefit-impact analysis should have accounted for
12 impacts of additional QFs and increased levels of EIM imports on the PACW-PGE
13 path. To address this concern, PGE’s Supplemental Testimony applies the study
14 methodology to a series of scenarios. The scenario that considers additional off-
15 system QFs accounts for the Blue Marmots (50 MW), all executed-contract QFs (117
16 MW total including the Blue Marmots), and hypothetical unexecuted-contract QFs
17 for a total of 310 MW of off-system QFs. Not surprisingly, PGE’s annual EIM
18 benefit goes down as more QF resources are assumed to be accepted at the PACW-
19 PGE interface.

20 In an attempt to capture the effect of increased transfers on the path, PGE
21 increased *existing* EIM transfers by 20%.²¹ PGE increased transfers by this amount

²¹ PGE/700, Rodehorst – Moore/18 (“In other words, if there were 0 MW of transfers during a given interval in the first year of operations, our scenarios did not add transfers and instead maintained the 0-MW value. This is a very conservative modeling approach, because we would expect not only increased transfer magnitude but also increased transfer volume in the future.”).

1 based on analysis performed by Energy + Environmental Economics (E3) when PGE
2 was evaluating joining the EIM. PGE compared study results for EIM imports on
3 PACW-PGE under two simulated futures, one Base Scenario and one High RPS
4 Case. PGE concludes that total *annual* imports increased approximately 20%,
5 forming the basis for its scenario assumption. PGE's scenario results indicate that
6 increasing *existing* transfers cause the EIM benefit impacts of the Blue Marmots to
7 increase. Based on this collective information, PGE concludes that I have
8 underestimated the Blue Marmots potential impact to PGE's EIM benefits.

9 **Q. Based on the scope of this proceeding, is PGE's scenario that includes additional**
10 **QFs valid?**

11 **A.** As stated earlier, I understand that this proceeding is specific to the Blue Marmots. If
12 the Commission were to require PGE to use a portion of its transmission rights on the
13 PACW-PGE path to accommodate the Blue Marmot output, I do not know if this
14 relief would extend, by default, to other QFs, including those with executed contracts.
15 Therefore, the validity of the assumption regarding additional QFs with executed
16 contracts is subject to legal interpretation that I am not in a position perform.

17 **Q. Is PGE's scenario that assumes a 20% increased EIM transfers valid?**

18 **A.** No. I agree that, in the long run, there will likely be future increases in EIM imports
19 on the PACW-PGE path, as discussed earlier. It is reasonable to account for this
20 scenario, and 20% is a fair assumption. However, the details of PGE's approach are
21 flawed and cause PGE to overstate the impact. PGE assumes that, to reflect the 20%
22 *annual* increase in EIM imports on PACW-PGE, the incremental transfer increases
23 occur *only* in those intervals in which EIM transfers already occur (historically). This
24 assumption is without basis and, critically, the data from the E3 study supports an

1 altogether different conclusion, which is that when additional renewable resources are
2 added to the system, imports on the PACW-PGE path decrease (20% of intervals)
3 nearly as often as they increase (26% of intervals). Additionally, new imports on the
4 path occur with only slightly higher frequency than new exports (17% and 15% of
5 intervals, respectively). Therefore, PGE’s assumption that increases in total imports
6 will be driven *exclusively* by increases to existing imports is without basis and, since
7 the assumption skews PACW-PGE transfers fictitiously high, it overstates the impact
8 the Blue Marmots will have on PGE’s EIM benefits. Since the data from the E3 study
9 suggests that total increases in imports will occur as both increased existing imports
10 and new imports, I assume that *existing* imports increase by 10% (versus 20%) and
11 that *new* imports (making up the balance of the assumed 20% total increase) will
12 occur as new transfers at lower levels that are not impacted by the Blue Marmots’
13 schedules.²²

Scenario	Annual Impact assuming 10% Increase in Existing Transfers (valued at \$13/MWh)
Only Blue Marmots	\$191,390

14
15 Using PGE’s total EIM benefit estimate of \$5 million (not accounting for any
16 increase in benefits), this impact equates to a 3.8% reduction in EIM benefits. This is
17 a reasonable estimate of the maximum cost PGE is likely to experience as a result of

²² This assumes that increases are split between existing and new intervals, and that new interval transfers are not extremely high (meaning they do not impact Blue Marmot imports and both can occur). The analysis excludes winter transfers, assumes schedules always round up to the next highest MW, and values imports at \$13/MWh.

1 accepting the Blue Marmot output. This is equivalent to a \$1.48 reduction in PGE's
2 EIM benefits for every MWh of Blue Marmot output.

3 **Q. Will PGE's benefits also be greater in a future with increased transfers?**

4 **A.** Yes. PGE's benefits would presumably be higher. E3's work shows that benefits are
5 likely to increase as additional renewables are added to the system.²³ If imports on
6 PACW-PGE increase at the same rate as PGE's benefits, the Blue Marmots' impact
7 will still be on the order of 0-2%, depending on the assumptions discussed earlier. I
8 believe this 0-2% number is, on a percentage basis, a more reasonable estimate of the
9 potential future impacts compared to the 3.8% number above since the latter value
10 conservatively assumes that PGE's benefits will not increase as transfers increase.

11 **Q. Do you have any additional exhibits not referenced in this testimony?**

12 **A.** Yes. Exhibit Blue Marmot/701 includes additional relevant data responses that
13 address the issues raised in the Blue Marmots' and PGE's testimony.

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

15 **A.** Yes.

²³ Notably, the High RPS Scenario in E3's study represents a 25% RPS, which is reasonably consistent with the Oregon statutory requirement for the year 2025.

**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/701
PGE DATA RESPONSES**

October 30, 2018

July 7, 2017

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. 2
Dated June 23, 2017**

Request:

- 2. Please provide either a copy of PGE's market based rates filing with FERC (that describes the transmission arrangements that will allow PGE to participate in the EIM) or a current draft of that filing.**

Response:

Please see Attachment A, PGE's Notice of Change in Status for ER10-2249, which informs FERC of a change in the facts and circumstances that the Commission relied upon in granting PGE market based rate authority.



Blue Marmot/701
Moyer/3

1050 Thomas Jefferson Street, NW
Seventh Floor
Washington, DC 20007
(202) 298-1800 Phone
(202) 338-2416 Fax

Justin P. Moeller
(202) 298-1847
jpx@vnf.com

June 16, 2017

Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**Re: Portland General Electric Company, Docket No. ER10-2249-_____
Notice of Change in Status**

Dear Secretary Bose:

Portland General Electric Company (“PGE”) hereby submits for filing this notice of change in status in compliance with the requirements set forth in section 35.42 of the regulations of the Federal Energy Regulatory Commission (“Commission” or “FERC”).¹

The instant notice is filed to satisfy Commission directives to prospective participants in the Energy Imbalance Market (“EIM”) with market-based rate (“MBR”) authorization. The Commission has indicated that the EIM constitutes “a new relevant geographic market for market power purposes,”² and that commencing participation therein represents a change from the facts and circumstances the Commission relied upon in granting a seller MBR authority. PGE anticipates commencing financially binding EIM operations on October 1, 2017, at which point the EIM will consist of seven balancing authority areas (“BAAs”).³

¹ 18 C.F.R. § 35.42 (2016).

² *PacifiCorp*, 147 FERC ¶ 61,227, at P 206, *reh’g denied*, 149 FERC ¶ 61,057 (2014), *reh’g denied*, 150 FERC ¶ 61,084 (2015).

³ The seven BAAs making up the EIM market are those of: Arizona Public Service Company (“APS”), California Independent System Operator Corporation (“CAISO”), Nevada Power Company and Sierra Pacific Power Company (together, “NV Energy”), Puget Sound Energy, Inc. (“PSE”), PacifiCorp, which operates the PacifiCorp-East and PacifiCorp-West BAAs, and PGE (collectively, the “EIM Footprint”). PGE, PSE, APS, NV Energy, and PacifiCorp are each an “EIM Entity” and together the “EIM Entities.”

