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August 30, 2018

VIA ELECTRONIC FILING AND U.S. MAIL

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

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

Attention Filing Center:

Attached for filing in the above-captioned docket is Portland General Electric Company's Surrebuttal Testimony and Exhibits of Brett Greene (PGE/400-401); Surrebuttal Testimony and Exhibits of Aaron Rodehorst, and Geoffrey Moore (PGE/500-502); and Surrebuttal Testimony and Exhibits of Sarah Edmonds, Sean Larson, and Matthew Richard (PGE/600-601).

There is one confidential exhibit (PGE/601) which will be sent via U.S. mail to the Commission and parties who have signed the Protective Order.

Please contact this office with any questions.

Sincerely,

Alisha Till

Alisha Till

Attachments

PGE/400
Witness: GREENE

BEFORE THE PUBLIC UTILITY COMMISSION
OF THE STATE OF OREGON

UM 1829

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

Complainants,

v.

Portland General Electric Company,

Defendant.

PORTLAND GENERAL ELECTRIC COMPANY

SURREBUTTAL TESTIMONY OF

BRETT GREENE

August 30, 2018

INTRODUCTION AND SUMMARY

Q. Please state your name.

A. My name is Brett Greene.

Q. Have you previously filed testimony in this case?

A. Yes. I previously filed Response Testimony on behalf of Portland General Electric Company (PGE) on January 12, 2018 (hereinafter Policy Response Testimony).[1]

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to respond to the policy arguments made in the Reply Testimony of Keegan Moyer as well as the joint Reply Testimony of Steve Irvin and William Talbott.

Q. Please summarize your testimony.

A. In this case, the Blue Marmots seek to build five 10-MW solar qualifying facilities (QFs) 300 miles from PGE's service territory[2] and deliver their output to the interface between the PacifiCorp and PGE systems (PACW-PGE interface), [3] even though that interface has no available transfer capability (ATC). The Blue Marmots argue that, regardless of the lack of ATC, PGE must somehow accommodate their output, and further, that the costs of doing so should be imposed on PGE's customers. In particular, the Blue Marmots argue that PGE must (a) make and pay for upgrades to the PACW-PGE interface such that the Blue Marmots' output can be delivered via that interface; (b) give up transmission capacity that PGE has reserved and is currently using for its participation in the Western Energy

[1] PGE/100.
[2] This distance is approximate, based on the length of transmission lines between the Blue Marmots' proposed site and PGE's service territory.
[3] As explained in my opening testimony, the Blue Marmots are located in PacifiCorp's service territory, near the California border. The Blue Marmots have determined to wheel and sell their output to PGE in order to take advantage of PGE's higher avoided cost rates in effect at the time they began the contracting process.

Imbalance Market (EIM); or (c) arrange and pay the costs to transmit the Blue Marmots' output to the interface between PGE and the Bonneville Power Administration (BPA-PGE interface), at the approximate cost of $14 million.[4]

In my Response Testimony, I discussed the legal and policy principles that would be violated by the Blue Marmots' proposal. First, I explained that the Blue Marmots' proposal to shift the costs of their projects onto PGE's customers would violate the Public Utility Regulatory Policies Act's (PURPA) mandate that utility customers not be harmed by purchases from qualifying facilities—referred to as the "customer indifference standard." And second, I discussed the vital importance of PGE's participation in the EIM, and the ways in which PGE's customers will be harmed if it is required to give up the transmission capacity that is critical to successful participation.

In his Reply Testimony, Mr. Moyer makes three primary "policy"[5] arguments in support of Blue Marmots' proposals. His first argument is that the Company has taken an unnecessarily restricted view of the options it has to accommodate the Blue Marmots' output, and that there are a number of ways PGE could do so without impacting its ability to participate in the EIM. Next, Mr. Moyer argues that the Company has inappropriately prioritized use of transmission for EIM participation, which he views as an inefficient use of PGE's transmission assets. Finally, Mr. Moyer states his disagreement with PGE's view that the Blue Marmots have not made the necessary arrangements to deliver their output to the Company's system because they cannot schedule their power across the PACW-PGE interface.

[4] Blue Marmot/100, Irvin/6.
[5] PGE believes that several of the points Mr. Moyer makes in the policy section of his testimony are more factual than policy in nature, but will address them in this testimony nevertheless.

In addition, Messrs. Irvin and Talbot address two separate policy issues raised in this case. First, they restate their view that the legally enforceable obligation (LEO) established by the Blue Marmots puts them in the same legal position as if they had fully-executed PPAs. Second, they argue that PGE has failed to act in good faith.

The Blue Marmots' arguments should be rejected for the following reasons:

First, the Blue Marmots' proposal is contrary to the PURPA customer-indifference standard, which requires that utility customers not be harmed by QF purchases. Essentially, the Blue Marmots are arguing that they have the right to locate their projects wherever they wish, and to deliver their output wherever they wish, with no responsibility for the consequences of those decisions. If upgrades are necessary to accept their output, then they argue that PGE—and by extension, PGE's customers—should pay for them. If the Blue Marmots' output needs to be moved to another interface, then they assert that PGE's customers are responsible to pay the transmission charges required to do so. And if PGE does not want its customers to pay for upgrades or transmission charges to accommodate the Blue Marmots, then they argue that PGE must sacrifice the transmission capacity that is vital for PGE's successful participation in the EIM, requiring customers to lose out on the EIM benefits in which they have invested to date. This position is untenable as a matter of both policy and law.[6]

Second, the Blue Marmots' view that PGE has "unreasonably limited its options" is without merit. In fact, PGE's options are realistically limited by the fact that the PACW-to-PGE path represents the Company's primary transmission route for participating in the

[6] This testimony will address policy issues only. PGE's legal arguments will be addressed by the Company's lawyers in briefing.

EIM and the path is constrained. As a result, PGE cannot give up its reserved transmission capacity to the Blue Marmots without compromising EIM benefits for the next fifteen years. The Blue Marmots' repeated insistence that the Company must come up with some "creative way" to accommodate the Blue Marmots output—and Mr. Moyer's vague proposals as to how PGE might be able to do so—are simply not grounded in reality. Notably, while Mr. Moyer claims that PGE's System Impact Study (SIS) prepared for the Blue Marmots failed to consider all possible transmission alternatives, he does not go so far as to argue that the alternatives he proposes are actually feasible; and as explained in the Transmission Surrebuttal Testimony, while it is *possible* that these alternatives could prove technically feasible, they are most certainly not economically reasonable in view of the option for the Blue Marmots to deliver to the BPA-PGE interface.

Third, the Blue Marmots' view that the Company has "inappropriately prioritized" use of transmission for EIM participation is based on Mr. Moyer's misunderstanding of the capacity that is required for the Company to participate fully in the EIM. The Company is correct to protect its reserved transmission capacity for EIM participation, which represents an important strategic and operational initiative for the Company and its customers not only now, but for years into the future with benefits expected to increase as more entities join the EIM.

Fourth, PGE continues to disagree with the Blue Marmots' position that they have no responsibility to bear any additional costs imposed by their project because they have reserved transmission on PacifiCorp's system, and our testimony confirms that, as a practical matter, the Blue Marmots cannot schedule their output for delivery to PGE because of the existing constraint.

Fifth, PGE believes that the Blue Marmots' LEO entitles them to the avoided cost prices in effect at the time the obligation was incurred. Our testimony explains the policy rationale for PGE's position and responds to the Blue Marmots' policy arguments in support of their view that they are entitled to all terms and conditions in their partially executed PPAs.

And sixth, the Blue Marmots' allegation that PGE has not acted in good faith to explore all possible options for accepting their output is unsupported. PGE promptly communicated with the Blue Marmots about the constraint, explored all reasonable options for accommodating their delivery, has treated the Blue Marmots and other affected QFs fairly, and has complied with its PURPA obligations.

THE BLUE MARMOTS' PROPOSALS ARE CONTRARY TO PURPA'S CUSTOMER-INDIFFERENCE STANDARD

Q. Please explain your view that the Blue Marmots' proposals are contrary to PURPA's customer-indifference standard.

A. One of PURPA's central mandates is the requirement that customers should not be harmed by utility purchases from QFs. This principle is referred to as the "customer indifference" standard. Accordingly, any approach to PURPA implementation that financially harms utility customers is contrary to PURPA's most basic terms. However, that is precisely the result advocated by the Blue Marmots. Specifically, the Blue Marmots propose that PGE has three options: (1) give up transmission capacity that it is actively using for EIM participation and allocate it to the Blue Marmots; (2) pay for transmission upgrades that would be required to accept the Blue Marmots' output; or (3) purchase third-party transmission services from another transmission provider to deliver the Blue Marmots'

output to a location where it can be scheduled and delivered to PGE.[7] As explained in the EIM Response and Surrebuttal Testimony and the Transmission Response and Surrebuttal Testimony, all of these approaches would financially harm PGE's customers.

Q. How would customers be harmed if PGE is forced to surrender transmission capacity it has reserved and is actively using for EIM participation and to allocate it to the Blue Marmots?

A. As discussed in detail in the EIM Response and Surrebuttal Testimony, if PGE is required to surrender capacity currently dedicated to the EIM, its ability to make economic transfers would decrease; customers would then be deprived of the financial benefits they would otherwise realize and in which they have made substantial investments to-date.[8] PGE previously produced data demonstrating that the PACW-to-PGE path is its primary path for participating in the EIM. And, as further detailed in the EIM Surrebuttal Testimony, the Company has also shown that, after just a few months of participation, the EIM is using that path to make economic transfers in the majority of hourly intervals and, over the most recent months, PGE is regularly using that path's full transmission capacity for EIM transfers, particularly during peak hours.. Therefore, customers are already benefiting from use of the full amount of transmission capacity reserved on the PACW-to-PGE path. More importantly, the Company expects that usage will increase as more entities enter the EIM, and as variable resources become an increasingly large percentage of the Company's overall generation portfolio. Thus, while we cannot quantify the precise level of financial harm that would be imposed on customers if PGE is required to give up EIM transmission

[7] Blue Marmot/300, Moyer/5.
[8] As of December of 2017, PGE had incurred approximately $13 million of capital investment in the EIM.

capacity to the Blue Marmots, we know that such harm would be imposed immediately, and we believe that the harm is likely to increase over time.

Q. How would customers be harmed if PGE is forced to pay for upgrades required to allow the Company to accept the Blue Marmot's output via the PACW-PGE interface?

A. Customers would be directly and significantly harmed if PGE were required to absorb the cost of system upgrades required to allow the Blue Marmots to deliver their output via the PACW-PGE interface, as those projects have requested. As described in the Transmission Surrebuttal Testimony, PGE's SIS was unable to identify any upgrade that would sufficiently increase the total capacity of the PACW-PGE interface to allow for scheduling and delivery of the Blue Marmots' entire net output; moreover, the SIS indicated that an upgrade that would add only a portion of the capacity needed by the Blue Marmots would cost tens of millions of dollars.[9] However, from a policy perspective, the Blue Marmots' position is unsupportable. They are essentially arguing that they should be allowed to develop five solar projects 300 miles away from PGE's service territory and deliver the output of those projects to a constrained point on PGE's system. It is their position that the consequences of these decisions are not their problem to solve, but rather it is PGE—and by extension PGE's customers—who must suffer the financial consequences. This position is entirely at odds with the Public Utility Commission of Oregon's (Commission) legislative directive to protect customers from unjust and unreasonable exactions, and it is at odds with PURPA's mandate that customers be left indifferent.

[9] PGE/600, Edmonds-Larson-Richard/8.

Q. Mr. Moyer also argues that assessing "transmission costs" to the Blue Marmots would impermissibly decrease the avoided cost rate to which they are entitled.[10] Please respond.

A. In making this argument, Mr. Moyer elevates form over content, and process over substance. The Commission has enunciated the general principle that QFs are responsible for the costs that they impose on the purchasing utility, and has recognized that, at least in the case of third-party transmission charges, the Federal Energy Regulatory Commission (FERC) has left open the vehicle by which they are assessed.[11] There is therefore no sound reason for the Blue Marmots to conclude that, just because these costs were not captured in the Company's standard avoided cost prices, the costs necessarily must be borne by PGE's customers.

PGE HAS CONSIDERED ALL REASONABLE OPTIONS FOR MANAGING THE BLUE MARMOTS' OUTPUT

Q. Please explain Mr. Moyer's argument that PGE has taken an unreasonably restricted view of the options it has to manage the Blue Marmots' output.

A. Mr. Moyer characterizes PGE as taking the position that it has two alternatives if it is required to accept the Blue Marmots' output via the PACW-PGE interface: either it can relinquish transmission capacity that it is relying on to participate in the EIM or the Blue Marmots must be forced to pay for a 300-mile generation lead line to directly interconnect with PGE's system.[12] (PGE has also informed the Blue Marmots they may transmit their output to the BPA-PGE interface, but Mr. Moyer omits this fact.) Mr. Moyer argues that

[10] Blue Marmot/300, Moyer/27.
[11] *In the Matter of Public Utility Commission of Oregon Staff Investigation into Qualifying Facility Contracting and Pricing*, Docket No. UM 1610, Order No. 14-058 at 16-22 (Feb. 24, 2014).
[12] Blue Marmot/400, Moyer/5.

PGE is intentionally limiting its options as a way of avoiding its purchase obligations, "while ignoring alternative uses of power and transmission."[13]

Q. What are the "alternative uses of power and transmission" that Mr. Moyer claims PGE is ignoring?

A. Mr. Moyer claims that there are "numerous" ways in which PGE could accept the Blue Marmots' output but provides only two specific alternatives. First, Mr. Moyer claims that PGE could resell a portion of the Blue Marmots' output to a third party and use a portion of it to serve native load.[14] Second, Mr. Moyer claims that PGE could manage the power through "the concept of displacement," arguing that the Blue Marmots' power could be "used by PGE as a surrogate for power PGE would otherwise ship to market."[15] Mr. Moyer concludes that "[a]t the end of the day, PGE is the entity best positioned to figure out the most economical solution."[16]

Q. Please respond to Mr. Moyer's claim that the Company can sell a portion of the output to a third party and use a portion of it to serve native load.

A. The Blue Marmots have refused to provide any detail as to precisely what Mr. Moyer intends the Company to do,[17] but PGE presumes he is suggesting that the Company accept the Blue Marmots' output to serve native load when PGE has enough transmission capacity to do so—presumably during the winter when the path rating is higher—and then sell the rest to some third party when it does not. This approach is unacceptable because it would impose additional costs on PGE's customers in violation of the customer-indifference

[13] Blue Marmot/400, Moyer/7.
[14] Blue Marmot/400, Moyer/7.
[15] Blue Marmot/400, Moyer/7.
[16] Blue Marmot/400, Moyer/7.
[17] Blue Marmot Response to PGE DR 28, attached as PGE/401.

standard. Specifically, in order to sell the Blue Marmots' output to a third party, PGE would first need to expend Company resources to locate a buyer and then acquire one or many transmission reservations to transmit the power to the buyer, which may or may not be possible. Assuming the necessary transmission was available and PGE was able to acquire it, PGE would need to accept whatever market price it could obtain for the generation—which in times of negative pricing could mean paying a buyer to accept the power—and potentially incur EIM or other charges to facilitate the sale.

Given that PGE would be paying the Blue Marmots an avoided cost price that includes a capacity payment, PGE would almost inevitably be selling the output at a loss. Moreover, this approach is at odds with PURPA's overall framework, which assumes that, at least during the deficiency period, PGE is purchasing the QF's output in place of its own generation otherwise required to serve customer load. Mr. Moyer's proposal turns those assumptions on their head and, as a result, would burden PGE's customers with extra costs.

Q. Please respond to Mr. Moyer's claim that the Company could use the displacement method to accommodate the Blue Marmots' output.

A. Again, Mr. Moyer does not explain in his testimony precisely how this could work and, when PGE asked for more detail via data request, Mr. Moyer simply responded that "EDPR is not responsible for the 'details' necessary to implement this approach."[18] Nevertheless, based on the little information Mr. Moyer does provide, PGE assumes that Mr. Moyer intends that PGE pay third-party transmission charges to move the Blue Marmots' output to the Mid-Columbia market hub, in lieu of market sales that he assumes the Company would otherwise be making. From an implementation standpoint, this proposal is the same

[18] Blue Marmot Response to PGE DR 28, attached as PGE/401.

as Mr. Moyer's proposal that the Company use the Blue Marmots' output to make third-party sales, and suffers from the same infirmities. Specifically, Mr. Moyer incorrectly assumes that PGE will always have market sales that it can displace with the Blue Marmots' output, whenever the Blue Marmots are generating. That is simply not the case. In fact, during very warm or very cold periods, or other high load periods, PGE typically will not have excess generation to sell and would be making market purchases. If PGE were not making market sales, any incremental costs required to sell the Blue Marmots' output to market would impose additional costs on PGE's customers, harming them financially in violation of PURPA. In addition, during times of very low or negative pricing, the Company would normally make the economic decision to reduce the output of its own resources instead of generating and paying others to take excess energy from PGE. Customers would be harmed financially if the Company were required to sell the Blue Marmots' output into the market at these times as well.

Second, Mr. Moyer incorrectly cites FERC Order 69 as support for his displacement proposal.[19] While the implications of Order 69 are largely a legal matter that will be addressed in PGE's briefing, for the sake of this testimony, PGE will simply observe that Order 69 addresses a narrow set of facts concerning "all-requirements" rural electric cooperatives that may not be relevant here. Specifically, in Order 69 FERC addresses the challenges posed by PURPA for such entities, noting that PURPA allows utilities that would otherwise be obligated to purchase from a QF to transmit the QF energy to its supplying utility through "displacement."[20] Even assuming—for the sake of argument—

[19] Blue Marmot/400, Moyer/7.
[20] *Small Power Production and Cogeneration Facilities; Regulations Implementing Section 210 of the Public Utility Regulatory Policies Act of 1978*, 69 FERC ¶ 12,214 at ¶ 12,219 (Mar. 29, 1980).

that FERC's statement regarding displacement is more broadly applicable, its endorsement of displacement is premised upon the assumption that the utility would otherwise be purchasing (or under Mr. Moyer's theory, selling) energy that the QF can displace. Stated differently, displacement cannot occur where there is nothing to displace. Here, Mr. Moyer's displacement approach will not work because, as explained above, PGE will not *always* be selling power into the market when the Blue Marmots are generating.

Q. Mr. Moyer also claims that PGE has not considered transmission options that could increase the total transfer capability (TTC) of the PACW-PGE interface. Please respond.

A. In its Transmission Surrebuttal Testimony, PGE provides a detailed analysis supporting the SIS and demonstrating that PGE did not fail to study any reasonable transmission options. At a high level, it is important to note that, while Mr. Moyer points to alternatives that he believes PGE should have studied, he does not and cannot claim that any of them present a reasonable approach to increasing TTC. Specifically, each of the alternatives Mr. Moyer claims the Company should have studied would cost an estimated $45 million or more to construct. Therefore, even if Mr. Moyer were correct that these approaches would sufficiently increase TTC to allow the Blue Marmots to deliver their output, it would be entirely unreasonable for PGE to undertake them—particularly because the Blue Marmots have the option of delivering their output to the BPA-PGE interface at a total cost of approximately $14 million.[21]

Q. Why is it the Blue Marmots'—and not PGE's—responsibility to wheel the Blue Marmots' output to the BPA-PGE interface?

[21] Blue Marmot/100, Irvin/6.

A. The Blue Marmots must be responsible for delivering to the BPA-PGE interface because customers would be harmed if they were required to bear the $14 million cost to do so. As discussed in the Policy Response Testimony, PGE's avoided cost prices assume just one leg of third-party transmission to move generation from an off-system proxy resource to PGE's territory. Customers would not be held indifferent if they were required to pay for the second leg of third-party transmission required to move the Blue Marmots' output from the PACW-PGE interface to the BPA-PGE interface.

Q. Please respond to Mr. Moyer's claim that PGE arrived at an unreasonable conclusion that a 300-mile generation lead line is required to deliver the Blue Marmots' output.[22]

A. As discussed in the Transmission Surrebuttal Testimony, PGE presented the generation lead line—which interconnects directly to PGE's system—as the only approach studied that could deliver all of the Blue Marmots' output to PGE. Mr. Moyer argues that the cost of this approach is unreasonable—and PGE agrees. It would be much more reasonable for the Blue Marmots to purchase transmission service on BPA's system to schedule and deliver their output to PGE at the BPA-PGE interface, where there is sufficient ATC. However, the Blue Marmots had already refused to consider this option at the time of the SIS, so PGE chose to present the only remaining alternative that could reliably deliver all of their projects' output to PGE's system.