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This change in status includes a market power analysis of PGE's participation in the new relevant geographic market comprised of the 7-BAA EIM Footprint. The attached Affidavit of Matthew E. Arenchild of Navigant Consulting, Inc. ("Navigant") with related exhibits⁴ examines PGE's participation in the EIM Footprint utilizing the Commission's indicative horizontal market power screens, as modified to conform with the Commission's guidance to PacifiCorp, NV Energy, PSE, and APS, and to reflect the particular circumstances of the EIM. Mr. Arenchild's analysis demonstrates that PGE passes the indicative screens and therefore lacks horizontal market power in the 7-BAA EIM Footprint. The ensuing discussion also affirms that PGE continues to lack vertical market power.

In addition to analyzing market power in the broader EIM Footprint, the Commission has previously held that EIM participants must also take into account whether the existence of frequently binding transmission constraints create a separate relevant geographic submarket that should be studied.⁵ An EIM participant is

permitted to demonstrate that there are no frequently binding transmission constraints that would limit imports into its home [BAA] (or the [BAA] where its generation is located) such that the home [BAA] should not be deemed to be an EIM submarket itself, or to be within an EIM submarket.⁶

The Commission has explained that, "[h]aving made such a demonstration, there would be no need for a seller to submit a separate market power analysis for its home [BAA]."⁷ For example, PSE demonstrated a lack of frequently binding constraints for its home BAA and was authorized by the Commission to transact in the EIM at market-based rates based on a demonstrated lack of market power in the overall EIM Footprint.⁸

Consistent with this guidance, PGE has attached to this filing letter affidavits and accompanying exhibits from Mr. Arenchild and from Zachary A. Gill Sanford, also of Navigant, which collectively demonstrate that (i) the 200 MW of firm transmission on the PacifiCorp West ("PACW")-to-PGE path that will be committed for in-bound EIM transfers by PGE's merchant function ("PGE Merchant") experienced no instances of transmission congestion (firm or non-firm) during the December 2014 to November 2015 MBR study period ("Study Period"); and (ii) based on the accuracy of historical hour-ahead load and variable generation forecasts within the PGE BAA during the Study Period, the demand for imbalance energy in the PGE BAA is likely to average 45.10 MW

⁴ As discussed further below, PGE requests privileged treatment for components of the Workpapers supporting Mr. Arenchild's analysis.

⁵ *Nev. Power Co.*, 151 FERC ¶ 61,131, at P 201 & n.384, *order on reh'g and clarification*, 153 FERC ¶ 61,306 (2015).

⁶ *Ariz. Pub. Service Co.*, 156 FERC ¶ 61,148, at P 28 (2016).

⁷ *Id.*

⁸ *Puget Sound Energy, Inc.*, 156 FERC ¶ 61,242, at P 23 (2016).

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and fall within a range of plus/minus 117 MW during 95% of all 15-minute intervals.⁹ Together, these demonstrations indicate that sufficient firm, unconstrained transmission will be available to ensure a competitive supply of imported generation to meet the demand for imbalance energy in the PGE BAA. Accordingly, the PGE BAA should not be deemed a submarket within the EIM Footprint requiring a separate market power analysis.

Based on the demonstrations made herein, PGE requests that the Commission issue an order prior to October 1, 2017 accepting this notice of change in status and authorizing PGE to transact in the EIM at market-based rates.

I. BACKGROUND

A. PGE Corporate Information

PGE is a regulated, vertically integrated electric utility located in the Western Electricity Coordinating Council. It provides electric service to over 840,000 residential, commercial and industrial customers in Oregon. PGE owns generation, transmission, and distribution facilities for service to wholesale and retail customers, and it buys and sells power in the Western energy markets. PGE also owns a 79.5% interest in the 17-mile Kelso-Beaver interstate gas pipeline. PGE is subject to the regulatory authority of the Oregon Public Utility Commission for its Oregon utility operations, and to the jurisdiction of FERC for the sale of electricity and transmission services in interstate commerce and for interstate natural gas transportation provided through its Kelso-Beaver pipeline.

PGE's affiliates, none of which own or control any electric generation or transmission facilities or has MBR authority, are:

1. Salmon Springs Hospitality Group, Inc., formed on April 9, 1998 (whose business is providing catering services to the Portland World Trade Center ("WTC") activities and does some catering outside of WTC as well);
2. 121 SW Salmon Street Corporation, formed April 24, 1975 (whose business is the collection of rents from PGE for the WTC lease payments on 121 SW Salmon Street in Portland, and to make payments to the lease owner);
3. World Trade Center Northwest Corporation, formed February 24, 1988 (whose business is the holding of the World Trade Center franchise); and

⁹ As discussed further below, Mr. Arenchild also considers the possibility that two PGE wind resources will be pseudo-tied into the PGE BAA during the first year of PGE EIM operations. Mr. Arenchild demonstrates that even with these resources, the demand for incremental imbalance energy in the BAA is expected to exceed 200 MW during just 1.6% of market intervals.

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4. Portland General Gas Supply Company, formed on March 31, 2016 (currently inactive, but whose business will be to own gas reserves to provide a long-term hedge for PGE generation facilities' gas requirements).

B. PGE's Market Based Rate Authority

PGE is authorized by the Commission to sell energy and capacity at market based rates in all U.S. markets¹⁰ except for the PGE BAA.¹¹ After placing into service the 440 MW gas-fired Carty Generating Station on June 30, 2016, PGE adopted changes to its MBR tariff providing that PGE will not make any market-based rate sales within the PGE BAA.¹² PGE also has authorization to sell the following ancillary services at market-based rates: regulation service, reactive supply and voltage control service, spinning reserve service, and non-spinning reserve service to CAISO and to others that are self-supplying ancillary services to CAISO.¹³

More recently, PGE filed proposed amendments to its MBR tariff to accommodate participation in the EIM in two different circumstances: (i) the Commission has not yet acted on this change in status filing or has acted and determined that PGE lacks MBR authority in the EIM; or (ii) the Commission has accepted this change in status filing and authorized PGE to transact in the EIM at market-based rates.¹⁴ In the former circumstance, the proposed MBR tariff amendments would limit PGE's bids into the EIM to the Default Energy Bid ("DEB") calculated in accordance with the Variable Cost or Negotiated Rate Options provided in the CAISO Tariff. The proposed amendments are currently pending Commission review and acceptance in Docket No. ER17-1693-000.

C. The EIM

The EIM emerged from the efforts of Western utility regulators earlier this decade to explore the benefits of a multi-state market for imbalance energy. In response to that initiative, CAISO proposed to utilize its existing market platform to integrate BAAs outside California with the CAISO BAA for purposes of supplying imbalance energy under a single intra-hour economic dispatch model. Specifically, the EIM enables entities with BAAs outside of CAISO to voluntarily take part in the imbalance energy portion of the CAISO locational marginal price ("LMP")-based real-time electricity market alongside participants from within the CAISO BAA.

¹⁰ *Portland Gen. Elec. Co.*, Letter Order, Docket Nos. ER98-1643-014, et al. (issued June 22, 2011).

¹¹ *Portland Gen. Elec. Co.*, Letter Order, Docket Nos. ER10-2249-006, et al. (issued Dec. 1, 2016).

¹² *Id.*

¹³ *Portland Gen. Elec. Co.*, Letter Order, Docket No. ER99-1263-000 (issued Mar. 8, 1999).

¹⁴ *Portland Gen. Elec. Co.*, Amendments to the Portland General Electric Company Market-Based Rate Tariff to Facilitate EIM Participation, Docket No. ER17-1693-000 (filed May 26, 2017).

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The EIM is an organized market, administered by CAISO, with well-documented market monitoring and mitigation procedures that have been found just and reasonable by the Commission. The EIM's monitoring, mitigation, and design features ensure a competitive supply of imbalance energy for market participants.

1. Local Market Power Mitigation within Each EIM BAA

CAISO applies real-time local market power mitigation when there is a noncompetitive, binding constraint *within* an EIM BAA using the local market power mitigation measures described in Section 39.7 of the CAISO Tariff.¹⁵ Thirty-seven minutes in advance of each 15-minute market interval, CAISO performs an analysis to identify when congestion is likely to occur on specific constraints within an EIM BAA. Within each 15-minute interval, CAISO now conducts an additional mitigation analysis for each of the constituent 5-minute intervals.¹⁶ For each constraint that is projected to be binding during the interval, CAISO performs a three pivotal supplier test to determine if the supply available to relieve the binding constraint is structurally competitive or non-competitive.¹⁷ If there is sufficient supply available to effectively alleviate the constraint after eliminating the three largest suppliers, the constraint is deemed to be structurally competitive and no mitigation is imposed. If the supply from one or more of the three largest suppliers is necessary to alleviate the constraint, economic bids from participating resources that are effective at alleviating the constraint will be subject to bid mitigation at the higher of: (i) a competitive LMP calculated by the market software (which excludes congestion from noncompetitive constraints); and (ii) the DEB of the participating resource, which reflects the cost of an incremental unit of production from the resource, plus a 10% adder. The Commission accepted as just and reasonable CAISO's extension of local market power mitigation in the CAISO energy market to the EIM in the CAISO EIM Order.¹⁸

¹⁵ See California Independent System Operator Corporation, Fifth Replacement FERC Electric Tariff § 29.39 ("CAISO Tariff"). See also *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231, at P 217 ("CAISO EIM Order"), *order on reh'g and clarification*, 149 FERC ¶ 61,058 (2014), *petition for review dismissed*, *Cal. Indep. Sys. Operator Corp. v. FERC*, No. 14-1291 (D.C. Cir. Jan. 16, 2015).

¹⁶ See *Cal. Indep. Sys. Operator Corp.*, 157 FERC ¶ 61,091 (2016) (accepting CAISO's proposed 5-minute mitigation measures); *Cal. Indep. Sys. Operator Corp.*, 159 FERC ¶ 62,166 (2017) (extending implementation date of 5-minute mitigation measures no later than May 31, 2017).

¹⁷ The process used to determine if a path is competitive or not is the dynamic competitive path assessment. For every transmission constraint that is binding in this pre-market run, CAISO calculates a residual supplier index ("RSI") based on a three pivotal supplier test. This test is based on the ratio of supply of potential counter flow (excluding the three largest suppliers) compared to the demand for counter flow needed to relieve congestion on the constraint. Resources with negative shift factors relative to the congested constraint are able to provide counter flow that alleviates congestion. The demand for counter flow is calculated by summing up the level at which resources able to provide counter flow were dispatched in the pre-market run multiplied by each resource's shift factor. The RSI test determines if the three largest suppliers are pivotal for a constraint in terms of counter flow. If they are pivotal, meaning the residual supply of potential counter flow without these three suppliers cannot meet the demand for counter flow, the constraint is deemed noncompetitive.

¹⁸ CAISO EIM Order at P 217.

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2. Structural Market Power Mitigation on Interties between the EIM BAAs

In addition to mitigating local market power on noncompetitive constraints within the PGE BAA and other EIM BAAs, CAISO will also apply the same local market power mitigation measures contained in Section 39.7 of its tariff when the interties connecting the EIM BAAs become constrained.¹⁹ CAISO currently applies market power mitigation on the external interties of EIM when constraints bind with respect to incoming transfers of imbalance energy, and such congestion is noncompetitive due to a high concentration of supply within the BAA.²⁰ In such circumstances, CAISO will mitigate bids from participating resources that can relieve congestion on the intertie if the bid from the resource exceeds both (i) a competitive LMP calculated by the market software (which excludes congestion from noncompetitive constraints); and (ii) the DEB of the participating resource. As explained by CAISO's Director of Market Monitoring Eric W. Hildebrandt:

For instance, assume a unit within an EIM BAA has a marginal cost of \$30/MW and a DEB of \$33/MW after application of the 10 percent adder. Further assume that market power mitigation procedures are triggered by congestion into this EIM BAA during a 15-minute interval on EIM transfer constraints that is noncompetitive due to a high concentration of ownership of supply resources in this EIM BAA. During this interval, the competitive LMP for this 15-minute interval used in mitigation is \$40/MW. If the unit is bid into the EIM market at a price up to \$40/MW, the bid would not be lowered. If the unit was bid at a higher price, such as \$60/MW, the bid would be capped at the higher of (1) the competitive LMP (\$40/MW) or (2) the unit's DEB (\$33/MW). Thus, if the unit had a higher marginal cost of \$50/MW, for example, the unit's bid would be reduced to its DEB of \$55/MW (\$50/MW + 10 percent adder).²¹

In this way, binding constraints that preclude EIM transfers into an EIM Entity's BAA will be enforced by CAISO with bid mitigation where the supply of imbalance energy internal to the islanded BAA is noncompetitive.

Section 29.39 of the CAISO Tariff requires CAISO to conduct a competitive path assessment for each EIM Entity BAA, perform an LMP decomposition identifying any resources in the EIM which may have local market power due to a transmission constraint, and mitigate any such resources using their DEBs. In the case of both PacifiCorp BAAs²² and the NV Energy BAA,²³ CAISO determined, following a

¹⁹ See CAISO Tariff § 29.39(d).

²⁰ *Id.*

²¹ *Cal. Indep. Sys. Operator Corp.*, ISO Tariff Amendments to the Energy Imbalance Market, Attachment D – Declaration of Eric W. Hildebrandt on Behalf of the California Independent System Operator Corporation, ¶ 30, Docket No. ER14-2484-000 (filed July 23, 2014).

²² See *Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,058, at PP 76, 81 (2014).

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structural competitive assessment (then required by FERC), that it should apply local market power mitigation measures under Section 39.7 of the CAISO Tariff when constraints bind on the interties. As part of the EIM Year One Enhancements, Phase 2, CAISO proposed and FERC accepted tariff provisions that apply local market power mitigation to all interties within the EIM, including those that interconnect the PSE BAA with the rest of the market, without the need for a structural competitiveness assessment or FERC filing.²⁴ Thus, PGE's intertie with the PACW BAA will be tested for competitiveness any time it is binding, and any supply found to be noncompetitive will be mitigated.

D. Open Access Transmission Tariff Changes to Support EIM Operations

On March 1, 2017, PGE filed its proposed Open Access Transmission Tariff ("OATT") revisions to enable EIM participation as of October 1, 2017.²⁵ PGE's OATT revisions were accepted by the Commission on April 19, 2017.²⁶ PGE's OATT revisions include a new OATT attachment dedicated to defining the rights and responsibilities of PGE and its OATT customers with respect to the EIM. Generation resources that are physically located within the PGE BAA or pseudo-tied into the PGE BAA are eligible to register as Participating Resources in the EIM and submit economic bids to sell imbalance energy to the market.

E. Transmission Paths for EIM Transfers

Given its position relative to CAISO and existing EIM Entities, PGE expects that EIM Transfers will occur (i) directly between the PACW BAA and PGE BAA; and (ii) between the PGE BAA and CAISO using transmission on either the Bonneville Power Administration's ("BPA") or PGE's system, in addition to PGE's rights on the California-Oregon Intertie. With respect to the first category of EIM Transfers, PGE Merchant currently holds 276 MW of long-term point-to-point transmission rights on the PACW to PGE path. PGE Merchant has committed, for the first year of EIM operations, to offer 200 MW of firm transmission rights on the PACW-PGE Path for EIM transfers into the PGE BAA during all market periods. PGE Merchant will also offer the remaining 76 MW of its long-term firm transmission rights, subject to usage for reliability or servicing existing contractual arrangements. In addition, any Available Transfer Capability ("ATC") on this path in excess of PGE Merchant's 276 MW firm reservation will also be made available for EIM Transfers. EIM scheduling availability is determined by subtracting the net of all schedules across the PGE-PACW interface from the Total Transfer Capability between the two entities; the remainder is available for EIM transfers.

²³ *Cal. Indep. Sys. Operator Corp.*, 153 FERC ¶ 61,207 at P 18 (2015).

²⁴ *See Cal. Indep. Sys. Operator Corp.*, 155 FERC ¶ 61,329 (2016) ("CAISO EIM Mitigation Order").