Q. Mr. Moyer also claims that PGE has "complicated the record" by introducing a transmission service study into the record. Please respond.

A. This claim is without basis. In his Opening Testimony, Mr. Moyer argues that one of the ways that PGE could accommodate the Blue Marmots' output is by studying and paying

[22] Blue Marmot/400, Moyer/8.

for the transmission upgrades necessary to allow the Blue Marmots to deliver their output to the PACW-PGE interface.[23] The SIS was introduced in response to Mr. Moyer's argument, made in his Opening Testimony, that PGE should study and pay for the transmission upgrades necessary to allow the Blue Marmots to deliver their output to the PACW-PGE interface.[24] The Study establishes that: (1) there are no feasible upgrades that could increase TTC of the PACW-PGE interface sufficiently to allow for the delivery of all of the Blue Marmots' output; and (2) other approaches that would allow for partial delivery of the Blue Marmots' output via the PACW-PGE interface—or directly to PGE's system through a generation lead line—would be exorbitantly expensive. This information is directly relevant to Mr. Moyer's testimony—showing that his proposal is either not technically feasible or exorbitantly expensive. Therefore, it is illogical for Mr. Moyer to argue that the introduction of the SIS unnecessarily complicates the record.

Q. Finally, Mr. Moyer states that PGE has "[m]ischaracterized the [transmission service request] and the resulting SIS as something that the Blue Marmots were obliged to request from PGE Transmission."[25]

A. Mr. Moyer's statement is without any basis in fact. As explained in the Policy Response Testimony, the Blue Marmots' request that PGE Transmission perform the SIS came out of settlement discussions between PGE and the Blue Marmots. The Blue Marmots' decision to request the SIS arose from an honest effort by both parties to determine whether reasonably affordable upgrades existed that would allow for scheduling and delivery of the Blue Marmots' output. PGE never suggested that the Blue Marmots were required to

[23] Blue Marmot/300, Moyer/5.
[24] Blue Marmot/300, Moyer/5.
[25] Blue Marmot/400, Moyer/8.

request the Study—nor did PGE ever indicate that the Blue Marmots were responsible to purchase transmission services from PGE. To be clear, while PGE believes that QFs are responsible for *system upgrades* required to enable delivery of their output, PGE does not believe that QFs are responsible to pay for *transmission service* on the purchasing utility's system.

Mr. Moyer did not attend the settlement discussions between PGE and the Blue Marmots, and as far as PGE knows, he had not been retained by the Blue Marmots until much later. Therefore, his arguments may be explained by the fact that he is unfamiliar with what took place. At any rate, his view of what occurred is incorrect.

PGE PROPERLY PRIORITIZED THE EIM

Q. Please provide a brief update on the Company's experience in the EIM to-date.

A. The Company entered into the EIM in October 2017, and has now had nearly 11 months of participation. As more fully described in the EIM Surrebuttal testimony, in each of these months the Company has made EIM transfers during the majority of all hours, and has regularly used all of the capacity reserved on the PACW-to-PGE path during peak hours.[26] As a result, PGE's customers are receiving the benefits of their investment in this important initiative.

Q. Please explain Mr. Moyer's claim that PGE has inappropriately prioritized use of transmission for EIM participation, which he views as an inefficient use of PGE's transmission assets.[27]

A. Mr. Moyer makes two arguments to support this claim. First Mr. Moyer argues that the Company's initial reservation of 418 MW for the EIM "may" have been more than was

[26] *See* PGE/500, Rodehorst-Moore/9.
[27] Blue Marmot/400, Moyer/10.

needed, and that therefore, even though a significant amount of that reservation (147 MW) was recalled, there is no reason why PGE should not surrender even more of its EIM capacity to the QFs.[28] Second, he argues that just because PGE believes the Company needs the reserved capacity for the EIM does not mean that it is absolved of its "other responsibilities."[29]

Q. What is your general response to Mr. Moyer's argument?

A. Mr. Moyer seems to believe that PGE should have reserved a minimal amount of transmission capacity for the EIM, and further that as a matter of policy, PGE's plans for the EIM should give way in the face of a QF's wish for transmission capacity to accommodate a particular project. In taking this view, Mr. Moyer fails to apprehend just how important the EIM is to PGE's future participation in energy markets, and its ability to achieve the benefits in which customers have invested.

The EIM has been a tremendous success, with economic and environmental benefits growing as the EIM footprint itself has grown. As each additional member has joined the market, each has contributed both generation and transmission resources, thereby facilitating increased benefits. As variable energy resources have continued to increase in the West and as more transmission capacity has been made available to the market, the grid is used more efficiently, resulting in the avoidance of unnecessary curtailments of variable energy resources. In this manner, the EIM has reshaped the western grid and has fundamentally changed the direction of markets for the future. Importantly, using conservative estimates, over 50% of the load in the West is already

[28] Blue Marmot/400, Moyer/10-11.
[29] Blue Marmot/400, Moyer/10-11.

participating in the EIM. By 2022, assuming other utilities like Sacramento Municipal Utility District, Seattle City Light, Los Angeles Department of Water and Power, and Bonneville Power Administration have all executed on their announced plans to join the EIM, the participation of load in the West will be closer to 80%. This is a significant indication of what market participation will look like in the future and further supports the conclusion that the West has made a fundamental shift towards the EIM and the value that it delivers for customers. However, PGE's customers will be deprived of this value if the Company lacks the critical transmission capacity required for robust participation.

Q. Please respond to Mr. Moyer's specific claim that PGE's target for EIM capacity may not be optimal.

A. Mr. Moyer's argument on this point is unpersuasive. PGE's EIM Response Testimony provides a lengthy and detailed explanation as to why PGE initially chose to reserve 418 MW for EIM participation.[30] In short, PGE made this decision based on the Company's view that it was important to have approximately the same amount of transmission capacity as the neighboring utilities participating in the EIM in order to maximize EIM transfers—and, correspondingly, customer benefits. A second factor underlying this view was PGE's belief—which has proven true to date—that the PACW-to-PGE path would be the primary transmission path for PGE's participation in the EIM. And the final factor underlying the Company's determination was the limited TTC on the path. On this last point, the EIM studies performed for PGE by it consultants correctly identified the PACW-to-PGE path as the primary path for PGE's EIM participation.[31] PGE

[30] *See* PGE/200, Sims-Rodehorst-Sporborg/10-13.
[31] *See* PGE/200, Sims-Rodehorst-Sporborg/6.

understood that if it did not reserve the ATC on that path for the EIM, it might not be available if PGE later determined that it was required, therefore eliminating the potential to achieve EIM savings for customers.

Moreover, while Mr. Moyer points to the first few months of EIM transfer activity to argue that PGE has inappropriately "over procured" EIM-dedicated transmission,[32] as discussed in PGE's EIM Surrebuttal Testimony, Mr. Moyer's analysis is not persuasive. Even if the current data did suggest that PGE had more transmission capacity for the EIM than is required for the current level of transfers—a claim with which PGE vehemently disagrees—this data says nothing about the amount of capacity that will be required as EIM participation expands. PGE's entry into the EIM constitutes an important operational and strategic initiative for the Company, and the Company believes 100 percent of its current transmission reservation will be required to deliver the benefits of participation to its customers over time. Given these facts, it would be imprudent for PGE to relinquish capacity for the next 20 years to the Blue Marmots.

Q. Does the Commission's decision in this case have broader implications than the request for capacity posed by the Blue Marmots?

A. Yes. The Blue Marmots are not the only QFs that wish to deliver via the PACW-PGE interface. PGE has had several requests from other off-system QFs that wish to deliver their output via that interface. If PGE were required to give up EIM capacity to QFs in general, the amount available for participation in the EIM could soon be zero.

[32] Blue Marmot/400, Moyer/22.

Q. How do you respond to Mr. Moyer's argument that, regardless of how much transmission capacity PGE believes is required for successful participation in the EIM, the Company is not "absolved of its other responsibilities"?[33]

A. PGE rejects this formulation. Presumably, the "other responsibilities" Mr. Moyer is referring to are PGE's obligations under PURPA. Mr. Moyer seems to be suggesting that even if PGE required all of its reserved transmission capacity to participate at an optimal level in the EIM, it would nevertheless be required to give up that transmission capacity because its PURPA obligations take priority over every other obligation a utility might have. This is consistent with the argument Mr. Moyer made in his Opening Testimony when he said that it was his understanding that "a utility's PURPA obligations supersede any contractual obligations that a utility might claim would prohibit its ability to purchase a QF's net output."[34] This interpretation would wrongfully require PGE to breach contracts with third parties in order to accommodate QF requests, and could upend and disrupt every transmission arrangement PGE makes to provide safe and reliable service to its customers, ultimately causing significant harm to PGE's customers.

THE BLUE MARMOTS' INABILITY TO SCHEDULE DELIVERY

Q. Please describe Mr. Moyer's testimony regarding the Blue Marmots' ability to schedule their output to the PACW.PGE Point of Delivery (POD).

A. Mr. Moyer's testimony on this point is intended to support the Blue Marmots' view that by reserving transmission on PacifiCorp's system to transmit their output to PacifiCorp's PACW.PGE POD, they have fulfilled all necessary obligations to sell their output to PGE and therefore cannot be held responsible for any further costs. PGE has explained that this

[33] Blue Marmot/400, Moyer/10-11.
[34] Blue Marmot/300, Moyer/12.

position is incorrect as a technical matter because, given that there is no transmission capacity that can be allocated to the Blue Marmots, they ***cannot*** schedule their power for delivery across the PACW-PGE interface.[35]

In his Reply Testimony, Mr. Moyer describes the distinction between a transmission reservation and a transmission schedule and explains that transmission of power cannot be scheduled unless the scheduler has the right to do so, which is obtained via a transmission reservation.[36] He asserts that, if PGE reserved transmission capacity for the Blue Marmots on the other side of the PACW-PGE interface, then the Blue Marmots would be able to schedule their output for delivery via their existing reservation with PacifiCorp and PGE's reservation.[37] Therefore, although he acknowledges that PGE's testimony about the Blue Marmots' inability to schedule is technically accurate, he maintains that the problem results from PGE's failure to take appropriate action—not a deficiency in the Blue Marmots' arrangements.[38]

Q. Do you agree with Mr. Moyer's assertion that the Blue Marmots' inability to schedule their output for delivery results from PGE's inaction?

A. No. First, PGE would note that Mr. Moyer's acknowledgment that PGE's position is technically correct and that the Blue Marmots are not currently able to schedule delivery of their output is at odds with the Blue Marmots' repeated claims throughout their testimony that they already have made arrangements sufficient for delivery to PGE.[39] The

[35] Blue Marmot/400, Moyer/12, 33. PGE also believes that Blue Marmots' argument is also incorrect as a matter of law—an issue that will be addressed in PGE's briefs.
[36] Blue Marmot/400, Moyer/12-13.
[37] Blue Marmot/400, Moyer/13.
[38] Blue Marmot/400, Moyer/13-14.
[39] Blue Marmot/500, Irvin-Talbott/3 ("the Blue Marmots' power that PacifiCorp *will deliver*") (emphasis added); *see also*, Blue Marmot/300, Moyer/3, 13-14; Blue Marmot/400, Moyer/2, 6, 43.

Blue Marmots finally appear to recognize that their current arrangements do not allow their output to be delivered to PGE under existing circumstances.

Second, to Mr. Moyer's argument that it is PGE's failure to act that prevents Blue Marmots from delivering their output, PGE agrees that, in the absence of a constraint, PGE would be responsible for reserving transmission capacity on which the QF could schedule. However, in a situation like that posed in the present case where PGE's existing capacity is committed and there is no ATC that can be reserved, PGE believes that the QF—not PGE and its customers—is responsible for either delivering to a point at which there is available capacity or paying for upgrades necessary to increase capacity. The Blue Marmots have not yet indicated a willingness to take either approach, and therefore PGE does not believe that it is deficient in any obligation to reserve capacity for the Blue Marmots, as Mr. Moyer claims.

Q. Messrs. Irvin and Talbott also raise the fact that PGE has not explained how it will accommodate the output of the three off-system QFs in PacifiCorp territory that have fully executed PPAs and that have requested to deliver to the PACW.PGE POD.[40] Please respond.

A. At the outset it bears repeating that we reject the view, stated in Blue Marmots' initial testimony and pleadings, that the Blue Marmots are similarly situated to these other three QFs and therefore must be treated identically. These QFs (totaling 67 MW) have fully-executed contracts—one of which specifically states that it will deliver its output via the PACW-PGE interface. The Blue Marmots do not have fully-executed PPAs, and therefore do not raise all of the same considerations. That said, PGE is exploring options with these

[40] Blue Marmot/500, Irvin-Talbott/13.

QFs that would have them deliver their output to the BPA-PGE interface—but PGE has not yet reached a resolution.[41]

THE BLUE MARMOTS' LEO LOCKED IN AVOIDED COST PRICES

Q. Please summarize the disagreement between PGE and the Blue Marmots regarding the implications of the fact that four out of five of the Blue Marmots executed and returned to PGE executable versions of the PPAs forwarded by the Company.

A. Under Commission policy, a QF establishes a LEO to sell its output to a utility by executing a final executable PPA.[42] As such, PGE has confirmed that the Blue Marmots have established a LEO for Blue Marmots V, VI, VII, and IX. PGE interprets this LEO to entitle the Blue Marmots to the relevant avoided cost rates that were in effect at the time they executed the PPAs. However, PGE does not agree with the Blue Marmots' view that the establishment of this LEO puts the Blue Marmots in the same position they would be in if the PPAs were fully executed. On this point, PGE has pointed out Section 2.1 in each of the PPAs provided to the Blue Marmots, which states that the agreement is effective when it is executed by both parties.[43]

In their joint Reply Testimony, Messrs. Irvin and Talbott correctly note that the legal implications of a LEO are, first and foremost, an issue to be addressed by the lawyers in their briefs.[44] However, they offer several non-legal opinions to which we will respond. First, Messrs. Irvin and Talbott argue that if the LEO does not entitle the Blue Marmots to all of the terms and conditions covered in the PPA, it is essentially meaningless.[45] Second,

[41] PGE has not been able to contact one of these QFs.
[42] *In the Matter of Public Utility Commission of Oregon Staff Investigation Into Qualifying Facility Contracting and Pricing*, Docket No. UM 1610, Order No. 16-174 at 3 (May 13, 2016).
[43] *See e.g.*, Blue Marmot/201, Talbott/12.
[44] Blue Marmot/500, Irvin-Talbott/8.
[45] Blue Marmot/500, Irvin-Talbott/8-9.

Messrs. Irvin and Talbott testify that it was their belief, at the time PGE confirmed that they had a LEO, that they were entitled to all of the contract terms and conditions.[46] They also state that, at the time, they believed that they were committing to deliver their output to the PACW.PGE POD, and that they would not need to incur any additional transmission or interconnection costs.[47]

Q. What is your general response to these arguments?

A. As will be addressed in our briefing, PGE disagrees that the LEOs incurred by the Blue Marmots are equivalent to the rights conferred by a fully-executed PPA. Nevertheless, even if the Commission found in the Blue Marmots' favor on this issue, that would not mean that they have the right to deliver their output via the PACW-PGE interface, regardless of the constraint. To be clear, the PPAs signed by the Blue Marmots do not state a point of delivery. And contrary to the suggestions in the testimony of Messrs. Irvin and Talbott, prior to the date PGE informed EDPR of the constraint, EDPR never directly stated that the Blue Marmots planned to deliver to PGE at the PACW-PGE interface or committed to do so. While we did have information regarding Blue Marmots' request to PacifiCorp for transmission service, and theoretically could have concluded that they desired to deliver to the PACW-PGE interface, as discussed my opening testimony, at that time PGE did not inquire about or focus on the point of delivery for off-system QFs until after contract execution.

[46] Blue Marmot/500, Irvin-Talbott/9.
[47] Blue Marmot/500, Irvin-Talbott/9.

Q. Do you agree that the Blue Marmots' establishment of a LEO is meaningless if it entitles them to the avoided cost rate in place at the time, but is not the equivalent of a fully executed agreement?

A. No. By incurring a LEO, the Blue Marmots have guaranteed themselves access to the avoided cost rates that were in effect at the time they signed the PPAs—provided the parties are able to resolve the constraint issue and finalize a PPA. In the absence of the LEO, once the constraint issue is resolved, the avoided cost price available to the Blue Marmots would be the one in effect when the contracts are finalized. Given that the avoided cost price applicable to the Blue Marmots has decreased by approximately 41 percent in the time since they achieved their LEO, the existence of that LEO is certainly meaningful to PGE's customers, if not to the Blue Marmots.[48]

Q. How do you respond to Messrs. Irvin and Talbott's statement that they understood that, by securing transmission rights to deliver their output to PGE, they would not be required to pay for additional transmission to deliver their output to a different delivery point on PGE's system or to pay for system upgrades?[49]

A. We cannot speak to what Messrs. Irvin or Talbott believed about whether they might be required to deliver their output to a different POD or to pay for transmission upgrades, but we would offer two relevant observations. First, but for the constraint at the POD to which the Blue Marmots wish to deliver their output, they would not be responsible to deliver their output to a different POD or pay for upgrades. So, assuming that Messrs. Irvin and

[48] This calculation assumes that the 15-year fixed-price term begins at execution instead of commencement of deliveries. Assuming that the 15-year fixed-price term begins at the commencement of deliveries, as argued by the Blue Marmots, the decrease is 34 percent.
[49] Blue Marmot/100, Irvin/2.

Talbott were unaware of the constraint, it is not surprising that they would not be expecting to be responsible for further costs.

That said, Messrs. Irvin and Talbott are representatives of a major multinational corporation whose website states that it has developed 6,200 MW of renewable energy and operates more than 5,600 MW of renewable energy projects.[50] Moreover, EDPR is the wholly-owned subsidiary of the global parent, EDP, whose website boasts €15.7 billion in annual revenues and €2.3 billion in operating income.[51] Given their sophistication, they surely were aware of two critical facts—one regulatory and one practical. First, they must have been aware of PURPA's customer-indifference mandate that necessarily requires QFs to pay for costs caused by their projects. Second, they must have been aware that, in the contracting process, unforeseen issues frequently arise that must be dealt with. In this case, the unforeseen issue was the constraint at the PACW-PGE interface.

Q. Messrs. Irvin and Talbott argue that, if PGE had communicated earlier that additional transmission arrangements would be required for PGE to purchase the Blue Marmots' output, EDPR "might have made different investment decisions."[52] What is your response?

A. In making this assertion, it appears that EDPR is attempting to make some kind of "lost opportunity" argument. However, they have provided no facts to support this position. The fact is that, prior to the time EDPR learned of the constraint at the PACW-PGE interface—and PGE's position that EDPR would be required to pay the cost to deliver their output to the BPA-PGE interface or for necessary upgrades—EDPR had invested

[50] EDP Renewables - About Us (2018), *available at* https://www.edprnorthamerica.com/wp-content/uploads/2018/08/About-EDPR-August-2018.pdf .
[51] See EDP Financial Indicators, Numbers in Detail, *available at* https://www.edp.com/en/numbers-detail.
[52] Blue Marmot/500, Irvin-Talbott/10-11.

approximately $428,000 in these projects.[53] (To the extent these costs include transmission arrangements with PacifiCorp to deliver the Blue Marmots' output to the PACW-PGE interface, these costs would be refundable under PacifiCorp's standard tariff.[54]) Since that time, EDPR has invested additional amounts over $480,000, excluding the costs of external labor.[55] It does not appear that learning about the constraint or the potential that they would be responsible for additional costs has deterred the Blue Marmots from investing additional amounts in the projects.