²⁵ *See* Docket No. ER17-1075.

²⁶ *Portland Gen. Elec. Co.*, Letter Order, Docket No. ER17-1075-000 (issued Apr. 19, 2017).

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With respect to EIM Transfers from CAISO to the PGE BAA, three segments will need to be utilized: (1) MALIN to JOHNDAY; (2) JOHNDAY to BPAT.PGE; and (3) BPAT.PGE to PGE. EIM Transfers on this transmission path will require PGE Merchant contributions of firm transmission rights on all three segments.²⁷

II. NOTICE OF CHANGE IN STATUS

The Commission permits sales of energy and capacity at market-based rates if the seller and its affiliates (i) lack horizontal market power in the relevant geographic market, i.e., they do not have (or have adequately mitigated) market power in generation; and (ii) lack vertical market power in the relevant geographic market, i.e., they do not have (or have adequately mitigated) market power in transmission and cannot erect barriers to entry to competing suppliers.²⁸ As discussed below, PGE does not have horizontal or vertical market power in the relevant market—the EIM Footprint.²⁹ In addition, the PGE BAA is not a submarket within the EIM Footprint requiring a separate market power analysis.³⁰

A. PGE Lacks Horizontal Market Power in the EIM Footprint.

The Commission reviews horizontal market power by assessing the market power of the seller and any of its affiliates that own generation or control generation in the relevant market through tolling agreements, energy management agreements, or other

²⁷ While PGE Merchant does not hold long-term firm BPA transmission rights on the JOHNDAY to BPAT.PGE segment, it does hold long-term firm BPA transmission rights capable of redirecting to the JOHNDAY to BPAT.PGE segment.

²⁸ *Market-Based Rates for Wholesale Sales of Elec. Energy, Capacity and Ancillary Servs. by Pub. Utils.*, Order No. 697, 2006–2007 FERC Stats. & Regs., Regs. Preambles ¶ 31,252 (“Order No. 697”), *clarified*, 121 FERC ¶ 61,260 (2007), *order on reh’g and clarification*, Order No. 697-A, 2008-2013 FERC Stats. & Regs., Regs. Preambles ¶ 31,268 (“Order No. 697-A”), *order on reh’g and clarification*, 124 FERC ¶ 61,055, *order on reh’g and clarification*, Order No. 697-B, 2008-2013 FERC Stats. & Regs., Regs. Preambles ¶ 31,285 (2008), *order on reh’g and clarification*, Order No. 697-C, 2008-2013 FERC Stats. & Regs., Regs. Preambles ¶ 31,291 (2009), *order on reh’g and clarification*, Order No. 697-D, 2008-2013 FERC Stats. & Regs., Regs. Preambles ¶ 31,305, *order on clarification*, 131 FERC ¶ 61,021, *reh’g denied*, 134 FERC ¶ 61,046 (2010), *appeal docketed sub nom. Mont. Consumer Counsel v. FERC*, Nos. 08-71827, et al. (9th Cir. filed May 1, 2008); *see also Heartland Energy Servs., Inc.*, 68 FERC ¶ 61,223, at pp. 62,060-63 (1994); *Enron Power Enter. Corp.*, 52 FERC ¶ 61,193, at 61,708 (1990); *FirstEnergy Servs., Inc.*, 94 FERC ¶ 61,052 (2001).

²⁹ *PacifiCorp*, 147 FERC ¶ 61,227, at P 206 (defining the EIM as “a new relevant geographic market for market power purposes,” and holding that commencing participation therein represents a change from the facts and circumstances the Commission relied upon in granting a seller MBR authority.).

³⁰ *Ariz. Pub. Serv. Co.*, 156 FERC ¶ 61,148, at P 28 (holding that EIM participants are “permitted to demonstrate that there are no frequently binding transmission constraints that would limit imports into its home balancing authority area (or the balancing authority area where its generation is located) such that the home balancing authority area should not be deemed to be an EIM submarket itself, or to be within an EIM submarket.” The Commission explained that, “[h]aving made such a demonstration, there would be no need for a seller to submit a separate market power analysis for its home balancing authority area.”).

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contractual arrangements.³¹ The Commission has indicated that the relevant geographic market is the BAA or submarket, as applicable, where the seller's generation is physically located.³² In the case of the EIM, however, the Commission's guidance has been to define the "relevant geographic market to be the combined geographic footprint" of the BAAs constituting the EIM.³³

Mr. Arenchild conducted a market power analysis in which he analyzed the generation owned or controlled by PGE within the EIM Footprint during the December 2014 to November 2015 study period.³⁴ Mr. Arenchild's analysis demonstrates that PGE passes the Commission's indicative pivotal supplier and market share screens when the EIM Footprint as a whole is evaluated as the relevant geographic market. Order No. 697 provides that if a seller passes both of the indicative screens, there is a rebuttable presumption that it does not possess horizontal market power.³⁵

1. Mr. Arenchild Conducted Wholesale Market Share and Pivotal Supplier Screens Utilizing Assumptions that Are Consistent with the Commission's Guidance to EIM Participants.

As further discussed in Mr. Arenchild's Affidavit, PGE passes both the pivotal supplier and market share screens in the EIM Footprint. For this market power study, Mr. Arenchild has utilized the Commission's current indicative Pivotal Supplier Analysis ("PSA") and Market Share Analysis ("MSA") screens, with some modifications to reflect the unique characteristics of the EIM. The PSA screen compares the amount of uncommitted capacity owned or controlled by a seller in the relevant market and the total net uncommitted capacity in that market. If the seller's uncommitted capacity in the market is less than the difference between the total uncommitted supply and the market's wholesale load, the seller passes the pivotal supplier screen.³⁶ The MSA screen calculates the seller's share of uncommitted capacity in the relevant market during each of the four seasons. If a seller's share of uncommitted capacity in the relevant market is under 20% in each season, the seller passes the market share screen.

³¹ See Order No. 697 at P 232 n.261; *AEP Power Mktg., Inc.*, 107 FERC ¶ 61,018, at P 73 n.63, *order on reh'g*, 108 FERC ¶ 61,026 (2004).

³² See Order No. 697 at P 231; *see also AEP Power Mktg., Inc.*, 107 FERC ¶ 61,018, at P 41, *order on reh'g*, 108 FERC ¶ 61,026, at P 31.

³³ NV Energy EIM Order at P 202.

³⁴ Mr. Arenchild's Affidavit and supporting exhibits are attached hereto as Attachment B ("Arenchild Aff.").

³⁵ See Order No. 697 at P 62; *see also* 18 C.F.R. § 35.37(c)(1). PGE further commits to comply with all applicable CAISO market rules regarding market monitoring and mitigation. The Commission has adopted a rebuttable presumption that existing Commission-approved market monitoring and mitigation rules are sufficient to address any market power concerns. See Order No. 697-A at P 111; *see also NextEra Energy Power Mktg., LLC*, Letter Order, Docket Nos. ER09-832-004, et al. (issued Mar. 25, 2010).

³⁶ Order No. 697 at P 42; *AEP Power Mktg., Inc.*, 107 FERC ¶ 61,018, at P 99.

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To analyze the EIM relevant geographic market, Mr. Arenchild made three adjustments to the standard indicative screen framework to: (i) account for the existence of Participating Resources, which are generating resources in the EIM BAAs that are eligible to submit economic incremental and decremental bids to the EIM, and non-participating resources, which do not submit bids but which can still be used to meet base schedules in the EIM; (ii) adjust the load metric used to determine the amount of generation committed to serve an entity's customers' demand, to reflect "Base Schedule" amounts, rather than actual load; and (iii) calculate expected demand for imbalance energy during the time of the system peak, used in the PSA, using information on the average size of the EIM demand for imbalance energy in each BAA in the EIM Footprint relative to the total energy demand, instead of the proxy for wholesale load used in the standard indicative screens.³⁷ Each of these adjustments is consistent with the EIM-related customizations performed by PSE in the EIM market power analysis which the Commission relied on in authorizing PSE to transact in the EIM at market-based rates.³⁸

2. The Results of the Indicative Screens Conducted by Mr. Arenchild Demonstrate that PGE Lacks Market Power in the EIM.

Given PGE's relatively small presence in the 7-BAA EIM Footprint, it is not surprising that PGE easily passes the indicative screens. As Mr. Arenchild observes, PGE's share of total resources in the overall EIM is about 4%, its share of EIM Participating Resources is just 3%, and PGE's average summer peak load is 5% of the peak load in the EIM Footprint.³⁹

Indeed, Mr. Arenchild shows that PGE passes the PSA because its uncommitted capacity (assessed at 342 MW) is well below the net uncommitted supply (18,906 MW) in the EIM during average hydro and wind conditions, with similar results in five-year high and low hydro/wind production scenarios.⁴⁰ Additionally, the MSA shows that PGE's uncommitted capacity varies between 265 MW and 407 MW by season, which amounts to only 1.1%-1.5% of the market—well below the Commission's 20% threshold.⁴¹ Mr. Arenchild also examines several alternative methodologies, including an estimation of a merit order supply curve, and 5- and 15-minute forecasts instead of day-ahead forecasts.⁴² PGE passes these versions of the screens, with results not materially different from the baseline PSA and MSA.⁴³

³⁷ Arenchild Aff. at 5-6.

³⁸ See *Puget Sound Energy, Inc.*, 156 FERC ¶ 61,242, at P 8.

³⁹ Arenchild Aff. at 24.

⁴⁰ *Id.* at 25.

⁴¹ *Id.* at 26.

⁴² *Id.* at 27-28.

⁴³ *Id.* at 28. None of the alternative methodologies resulted in an estimation of PGE's uncommitted capacity higher than 1.5% of the market. *Id.* at 26.

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Accordingly, it is clear from Mr. Arenchild's analysis that PGE lacks market power in the EIM Footprint.

B. PGE Lacks Vertical Market Power.

To demonstrate a lack of vertical market power, an applicant that owns, operates, or controls transmission facilities must have an OATT on file with the Commission.⁴⁴ When evaluating vertical market power, the Commission also has adopted a rebuttable presumption that ownership or control of, or affiliation with an entity that owns or controls, inputs to electric power production does not allow a seller to raise barriers to entry to power markets.⁴⁵ The Commission, however, requires sellers to provide a description of their ownership of, or affiliation with entities that own or control, such facilities.⁴⁶

PGE continues to lack vertical market power. As noted above, the transmission facilities owned by PGE are subject to the terms and conditions of a Commission-approved OATT,⁴⁷ and all requests for transmission service over transmission facilities owned by PGE are governed by Commission-approved OATTs. The Commission has found that an OATT is deemed to mitigate a seller's vertical market power.⁴⁸

PGE does not have the ability to erect other barriers to entry by competing suppliers. PGE's only natural gas pipeline interests are in the 17-mile Kelso-Beaver interstate natural gas pipeline, which directly connects PGE's Port Westward and Beaver facilities to the Northwest Pipeline. PGE's portion of the pipeline is a dedicated facility used to supply PGE power plants and operates under the Commission's open-access provisions. The Commission held in Order No. 697 that ownership of natural gas pipelines cannot create a barrier to entry that can be used to exercise vertical market power if the owner provides open-access transportation under a Commission-approved tariff.⁴⁹

In any event, PGE affirms it has not erected barriers to entry in the relevant market and will not erect barriers to entry in the relevant market. Accordingly, PGE does not have vertical market power.

⁴⁴ 18 C.F.R. § 35.37(d); *Puget Sound Energy, Inc.*, Letter Order, Docket Nos. ER12-409-000, et al. (issued Jan. 6, 2012) (accepting for filing PSE's revised OATT in compliance with FERC's eTariff requirements); *Puget Sound Energy, Inc.*, Letter Order, Docket No. ER13-832-000 (issued Mar. 12, 2013) (accepting for filing PSE's most recent revisions to its OATT).

⁴⁵ See Order No. 697 at PP 446-48.

⁴⁶ 18 C.F.R. § 35.37(e)(1)-(3).

⁴⁷ *Portland Gen. Elec. Co.*, 122 FERC ¶ 61,226 (2008).

⁴⁸ See Order No. 697 at P 21.

⁴⁹ *Id.* at PP 441-43.

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C. The PGE BAA Is Not a Submarket within the EIM Footprint.

As explained by the Commission in *Arizona Public Service Co.*⁵⁰ and applied in *Puget Sound Energy, Inc.*,⁵¹ an EIM participant that demonstrates its home BAA is not an EIM submarket by showing an absence of frequently binding constraints need not submit a separate market analysis for its home BAA. The attached affidavits of Mr. Arenchild and Mr. Gill Sanford affirmatively demonstrate that the PGE BAA is not an EIM submarket.

1. The Demand for Imbalance Energy in the PGE BAA Will Be Significantly Less Than 200 MW.

To assess whether PGE's interconnection with PACW is appropriately sized and sufficiently free of congestion so as to preclude the existence of a PGE BAA submarket, it is first essential to quantify the anticipated demand for imbalance energy within the PGE BAA. To do so, Mr. Arenchild utilized 1-minute BAA load data provided by PGE for the Study Period (which were aggregated into 15-minute intervals), as well hour-ahead load forecasts, to compute the demand for imbalance energy in the PGE BAA in each of the 35,036 15-minute intervals during the Study Period.⁵² This approach is consistent with the approach utilized by PSE to quantify the demand for imbalance energy in the PSE BAA.⁵³ During the Study Period, Mr. Arenchild determined the average-deviation from the hour ahead forecast was 45 MW, with 95% of all 15-minute operating intervals having deviations between plus/minus 117 MW.⁵⁴ Negative deviations (giving rise to a need for incremental imbalance energy) exceeded 200 MW in only 0.039% of all 15-minute intervals during the Study Period. Mr. Arenchild "also analyzed whether the load deviations would significantly differ using five-minute actual data and found that there was very little difference."⁵⁵

During the Study Period, load was the only source of system variability giving rise to the need for imbalance energy, as there were no significant variable energy resources electrically located within the PGE BAA. As Mr. Arenchild notes, this circumstance is likely to change in the next year as PGE expects that two large wind farms that it controls, Biglow Canyon Wind Farm (450 MW) and Tucannon River Wind Farm (267 MW), which are presently balanced by BPA, will be pseudo-tied into the PGE BAA.⁵⁶ Mr. Arenchild utilized hour-ahead forecasts and 15-minute generation data for these plants during the Study Period to quantify the adjusted demand for imbalance

⁵⁰ See *Ariz. Pub. Service Co.*, 156 FERC ¶ 61,148, at P 28.

⁵¹ See *Puget Sound Energy, Inc.*, 156 FERC ¶ 61,242, at P 23.

⁵² Arenchild Aff. at 30-32 & tbl. 1.

⁵³ *Puget Sound Energy, Inc.*, 156 FERC ¶ 61,242, at P 12.

⁵⁴ Arenchild Aff. at 32.

⁵⁵ *Id.* at 31.

⁵⁶ *Id.* at 9-10, 33.

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energy in the PGE BAA as though the plants were included.⁵⁷ Mr. Arenchild describes an average deviation of 69 MW and an adjusted 95th percentile deviation of plus/minus 183 MW, with just 1.6% of all 15-minute intervals exhibiting a demand for incremental imbalance energy in excess of 200 MW.⁵⁸

Mr. Arenchild concludes, based on the expected size of the market and the existence of at least 200 MW of firm transmission capacity during all market intervals to support imports of in-hour imbalance energy dispatched by the EIM, “the available import capability is sufficiently greater than expected demand in the PGE BAA in essentially all intervals.”⁵⁹

2. Sufficient Transmission Capacity Will Be Available for EIM Imports to Ensure a Competitive External Supply of Generation to Serve EIM Demand in the PGE BAA.