PGE ACTED IN GOOD FAITH

Q. Please summarize the argument by Messrs. Irvin and Talbott that PGE has acted in bad faith.

A. Messrs. Irvin and Talbott argue that PGE has not tried hard enough to figure out a way to accept the Blue Marmots' output at the PACW-PGE interface without imposing additional costs on them, and that PGE's failure to do so amounts to bad faith.[56] In support of their opinion, they point to the fact that, within a few days of learning that there was no ATC at the PACW-PGE interface, PGE informed the Blue Marmots that they would either need to deliver their output to the BPA-PGE interface or pay for upgrades necessary to allow for delivery.[57] And Messrs. Irvin and Talbott also insist that they should be treated in the same fashion as the QFs with fully executed contracts, and that PGE is delaying informing them

[53] Blue Marmot Response to PGE DR 2, attached as PGE/401.
[54] Under PacifiCorp's Open Access Transmission Tariff, the costs for these arrangements would be approximately $130,000.
[55] Blue Marmot Responses to PGE DR 2 and 35, attached as PGE/401.
[56] Blue Marmot/400, Irvin-Talbott/2.
[57] PGE/100, Greene-Moore/3.

as to how those QFs will be treated to prevent that information from being used against the Company.[58]

Q. Do you agree with Messrs. Irvin and Talbott on these points?

A. No. PGE has been transparent and ethical in its dealings with the Blue Marmots at every stage of the process. When PGE's QF personnel first learned that all of the transmission capacity at the PACW-PGE interface was reserved for the EIM, the Blue Marmots were immediately informed by the EIM team that PGE's EIM reservation had already been significantly diminished when the TTC on that path was decreased, and further that PGE's MBR authority relied on its commitment of the remaining capacity (subject to the narrow limitations related to 76 MW) to make EIM transfers. So, PGE understood quite well that it could not simply give up its reservation to facilitate delivery of the Blue Marmots' output.

The bad faith argument being made by Messrs. Irvin and Talbott seems to be based on Mr. Moyer's repeated insistence that there must be some "creative" way for PGE to accept the Blue Marmots' output without upgrades and without undermining PGE's ability to participate fully in the EIM. However, as explained consistently throughout this testimony, and in the EIM Surrebuttal testimony, Mr. Moyer's theories are entirely unsupported by facts. Indeed, Mr. Moyer has offered numerous high-level generic proposals—such as his proposals that PGE could accommodate the Blue Marmots' output through "displacement" or could otherwise use "creative solutions" to accept the Blue Marmots' generation.[59] However, when Mr. Moyer is asked to provide details or examples of his proposals, he responds that he was not retained to "study" the actual implementation

[58] Blue Marmot/400, Irvin-Talbott/13.
[59] Blue Marmot/400, Moyer/7.

of his recommendations[60] or that it is PGE's job to figure out the specifics.[61] With respect to the SIS, Mr. Moyer takes his approach a step further by arguing that *PGE* should not be allowed to provide the details or consequences that he omits. This approach is irresponsible and must be rejected.

The bottom line is that PGE must rely on the PACW-to-PGE path for its participation in the EIM, and the TTC on that path is very limited. There is no perfect solution that would allow PGE to accept the Blue Marmots' output via the PACW-PGE interface without compromising PGE's ability to meet the customer-indifference standard and achieve EIM benefits for its customers. PGE did not need to perform a study to understand these hard facts, and the Company acted responsibly and in good faith when it immediately contacted EDPR as soon as it understood the situation.

Q. Does this conclude your Surrebuttal Testimony?

A. Yes.

[60] Blue Marmot Response to PGE DR 33, attached as PGE/401.
[61] Blue Marmot Response to PGE DR 28, attached as PGE/401.

BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UM 1829

Portland General Electric Company

Exhibit 401 to Testimony of Brett Greene

August 30, 2018

Oregon Public Utility Commission
OPUC Dockets UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
November 8, 2017
Blue Marmots' Response to PGE Data Request 2

PGE Data Request 2

Regarding Mr. Irvin's statement: "To date, the Blue Marmot Projects have invested significant resources in advancing project development…" (Blue Marmot/100, Irvin/5), please provide a list of the specific amounts already invested and intended to be invested in the future, including the project(s) to which the investment is applicable, the purpose for the investment, and the date of the investment.

Revised Response to PGE Data Request 2

The Blue Marmots object to this data request on the grounds of relevance, that it requests highly confidential material, that it would be unduly burdensome and that the request is overly broad.

Notwithstanding these objections, the Blue Marmot provide the following:

The Blue Marmots have collectively invested over $300,000 in development-stage engineering work, study work to support project permitting (including surveys of environmental, wetland and cultural resources in the vicinities of the projects), and travel to Lakeview to meet with landowners and other project stakeholders. The Blue Marmots have also invested over $150,000 in interconnection and transmission feasibility, system impact and facilities studies. Additionally, the Blue Marmots have invested approximately $400,000 in these projects in the form of the extensive time spent on the projects by employees, up to 10 of which have been involved in the development of these projects. The above list is non-exhaustive.

After discussions with PGE counsel, the Blue Marmots supplement their response with the following additional information:

Spending across the Blue Marmots (excluding internal labor) breaks down by time period as follows:

Prior to Blue Marmots requesting their first draft power purchase agreement on August 1, 2016:

Approximately $18,000

Between August 1, 2016 and April 19, 2017:

Approximately $410,000.

After April 19, 2017:

Approximately $202,000.

Oregon Public Utility Commission
OPUC Dockets UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
July 31, 2018
Blue Marmots' Response to PGE Data Request 28

PGE Data Request 28

Re: lines 12-24 of Moyer/7: Please provide a detailed example(s) of how Mr. Moyer's displacement proposal could be practically implemented in daily operations, including details regarding timing requirements, assumptions used, actions necessary by PGE and/or Blue Marmot, etc. to implement this approach. The example(s) should consider and explicitly indicate all applicable standards and requirements (e.g. NERC, WECC, CAISO, PACW, etc.).

Response to PGE Data Request 28

The Blue Marmots object to this data request on the grounds of vagueness, that it would be unduly burdensome, that the request is overly broad, that it would require the Blue Marmots to develop information or prepare a study for PGE, and to the extent that production of the requested data would reveal information protected by the attorney-client privilege, the work product doctrine, or any other privilege.

Notwithstanding these objections, the Blue Marmots provide the following:

EDPR is not responsible for managing or operating PGE's daily operations, including details regarding timing requirements, assumptions used, actions necessary by PGE and/or Blue Marmot, etc. to implement this approach.

Oregon Public Utility Commission
OPUC Dockets UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
August 10, 2018
Blue Marmots' Response to PGE Data Request 33

PGE Data Request 33

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

a) Is it the Blue Marmots' position that it would be reasonable for PGE to construct a 15 mile line from Marion to Bethel in order to realize a 75 MW increase in TTC?

b) Are the Blue Marmots prepared to pay the costs associated with building a 15 mile line from Marion to Bethel if it would result in PGE's ability to accommodate the Blue Marmots' output?

Response to PGE Data Request 33

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

b) Mr. Moyer's testimony does not contemplate the Blue Marmots' willingness to pay for costs associated with specific transmission alternatives considered in his assessment.

Oregon Public Utility Commission
Docket No. UM 1829, UM 1830, UM 1831, UM 1832, UM 1833
August 21, 2018
Blue Marmots' Response to PGE Data Request 35

PGE Data Request 35

> Please refer to Blue Marmots' Revised Response to PGE's Data Request 2. Please provide an update regarding the amount invested since the date of Blue Marmots' response to Data Request 2.

Response to PGE Data Request 35

The Blue Marmots object to this data request on the grounds of relevance, that it requests highly confidential material, that it would be unduly burdensome and that the request is overly broad.

Notwithstanding these objections, the Blue Marmot provide the following:

> The Blue Marmots have collectively invested over $280,000 since October 2017 in study work to inform project design and support future permitting efforts, travel to Lakeview, and other development activities. Additionally, the Blue Marmots have invested over $140,000 in the form of internal employee labor.

PGE/500
Witnesses: RODEHORST – MOORE

BEFORE THE PUBLIC UTILITY COMMISSION
OF THE STATE OF OREGON

UM 1829

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

Complainants,

v.

Portland General Electric Company,

Defendant.

PORTLAND GENERAL ELECTRIC COMPANY

SURREBUTTAL TESTIMONY OF

AARON RODEHORST AND GEOFFREY MOORE

August 30, 2018

INTRODUCTION AND SUMMARY

Q. Please state your names.

A. Our names are Aaron Rodehorst and Geoffrey Moore.

Q. Have you previously filed testimony in this case?

A. Yes. Mr. Rodehorst previously filed Response Testimony addressing the Western Energy Imbalance Market (EIM) on behalf of Portland General Electric Company (PGE) on January 12, 2018 (hereinafter EIM Response Testimony).[1] Mr. Moore previously filed Response Testimony addressing policy issues on January 12, 2018 (hereinafter Policy Response Testimony).[2]

Q. What is the purpose of your Surrebuttal Testimony?

A. The purpose of our Surrebuttal Testimony is to respond to the Reply Testimony of Keegan Moyer, filed on June 18, 2018. Specifically, we will respond to those sections of Mr. Moyer's testimony addressing PGE's EIM Response Testimony.

Q. Please summarize your testimony.

A. In our EIM Response Testimony, PGE provided background on the Company's decision to enter the Western Energy Imbalance Market (EIM), including the significant benefits PGE's customers are expected to realize from that participation. Prior to entry, PGE reviewed the amount of transmission capacity it would require for successful participation, and determined that, consistent with similarly-situated utilities, PGE would require a ***minimum*** of 300 MW of firm point-to-point transmission on the transmission path between PacifiCorp and PGE (the PACW-to-PGE path). Based on that conclusion, PGE Merchant

[1] PGE/200.
[2] PGE/100.

reserved 418 MW in order to ensure that PGE could take full advantage of EIM participation, and provide the most robust benefits to customers, over time. Unfortunately, 142 MW of that reservation were subsequently recalled when the total transfer capability (TTC) of that path was reduced, and at the time the EIM Response Testimony was filed, PGE Merchant held 295 MW, intended to be used for the EIM. PGE Merchant was subsequently able to secure an additional 15 MW on the path, bringing the total currently held on the PACW-to-PGE path to 310 MW—just over the minimum level determined by PGE.

The EIM Response Testimony also explained that, in order to receive authority to participate in the EIM using market-based rates (MBR authority), PGE was required to demonstrate to the Federal Energy Regulatory Commission (FERC) that PGE held sufficient transmission capacity on the PACW-to-PGE path for regular transfers to occur. This demonstration was required to establish a lack of frequently-binding constraints, to show that PGE would not be able to exercise market power through its EIM participation. In support of this showing, PGE committed to FERC that it would dedicate to the EIM 200 MW of firm point-to-point transmission during all hours; in addition, PGE committed to dedicate to the EIM the remainder of its rights on that path—76 MW at the time of the application—unless such capacity is needed for reliability purposes or to service existing contracts. Without the ability to transact in the EIM using market-based rates, the Company expects that its EIM benefits would be diminished to the detriment of PGE's customers.

Finally, the EIM Response Testimony provided data from the first three months of PGE's EIM participation, which demonstrate that PGE's primary path for participation in

the EIM is in fact the PACW-to-PGE path, and that EIM transfers on that path occur in most hours of the day and regularly are making use of all the capacity PGE holds on that path.

In his Reply Testimony, Mr. Moyer's overarching argument is that PGE should give up the transmission capacity that it has reserved for the EIM and instead dedicate it to accommodate delivery of the Blue Marmots' output—and possibly the output of other qualifying facilities (QFs) as well. Mr. Moyer argues that PGE can do this if, instead of participating in the EIM using the Interchange Rights Holder approach, the Company participates using the ATC approach. Mr. Moyer asserts that PGE can do so without significantly impacting the benefits PGE achieves for its customers. In support of his arguments, Mr. Moyers makes the following overlapping claims:

- By relying on hourly data to demonstrate that it is fully utilizing the transmission capacity reserved for the EIM, PGE has overstated the levels of transfers that have taken place on the PACW-to-PGE import path;
- The Blue Marmots' usage of transmission capacity will be such that it will leave plenty of room for EIM transfers; and
- PGE has over-procured capacity for the EIM and is not making efficient use of its transmission assets.

Mr. Moyer also argues that PGE can give up capacity to the Blue Marmots without risking its MBR authority, and even if it loses MBR authority, PGE has not shown that that would diminish EIM benefits.

Mr. Moyer's proposal is unworkable and would impair PGE's EIM participation and erode EIM benefits. EIM transfers regularly use at or near the maximum amount of

capacity available on the PACW-to-PGE path during a significant number of hours. Regardless of whether PGE uses the Interchange Rights Holder or the ATC approach, ceding its reserved transmission to the Blue Marmots would foreclose PGE's ability to make any EIM transfers using capacity on which the Blue Marmots have scheduled delivery, *during the entirety of each hour* in which they schedule. In other words, because QFs schedule hourly, EIM transfers and QF deliveries cannot occur using the same transmission capacity in the same hour. For this reason, Mr. Moyer's insistence on viewing EIM transfer data on a sub-hourly basis is misleading.

In addition, Mr. Moyer's argument that the Blue Marmots and the EIM can "share" transmission capacity without eroding EIM benefits because the Blue Marmots will not generate during all hours does not provide comfort to PGE. QFs like the Blue Marmots are economically incented to schedule deliveries at their full nameplate capacity for any hour in which they expect to generate, and the Blue Marmots' solar facilities will generate regularly during daylight hours, when significant levels of EIM transfers also are occurring. Moreover, PGE cannot "share" transmission capacity with QFs without placing its MBR authority in jeopardy, and MBR authority is key to the Company's ability to maximize EIM benefits for its customers.

Finally, it is critical to note that PGE is in the early stages of its EIM participation and expects that the level of transfers will increase over time. Therefore, it is essential that PGE retain sufficient transmission capacity to facilitate robust EIM participation into the future. Moreover, if PGE is required to give up capacity to QFs, it may lose significantly more than just 50 MW of its EIM-dedicated transmission.

PROPOSAL THAT PGE USE THE ATC APPROACH TO EIM PARTICIPATION

Q. Please summarize the difference between the Interchange Rights Holder and ATC approaches to EIM participation.

A. Under the Interchange Rights Holder approach, a utility commits its reserved firm transmission rights as capacity for EIM transfers, which ensures that a definite amount of capacity is always available. Under the ATC approach, the utility does not reserve any firm capacity for the EIM, and instead, any unscheduled capacity is made available to the EIM. Under this method, the amount of capacity available to the EIM varies and could be zero, as capacity offered to the EIM under the ATC approach is non-firm and has a lower priority than all other transmission uses.

Q. Please explain how PGE currently participates in the EIM and why PGE elected to participate primarily using the Interchange Rights Holder approach.

A. As explained in the EIM Response Testimony, sufficient transmission capacity is the key to successful participation in the EIM. Without sufficient transmission capacity, PGE would be unable to access the EIM via connections with other EIM participants, and PGE would not be able to deliver EIM benefits to its customers. PGE chose to participate in the EIM on the PACW-to-PGE path primarily using the Interchange Rights Holder approach because the TTC on that path is very limited (currently 320 MW in the summer), and because PGE expected that this path would serve as its primary connection to the EIM. To be clear, if PGE chose not to reserve firm point-to-point transmission rights on the path, all of the capacity on that path would be available for others to reserve—making it inaccessible to PGE on a firm basis.

PGE currently has 310 MW of long-term firm point-to-point capacity on the

PACW-to-PGE path reserved for the EIM. The Company committed to FERC that it would use 200 MW of that capacity on a firm basis during all hours, and that the remaining would be used on a firm basis as well—subject to usage for reliability or servicing existing contractual arrangements. In other words, while PGE is using both the Interchange Rights Holder approach (for its 310 MW of reserved capacity) and the ATC approach (for any unreserved and unscheduled capacity beyond 310 MW), it hopes to, in effect, dedicate the full amount to the EIM on a firm basis, subject to the limitations stated.

Q. Mr. Moyer's overarching argument is that PGE Merchant should give up its firm point-to-point transmission reservation, which it has allocated to the EIM, to the Blue Marmots, and that PGE can do so by participating in the EIM using the ATC approach.[3] What is your response?

A. Mr. Moyer's proposal raises several serious concerns and does not represent a workable solution to accommodate the Blue Marmots while preserving PGE's EIM access. First and most fundamentally, Mr. Moyer misunderstands or ignores the fact that, regardless of the EIM approach used, ceding 50 MW of PGE's dedicated EIM capacity to the Blue Marmots will foreclose EIM transfers using that capacity during the entirety of any hour in which the Blue Marmots schedule delivery of their output, thereby impeding PGE's participation in the EIM. The ATC approach is no different from the Interchange Rights Holder approach in this respect and does not resolve the conflict between the two uses.

In addition, as discussed further below, the Blue Marmots will be incented to schedule their full capacity for delivery during any hours in which they expect to generate, and they are expected to generate during the same times that EIM transfers occur. PGE

[3] Blue Marmot/300, Moyer/23-24.

has experienced a high level of EIM transfers on the path to date and expects that EIM participation will only become more important in the future when we expect transfers to increase.

Moreover, giving up capacity to the Blue Marmots would place more than just 50 MW of EIM transfer capacity in jeopardy. As explained above, the PACW-to-PGE path is PGE's primary path for EIM participation and the path has limited TTC. QFs other than the Blue Marmots have sought to deliver there, and if PGE gives up capacity to the Blue Marmots, it may have to give up capacity to other QFs as well. Moreover, if PGE switches to using only the ATC approach, the path's capacity could be taken up not only by other QFs but also by any other usage, as it would be available for reservation by any transmission customer at any time. In sum, PGE categorically rejects the notion that it could engage in robust participation in the EIM using solely the ATC approach on the PACW-to-PGE path.

Q. Mr. Moyer seems to suggest that the ATC approach would allow PGE to schedule EIM transfers around the Blue Marmots' deliveries. Is this correct?

A. To the extent Mr. Moyer is suggesting that EIM transfers and QF deliveries could occur within the same hour under the ATC approach, this is not correct. If Mr. Moyer is instead saying that PGE could use the capacity for EIM transfers in hours in which the Blue Marmots have not scheduled deliveries, this is technically true under either the ATC or the Interchange Rights Holder approach. However, requiring PGE to give up capacity to the Blue Marmots and potentially other QFs would have the effect of making a significant amount of capacity unavailable for EIM transfers during substantial portions of the day.

Q. Please explain why PGE is concerned it may have to give up more than just the 50

MW the Blue Marmots require.

A. PGE takes issue with the idea that it could simply allocate 50 MW of its reserved capacity to the Blue Marmots, while reserving the remainder for participating in the EIM on a firm basis. Prior to learning of the capacity constraint, PGE already had executed contracts with three QFs—with a combined capacity of 67 MW—that wish to deliver their output via the PACW-to-PGE path. In addition, since that time, the Company has received other requests from QFs that also wish to do the same. If the Commission were to determine that PGE has the obligation to relinquish its firm transmission rights to QFs wishing to deliver via the PACW-to-PGE path, PGE would soon have no reserved capacity remaining for participating in the EIM.

PGE'S USE OF TRANSMISSION CAPACITY FOR EIM TRANSFERS

Q. Has PGE obtained additional data regarding its usage of the PACW-to-PGE path for EIM transfers since PGE last filed testimony in this case?

A. Yes. PGE provided a summary of EIM transfers on the PACW-to-PGE path in Table 1 in its Response Testimony and has prepared an updated summary for this testimony. The following table summarizes EIM transfers for the PACW-to-PGE path from October 2017, when PGE went live in the EIM, through August 27, 2018. The data in the table are based on the maximum hourly import from the 5- or 15-minute market. Because the Blue Marmots are solar resources that generate only during the daytime,[4] this table also includes the transfer data for on-peak hours (6 AM to 10 PM) in the shaded columns.

[4] Blue Marmot/400, Moyer/31.

Table 1: EIM transfers for the PACW-to-PGE path.

PGE Approach *(Based on Maximum Hourly Import from 5- or 15-minute market)*								
Transfers by Month	**% of Hours Import Occurred**		**% of Import Hours that the Import Reached or Exceeded 200 MW in any interval**		**% of Import Hours that the Import Reached or Exceeded 276 MW in any interval**		**% of Import Hours that the Import Reached or Exceeded 310 MW in any interval**	
Oct. 2017	78%	84%	21%	24%	8%	9%	4%	5%
Nov. 2017	81%	84%	24%	29%	8%	11%	4%	6%
Dec. 2017	85%	86%	37%	43%	20%	24%	14%	18%
Jan. 2018	56%	58%	11%	12%	3%	2%	0%	1%
Feb. 2018	61%	67%	21%	23%	8%	9%	5%	7%
Mar. 2018	61%	66%	21%	21%	8%	8%	4%	4%
Apr. 2018	58%	65%	10%	13%	3%	3%	1%	1%
May 2018	60%	64%	13%	14%	6%	6%	3%	3%
June 2018	51%	61%	18%	19%	7%	7%	4%	4%
July 2018	85%	92%	55%	61%	36%	43%	28%	33%
Aug. 2018 *	78%	84%	46%	51%	24%	25%	17%	17%

*Only August 1-27 data were available as of the time this table was created.