Mr. Arenchild’s Affidavit described above demonstrates that the demand for imbalance energy within the PGE BAA is likely to average 45 MW (69 MW with wind), and remain less than 117 MW (183 MW with wind) during 95% of 15-minute scheduling intervals.⁶⁰ Mr. Gill Sanford’s Affidavit demonstrates that sufficient transmission capacity will be available to ensure that a competitive supply of external, non-PGE generation from the EIM Footprint will be available from EIM import transfers to compete with PGE generation for the anticipated imbalance energy demand in the PGE BAA.

a. PGE Merchant’s Contribution of at Least 200 MW of Firm Transmission Rights on the PACW to PGE Path Will Provide Sufficient Firm Import Capability to Meet the Demand for Imbalance Energy With Competitive External Generation.

Mr. Gill Sanford’s Affidavit describes two transmission paths that will be available for imports of competitive imbalance energy supply into the PGE BAA: (1) PACW to PGE; and (2) CAISO to PGE. The first path will be available by virtue of PGE Merchant’s 276 MW of long-term point-to-point transmission rights, of which PGE Merchant has committed to contribute a minimum of 200 MW for EIM Transfers during each market interval for at least the first year of EIM operations. PGE will offer the remaining 76 MW of its long-term firm rights on the path for EIM Transfers, subject to usage for reliability or servicing existing contractual arrangements. As Mr. Gill Sanford explains, the PACW to PGE path consists of two segments: (i) PACW to PACW.PGE, for which PacifiCorp is the transmission provider; and (ii) PACW.PGE to PGE, for

⁵⁷ *Id.* at 33-34.

⁵⁸ *Id.* at 28.

⁵⁹ *Id.* at 29.

⁶⁰ *Id.* at 32-34 & tbl. 3.

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which PGE is the transmission provider. Mr. Gill Sanford gathered congestion data on the PacifiCorp and PGE systems by querying OASIS messages and archived e-Tags and determined that there were zero instances of transmission congestion (firm or non-firm) on the PACW to PACW.PGE transmission path and zero instances of transmission congestion (firm or non-firm) on the PACW.PGE to PGE transmission path during the Study Period. Based on the historical lack of congestion, Mr. Gill Sanford concludes that there is a “high likelihood of the inbound transfer capacity being unhindered by congestion events during all market intervals.”⁶¹

b. Additional Sources of Transmission Capacity Will Increase the PGE BAA’s EIM Transfer Import Capability Above the Minimum Value of 200 MW.

As Mr. Gill Sanford’s analysis shows, at least 200 MW of firm import capability is likely to exist for EIM Transfers due to the 200 MW of firm transmission that will be contributed by PGE Merchant on the historically unconstrained PACW to PGE path in every market interval during at least the first year of EIM operations. In addition to the 200 MW minimum commitment, PGE Merchant will contribute its remaining 76 MW of long-term firm rights on this path when it is not being used for reliability or to service existing contractual arrangements. This firm import capability by itself will be sufficient to ensure a competitive supply of imported generation to meet the likely demand for imbalance energy in the PGE BAA computed by Mr. Arenchild. Mr. Gill Sanford also describes the potential availability of additional non-firm ATC on the PACW to PGE path in his affidavit.⁶² As Mr. Gill Sanford notes, total transfer capability (“TTC”) on the PACW.PGE to PGE segment of the path (which is the limiting segment for the path) ranges from a summer rating of 305 MW to 415 MW in the winter months.⁶³ Accordingly, the total availability of the PACW to PGE path for EIM imports will vary from a minimum of 200 MW (corresponding to the minimum firm contribution of PGE Merchant) to 415 MW, depending on the season, PGE Merchant usage of its residual 76 MW of firm rights, and the availability of non-firm ATC leading up to the operating hour.⁶⁴ As Mr. Gill Sanford explains, the PACW to PGE path would have supported EIM transfers of 252 MW on average during the study period using the combination of PGE Merchant’s firm rights and additional as available capacity.⁶⁵

In addition to EIM imports on the PACW to PGE path, the CAISO to PGE path may also be available for EIM imports. This path consists of three segments: (1) MALIN to JOHNDAY; (2) JOHNDAY to BPAT.PGE; and (3) BPAT.PGE to PGE. PGE is the transmission provider on the first and third segments, and BPA is the transmission provider on the second segment. Mr. Gill Sanford’s analysis of congestion history on

⁶¹ Affidavit of Zachary A. Gill Sanford at 3 (attached hereto as Attachment C).

⁶² *Id.* at 4-5.

⁶³ *Id.* at 5.

⁶⁴ *Id.*

⁶⁵ *Id.* at 3.

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these segments during the Study Period showed zero instances of congestion on all three segments.⁶⁶ Mr. Gill Sanford also evaluated the scheduling availability of the CAISO to PGE path. EIM Transfers on this import path will require PGE Merchant contributions of firm transmission capacity on all three segments.⁶⁷ Mr. Gill Sanford concluded that, based on the limiting factors of historical de-ratings of the MALIN to JOHNDAY segment and the availability of firm ATC on the BPAT.PGE to PGE segment, there “will be a minimum of 85 MW and a maximum of 627 MW of transfer capacity available for EIM import transfers on the CAISO to PGE path during intervals the PGE merchant offers its transmission rights.”⁶⁸

In sum, it is apparent that a minimum of 200 MW of transmission capacity is likely to be available for EIM imports during all market intervals on the PACW to PGE path, with additional amounts likely to be available during certain market intervals ranging from (i) 0 MW to 215 MW of additional PGE Merchant long-term firm rights and non-firm ATC on the PACW to PGE path, depending on the season and transmission customer scheduling behavior; and (ii) 85 MW to 627 MW on the CAISO to PGE path when PGE Merchant contributes its firm rights. The minimum 200 MW transfer path provide sufficient import capability to supply the PGE BAA’s imbalance energy demand in virtually all market intervals. In combination with other potential sources of import capability, there is likely to be more than ample transmission capacity to ensure a competitive supply of external generation to meet the PGE BAA’s energy imbalance demand. As such, the PGE BAA is not a submarket within the EIM footprint requiring a separate market power analysis.

3. The CAISO Tariff Currently Provides for Mitigation of Non-Competitive Supply Offers in the Unlikely Event that a Transmission Constraint Binds between PACW and PGE.

The foregoing analysis demonstrates that, based on the anticipated average 45 MW quantity of demand for imbalance energy in the PGE BAA, and the 200 MW commitment of firm, unconstrained transmission between the PACW BAA and the PGE BAA (in addition to other transmission capacity for imports that may be made available on the PACW to PGE and CAISO to PGE paths), it is likely that PGE will be competing with non-PGE generation from outside the PGE BAA for every MW of demand for imbalance energy in the PGE BAA at all times. However, in the unlikely event that a transmission constraint were to result in non-competitive supply offers within the PGE BAA, the application of Commission-accepted, enhanced market monitoring and mitigation measures to constrained internal paths and interties between the seven BAAs in the EIM Footprint will ensure that PGE and other sellers cannot exercise market power. PGE’s intertie with the PACW BAA will be monitored by the Department of

⁶⁶ *Id.* at 6.

⁶⁷ *Id.* at 7. As noted above, while PGE Merchant does not hold long-term firm BPA transmission rights on the JOHNDAY to BPAT.PGE segment, it does hold long-term firm BPA transmission rights capable of redirecting to the JOHNDAY to BPAT.PGE segment.

⁶⁸ *Id.* at 8.

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Market Monitoring (“DMM”) as part of every market interval for price separation indicative of a binding constraint.⁶⁹ Pursuant to Section 29.39 of its tariff, CAISO conducts a competitive path assessment for each EIM Entity BAA, performs an LMP decomposition identifying any resources in the EIM which may have local market power due to a transmission constraint, and mitigates any such resources using DEBs. As noted above, CAISO’s mitigation measures have recently been enhanced to include mitigation at 5-minute intervals as well as 15-minute intervals.⁷⁰

In its 2016 CAISO EIM Mitigation Order, the Commission accepted proposed revisions to Section 29.39 of the CAISO Tariff providing that CAISO’s “Real-Time Local Market Power Mitigation procedure in Section 39.7” of the CAISO Tariff will be applied “to the Energy Imbalance market, *including EIM Transfer constraints into an EIM [BAA] on an EIM Internal Inertie.*”⁷¹ CAISO’s full network model simulates market outcomes using real time transmission information from the entire EIM Footprint, including any anticipated transfer or ramping restrictions on BPA’s internal flowgates and the inerties between the PACW and PGE BAAs.⁷² In the unlikely event that CAISO’s model identifies price separation resulting from a binding constraint on the 200 MW transfer path from PACW to PGE, CAISO’s DMM would test this constraint for competitiveness in accordance with the local market power mitigation measures described in Section 39.7.2 of the CAISO Tariff.⁷³ Under these provisions, a generator’s energy bids will be subject to mitigation in the event that congestion occurs and the supply that can relieve the congestion is deemed uncompetitive.⁷⁴ A constrained path is designated as non-competitive when

the sum of the supply counter-flow from all portfolios of potentially pivotal suppliers to the Transmission Constraint and the fringe supply of counter-flow to the Transmission Constraint from all portfolios of suppliers that are not identified as potentially pivotal is less than the demand for counter-flow to the Transmission Constraint.⁷⁵

If subject to mitigation, energy bids are capped by the higher of a competitive market clearing price or the DEB.⁷⁶ The bidding resource can only be dispatched based on its

⁶⁹ See CAISO EIM Mitigation Order. The revisions to Section 29.39 of the CAISO Tariff extending local market power mitigation to inerties between EIM BAAs became effective on October 1, 2016.

⁷⁰ See *supra* note 16.

⁷¹ CAISO Tariff § 29.39(a) (emphasis added).

⁷² In addition to the predictive capabilities of the CAISO full network model at forecasting congestion, PGE is also required to notify CAISO once PGE receives notification that an e-Tag supporting an EIM transfer has been curtailed.

⁷³ See CAISO Tariff § 39.7.

⁷⁴ See *id.* See also *id.* § 34.1.5 (describing mitigation of bids in the real-time market).

⁷⁵ *Id.* § 39.7.2.2(b).

⁷⁶ See *id.* § 39.7.1 (describing calculation of DEB).

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mitigated bids during the ensuing market interval, when the energy produced by the resource is necessary to meet a local need within an non-competitive area.⁷⁷

In the CAISO EIM Mitigation Order, FERC concluded that “CAISO’s proposal to always include EIM transfers into every EIM Entity BAA in its market power mitigation procedures *will ensure that all EIM internal interties will be mitigated whenever conditions warrant, and will result in consistent treatment of all constraints in the EIM area.*”⁷⁸ Thus, while PGE does not expect frequently binding constraints on the PACW to PGE transfer path, CAISO’s application of local market power mitigation to this intertie will prevent PGE from exercising market power in the event a binding constraint does arise that is deemed to be non-competitive by the DMM.

III. COMMUNICATIONS

Communications with regard to this filing should be addressed to:

*Donald Light
Portland General Electric Company
121 SW Salmon Street
1WTC1301
Portland, OR 97204
Tel: (503) 464-8315
donald.light@pge.com

Gary D. Bachman
Justin P. Moeller*
Van Ness Feldman LLP
Seventh Floor
1050 Thomas Jefferson Street, NW
Washington, DC 20007
Tel: (202) 298-1800
gdb@vnf.com
jpx@vnf.com

* Designated for service of process

IV. REQUEST FOR PRIVILEGED TREATMENT

Pursuant to section 388.112 of the Commission’s regulations, PGE requests privileged treatment of certain workpapers filed in support of the Affidavit prepared by Mr. Arenchild, because these workpapers contain information that is privileged or confidential and not publicly available. The information contained in these privileged workpapers is for use by the Commission’s Staff only and should not be released. Pursuant to section 388.112(b)(2)(i), a proposed form of protective agreement is attached as Attachment D.

⁷⁷ See *id.* § 34.1.5.

⁷⁸ CAISO EIM Mitigation Order at P 36 (emphasis added).

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V. ATTACHMENTS

A. Public

PGE submits the following public documents:

This transmittal letter, along with the following attachments:

- Attachment A: PGE Appendix B – Market-Based Rate Authority Asset Appendix
- Attachment B: Affidavit, Exhibits, and public work papers of Matthew E. Arenchild
- Attachment C: Affidavit and Exhibits of Zachary A. Gill Sanford
- Attachment D: Protective Agreement

B. Non-Public

PGE submits the following non-public documents:

- Attachment E: Non-public work papers supporting the Arenchild Affidavit

VI. CONCLUSION

For the reasons set forth above, PGE requests that the Commission accept this change of status for filing prior to October 1, 2017 and authorize PGE to transact in the EIM at market-based rates.

Respectfully submitted,

/s/ Justin P. Moeller

Gary D. Bachman
Justin P. Moeller
Van Ness Feldman LLP
1050 Thomas Jefferson Street, NW
Seventh Floor
Washington, DC 20007
Tel: (202) 298-1800
gdb@vnf.com
jpx@vnf.com

*Attorneys for Portland General
Electric Company*

Attachments

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CERTIFICATE OF SERVICE

I hereby certify that I have this day caused to be served the foregoing document upon each person designated on the official service lists compiled by the Secretary in in the above-captioned proceedings.

Dated at Washington, D.C. this 16th day of June, 2017.

/s/ Justin P. Moeller
Justin P. Moeller
Van Ness Feldman LLP
1050 Thomas Jefferson Street, NW
Seventh Floor
Washington, DC 20007
Tel: (202) 298-1800

July 7, 2017

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. 23
Dated June 23, 2017**

Request:

- 23. Will PGE accept deliveries from other offsystem QFs that have entered into PPAs with PGE and/or have requested PPAs from PGE and that are planning to deliver at PACW.PGE?**

Response:

PGE is reviewing off-system QFs that have entered PPAs and has not made a determination about whether it can accept deliveries from each of them at this time. All QFs that have requested PPAs from PGE and that have requested to deliver at PACW.PGE will be given the same options as Blue Marmot.

July 7, 2017

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. 26
Dated June 23, 2017**

Request:

- 26. When did PGE inform the other offsystem QFs that have entered into PPAs or requested PPAs in the queue that they are not accepting deliveries from the PACW.PGE POD?**

Response:

PGE began informing relevant QFs that it was not accepting deliveries at the PACW.PGE POD on or about April 18, 2017, and PGE posted this information on its QF website on or about April 21, 2017.

UM 1829
PGE Response to Blue Marmot's First Set of Data Requests

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July 7, 2017

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. 27
Dated June 23, 2017**

Request:

27. Are there any other offsystem QFs in the queue that may deliver at PACW.PGE that PGE sent an executable final standard PPA to? Please identify the QFs.

Response:

Other than Blue Marmot, no.

July 17, 2017

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. 28
Dated June 23, 2017**

Request:

28. Has PGE executed any PPAs for delivery at PACW.PGE since this POD became constrained in PGE's view (i.e., when PGE acquired the long-term firm transmission capability it felt was necessary to fully participate in the EIM) and if so, how will those parties be treated?

Response:

Yes, PGE has entered three PPAs for delivery at PACW.PGE since July 1, 2015. PGE is evaluating how deliveries anticipated to be made from those projects to the PACW.PGE POD will be handled.

August 2, 2017

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. 45
Dated July 19, 2017**

Request:

45) Would PGE describe PACW.PGE as the edge or border of PGE's balancing authority area?

Response:

Yes. PGE has a PACW.PGE scheduling point on its system in the PGE balancing authority area. PacifiCorp also has a PACW.PGE scheduling point on its system in the PACW balancing authority area. The PACW OASIS transmission reservation point—of which PACW.PGE is one scheduling point—represents the interface between the PGE and PACW transmission systems.

September 11, 2017

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. 76
Dated August 28, 2017**

Request:

- 76. Please provide copies of all communications to QFs regarding PGE belief regarding its purchase obligations being contingent upon the selection of a POD that did not have constraints (beyond the POD or otherwise)?**

Response:

PGE objects that the question is lacking in foundation. Without waiving its objections, PGE responds as follows. Attachments 76-A through 76-F provide letters and emails from PGE to QFs communicating that the PACW.PGE POD was constrained. On April 21, 2017, PGE also posted notice that PACW.PGE was not an available POD on its QF website.