Q. Please explain why PGE presented these data on an hourly basis.

A. PGE's Table 1 identifies all hours when an import occurred, no matter the number of market intervals experiencing imports within the hour, because if PGE gives up transmission capacity to the Blue Marmots and other QFs, as Mr. Moyer suggests, the practical impact would be to remove the full amount of QF capacity from PGE's transmission dedicated to the EIM *for the entire hour* when a QF has submitted a schedule for delivery of its output.

Q. What conclusions does PGE draw from the information in Table 1?

A. The table shows that imports have occurred in a significant majority of hours. It also shows that in a significant percentage of hours imports exceeded 276 MW, which was the amount of long-term firm transmission capacity held by PGE when it initially joined the EIM, and 310 MW, which is the amount of capacity PGE currently holds. If PGE gave up 50 MW of its reserved capacity to the Blue Marmots, a significant number of transfers would not be able to occur whenever the Blue Marmots schedule deliveries.

Q. Please explain Mr. Moyer's claim that PGE has overstated the level of transfers that have taken place on the PACW-to-PGE import path.

A. Mr. Moyer asserts that Table 1 significantly overstates the frequency and magnitude of imports that rely on EIM-dedicated transmission.[5] Specifically, Mr. Moyer criticizes the Company's presentation of the data on an hourly basis, which he claims "shows a need for an hour's worth of transmission based on transfers in a single 5- or 15-minute market interval."[6] Mr. Moyer goes on to perform his own EIM transfer analysis by modifying the percentages of utilization based on 15-minute market intervals (he says the separate 5-minute analysis he performed produced similar results) during which EIM imports occurred, which, not surprisingly, results in significantly reduced percentages.[7] Mr. Moyer uses this analysis to support his view that PGE's use of the PACW-to-PGE path for EIM transfers is actually very low, and that PGE could give the Blue Marmots a portion of the firm point-to-point transmission capacity it has set aside for the EIM, and instead simply participate using the ATC approach.[8]

[5] Blue Marmot/400, Moyer/21.
[6] Blue Marmot/400, Moyer/17.
[7] Blue Marmot/400, Moyer/17.
[8] Blue Marmot/400, Moyer/15, 27-28.

Q. Is Mr. Moyer's 15-minute analysis relevant or helpful in this case?

A. No. Mr. Moyer's 15-minute analysis is not helpful or relevant because it does not accurately represent the way in which transmission rights are scheduled and used for EIM transfers, or for QF deliveries, and therefore sheds no light on whether PGE could allocate its firm point-to-point reservation to accommodate the Blue Marmots (and other QFs) without compromising EIM transfers.

QFs such as the Blue Marmots (and any generators allocated firm transmission rights on the PACW-to-PGE path[9]) generally schedule their output in hourly intervals. When a QF schedules delivery in a particular hour, the QF schedule occupies the full hour, and the capacity scheduled by the QF would not be available for EIM transfers in any interval within the hour—regardless of whether PGE participates using the Interchange Rights Holder or the ATC approach. In other words, once a QF has scheduled a set amount of capacity for an hour, that amount of capacity cannot be used for EIM purposes. Therefore, to the extent Mr. Moyer's analysis suggests that QF output and EIM transfers can share capacity in any one hour, this assertion is incorrect. For these reasons, it is appropriate to assess EIM transfers on an hourly basis, and it is not helpful to view them on the basis of 15-minute intervals, as Mr. Moyer does.

Q. Mr. Moyer supports his critique of PGE's decision to present EIM transfer data on an hourly basis with an example hour in which the only transfer is 150-MW within a single 5-minute interval.[10] Please explain why this example is not a valid critique of PGE's data presentation.

[9] Currently, there are none.
[10] Blue Marmot/400, Moyer/18.

A. In his example, Mr. Moyer demonstrates that, in a given hour if imports were 150 MW for any single 5-minute interval and then zero MWs for the remaining eleven 5-minute intervals, the total energy transfer across the path is 12.5 MWh for the hour. Based on this example, Mr. Moyer concludes that PGE's presentation of its EIM use overstates the frequency of imports. PGE takes no issue with the arithmetic employed by Mr. Moyer—but disputes his conclusion. The crucial fact that Mr. Moyer's example ignores is that the EIM benefit obtained for customers is not the cost savings associated with an import of 12.5 MWh for the hour. Rather, the EIM benefit obtained for PGE's customers is the cost savings associated with an import of 150 MW. And to attain the full benefit of the 150 MW transfer, PGE needs the capability to transfer 150 MW at any point during the hour when it is economic to do so. If PGE lacks sufficient transmission capacity to accommodate the transfer, then the benefit associated with the transfer would be reduced or eliminated. Stated differently, PGE cannot achieve the same benefit with only 12.5 MW of transmission capacity, and therefore Mr. Moyer's example does not provide a meaningful critique of PGE's presentation of its EIM transfer data.

EFFECT ON EIM TRANSFERS OF CEDING TRANSMISSION CAPACITY TO THE BLUE MARMOTS AND OTHER QFS

Q. Mr. Moyer points to various characteristics of the Blue Marmots' expected use of transmission capacity to argue that there will be plenty of room for EIM transfers if PGE were to cede 50 MW of firm transmission capacity to them.[11] What is your response?

A. PGE disagrees with this assertion. It is true that the Blue Marmots are a variable resource

[11] Blue Marmot/400, Moyer/15.

and for that reason will not require 50 MW of transmission capacity at all times. However, contrary to Mr. Moyer's suggestions, devoting transmission capacity to the Blue Marmots will have the effect of making the amount they schedule for delivery unavailable to the EIM for the full hour—regardless of the Blue Marmots' actual generation. Therefore, it is unavoidable that EIM transfers will suffer if PGE is required to allocate firm transmission to QF output.

Q. Mr. Moyer specifically points out that the Blue Marmots have, roughly, a 30 percent capacity factor, suggesting that this supports his view that PGE can accept the Blue Marmots' deliveries and manage its transmission rights on the PACW-to-PGE path without a reduction in EIM benefits.[12] Do you agree?

A. No. If PGE commits capacity to QFs, PGE's ability to use that capacity for the EIM as well would not be determined by the QFs' actual output, but rather by their scheduling behavior. As explained above, PGE would be unable to use such capacity for the EIM in any given hour for which the Blue Marmots schedule deliveries, *regardless of the actual output of the facilities*.[13] Importantly, it is PGE's experience that QFs schedule to maximize the delivery of net output because they are economically incented to do so. Therefore, we could expect that the Blue Marmots would schedule deliveries close to or at their full nameplate capacity for any hour in which they expect to generate. In addition, it is necessary to point out that a 30 percent capacity factor does not translate into 30 percent usage of transmission capacity. When the sun is shining, the Blue Marmots' facilities are

[12] Blue Marmot/400, Moyer/15-16.

[13] For example, if the Blue Marmots scheduled 50 MW for delivery to PGE and the Blue Marmots' facilities generated only 25 MW, the Balancing Authority (PACW in this example) would increase its generator(s) output by an additional 25 MW to maintain the 50 MW scheduled delivery. Regardless of the actual output of the Blue Marmots' facilities, PGE always receives the amount scheduled for delivery.

likely to be generating at or near their full capacity.

Q. Please explain why QFs are economically incented to schedule deliveries at their full nameplate capacity for every hour in which they expect to generate.

A. During periods of capacity deficiency, QFs such as the Blue Marmots receive an avoided cost price that includes a capacity payment, and as a result, the avoided cost price paid to QFs is almost always significantly above market. Given this fact, for all hours in which they expect to operate, QFs are economically incented to schedule to ensure that they will receive the avoided cost, which includes a capacity payment for each MWh they schedule and deliver to PGE, up to 100% of their net output. In the event they overschedule, their transmission provider will provide imbalance energy to make up the difference; the QF compensates the transmission provider for such energy at the market price and also receives a market rate from PGE for any imbalance energy, and so will be economically indifferent.

Q. But wouldn't the Blue Marmots be contractually bound to schedule the amount of output that they expect to generate?

A. Yes. Section 4.4 of PGE's Standard Power Purchase Agreement requires the seller to "make commercially reasonable efforts to schedule in any hour an amount equal to its expected Net Output for such hour."[14] However, solar is a variable resource the output of which changes within the hour and can be difficult to predict with certainty, so it would not be unexpected for solar QFs to take a "blue-sky" approach to scheduling, consistent with their economic incentive.

Q. Mr. Moyer also points out that there is more capacity on the PACW-to-PGE path

[14] Section 4.4 of PGE's Standard Renewable Off-System Variable Power Purchase Agreement, *available at* https://www.portlandgeneral.com/business/power-choices-pricing/renewable-power/install-solar-wind-more/sell-power-to-pge.

during the winter months.[15] Please respond.

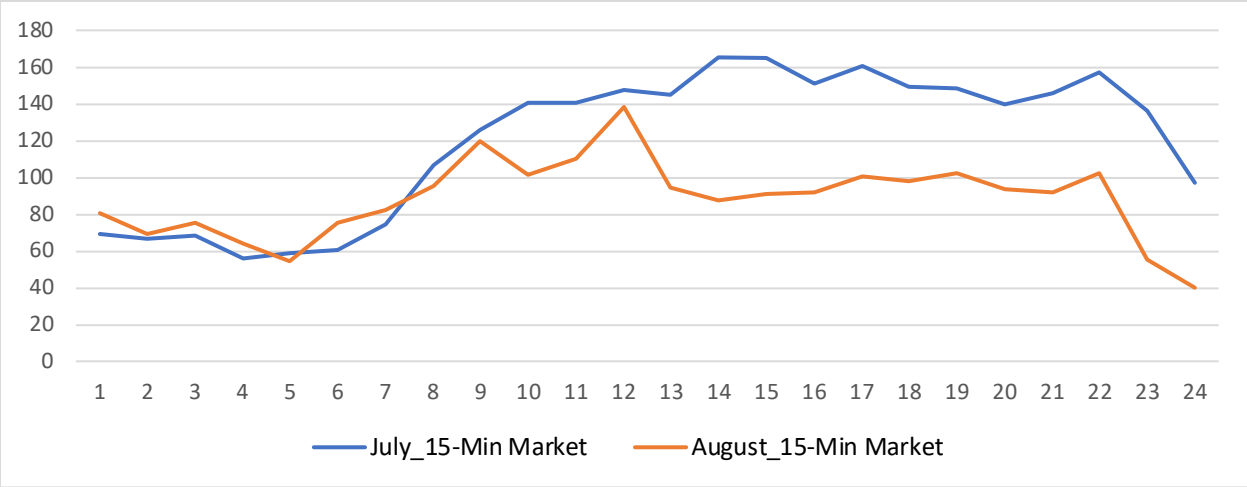
A. While Mr. Moyer's observation is correct, it is of little real value in addressing PGE's need for sufficient capacity to participate in the EIM. That is, even if PGE could accommodate the Blue Marmots' output without any significant deterioration of the Company's EIM benefits during the winter months, the same would not be true during the summer months. It is unreasonable to suggest that PGE should maintain sufficient capacity for robust participation in the EIM for only half of the year when the data to date demonstrate that PGE is making robust use of its transmission capacity for EIM transfers in the summer months. In addition, we understand that PGE cannot accept the Blue Marmots' output for only half the year and instead must have long-term firm transmission capacity available year-round to accommodate QFs' deliveries.

Q. Mr. Moyer also points out that "on average" the highest levels of imports occur during the morning and evening hours and that the Blue Marmots will only be generating during daytime hours.[16] Do these facts provide comfort to PGE that it could relinquish capacity to the Blue Marmots without losing EIM benefits?

A. No. Mr. Moyer's data is based on the first few months of EIM, and it is simply too early to reach these types of conclusions. For example, contrary to Mr. Moyer's findings, July and August 2018 show the opposite. PGE's average imports were highest during the daytime hours. This is shown in the Figure below, which illustrates average hourly EIM transfers during the 5- and 15-minute markets in July and August 2018.

[15] Blue Marmot/400, Moyer/24.
[16] Blue Marmot/400, Moyer/31.

Figure 1: Average Hourly EIM Transfer on PACW-to-PGE Path (MW) in July and August 2018.



Q. Mr. Moyer asserts that PGE could accommodate the Blue Marmots' delivery when there are counter-schedules on the opposite path.[17] Does this provide a viable solution to the constraint?

A. No. Although counter-schedules can increase the import capacity of the PACW-to-PGE path in some instances, counter-schedules are rare and thus do not provide a consistent, long-term solution for accommodating the Blue Marmots deliveries and EIM transfers. PGE does not expect counter-schedules to occur frequently—PGE Merchant, the primary user of the PGE-to-PACW path has not scheduled an export (counter-schedule) on that path since September 2017.

Q. Mr. Moyer also points out that, based on his analyses, the percentage of 15-minute intervals during which transfers occurred seems to be decreasing starting with January of 2018, as compared to the first few months of PGE's participation. Mr. Moyer asserts that this phenomenon is counter to PGE's predictions that transfers would increase after PGE began integrating its own wind resources and during the

[17] Blue Marmot/400, Moyer/29.

high-load winter months.[18] Please respond.

A. We would reiterate that the data we are debating reflects just the first several months of PGE's experience in the EIM and that it is too early to draw sweeping conclusions. As discussed in our EIM Response Testimony, PGE predicts that, as more parties participate in the EIM, and as the Company integrates more and more variable resources into its system, EIM transfers will increase in frequency and size, and PGE customers will realize greater benefits over time. In addition, Mr. Moyer's assertions are primarily based on his flawed approach to calculating the frequency of PGE's EIM transfers to date. As discussed above, Mr. Moyer's approach provides a misleading view of the amount of firm capacity that is required to implement those transfers.

Q. Mr. Moyer also presents a duration curve, which he argues supports his claim that the transmission capacity reserved by PGE for the EIM went largely unused for most of the 15-minute periods since PGE went live in the EIM.[19] What is your response?

A. Mr. Moyer's duration curve is based on his 15-minute analysis and so it suffers from the same problems discussed above. First, looking at EIM transfers by 15-minute intervals provides little information as to whether PGE could successfully participate in the EIM while accommodating the Blue Marmots, because all EIM transfers occurring in an hour would be foreclosed to the extent a QF is scheduling deliveries during that hour. Second, Mr. Moyer's duration curve combines months where the seasonal TTC is 415 MW and months where the seasonal TTC is 320 MW, and it predominantly encompasses months where the seasonal TTC was 415 MW. However, as discussed above, PGE must be able

[18] Blue Marmot/400, Moyer/21-22.
[19] Blue Marmot/400, Moyer/22-24.

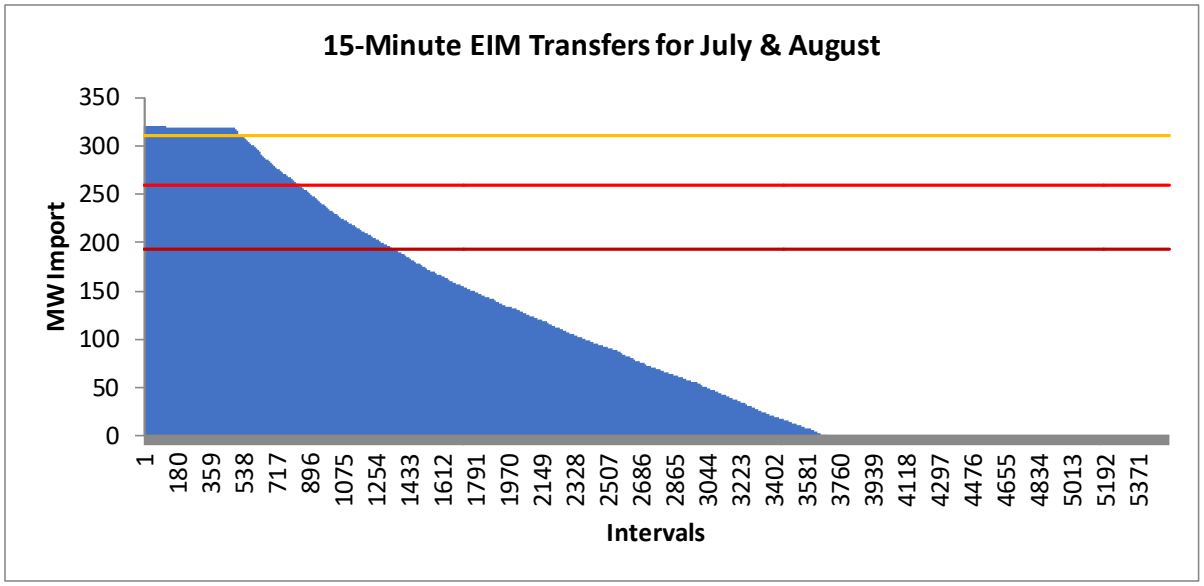
to participate in the EIM during both the summer and the winter seasons. Finally, PGE would reasonably expect to relinquish more than 50 MW of its firm rights to deliver QF output if the Blue Marmots' position is adopted, and the lower amount of firm rights would further put EIM transfers at risk.

Q. Are there any other problems with Mr. Moyer's duration curve?

A. Yes. Mr. Moyer's duration curve is based on the first few months of the EIM, which are unlikely to represent the EIM's future potential for more robust transfers. PGE continues to believe that over time and as more entities join the EIM,[20] EIM transfers will increase, providing increased benefits to our customers. More recently, PGE's participation during the month of July 2018 demonstrates the robust transfers that can occur in a given month. Figure 2 is a duration curve for July and August 2018. As shown in Figure 2, PGE reached the path's limit of 320 MW frequently. Figure 2 also shows the EIM transfers that would have been at risk if PGE's current amount of reserved transmission dedicated to the EIM of 310 MW (yellow line) were lowered to 260 MW (light red line) or 193 MW (dark red line) due to PGE hypothetically relinquishing transmission rights to QF deliveries.

[20] PGE/400, Greene/4, 7, 17.

Figure 2: 15-Minute EIM Transfers for July & August 2018.



Q. Has PGE prepared figures that better demonstrate the volume of EIM transfers on the path and the impact on those transfers of ceding capacity to QFs?

A. Yes. Figures 3 and 4 below demonstrate the hourly maximum EIM transfers over time (meaning all hours when an import occurred, no matter the number of market intervals experiencing imports within the hour) and the amount of transfers that would have been lost under different scenarios. The yellow line represents PGE's current amount of firm transmission reservation dedicated to the EIM. If PGE had only had 260 MW of firm capacity (i.e., 50 MW less), everything above the light red line would not have occurred, and if PGE had only had 193 MW of firm capacity (i.e., 117 MW less), everything above the dark red line would not have occurred.

Figure 3: Hourly Maximum EIM Transfers To-Date.