From: Denise Saunders <Denise.Saunders@pgn.com>
Sent: Wednesday, May 10, 2017 2:21 PM
To: Lisa Rackner; Jordan Schoonover
Subject: FW: Blue Marmot Point of Delivery

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From: Angeline Chong
Sent: Wednesday, April 19, 2017 8:57 AM
To: 'Talbot, Will'; John Morton
Cc: Littlefield, Sam
Subject: RE: Blue Marmot Point of Delivery

Will – thanks for the information regarding the Point of Delivery for the Blue Marmot projects. The POD is currently constrained and it is unclear whether deliveries to the POD will be feasible. We are evaluating the issue and will contact you on the timing of an executable PPA once our evaluation is complete. If our evaluation goes past May 1 we will honor the avoided cost prices currently in effect for your partially executed PPAs and Blue Marmot VIII.

Thanks.

AC

From: Talbot, Will [<mailto:Will.Talbot@edpr.com>]
Sent: Tuesday, April 18, 2017 7:36 AM
To: Angeline Chong; John Morton
Cc: Littlefield, Sam
Subject: Blue Marmot Point of Delivery

Please take care when opening links, attachments or responding to this email as it originated outside of PGE.

John,

This is to confirm that the Point of Delivery for the Blue Marmot projects will be PACW.PGE.

Also, if you're filling in for Angeline, would you be able to provide an update on the status of Blue Marmot VIII? We were expecting an Executable PPA yesterday for that project.

Thanks,

Will



Will Talbott

EDP Renewables North America LLC

Development - Western Region

53 SW Yamhill Street, Portland, OR 97204

Direct: 503.535.1525 Cell 971.325.6238 Fax 503.222.9404

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September 28, 2017

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. 113
Dated September 14, 2017**

Request:

- 113. Please refer to PGE's response to Blue Marmot Data Request 71. Under what circumstances would PGE request a study to assess upgrades necessary at the PACW.PGE POD and pay for those upgrades itself? For example, if PGE's acknowledged integrated resource plan identified a transmission upgrade at the PACW.PGE POD as the least cost and least risk action item to accept delivery of the least cost and least risk generation resource, would PGE request a study to assess upgrades necessary at the PACW.PGE POD and pay for those upgrades itself?**

Response:

There are circumstances under which PGE Merchant could request additional transmission service, which would trigger a study to assess upgrades necessary on the PACW-PGE path. PGE then would look at the study and would follow its internal policies and procedures to decide whether to deploy capital to pay for the upgrades. In the hypothetical posed by Blue Marmot, PGE would not be able to determine whether upgrading the PACW-PGE path would be the least-cost least-risk option for its customers without first reviewing the study to determine the cost of upgrades. In addition, any decision to procure a resource to be delivered on the PACW-PGE path would need to take into account the cost of any necessary upgrades. In an RFP procurement process, the scoring likely would include an estimated cost adder for such projects, and the project likely would be responsible for reimbursing PGE for the costs.

September 28, 2017

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. 114
Dated September 14, 2017**

Request:

- 114. Please refer to PGE's response to Blue Marmot Data Request 71, in which PGE explained why it did not want to or why it believes it is legally not required to request such a study. As stated in oral conversations on September 13, 2017, Blue Marmot does not believe PGE has fully answered this data response. Please supplement the Data Request, and answer:**
- a. Can PGE merchant make a transmission service request for PGE transmission to conduct and pay for studies to assess upgrades necessary to accept Blue Marmot's net output?**
 - b. If PGE transmission identifies transmission upgrades on PGE's transmission system, can PGE merchant pay for those upgrades directly or through new transmission rates?**

Response:

- a. Like any other transmission customer, it is technically possible for PGE Merchant to make a transmission service request to PGE Transmission. PGE Transmission would then process the request according to the OATT and conduct studies to assess upgrades on the PACW-PGE path. Under the OATT, PGE Merchant, like any other transmission customer, would be required to pay for such studies. However, as explained in response to Blue Marmot Data Request No. 71, PGE is not obligated to do this on behalf of Blue Marmot.
- b. The PGE Transmission study identifying upgrades would identify whether those upgrades are Network Upgrades or Direct Assigned Facilities, as defined in the OATT. With regard to new transmission rates, those rates would be set by PGE

UM 1829

PGE Response to Blue Marmot's Seventh Set of Data Requests

Blue Marmot/701

Moyer/32

Transmission, not PGE Merchant. Please see also PGE's response to Blue Marmot Data Request No. 108.

February 7, 2018

TO: Irion Sanger
Leslie Freiman
Will Talbott

FROM: Robert Macfarlane
Interim Manager, Pricing and Tariffs

**PORTLAND GENERAL ELECTRIC
UM 1829
PGE Response to Blue Marmot Data Request No. 128
Dated January 24, 2018**

Request:

- 128. Please refer to PGE's Testimony PGE/100, Greene-Moore/15 stating PGE agrees the prices, but not the terms and conditions in Schedule 201 are effective.**
- a. Please explain which terms and conditions are not effective.**
 - b. Please explain which terms and conditions are effective.**

Response:

PGE objects that this data request lacks foundation as it appears to mischaracterize PGE's testimony. Without waiving its objection, PGE responds that its testimony states:

While, as discussed below, PGE acknowledges that the Blue Marmots have a Legally Enforceable Obligation (LEO)—which PGE agrees locks in their right to the avoided cost rate in place at the time the LEO arises—they do not have fully executed contracts. *We would point out that the Blue Marmots' PPAs all specify that their terms and conditions are not effective until signed by both parties.*² This same provision—that the terms and conditions are not effective until the contract is signed by both parties—is included in Schedule 201 and has been approved by the Commission.³ (emphasis and footnotes in original)

PGE's testimony does not state that some terms and conditions are effective while others are not, as the data request appears to assume. Rather, per Schedule 201 and PGE's

² See, e.g., Exhibit Blue Marmot/201, Talbott/6 (“THIS AGREEMENT . . . is effective upon execution by both parties”) & 11 (“This Agreement shall become effective upon execution by both Parties”).

³ Schedule 201, Sheet No. 201-2 (“Prices and other terms and conditions in the PPA will not be final and binding until the Standard PPA has been executed by both parties.”).

standard contract, none of the terms and conditions in the PPAs are effective until **both** the Blue Marmots **and** PGE have executed the PPAs. However, PGE agrees that the Blue Marmots have a Legally Enforceable Obligation (LEO) to the prices in effect at the time the delivery issue arose.

March 27, 2018

TO: Irion Sanger
Leslie Freiman
Will Talbott

FROM: Robert Macfarlane
Interim Manager, Pricing and Tariffs

**PORTLAND GENERAL ELECTRIC
UM 1829
PGE Response to Blue Marmot Data Request No. 169
Dated March 13, 2018**

Request:

169. Please explain why PGE provided results in the System Impact Study for a transmission alternative that could increase the TTC 18 MW when there were other transmission alternatives that increase the TTC more than 18 MW.

Response:

PGE objects that this request is based on an incorrect premise. PGE has never asserted and does not concede that there are other *viable* transmission alternatives that would increase the TTC of the PACW-PGE interface by more than 19 MW (the increase PGE predicted from the addition of a second 230 kV transmission line between Bethel and Parish Gap).

October 17, 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. 196
Dated October 5, 2018**

Request:

196. Please refer to PGE/100, Greene-Moore/20, which they state: “[T]he Company did study one alternative that would allow the Blue Marmots to interconnect directly with PGE at the Bethel substation. . . .The Blue Marmots have indicated that they do not wish to pursue this strategy.” If the Blue Marmots request to directly interconnect at the Bethel substation, would this request be made under FERC’s interconnection rules or the OPUC’s interconnection rules (OAR 860-82)?

Response:

PGE objects that this data request seeks a legal conclusion. Notwithstanding and without waiving this objection, PGE responds as follows: Assuming that the Blue Marmots were selling their entire net output to PGE as QFs and directly interconnecting to PGE’s facilities at the Bethel substation, then PGE would advise the Blue Marmots to submit their request pursuant to the applicable state generator interconnection procedures.