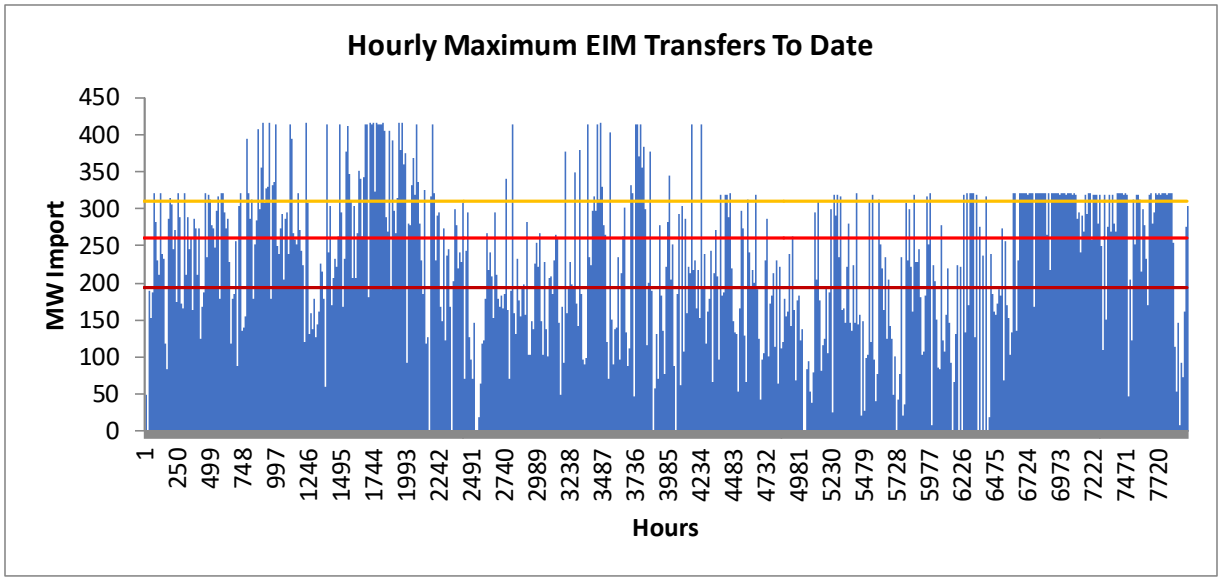
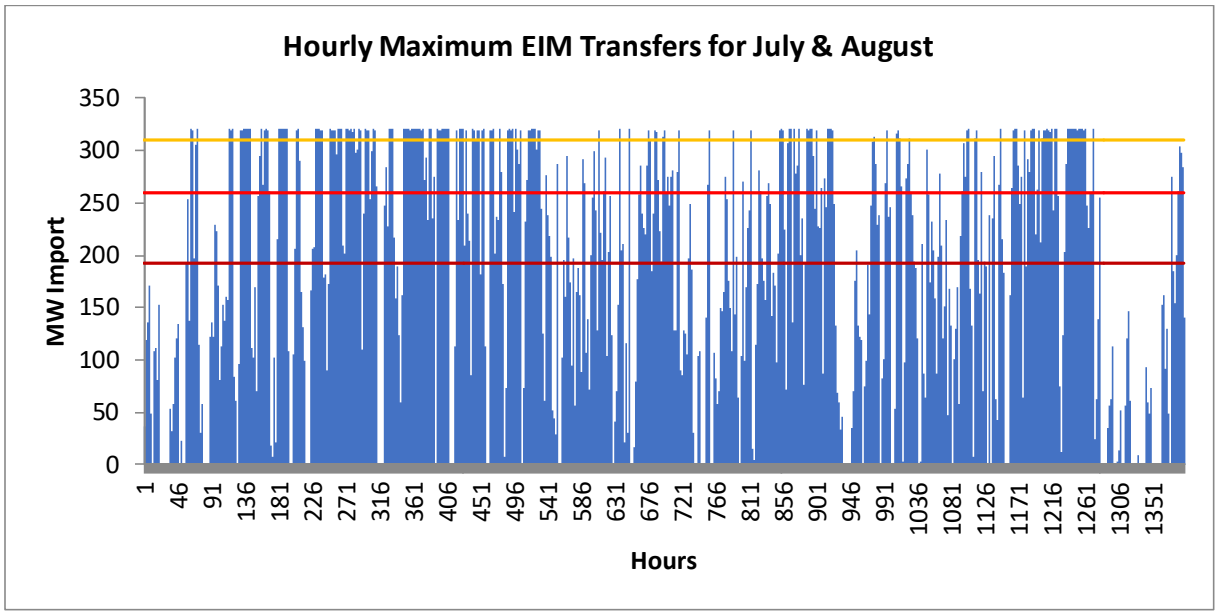


Figure 4: Hourly Maximum EIM Transfers for July & August 2018.



Although PGE disagrees with Mr. Moyer's approach of viewing the transfer data in sub-hourly intervals, PGE has also prepared similar figures for the 5- and 15-minute markets for reference, which are attached in Exhibit 502. To be clear, the 15-minute transfers to-date figure represents the same data reflected in Mr. Moyer's duration curve,

although PGE's figure also includes more recent data that were not available when Mr. Moyer filed his testimony.

Q. Mr. Moyer concludes that PGE has "over-procured" transmission capacity for the EIM.[21] Please respond.

A. PGE disagrees that it has "over-procured" transmission capacity for the EIM. Mr. Moyer's conclusion is based on his flawed approach of viewing EIM transfers on a sub-hourly basis, which is not reflective of the way EIM transfers would be displaced by QF schedules for full hours. Moreover, Mr. Moyer draws sweeping conclusions based on very limited EIM data available to date. In light of these facts, Mr. Moyer's conclusion that PGE's transmission reservation is greater than needed for the long-term is unreasonable.

EFFICIENT USE OF TRANSMISSION CAPACITY FOR EIM PARTICIPATION

Q. Mr. Moyer asserts that allocating PGE's reserved transmission capacity to QFs such as the Blue Marmots would be a more efficient use of PGE's transmission assets than committing capacity to EIM participation.[22] Is Mr. Moyer's view correct?

A. No. Mr. Moyer assumes that the most efficient use of PGE's transmission capacity is the one that fills it up to the greatest extent. As a result, Mr. Moyer concludes that PGE should give up its reserved transmission capacity to the Blue Marmots, and presumably other QFs as well, in order to fill up the path with firm energy deliveries—leaving PGE to fill in EIM transfers whenever it is able. However, this view is misguided for two reasons.

First, Mr. Moyer is mistaken as to what is required for successful participation in the EIM, which assumes access to sufficient transmission capacity to allow the EIM to

[21] Blue Marmot/400, Moyer/22.
[23] *See In the Matter of Portland General Electric Co. Request for a General Rate Revision*, Docket No. UE 319, Order No. 17-384 at 2-3.

create transfers when it is economic to do so. The goal is not to "fill up" the transmission path but rather to ensure that the path is available when required by the EIM to make economic transfers. And as we explained above, given the frequency and capacity of the transfers PGE is experiencing in the EIM, the way in which QFs schedule their output on an hourly basis, and the limited TTC on the PACW-to-PGE path, Mr. Moyer's preferred approach is certain to prevent PGE from doing so.

Second, in PGE's view, the most efficient use of its transmission assets is the one that provides PGE's customers with the greatest benefits. As recognized by the Commission, the EIM is already providing PGE's customers with economic benefits,[23] and PGE expects that those benefits will only increase over time. By contrast, QF purchases do not result in economic benefits for PGE's customers. Accordingly, PGE believes that the Blue Marmots' proposal to allocate capacity to QFs—which will erode EIM benefits—would result in an inefficient use of PGE's transmission assets.

Q. Mr. Moyer also claims that, in discussing the benefits of EIM participation, PGE has failed to consider the cost associated with procuring transmission on the PACW-to-PGE path that is solely dedicated to the EIM, and that PGE should be required to explain the EIM benefits in terms of "net" benefits.[24] Do you agree?

A. No. Mr. Moyer's comment demonstrates a fundamental misunderstanding of PGE's cost recovery for transmission assets, which, when understood correctly, actually validates a key point regarding EIM benefits.

Q. Please explain the misunderstanding demonstrated by Mr. Moyer's comment.

[23] *See In the Matter of Portland General Electric Co. Request for a General Rate Revision*, Docket No. UE 319, Order No. 17-384 at 2-3.
[24] Blue Marmot/400, Moyer/16.

A. Mr. Moyer seems to be suggesting that PGE's customers pay for the cost PGE incurs when it reserves firm transmission for EIM transfers. However, that it not the case. Instead, because the transmission assets that are associated with the PACW-to-PGE path are used to serve PGE's customers, the costs associated with these assets are included in the Company's revenue requirement set in a general rate proceeding, regardless of how the assets are used. To the extent that PGE were to receive revenues from a third-party for use of the transmission assets, those revenues would be applied as an offset to revenue requirement in the general rate case.

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

Q. How does this explanation validate a key point regarding EIM benefits?

A. This explanation demonstrates that all benefits flowing from PGE's participation in the EIM are <u>incremental</u>. That is, the transmission assets that serve as the backbone for PGE's participation are included in customer rates. Therefore, the more fully these assets can be used for the EIM, the more benefits that customers will receive, which will offset the costs of customers' investment.

Q. Can the same be said for use of the PACW-to-PGE path by QFs?

A. No. Assuming that the avoided cost prices paid to QFs reflect the amount that the utility actually avoids, customers receive no financial benefit from QF energy—which is the whole point of PURPA's customer-indifference standard. So, in contrast to EIM participation, PGE's customers would not benefit from the allocation of transmission capacity to the Blue Marmots or any other QF. And in fact, because that allocation would diminish EIM participation and benefits, PGE's customers would actually be financially harmed.

IMPORTANCE OF MARKET-BASED RATE AUTHORITY

Q. Mr. Moyer testifies that PGE could allocate 50 MW of capacity to the Blue Marmots without risk of losing its MBR authority, because PGE could do so without dropping below its commitment to FERC to allocate 200 MW of firm transmission to the EIM.[25] Is Mr. Moyer correct on this point?

A. No—for two reasons. First, as discussed above, the Blue Marmots' suggestion that PGE could surrender 50 MW of its capacity on the PACW-to-PGE path to the Blue Marmots, without being required to do the same for other QFs, is a fallacy. This is especially true given that PGE has executed contracts with three other QFs totaling 67 MW that wish to deliver to the PACW-PGE interface. Accordingly, if, as a result of the arguments the Blue Marmots are making in this case, PGE is required to relinquish any of its capacity reserved for the EIM, the least it would be required to relinquish would be 117 MW. Even considering the fact that PGE now has 310 MW of firm capacity reserved on the PACW-to-PGE path, it could not give up 117 MW without dropping below the 200-MW minimum

[25] Blue Marmot/400, Moyer/15-16.

PGE pledged to FERC it would reserve for the EIM.

Second, it is incorrect for Mr. Moyer to suggest that PGE's only commitment to FERC was to dedicate 200 MW of firm point-to-point transmission on the PACW-to-PGE path. As discussed above, PGE also pledged that its additional 76 MW on that path would be dedicated to the EIM subject only to usage for reliability purposes or existing contracts. PGE could not allocate transmission to the Blue Marmots without rendering itself in violation of the commitments made in support of MBR authority.

Q. Is Mr. Moyer correct that PGE could potentially maintain its MBR authority by making the appropriate filings at FERC?

A. It is correct that PGE could request that it maintain MBR authority with a decreased amount of transmission capacity. However, there is no guarantee that the request would be granted. Pursuant to FERC's Order approving PGE's Notice of Change in Status, any decrease in the amount of firm transmission capacity committed to EIM transfers on the PACW-to-PGE path would require PGE to submit a new change in status filing to FERC no later than 30 days after the change occurred.[26] As part of this change in status filing, PGE would be required to submit a new market power analysis of PGE's participation in the EIM that would account for a decrease in PGE's firm-transmission commitment. The bottom line is that any significant change in the amount of transmission capacity committed to the EIM could result in PGE losing its MBR authority, which in turn would result in decreased EIM benefits to PGE's customers.

[26] Order on Market Power Analysis, Notice of Change in Status, and Market-Based Rate Tariff Changes at 6, Docket Nos. ER1-2249-0007, ER 17-1693-000, 160 FERC ¶ 61,131 (Sept. 28, 2017).

Q. Mr. Moyer takes the position that PGE has failed to support its claim that, if PGE lost its MBR authority, the benefits it could realize from the EIM would be significantly compromised.[27] Do you agree?

A. No. Through discovery in this case, PGE provided to the Blue Marmots the following response to their question as to why PGE claimed that MBR authority is "key" to the Company's successful participation in the EIM:

> Assuming PGE did not have Market-Based Rate (MBR) authority, PGE would be required to participate in the EIM using cost-based bids (otherwise known as Default Energy Bids). In doing so, PGE would be limited in its ability to use bidding mechanisms to manage EIM Participating Resources. As a result, PGE could be exposed to under-recovery of costs and inefficient/infeasible resource operation, specifically for hydroelectric resources, or potentially could be forced to withdraw certain Participating Resources and risk failures of the EIM sufficiency tests that allow for participation in each operating hour.[28]

Perhaps the best explanation of the difficulty of participating in the EIM without MBR authority is contained in the recent comments of the California Independent System Operator's (CAISO) Department of Market Monitoring (DMM). These comments were offered in the FERC docket opened to consider proposals by Nevada Power Company, Sierra Pacific Power Company, and PacifiCorp that FERC lift the restrictions requiring them to participate in the EIM using Default Energy Bids (DEBs), and instead impose more limited market mitigation provisions.[29] In their comments, the DMM supported these utilities' requests, explaining in detail the disadvantages suffered by participants that are required to participate in the EIM using DEBs.[30] In particular, the DMM noted that DEBs

[27] Blue Marmot/400, Moyer/16.
[28] PGE Response to Blue Marmot DR 152 (b), attached as PGE/501.
[29] *Nevada Power Co.*, Docket No. ER17-2394-000, *Sierra Pacific Power Co.*, Docket No. ER17-2395-000, and *PacifiCorp*, Docket No. ER17-2392-000, Comments of the Department of Market Monitoring for the California Independent System Operator Corporation (Sept. 31, 2017).
[30] *Id.* at 6-9.

are calculated the evening prior to each operating day, thereby depriving the participant of the flexibility required to respond to changing market conditions.[31] Based on these observations, the DMM concluded that "it is beneficial to allow participants to adjust bids to reflect actual real-time market conditions; account for changing resource limitations or constraints; and to help manage the overall merit-order of a resource portfolio."[32]

Q. Mr. Moyer points out that PacifiCorp, NV Energy and the Arizona Public Service Electric Company (APS) have participated in the EIM without MBR authority "and still accrued benefits."[33] What is your response?

A. PGE is not arguing that it cannot participate in the EIM without MBR authority, but rather that if it does so, the benefits it expects to realize will be diminished to the detriment of PGE's customers. The fact that other utilities can achieve some benefits without MBR authority is not in conflict with that position. However, if Mr. Moyer is suggesting that these utilities are able to achieve the same level of benefits without MBR authority as they would with it, the evidence is to the contrary.

As noted above, NV Energy and PacifiCorp requested that they be allowed to submit market-based bids, and they received such authority.[34] Their filing letter discussed the inefficiencies of the DEB restriction, noting that it "presents risks of unrecovered costs in some market intervals"[35] and that they have experienced "operational restriction . . . including the inability to properly manage hydro resources and the inability

[31] *Id*. at 6.
[32] *Id*. at 7-8.
[33] Blue Marmot/400, Moyer/26.
[34] Docket Nos. ER17-2392-000, ER17-2394-000, ER17-2395-000, Order on Proposed Market-Based Rate Tariff Changes at 11 (Oct. 30, 2017).
[35] Docket Nos. ER17-2392-000, ER17-2394-000, ER17-2395-000, Filing Letter at 4 (Aug. 31, 2017).

to respond to intra-day gas supply fluctuations."[36] While APS does not currently have MBR authority for the EIM, it requested authorization on July 11, 2018,[37] and CAISO's DMM has issued a report demonstrating that APS now meets FERC's requirements for a competitive balancing authority area, indicating that APS will likely receive MBR as well.[38] These developments suggest that participating in the EIM without MBR authority is not ideal.

Q. Mr. Moyer also asserts that "most market participants that do have MBR Authority submit cost-based bids into the EIM."[39] What is your response?

A. Mr. Moyer's generalization is misleading and shows a misunderstanding for the value of MBR authority. To treat "cost-based" and "market-based" as mutually exclusive bidding options is incorrect. CAISO's DEB construct does not account for all variations of bids that a market participant would consider cost-based. Therefore, MBR authority provides market participants with the tools necessary to reflect costs not considered in the DEB construct. For PGE, MBR authority is most often useful for indicating an opportunity cost associated with inefficient hydro operations. However, as we described above, MBR authority can also be used to communicate other actual real-time market conditions that are imposing costs on the participant's resources.

Q. What do you conclude about the ultimate impact of the loss of MBR authority on the Company's EIM participation?

A. While we cannot calculate the precise financial impact of the loss of MBR authority, we

[36] *Id.* at 38.
[37] *Arizona Public Service Co.*, Market-Based Rate Application for the Energy Imbalance Market, Docket No. ER18-2000 (July 11, 2018).
[38] *See* "Structural competitiveness of the energy imbalance market: Arizona Public Service Balancing Area," at 1 California ISO Department of Market Monitoring (Apr. 10, 2018).
[39] Blue Marmot/400, Moyer/26.

do believe that it would substantially impede our ability to submit bids that are competitive and representative of PGE's costs for all real-time market conditions, which would erode expected benefits.

Q. Does this conclude your Surrebuttal Testimony?

A. Yes.

BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UM 1829

Portland General Electric Company

Exhibit 501 to Testimony of Aaron Rodehorst and Geoffrey Moore

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August 30, 2018

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

February 16, 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. 152
Dated February 2, 2018

Request:

152. At GREENE-MOORE/4/10, PGE states that its Market-Based Rate authority is "key to the Company's successful participation in the EIM".

a. Please describe PGE's definition of "successful participation in the EIM".

b. Please describe why Market-Based Rate authority for PGE is key to the Company's successful participation in the EIM.

c. Please describe how Market-Based Rate authority, and any associated benefits, are passed on to PGE's ratepayers.

d. Please provide any analysis on how PGE's EIM benefits would be diminished should it lose its Market-Based Rate authority.

e. At p, 21, lines 21-24, PGE represents that a decision to employ a certain amount of transmission capacity in order to purchase Blue Marmot power "would place PGE in violation of its commitment to FERC to set aside a minimum of 200 MW of firm point-to point transfer capacity to participate in the EIM." Specifically with reference to FERC oversight, please indicate what regulatory consequences would follow from a departure from the 200 MW set aside, and indicate whether they are any broader than implications with respect to PGE's retention of MBR authority.

i. Please also provide any analysis PGE has undertaken of the economic consequence of participating in the EIM at cost-based rates, as opposed to MBR rates.

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

Response:

a. PGE successfully participates in the EIM if it maintains its ability to achieve significant benefits for its customers over time.

b. Assuming PGE did not have Market-Based Rate (MBR) authority, PGE would be required to participate in the EIM using cost-based bids (otherwise known as Default Energy Bids). In doing so, PGE would be limited in its ability to use bidding mechanisms to manage EIM Participating Resources. As a result, PGE could be exposed to under-recovery of costs and inefficient/infeasible resource operation, specifically for hydroelectric resources, or potentially could be forced to withdraw certain Participating Resources and risk failures of the EIM sufficiency tests that allow for participation in each operating hour.

c. Please see PGE's Response to Data Request No. 151.

d. Please see PGE's Response to part (b) above. PGE has not performed a quantitative analysis of this scenario.

e. Pursuant to FERC's Order approving PGE's Notice of Change in Status, any decrease in the amount of firm transmission capacity committed to EIM transfers between PACW and PGE would require PGE to submit a new change in status filing to FERC no later than 30 days after the change in status occurred. As part of this change in status filing, PGE would be required to submit a new market power analysis of PGE's participation in the 7-BAA EIM that would account for a decrease in PGE's 200-MW firm transmission commitment. Consistent with FERC's guidance, PGE's new market power analysis would need to demonstrate that there are no 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 itself be deemed an EIM submarket or deemed to be within an EIM submarket. If such a demonstration cannot be made, PGE would be required to submit a separate market power analysis for its home BAA. Because FERC's order granting PGE MBR authority in the EIM relied on an analysis based on PGE's 200-MW firm transmission commitment and explicitly required a change in status filing if the 200-MW commitment changes, PGE could lose its MBR authority in the EIM if it can no longer commit 200 MW to EIM transfers, which would lead to the results described in part (b) above.

BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UM 1829

Portland General Electric Company

Exhibit 502 to Testimony of Aaron Rodehorst and Geoffrey Moore

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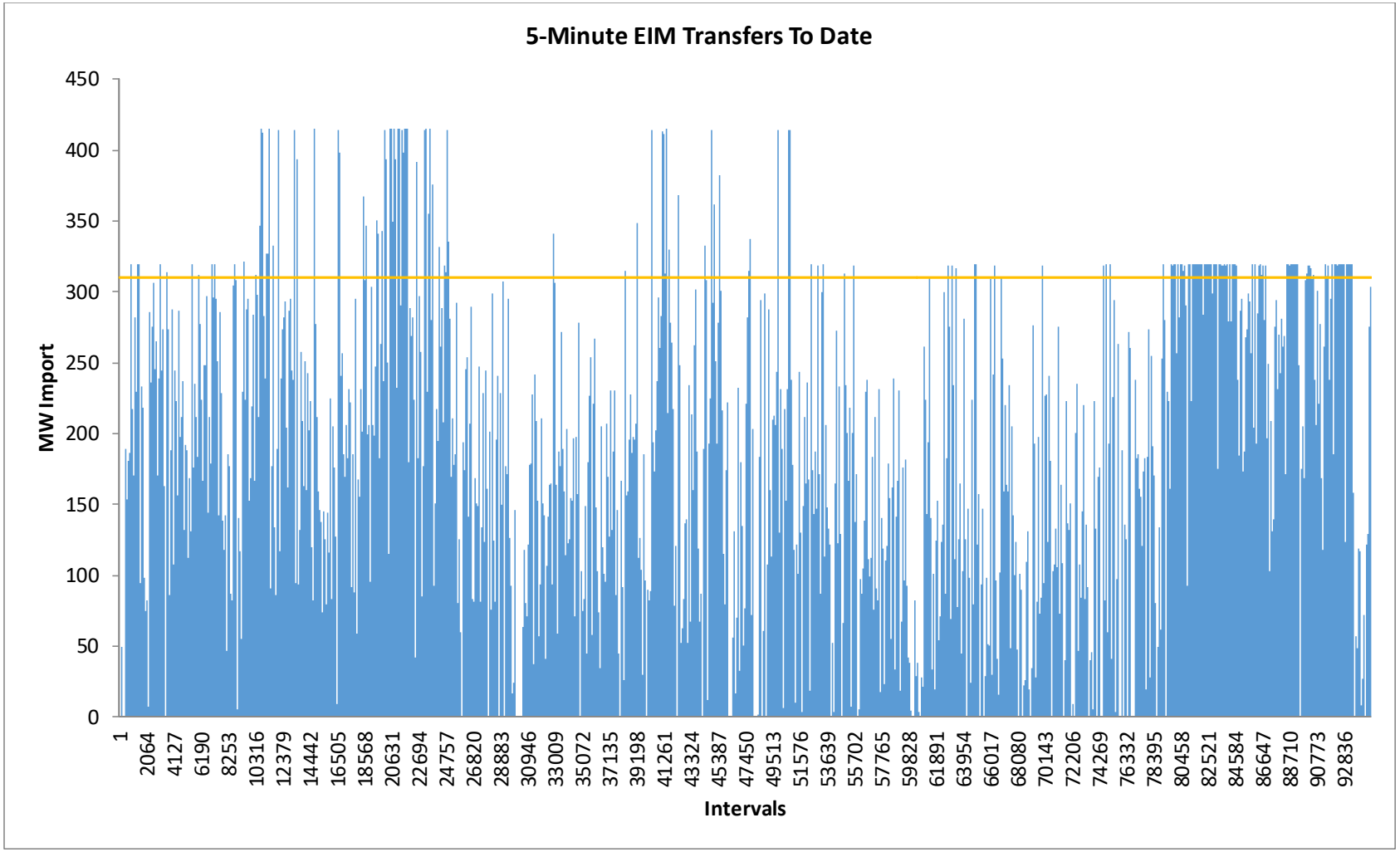
August 30, 2018


5-Minute EIM Transfers To Date
MW Import
450
400
350
300
250
200
150
100
50
0
1
2064
4127
6190
8253
10316
12379
14442
16505
18568
20631
22694
24757
26820
28883
30946
33009
35072
37135
39198
41261
43324
45387
47450
49513
51576
53639
55702
57765
59828
61891
63954
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82521
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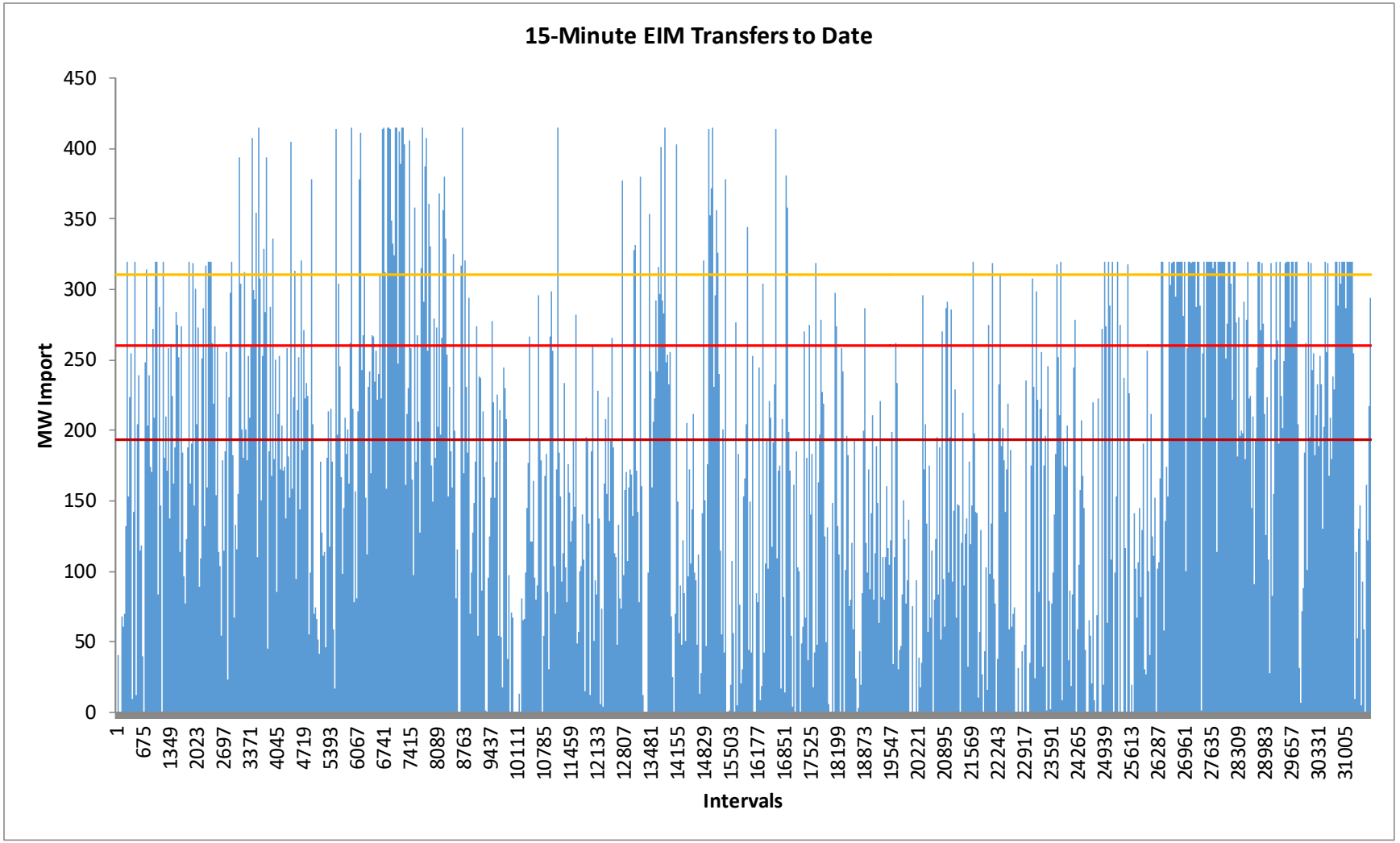
86647
88710
90773
92836
Intervals


15-Minute EIM Transfers to Date
MW Import
450
400
350
300
250
200
150
100
50
0
1
675
1349
2023
2697
3371
4045
4719
5393
6067
6741
7415
8089
8763
9437
10111
10785
11459
12133
12807
13481
14155
14829
15503
16177
16851
17525
18199
18873
19547
20221
20895
21569
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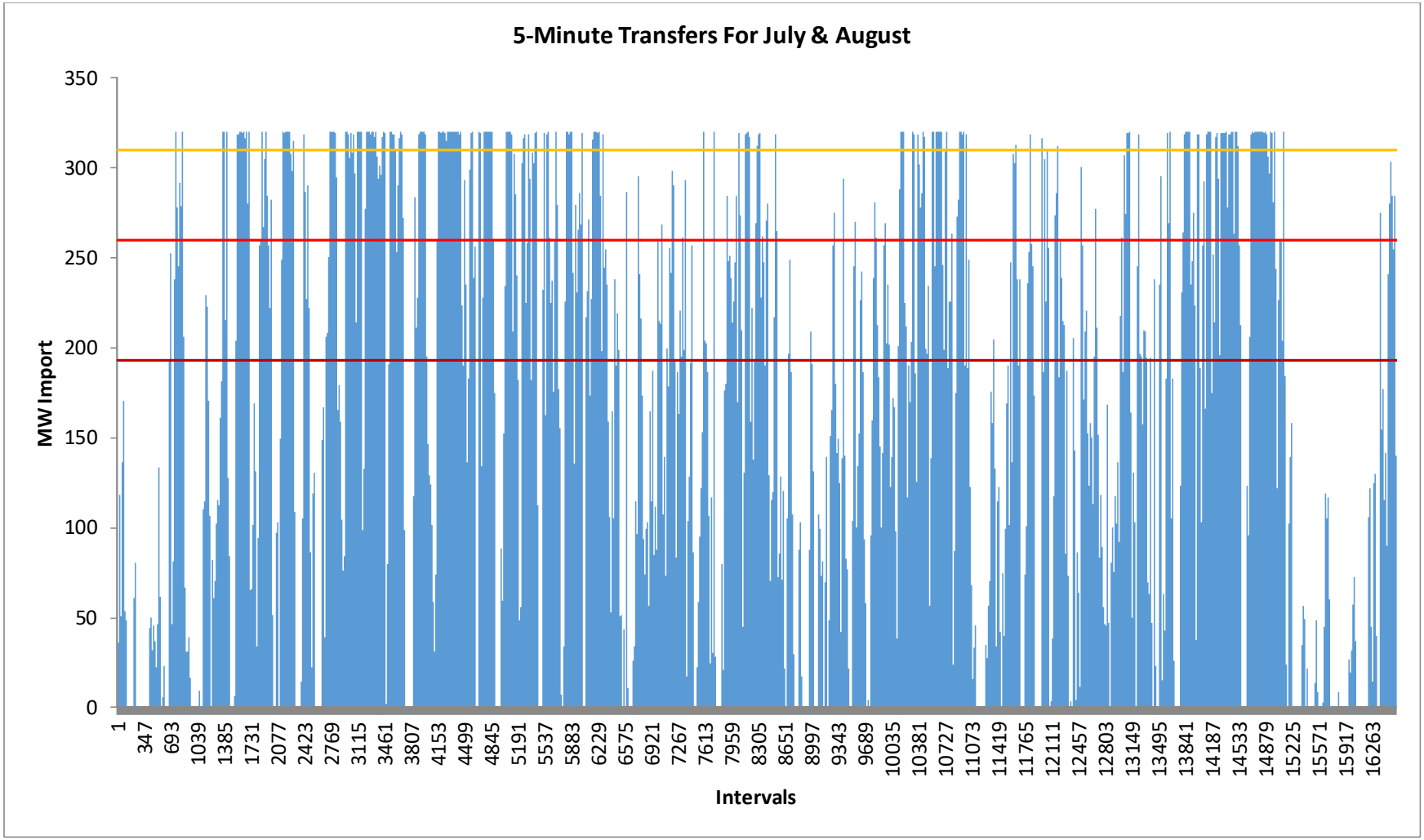
Intervals


5-Minute Transfers For July & August
MW Import
350
300
250
200
150
100
50
0
1
347
693
1039
1385
1731
2077
2423
2769
3115
3461
3807
4153
4499
4845
5191
5537
5883
6229
6575
6921
7267
7613
7959
8305
8651
8997
9343
9689
10035
10381
10727
11073
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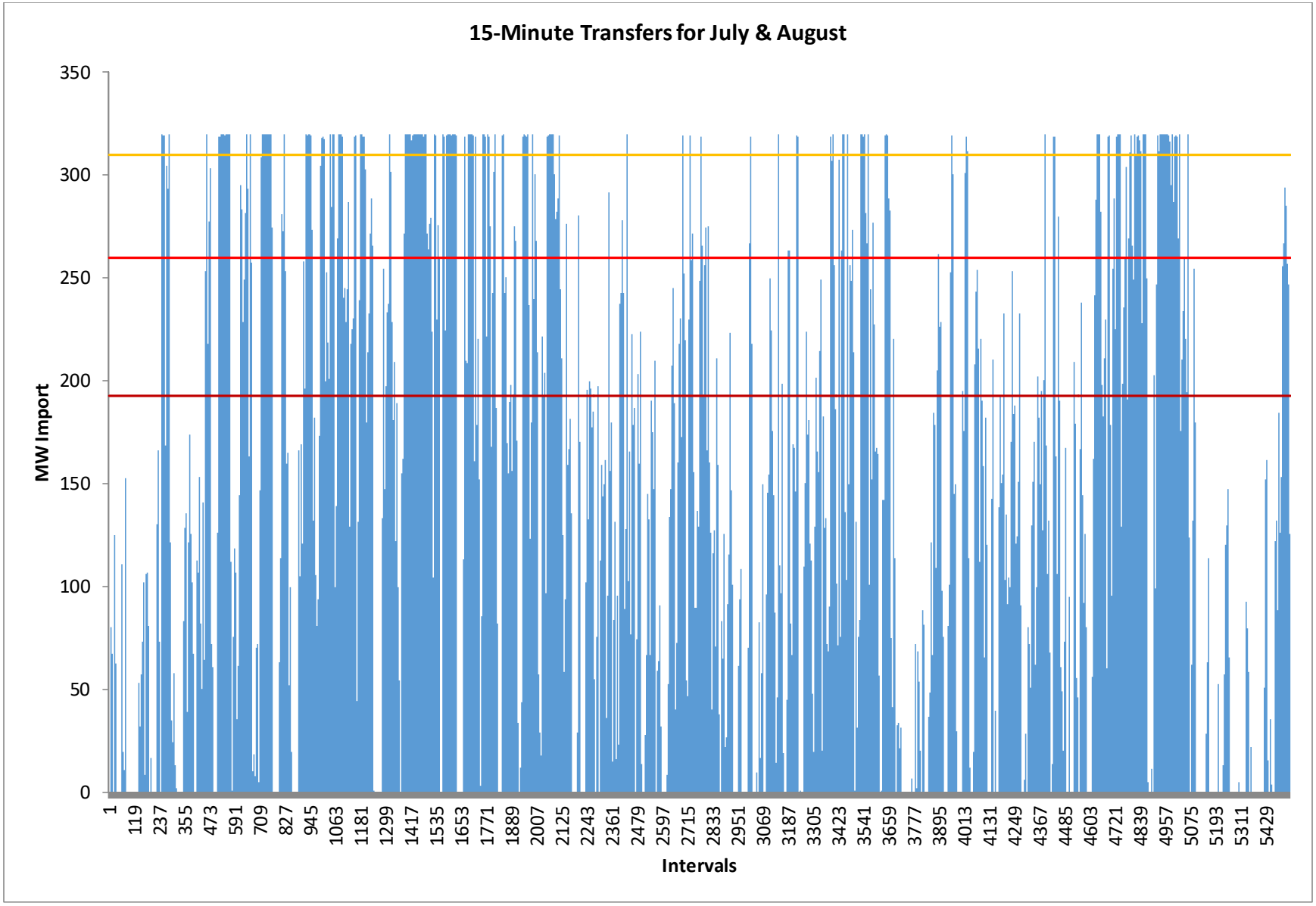
15-Minute Transfers for July & August
MW Import
350
300
250
200
150
100
50
0
1
119
237
355
473
591
709
827
945
1063
1181
1299
1417
1535
1653
1771
1889
2007
2125
2243
2361
2479
2597
2715
2833
2951
3069
3187
3305
3423
3541
3659
3777
3895
4013
4131
4249
4367
4485
4603
4721
4839
4957
5075
5193
5311
5429
Intervals

PGE/600
Witnesses: EDMONDS – LARSON – RICHARD

BEFORE THE PUBLIC UTILITY COMMISSION
OF THE STATE OF OREGON

UM 1829

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

Complainants,

v.

Portland General Electric Company,

Defendant.

PORTLAND GENERAL ELECTRIC COMPANY

SURREBUTTAL TESTIMONY OF

SARAH EDMONDS, SEAN LARSON, AND MATTHEW RICHARD

August 30, 2018

INTRODUCTION AND SUMMARY

Q. Ms. Edmonds, please state your name, business address, and position at Portland General Electric Company.

A. My name is Sarah Edmonds. My business address is 121 SW Salmon Street, 3 World Trade Center, Mailstop 0409, Portland, OR 97204. My current position at Portland General Electric Company (PGE or Company) is Director of Transmission and Reliability.

Q. Please summarize your educational background and business experience.

A. I have been Director of Transmission Services and Reliability for PGE since February 2018, when I took over the role from Frank Afranji upon his retirement. Before joining PGE, I worked at PacifiCorp, where I held the positions of Lead Senior Attorney, Director of Transmission, Vice President and General Counsel of PacifiCorp Transmission, and, most recently, Vice President of PacifiCorp Transmission Strategy, Policy & Corporate Compliance. At PacifiCorp, I led policy and tariff development efforts for the formation of the Western Energy Imbalance Market (EIM) in PacifiCorp's service area, which launched in 2014. I earned a Bachelor's degree in Russian Studies from the University of Oregon and a law degree from the Georgetown University Law Center. I was in private practice at Duane Morris, Orrick Herrington, and Perkins Coie for four years before I joined PacifiCorp.

Q. Do you adopt Mr. Afranji's prior testimony in this matter as your own?

A. Yes, I adopt Mr. Afranji's Response Testimony (hereinafter Transmission Response Testimony) filed on January 12, 2018.

Q. Mr. Larson, please state your name, business address, and position at PGE.

A. My name is Sean Larson. My position at PGE has changed since my prior testimony; I am now a Transmission Analyst. My business address is now 121 SW Salmon Street, 3 World Trade Center, Mailstop 0306, Portland, OR 97204.

Q. Are you the same Sean Larson who previously filed testimony in this docket?

A. Yes, I filed the Transmission Response Testimony on January 12, 2018.

Q. Mr. Richard, please state your name, business address, and position at PGE.

A. My name is Matthew Richard. My business address and position at PGE have not changed; I remain the administrator of PGE's Open Access Same-Time Information System (OASIS) website.

Q. Are you the same Matthew Richard who previously filed testimony in this docket?

A. Yes, I filed the Transmission Response Testimony on January 12, 2018.

Q. What is the purpose of your Surrebuttal Testimony?

A. The purpose of our testimony is to respond to the Blue Marmots' witness Keegan Moyer's testimony and report regarding his review and criticisms of PGE's transmission studies.

Q. Please summarize your testimony.

A. In our Transmission Response Testimony, we explained that the interface between the PacifiCorp West (PACW) and PGE systems (the PACW-PGE interface) is constrained, and that there is insufficient available transfer capability (ATC) to allow the Blue Marmots to deliver their output at that interface. We also explained that, at the Blue Marmots' request, PGE conducted a System Impact Study (SIS) that determined there are no feasible upgrades or generation redispatch options that would increase the capacity of the interface sufficiently to accommodate delivery of the Blue Marmots' entire output. Therefore, the SIS determined that the Blue Marmots could accomplish full delivery of their output only by constructing a generation lead line directly to PGE's system and avoiding the PACW-PGE interface entirely.

In his Reply Testimony and the accompanying confidential report entitled "Review of PACW-PGE Transmission Studies" (Report),[1] Mr. Moyer confirms that PGE correctly calculated the total transfer capability (TTC) of the PACW-PGE interface, but he raises a variety of concerns related to the modeling, methodology, analysis, and conclusions of PGE's SIS. Mr. Moyer contends that the SIS conclusion that the Blue Marmots would

[1] Blue Marmot/403.

need to construct a generation lead line to deliver their entire output to PGE was unreasonable, and he claims that there are several transmission alternatives that PGE failed to consider in the SIS. Mr. Moyer also generally criticizes the "contract path" approach to transmission that is used in the western United States as well as the North American Electric Reliability Corporation's (NERC) MOD-029a-2a Rated System Path methodology for evaluating TTC, which PGE follows, and he emphasizes his view that accepting the Blue Marmots' output will not cause reliability concerns for PGE because very little of the projects' power actually would physically reach PGE's system.

Our Surrebuttal Testimony responds to each of Mr. Moyer's criticisms and explains that, although Mr. Moyer raises a myriad of concerns about various aspects of the SIS, he has provided no evidence rebutting its central conclusion—that there is no feasible way of increasing the PACW-PGE TTC sufficiently to allow delivery of the Blue Marmots' entire net output to PGE. Crucially, Mr. Moyer has not shown that PGE's SIS failed to evaluate any transmission upgrade or other alternative that would be more economically reasonable than the Blue Marmots' existing option to transmit their output for delivery via the interface between the Bonneville Power Administration (BPA) and PGE systems (the BPA-PGE interface). On the contrary, each of the purported transmission alternatives Mr. Moyer identifies are unlikely to be either feasible or economically reasonable to construct due to the length of new transmission that would be required, and due to the lack of existing right-of-way. Moreover, PGE does not share Mr. Moyer's certainty that the increased flow that could result from his alternatives would increase the PACW-PGE TTC by the amounts he predicts.

And although Mr. Moyer devotes significant portions of his testimony and Report to criticizing the contract path approach to transmission in the West and lamenting the lack of an organized market in the region, he acknowledges that PGE is not in an organized market and that the Company followed a valid NERC standard methodology when conducting its transmission studies. In light of these facts, Mr. Moyer's preferences and

opinions about the West's transmission system and his allegations regarding the counterintuitive nature of the NERC methodology are irrelevant to the issues at hand.

Finally, PGE disputes Mr. Moyer's assertion that reliability concerns do not prevent PGE from accepting the Blue Marmots' output. Like all transmission providers, PGE must adhere to transmission planning standards and scheduling requirements designed to ensure the reliability of the transmission system. Failure to do so could jeopardize reliability, not just for PGE, but also for interconnected transmission systems. Therefore, PGE is not free to disregard the TTC limit of the PACW-PGE interface or to make an exception to accept the Blue Marmots' output simply because the Blue Marmots are sited hundreds of miles away from PGE's load and little of their power would physically reach PGE's system.

MR. MOYER'S CRITIQUE OF THE JOINT TTC STUDY

Q. Please briefly summarize the background of the Joint TTC Study.

A. As we explained in our Transmission Response Testimony, the Joint TTC Study was conducted by PGE and PacifiCorp in mid-2017, after PacifiCorp contacted PGE to discuss the fact that PacifiCorp's posted TTC for the PACW-PGE interface was higher than PGE's.[2] The Joint TTC Study was conducted using NERC's MOD-029-2a methodology and yielded a TTC of 320 MW for the summer and 415 MW for the winter.[3]

Q. To assist in understanding Mr. Moyer's concerns, please provide an overview of the Joint TTC Study methodology.

A. PGE and PacifiCorp first selected a base case to serve as a starting point for the Study that, in their judgment, represented the most accurate and then-current depiction of the relevant transmission systems. Consistent with MOD-029-2a, they adjusted load and generation values to maximize the flow across the interface and then performed a contingency

[2] PGE/300, Afranji-Larson-Richard/15.
[3] Hereinafter, PGE refers to only the 320-MW summer TTC, because the summer TTC value is the relevant limit for long-term firm transfer capability of the interface.

analysis.[4] Removing a transmission element from service is known as a "contingency." Contingency analysis is the systematic, iterative review of the impacts to the transmission system of all relevant contingencies. The goal of this analysis in the Joint TTC Study was to determine the maximum amount of flow across the PACW-PGE interface at which a contingency did not trigger an overload on any element of the transmission system. The TTC for the interface was set equal to that amount of flow. In the Joint TTC Study, three separate post-contingency overloads occurred at 320 MW of flow across the interface, which was therefore determined to be the TTC. Accordingly, both PGE and PacifiCorp adjusted the posted TTC of the PACW-PGE interface to this value.

Q. Please summarize Mr. Moyer's review of the Joint TTC Study and the two concerns he raises.

A. Mr. Moyer duplicated the analyses conducted by PGE and PacifiCorp and confirmed that the Joint TTC Study arrived at the correct TTC value of 320 MW.[5] Mr. Moyer also confirmed that the Joint TTC Study included the correct transmission facilities in the PACW-PGE interface.[6] He determined that no PACW or PGE transmission elements were overloaded in the base case, and he re-ran the contingency analysis to produce the same results.[7] In his analysis, the interface was loaded to 320 MW when overloads occurred, confirming that the TTC should be set at 320 MW.[8] In addition, Mr. Moyer confirmed that, because power flow from PACW into PGE could not be simulated, PGE and PacifiCorp correctly used the power flow in the prevailing direction (from PGE into PACW) to set the TTC in both directions, consistent with MOD-029-2a.[9]

[4] Standard MOD-029-2a – Rated System Path Methodology, *available at* http://www.nerc.com/_layouts/PrintStandard.aspx?standardnumber=MOD-029-2a&title=Rated%20System%20Path%20Methodology&jurisdiction=United%20States.
[5] Blue Marmot/403, Moyer/14-15.
[6] Blue Marmot/403, Moyer/14.
[7] Blue Marmot/403, Moyer/14.
[8] Blue Marmot/403, Moyer/14.
[9] Blue Marmot/403, Moyer/15-16.

Despite confirming the results of the Joint TTC Study, Mr. Moyer raises two criticisms. First, he questions the base case selected by PGE and PacifiCorp to initiate the Study and, second, he criticizes the Study for documenting only the contingency that caused the most severe overload, rather than all three of the contingencies that caused overloads.[10] Importantly, however, he does not assert that either issue affected the outcome of the Study.[11]

Q. Please explain Mr. Moyer's criticism of the base case selected for the Joint TTC Study.

A. Mr. Moyer points out that PGE and PacifiCorp used the Western Electricity Coordinating Council (WECC) 2015 Heavy Summer Operating Base Case, rather than using the WECC 2016 or 2017 Heavy Summer Operating Base Cases that were available when the Study was performed, and he contends that this choice "may have resulted in inaccurate results for the TTC study."[12]

Q. Is this criticism valid?

A. No. PGE is confident that the Joint TTC Study base case represented the most accurate information available at the time. The base case used in the Study was developed and thoroughly vetted by PGE for its use in complying with NERC transmission planning (TPL) standards, which require PGE to conduct various annual analyses of its transmission system and send a report to WECC. As part of the TPL process, PGE devoted significant time and effort to refining the WECC 2015 Heavy Summer Operating Base Case to scale loads to the most recent, known values and to update for other known system changes that arose after the case initially was developed. PGE then asked PacifiCorp and BPA to review the case to confirm that their systems were accurately represented.

Although the WECC 2016 and 2017 Heavy Summer Operating Base Cases identified by Mr. Moyer were available at the time of the Joint TTC Study, they had not

[10] Blue Marmot/403, Moyer/13-15.
[11] Blue Marmot/403, Moyer/14-15.
[12] Blue Marmot/403, Moyer/13-14.

been subject to similar review. Therefore, PGE and PacifiCorp elected to use the 2015 Heavy Summer Operating Base Case, as updated and refined by PGE during the TPL process, because the extensive review process—in which both utilities had participated—provided assurance that this case was the most accurate and most current representation of the relevant transmission systems available at the time.

While Mr. Moyer speculates that newer cases "may have offered better representations,"[13] he has not offered any support for this conjecture. When PGE issued a data request to better understand what aspects of the base case Mr. Moyer viewed as outdated, the Blue Marmots responded by identifying a single line upgrade project and one circuit rating that had been updated in the WECC 2017 Heavy Summer case—both on BPA's system.[14] Neither of these updates would have affected the results of the Joint TTC Study. Moreover, Mr. Moyer has not identified any inaccuracies in the results of the Joint TTC Study related to these updates, nor does he contend that the results of the Joint TTC Study would have been different if a different base case had been used.[15]

Q. Please explain Mr. Moyer's second criticism of the Joint TTC Study regarding documenting all contingencies that caused overloads.

A. Mr. Moyer argues that the Joint TTC Study did not document all contingencies that caused overloads and instead only documented the contingency that caused the most severe overload.[16] Despite acknowledging that following his preferred documentation approach would not change the outcome of the Study, he asserts that it would have provided a more thorough basis for the Study's conclusion and an indication of how challenging it would be to increase TTC.[17]

Q. Please respond.

[13] Blue Marmot/403, Moyer/17.
[14] Blue Marmot Confidential Response to PGE DR 24(a), attached as PGE/601.
[15] Blue Marmot/403, Moyer/13-16; Blue Marmot Confidential Response to PGE DR 24(b), attached as PGE/601.
[16] Blue Marmot/403, Moyer/15.
[17] Blue Marmot/403, Moyer/15.

A. As he notes, Mr. Moyer's criticism does not affect the outcome of the Study and is therefore irrelevant. Moreover, the Joint TTC Study is conducted for internal use in setting TTC and demonstrating compliance with NERC and WECC standards. Documenting one contingency is adequate for these purposes. And although the Joint TTC Study was shared with the Blue Marmots in the course of this litigation, it was not drafted to provide insight to customers regarding the challenges of increasing TTC.

Q. Did Mr. Moyer's Report and testimony regarding the Joint TTC Study raise any questions or concerns for PGE about the validity of the Joint TTC Study?

A. No. As discussed above, the concerns Mr. Moyer raises are minor and do not impact the results of the Joint TTC Study. The Company is confident that the Study yielded the correct result.

MR. MOYER'S CRITIQUE OF THE SYSTEM IMPACT STUDY

Q. Please provide a brief introduction to the System Impact Study.

A. PGE conducted a System Impact Study (SIS) in the fall of 2017 at the request of an affiliate of the Blue Marmots' parent company, EDP Renewables North American (EDPR), to assess whether upgrades or other arrangements would enable delivery of 60 MW[18] from PACW to PGE. As explained in the Policy Response Testimony, EDPR's request arose out of the parties' early settlement discussions in this case.[19]

The SIS determined that no achievable level of redispatch could increase the TTC of the PACW-PGE interface, and that adding a second transmission line between the Bethel and Parish Gap substations, the primary connection in the interface, would increase TTC by only 19 MW (and would cost an estimated $36 million). Therefore, the SIS concluded that, in order to deliver their entire output to PGE, the Blue Marmots would need to avoid

[18] As Mr. Moyer explains in his testimony, the Blue Marmots requested that PGE study 60 MW of transmission capacity, but the Blue Marmots now seek only 50 MW of capacity. Blue Marmot/400, Moyer/32 n.38. However, the Blue Marmots did not alter their requested amount during the pendency of the SIS, so the SIS pursued 60 MW.
[19] PGE/100, Greene-Moore/19.

the PACW-PGE interface entirely and could accomplish delivery via a direct interconnection, which would require construction of a generation lead line from the Blue Marmots' facilities directly to PGE's system.[20]

Q. Please summarize Mr. Moyer's concerns regarding the SIS.

A. Mr. Moyer levels a number of criticisms at the SIS. ***First***, Mr. Moyer criticizes PGE's choice of underlying power flow base case. ***Second***, he identifies purported overloads in the Benchmark Case that he believes could have affected the results. ***Third***, Mr. Moyer contends that PGE failed to analyze the availability of conditional firm transmission service. ***Fourth***, Mr. Moyer criticizes PGE's decision to model the impact on the TTC of adding 60 MW of generation in PACW. ***Fifth***, Mr. Moyer asserts that the SIS reached an unreasonable conclusion and criticizes PGE for failing to offer the Blue Marmots a path to obtaining 34 MW of capacity. ***Sixth***, Mr. Moyer identifies alternative transmission upgrades that he believes PGE should have considered. And ***seventh***, Mr. Moyer takes issue with the contract path approach to transmission in the West in general and disputes PGE's assertion that accepting the Blue Marmots' output at the PACW-PGE interface could have reliability impacts.[21]

Q. Does Mr. Moyer's review support portions of the SIS?

A. Yes. In the SIS, PGE evaluated whether it was feasible to create additional transmission capacity by redispatching the transmission provider's resources.[22] Of the six redispatch scenarios PGE studied, one did increase the PACW-PGE TTC, but increasing TTC by the requested 60 MW would require 30,000 MW of total system adjustments, which is not feasible. Mr. Moyer re-ran the generation redispatch analysis and confirmed the results documented in the SIS.[23]

[20] PGE understood that the Blue Marmots already had declined to deliver their output to the BPA-PGE interface, which also could have permitted delivery.
[21] Blue Marmot/400, Moyer/39-40.
[22] PGE/301, Afranji-Larson-Richard/11.
[23] Blue Marmot/403, Moyer/17-18.

1. Choice of Base Case

Q. Please describe Mr. Moyer's concern regarding the base case selected for the SIS.

A. Mr. Moyer acknowledges that "the joint involvement of PGE, BPA, and PAC [PacifiCorp] engineers" in reviewing the base case PGE selected for the SIS "reasonably justifies" PGE's decision to use that base case.[24] Nevertheless, Mr. Moyer echoes his criticisms of the Joint TTC Study base case selection, discussed above, asserting that newer WECC base cases were available at the time PGE conducted the SIS, which "may have" offered better representations of the transmission system.[25]

Q. Do you agree with Mr. Moyer that PGE's decision to use the WECC 2021 Heavy Summer (HS) Planning Base Case in the SIS was justified?

A. Yes. As with the base case used in the Joint TTC Study and discussed above, the base case for the SIS was meticulously developed and refined by PGE and reviewed by PacifiCorp and BPA for PGE's use in compliance with NERC TPL standards. As a result, the base case used in the SIS provided the most accurate representation of the transmission system available to PGE at the time the Company completed the SIS. Although Mr. Moyer muses that newer cases "may have offered better representations," he has not provided any support for this hypothesis, nor does he contend that the results of the SIS would have been different if a different base case had been used.[26] Therefore, Mr. Moyer's concerns about PGE's base case selection should be disregarded.

2. Development of Benchmark Case

Q. What is the Benchmark Case and how is it different from the base case?

A. The Benchmark Case represents the starting point, or baseline, for the SIS. The Benchmark Case is developed by taking an appropriate base case, updating the system topology to reflect the expected state of the system on the customer's requested in-service date, and adjusting levels of generation and load to obtain the system configuration that yields the

[24] Blue Marmot/403, Moyer/16-17.
[25] Blue Marmot/403, Moyer/16-17.
[26] Blue Marmot/403, Moyer/17.

current TTC. In the course of the SIS, PGE then adjusts the Benchmark Case by adding potential transmission system upgrades or redispatching generation in an attempt to increase the TTC by the amount of transmission service requested.

Q. Please explain Mr. Moyer's concern regarding the development of the Benchmark Case for the SIS.

A. Mr. Moyer identifies three overloads that were present in the Benchmark Case before PGE began its efforts to increase the TTC, and he hypothesizes that the presence of these overloads "could yield unreliable results" in the SIS analysis of post-project system reliability.[27]

Q. Does PGE share Mr. Moyer's concern regarding the issues he identifies as overloads?

A. No. Mr. Moyer does not argue that the results of the SIS's analyses were incorrect, or that they would have been different absent the issues he identifies as overloads. And in fact, because of the role of the Benchmark Case in the SIS analysis, these issues had no impact on the result of the SIS. The Benchmark Case serves as the starting point to which the post-project system is compared, and an overload in the Benchmark Case is significant only as a comparator for the post-contingency analysis. Here, the purported overloads are irrelevant because PGE did not consider them to be problematic in the Benchmark Case, and PGE similarly did not rely upon them in the post-contingency analysis. Finally, PGE disagrees that the issues flagged by Mr. Moyer actually represent significant overloads. Mr. Moyer identified a 17% overload on the Port Westward Transformer, but the limit of that transformer was inadvertently reflected incorrectly in the Benchmark Case. Using the correct limit of 450 MVA (rather than 310 MVA), the transformer is not overloaded. Mr. Moyer also identified 1% overloads on two lines in PGE's system, but an overload of 1% is *de minimis*. In sum, the issues Mr. Moyer identifies as overloads have no impact on the result of the SIS.

[27] Blue Marmot/403, Moyer/21-22.

3. Availability of Conditional Firm Service

Q. Please summarize Mr. Moyer's criticism regarding conditional firm service.

A. Mr. Moyer claims that PGE failed to assess the availability of conditional firm service in the SIS, as requested by EDPR.[28]

Q. What is conditional firm service?

A. Conditional firm service is also known as "conditional curtailment" in PGE's Open Access Transmission Tariff (OATT). Where insufficient transmission capacity exists to grant a request on a firm, year-round basis, the customer may request that PGE study the availability of conditional firm service, in which the requested service would be granted only during certain times of year or under specific system conditions.

Q. Did the SIS evaluate the availability of conditional firm service?

A. Yes, in a section entitled "Availability of conditional firm service," the SIS states that the 60 MW of requested transmission service may be granted in the winter, that is, in the months of November through April.[29]

Q. Does Mr. Moyer agree that 60 MW of transmission service is available in the winter?

A. Yes. Mr. Moyer confirms that sufficient capacity is available in the months of November through April, but not for the months of March through October.[30]

Q. What is Mr. Moyer's criticism regarding PGE's assessment of conditional firm service?

A. Mr. Moyer appears to believe that PGE should have performed additional analysis related to the availability of conditional firm service, beyond simply reviewing the amount of ATC.[31] Although the Blue Marmots decline to detail exactly how PGE should have conducted such additional evaluation, they state that evaluations "such as those routinely conducted by BPA, would have been reasonable."[32]

[28] Blue Marmot/403, Moyer/18.
[29] PGE/301, Afranji-Larson-Richard/11.
[30] Blue Marmot/403, Moyer/18.
[31] Blue Marmot Confidential Response to PGE DR 25(b), attached as PGE/601.
[32] Blue Marmot Confidential Response to PGE DR 25(b), attached as PGE/601.

Q. What type of conditional firm service evaluations does BPA typically conduct?

A. BPA's evaluation of conditional firm service differs significantly from PGE's, in that BPA calculates TTC using a different methodology than PGE. As explained above, PGE sets the TTC at the highest level of flow possible without an overload under *ideal* system conditions; BPA, on the other hand, sets the TTC at the value that will not create an overload under the *worst-case* system conditions. For this reason, there are many system conditions under which BPA can offer conditional firm service in excess of TTC. Therefore, it is PGE's understanding that BPA typically evaluates the system conditions under which additional service could be provided.

Q. Would such evaluations have been reasonable for PGE to undertake in the SIS?

A. No. Because PGE sets TTC at the highest level of flow that will not compromise reliability under ideal system conditions, there are no system conditions in which PGE can offer conditional firm service in excess of TTC. Therefore, there are no evaluations PGE could have undertaken, other than assessing when firm ATC exists.

Q. Does Mr. Moyer contend that additional, conditional firm service is available, beyond the amount identified in the SIS?

A. No. Notably, despite claiming that PGE failed to adequately assess the availability of conditional firm service, Mr. Moyer states that it was not within the scope of his review to undertake such an assessment, and he neither demonstrates nor suggests that additional conditional firm service is available.[33]

4. Modeling the Addition of 60 MW at the Interface

Q. Please summarize Mr. Moyer's criticisms regarding PGE's analysis of adding 60 MW of generation to the PACW-PGE interface.

A. Mr. Moyer's criticisms on this point are three-fold. ***First***, Mr. Moyer criticizes PGE's decision to analyze the addition of 60 MW of generation in PACW, given that the addition

[33] Blue Marmot Confidential Response to PGE DR 25(c), attached as PGE/601.

of new generation on the PACW side of the interface will obviously decrease flow from PGE to PACW, which will in turn decrease the TTC.[34] He states that it is unclear why PGE included this analysis in the SIS and that PGE's communication of the result of this analysis in its Transmission Response Testimony "represents a fabricated interpretation of study results and methods."[35] ***Second***, Mr. Moyer criticizes PGE's decision to model the addition of a 60-MW resource to the edge of the PACW-PGE interface, rather than modeling the Blue Marmots' output at their actual location, asserting that PGE's approach was not a meaningful way to study the Blue Marmots' request.[36] ***Third***, Mr. Moyer asserts that PGE failed to document what generation was offset by the 60-MW addition.[37]

Q. Please respond to Mr. Moyer's first criticism, regarding the decision to model the addition of a 60-MW resource in PACW.

A. PGE modeled the injection of 60 MW at the PACW-PGE interface in response to EDPR's stated belief that injecting the Blue Marmots' output onto PacifiCorp's transmission system would result in an *increase* to the TTC of the PACW-PGE interface. In conducting the SIS, PGE sought to address this question by modeling the addition of a 60 MW resource in PACW. In other words, PGE modeled this scenario not because we expected it to increase the TTC, but rather to demonstrate to EDPR how their generation or transmission rights could affect the TTC. The result of modeling an additional 60 MW of generation in PACW was a 30-MW *decrease* in TTC. This outcome may be readily apparent to Mr. Moyer, but the Study was designed to answer his client's question that was posed at a time when it does not appear that he was involved in this case.

Further, it is incorrect for Mr. Moyer to argue that the discussion of the SIS in PGE's testimony is misleading. On the contrary, PGE included the results of this analysis

[34] Blue Marmot/403, Moyer/19.
[35] Blue Marmot/400, Moyer/39.
[36] Blue Marmot/403, Moyer/19-20.
[37] Blue Marmot/403, Moyer/20.

in the SIS to dispel EDPR's stated belief that adding their output onto the PACW system would increase the TTC at the PACW-PGE interface. PGE did not represent in the SIS or in PGE's testimony that the Blue Marmots would have a "detrimental impact on the path," as Mr. Moyer claims,[38] or that *the Blue Marmots' generation in particular* would decrease the PACW-PGE TTC by 30 MW. In sum, there was nothing misleading or false about PGE's analysis or related testimony.

Q. Please respond to Mr. Moyer's second criticism, regarding the decision to model a 60-MW resource at the interface, rather than at the Blue Marmots' location.

A. In conducting its modeling, PGE recognized that, due to their physical distance from the PACW-PGE interface, all 60 MW of the Blue Marmots' output would not actually reach the interface. Nevertheless, PGE modeled the resource at the interface, rather than at the Blue Marmots' actual location, to clearly show how the addition of a 60 MW resource in PACW would affect the TTC. When conducting the SIS, PGE also modeled the addition of 60 MW of generation at the Blue Marmots' actual location to confirm PGE's understanding of how the system would function with the Blue Marmots' generation and verified that the result still would be a decrease in TTC, albeit a much smaller decrease than if 60 MW were added at the interface.

Q. Please respond to Mr. Moyer's third criticism, that PGE failed to document what generation was offset.

A. PGE did not offset generation when analyzing the addition of 60 MW in PACW, thereby simply letting the system absorb the excess generation, because the purpose of the analysis was not to examine a workable system configuration, but instead to demonstrate to the Blue Marmots that their generation would decrease—not increase—the PACW-PGE TTC. Because PGE's analyses confirmed that the presence of the Blue Marmots decreases the

[38] *See* Blue Marmot/400, Moyer/39.

PACW-PGE TTC, PGE turned to analyzing potential means of increasing the TTC or otherwise enabling delivery of the Blue Marmots' output to PGE.

5. SIS Conclusion

Q. Please describe the SIS's conclusion.

A. The SIS concluded that there was no feasible way to increase the PACW-PGE TTC sufficiently to accommodate an additional 60 MW of delivery. The SIS determined that 60 MW could be transferred from the Blue Marmots to PGE via construction of a customer-owned generation lead line directly to PGE's Bethel substation and presented this as the working plan of service.[39] The SIS did not evaluate the feasibility or cost of constructing or operating the line, as it would not be part of PGE's system.[40]

Q. Does Mr. Moyer agree with the SIS's presentation of the generation lead line as the working plan of service?

A. No. Mr. Moyer characterizes the generation lead line alternative as infeasible, unrealistic, and unreasonable,[41] and he criticizes PGE for including it in the SIS.[42]

Q. Please respond to Mr. Moyer's criticism.

A. First, PGE disagrees with Mr. Moyer's suggestion that the SIS concluded that a generation lead line was a reasonable alternative.[43] In reality, the SIS concluded that there are no reasonable ways to increase TTC by 60 MW, as requested by the Blue Marmots, and therefore the only way to achieve delivery of 60 MW—other than via the BPA-PGE interface—was to do so directly via a generation lead line.

PGE also disagrees with Mr. Moyer's implication that PGE should not have considered the generation lead line alternative. PGE knew that transmission to the BPA-PGE interface was an option for delivering the Blue Marmots' output that would be less costly than direct interconnection via a generation lead line. However, given that the Blue

[39] PGE/301, Afranji-Larson-Richard/12.
[40] PGE/301, Afranji-Larson-Richard/12.
[41] Blue Marmot/400, Moyer/40-41.
[42] Blue Marmot/400, Moyer/41.
[43] *See* Blue Marmot/400, Moyer/43.

Marmots had elected to request a SIS rather than opt for the BPA transmission alternative, PGE understood they were interested in seeking other options, and PGE felt obligated to provide them with the only other option that we knew could actually result in delivery of their entire requested output to PGE.

Q. In addition to criticizing the generation lead line, Mr. Moyer asserts that the SIS "missed" the fact that 15 MW of ATC already existed, which, if combined with the additional 19 MW that the SIS determined could be created, would have allowed the Blue Marmots to receive 34 MW of capacity.[44] Please respond.

A. Mr. Moyer is mistaken. When the SIS was conducted, PGE was aware of the existence of the 15 MW of ATC that became available in June 2017 after the TTC was increased as a result of the Joint TTC Study. To the extent Mr. Moyer is suggesting that PGE should have offered the Blue Marmots that 15 MW and **the 19 MW from the Bethel-to-Parish-Gap line, instead of the generation lead line, because it would have provided nearly all of the 50 MW they required,[45]** PGE disagree**s for two reasons.** First, the goal of the SIS was to identify a plan that could allow PGE to grant the entire 60 MW request. Second, the Blue Marmots had requested that PGE study their request for 60, not 50, MW. As a result, the PGE personnel performing the SIS assumed the Blue Marmots sought to deliver 60 MW. PGE's transmission planning personnel had no reason to know that EDPR actually desired only 50 MW and in fact would be content with less than 50 MW, as they did not inform PGE of this fact.

Q. Could the Blue Marmots have pursued the 34-MW option Mr. Moyer describes?

A. Yes. As Mr. Moyer's testimony demonstrates, the SIS clearly communicated the possibility that an additional 19 MW of TTC could be created with the construction of a new transmission line.[46] And, as Mr. Moyer recognizes, PGE offered the 15 MW of new

[44] Blue Marmot/400, Moyer/35.
[45] Blue Marmot/400, Moyer/35.
[46] Blue Marmot/400, Moyer/35.

ATC to the Blue Marmots.[47] Therefore, the Blue Marmots possessed sufficient information to pursue a total of 34 MW of transmission capacity through a combination of upgrades and use of existing ATC. Yet, the Blue Marmots did not seek additional information or studies regarding this option and declined to pursue the 15 MW of ATC when it was offered to them. The bottom line is that the Blue Marmots' actions demonstrate that they do not view funding construction of a new transmission line, at an estimated cost of $36 million, to achieve a total of 34 MW of TTC, as a desirable or economically reasonable option when compared to the alternative of delivering their entire output via BPA transmission, at an estimated cost of $14 million.[48]

6. Transmission Upgrade Alternatives

Q. Does Mr. Moyer identify other transmission upgrade alternatives that he believes PGE should have considered in the SIS?

A. Yes, Mr. Moyer identified three new transmission lines, which he contends could increase TTC and allow delivery of some or all of the Blue Marmots' output.[49]

Q. Before turning to Mr. Moyer's alternatives, please describe the Bethel-to-Parish-Gap transmission alternative evaluated in the SIS and the reasoning behind PGE's decision to evaluate this alternative.

A. The SIS evaluated whether the addition of a second 230-kV transmission line between PacifiCorp's Parish Gap substation and PGE's Bethel substation could increase the TTC of the PACW-PGE interface. PGE focused its efforts on increasing the flow between Bethel and Parish Gap because the existing 230-kV line between those substations carries the majority of the flow across the interface. Therefore, PGE determined that the most likely way to increase the flow was to increase the size of this connection. In addition, the fact that Bethel and Parish Gap already are connected by one transmission line means that the necessary right-of-way is in place, which would facilitate construction of a second line

[47] Blue Marmot/400, Moyer/35.
[48] *See* Blue Marmot/300, Moyer/14.
[49] Blue Marmot/403, Moyer/24.

along the same route. Although PGE did not evaluate the cost of this alternative in the SIS, PGE estimates that construction of a second Bethel-to-Parish-Gap line could cost around $36 million (approximately $3 million per mile for 12 miles).

Q. Did PGE determine in the SIS that the addition of a second line from Bethel to Parish Gap would increase TTC?

A. Yes, but only by 19 MW, which is insufficient to accommodate the Blue Marmots' request for an additional 60 MW. Mr. Moyer's analysis confirmed that this alternative would result in a 19-MW increase.[50]

Q. Did PGE consider studying the addition of more lines between Bethel and Parish Gap?

A. PGE did consider this possibility but discarded it for two reasons. First, because the flow across the interface is affected by both the number and capacity of transmission lines (i.e., the size of the pipe) and the load-resource balance in adjacent balancing areas (i.e., the push and pull across the interface), adding additional lines between Bethel and Parish Gap would increase the TTC somewhat but would provide diminishing returns. That is, PGE knew that adding a third line between Bethel and Parish Gap would not increase the TTC by the additional 41 MW (or even 26 MW) the Blue Marmots required. And second, the cost of building multiple new lines would be significant and having three or more 230-kV transmission lines within the same right-of-way likely could present logistical challenges that would be expected to drive up the cost of each additional line.

Q. Please describe the new transmission alternatives identified by Mr. Moyer, which he contends PGE ought to have considered.

A. Mr. Moyer identifies three substation pairs, between which he believes new transmission lines could be constructed, as summarized in the following table:

[50] Blue Marmot/400, Moyer/35.

Table 1: Transmission Alternatives.

Transmission Alternative (Source)	Maximum Reliable PGE-to-PACW Transfer (MW) as Modeled by Mr. Moyer	Straight-Line Distance Between Substations (Miles)
Bethel – Parish Gap 230-kV circuit (identified in SIS)	324 MWs	10.6
Marion – Bethel 500-kV circuit and 500/230 kV transformer at Bethel (Mr. Moyer)	381 MWs	15.3
Ostrander – Bethel 500- kV circuit and 500/230 kV transformer at Bethel (Mr. Moyer)	374 MWs	39.9
Santiam – Bethel 500- kV circuit and 500/230 kV transformer at Bethel (Mr. Moyer)	341 MWs	17.3

Q. In conducting the SIS, did PGE consider any of the transmission alternatives identified by Mr. Moyer?

A. No. As explained in more detail below, PGE did not consider these transmission alternatives as reasonable options to increase TTC because they affect the BPA-PGE interface and redirect power flowing from BPA to PACW through PGE. As a result, their construction would require PGE to reexamine its TTC calculation methodology, which could result in a decrease to the PACW-PGE TTC or a smaller increase than Mr. Moyer predicts. And moreover, Mr. Moyer's alternatives would not be feasible or economically reasonable to construct.

Q. Do you agree with Mr. Moyer's assessment of the increase in <u>flow</u> that each of the new transmission lines could yield?

A. PGE has not modeled the new lines Mr. Moyer proposes and therefore cannot confirm the increases Mr. Moyer identified. However, PGE believes it is likely that the new lines could yield the flow changes identified in the above table, and, for the purposes of this testimony, PGE will assume the accuracy of Mr. Moyer's modeling of the flow impact of these alternatives.

Q. Do you agree with Mr. Moyer that the new transmission lines he identifies will increase the TTC of the PACW-PGE interface?

A. No. And PGE notes that Mr. Moyer has misunderstood or mischaracterized PGE's data responses on this topic.[51] PGE cannot predict how the addition of the lines Mr. Moyer identifies would affect the PACW-PGE TTC, but it is possible that they would not lead to TTC increases proportional to the modeled increases in flow.

Q. Please explain.

A. The new transmission lines Mr. Moyer proposes would not be part of the PACW-PGE interface. Instead, as Mr. Moyer notes, each of the new lines he proposes would create a new connection between BPA and PGE and would be part of the BPA-PGE interface.[52] These lines would increase the flow across the PACW-PGE interface indirectly by increasing flow across the BPA-PGE interface, which would in turn push more flow out of PGE into PACW in order to maintain load-resource balance. In essence, the new lines would redirect through PGE existing flows that currently move directly from BPA to PACW.

With the current system configuration, increased flow from PGE to PACW means the PACW-PGE TTC increases, but if the system configuration changes as Mr. Moyer proposes, the TTC methodology may need to be changed and this may no longer hold true. Specifically, Mr. Moyer's assertion that his proposed alternatives will increase TTC is based upon the assumption that altering the relationships between BPA, PGE, and PACW would not require any changes in the way PGE calculates TTC. However, because Mr. Moyer's transmission additions would be increasing the effect of the BPA-PGE interface on the PACW-PGE interface, PGE would need to reassess its current approach of studying the two interfaces' TTCs separately.

[51] Blue Marmot/400, Moyer/37.
[52] Blue Marmot/400, Moyer/36.

Q. Please explain your statement that PGE would need to reassess its current study approach.

A. PGE currently studies the BPA-PGE and PACW-PGE interfaces' TTCs separately, based on the reasonable assumption that they load independently. This means that PGE can conduct a TTC study and adjust load-resource balance to maximize the BPA-PGE TTC, without worrying about the impact of the adjustments on the PACW-PGE TTC, and vice versa. This distinction is important because, generally speaking, the generation that must be turned on to maximize the PACW-PGE TTC must be turned off to maximize the BPA-PGE TTC. However, if the relationship between the two interfaces increases with the addition of one of the new transmission lines that Mr. Moyer proposes, it may no longer be valid to assume that they load independently, and PGE may need to begin studying them together, in the same TTC study. In this scenario, it is likely that both interfaces' TTCs could not be maximized at the same time, and one of the TTCs could decrease below current levels. For this reason, Mr. Moyer's assumption that his transmission alternatives will increase the PACW-PGE TTC, commensurate with the increase in flow from PGE to PACW that he identified, is not justified.

Q. In addition to the technical concerns discussed above, do you have concerns about the constructability of Mr. Moyer's transmission alternatives?

A. Yes. As a rule of thumb, a 230-kV line could cost $3 million per mile to construct and permit, and a 500-kV line would cost even more. Each of the alternatives identified by Mr. Moyer would require construction of a longer, and therefore more expensive, transmission line than the Bethel-to-Parish-Gap line discussed in the SIS. Moreover, as Mr. Moyer recognizes,[53] the distances between substations conveyed in his testimony and in the table above are straight-line distances, and do not take into account the length of a feasible route to construct an actual line, which is unlikely to be the direct, straight-line route. Therefore,

[53] Blue Marmot/400, Moyer/36 n.43.

even if Mr. Moyer's alternatives increased the TTC, they would likely be uneconomic, when compared with the option of delivering their output via BPA transmission for $14 million.

In addition, there is no existing right-of-way for two of Mr. Moyer's proposed alternatives (the Marion and Ostrander alternatives), which raises a host of permitting and planning concerns that call into question whether such lines could be constructed. Even if such lines could be constructed, these concerns likely would significantly increase the cost of construction.

Q. Have the Blue Marmots demonstrated that there are other transmission alternatives that would enable PGE to accept delivery of their output at the PACW-PGE interface?

A. No. Mr. Moyer acknowledges that the intent of his review was to "conduct a screening to find reasonably feasible alternatives that PGE should have considered."[54] For the reasons explained above, none of the alternatives Mr. Moyer identifies provides a feasible means of delivering the Blue Marmots' output to PGE—particularly when compared with the alternative of transmitting the Blue Marmots' output for delivery via the BPA-PGE interface.

7. Contract Path Approach to Transmission and Reliability Impacts of the Blue Marmots

Q. Please summarize Mr. Moyer's testimony regarding the contract path approach to transmission in the West and the implications of the NERC MOD-029-2a methodology.

A. Mr. Moyer critiques the contract path approach to transmission that is used in the western region of the United States. He explains that transmission in the West is managed using the contract path methodology,[55] and that the type of constraint at issue in this case would

[54] Blue Marmot/400, Moyer/37.
[55] Blue Marmot/400, Moyer/11, 32.

not occur in an organized market.[56] Mr. Moyer opines that upgrades would not be required to accept the Blue Marmots' output if PGE were operating in an organized market.[57]

Mr. Moyer also expresses his opinion that the MOD-029-2a methodology, and in particular the portion allowing TTC for the non-prevailing flow direction to be set equal to the TTC for the prevailing direction, "results in a wasteful (and admittedly, confusing) planning approach where technical planning requirements and contract path approach to managing transmission have the potential to drive unneeded and potentially costly transmission investment."[58] He concludes, "[e]ssentially, the PACW-to-PGE import path TTC is set by process default, not by an actual reliability limitation."[59]

Q. Please respond to these concerns.

A. Mr. Moyer's opinions regarding transmission in the West and the flaws of MOD-029-2a are not relevant. PGE is not currently operating in an organized market, nor does PGE have the ability to unilaterally transition the West to an organized market. Mr. Moyer does not contend that PGE and the rest of the transmission providers in the West are applying an incorrect or non-compliant approach to transmission planning and, in fact, he testifies that transmission entities in the West—including PGE—use FERC- and NERC-approved methodologies and procedures.[60]

Mr. Moyer's statements regarding MOD-029-2a are similarly irrelevant. PGE understands that the impact of the MOD-029-2a methodology can lead to seemingly counterintuitive results, but PGE rejects any implication that it is free to ignore the methodology or that it is obligated to craft a new approach to transmission planning solely to permit the Blue Marmots to deliver their power to PGE's system.

[56] Blue Marmot/400, Moyer/32, 42.
[57] Blue Marmot/400, Moyer/42.
[58] Blue Marmot/400, Moyer/42.
[59] Blue Marmot/400, Moyer/41.
[60] Blue Marmot/400, Moyer/32.

Q. Please summarize Mr. Moyer's testimony regarding the reliability impacts of accepting the Blue Marmots' output at the PACW-PGE interface.

A. Mr. Moyer emphasizes that, from a power flow perspective, very little of the Blue Marmots' power actually reaches PGE's system, and, as a result, he contends that accepting the Blue Marmots' output would not have a reliability impact on PGE.[61]

Q. Did PGE seek to clarify the Blue Marmots' position on this point?

A. Yes, in a data request PGE asked whether it was the Blue Marmots' position that, because there are no reliability concerns, PGE actually is able to accept their output at the PACW-PGE interface. The Blue Marmots responded, "No. The Blue Marmots' position is that reliability concerns do not prevent PGE from accepting their power at the PACW-PGE interface."[62]

Q. Does PGE agree that reliability concerns do not prevent PGE from accepting the Blue Marmots' output at the PACW-PGE interface?

A. No, it does not. NERC requirements and standardized methodologies exist to preserve the safety and reliability of the transmission system as a whole, by ensuring that all power flows are accounted for contractually and that they do not exceed the physical limits of the transmission system. The continued reliability of the interconnected transmission system is dependent upon all transmission providers adhering to and enforcing standardized methodologies and requirements. Mr. Moyer recognizes this reality when he acknowledges that "PGE cannot accept schedules across its transmission system that are greater than a path's TTC – doing so would go against important operational and planning protocols that protect the reliability of the system."[63] This acknowledgment cannot be

[61] Blue Marmot/400, Moyer/40.
[62] Blue Marmot Confidential Response to PGE DR 27, attached as PGE/601.
[63] Blue Marmot/400, Moyer/39.

reconciled with Mr. Moyer's argument that, from a power flow perspective, no system emergency could result from putting the Blue Marmots' power on the system.[64]

Q. Even if, as Mr. Moyer contends,[65] the Blue Marmots' output did not create reliability concerns, does that mean that PGE may ignore the TTC limit on the PACW-PGE interface or the applicable NERC methodologies and procedures in order to accept the Blue Marmots' output and resolve this litigation?

A. No. PGE must adhere to NERC requirements when calculating TTC, and then must adhere to FERC, NERC, and North American Energy Standards Board (NAESB) requirements when scheduling transmission on its transmission system. If PGE were to ignore the TTC limit and accept the Blue Marmots' output, PGE could incur significant penalties for violation of these mandatory regulatory obligations.

Q. What is the conclusion of Mr. Moyer's testimony regarding the lack of reliability concerns?

A. Mr. Moyer concludes, "[g]iven that there are no real-world reliability issues and very little of Blue Marmots' power actually reaches PGE's system because of real world power flows, a prudent and reasonable utility should not conclude that a 300-mile gen-tie line is the best way to accept power."[66]

Q. Is it PGE's position that a 300-mile generation lead line is the best way to accept the Blue Marmots' output?

A. No. PGE believes that the best way to accept the Blue Marmots' output would be for them to deliver via the BPA-PGE interface—an option that PGE offered the Blue Marmots at the outset of this litigation.

Q. Does Mr. Moyer's testimony offer a reasonable alternative that would permit the Blue Marmots to deliver their output to PGE?

[64] Blue Marmot/400, Moyer/40.
[65] Blue Marmot/400, Moyer/33.
[66] Blue Marmot/400, Moyer/43.

A. **No. As discussed above, Mr. Moyer levels a number of critiques at the SIS methodology and conclusions (and** at the fundamentals of transmission in the West), but he fails to offer a single workable solution that rivals the option of delivering via the BPA-PGE interface.

Q. Does this conclude your Surrebuttal Testimony?

A. Yes.

EXHIBIT 601 IS CONFIDENTIAL PER PROTECTIVE ORDER 17-219 AND WILL BE PROVIDED SEPARATELY

CERTIFICATE OF SERVICE

I hereby certify that I served a true and correct copy of the confidential documents in Docket UM 1829 on the following named person(s) on the date indicated below by email and/or first-class mail addressed to said person(s) at his or her last-known address(es) indicated below.

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