

**PUBLIC UTILITY COMMISSION OF OREGON  
STAFF REPORT  
PUBLIC MEETING DATE: February 13, 2020**

**REGULAR**   X   **CONSENT**        **EFFECTIVE DATE**                      **N/A**

**DATE:** February 6, 2020

**TO:** Public Utility Commission

**FROM:** Marc Hellman

**THROUGH:** Michael Dougherty and JP Batmale **SIGNED**

**SUBJECT:** PORTLAND GENERAL ELECTRIC:  
(Docket No. UM 1912)  
Portland General Electric Resource Value of Solar and Compliance Filing  
in Response to Order No. 19-023.

**STAFF RECOMMENDATION:**

The Public Utility Commission of Oregon (OPUC or Commission) should accept Portland General Electric's July 18, 2019 Compliance Filing inclusive of January 7<sup>th</sup>, 14<sup>th</sup> and 21<sup>st</sup>, 2020, responses to Staff's data requests and direct Portland General Electric to:

1. Annually update its RVOS estimates and file those estimates no later than July 1 of each year stated in that year's dollars.
  - a. Include in the estimates values for high, medium, and low distribution costs consistent with Portland General Electric's definition used in the locational distribution classification.
2. Review its OASIS information posting as compared to the information and format provided in response to OPUC Data Request No. 27, and post on its website, by April 1, 2020, substation-level information for capacity deferral values in preparation for potentially posting hosting capacity data, as part of UM 2005.

In addition to adopting Staff's recommendation for next steps for Portland General Electric in this RVOS docket, Staff has more general recommendations for the Commission itself:

- A. Consider using the RVOS framework for other regulatory purposes such as developing the value of other types of resources.

- B. Consider directing Portland General Electric to develop locational rates to match with RVOS results showing locational cost differences in various solar and other distributed resources.

## **DISCUSSION:**

### Issue

Whether the Commission should accept Portland General Electric's March 18, 2019 and July 18, 2019, Compliance Filings to Order No. 19-023.

### Applicable Rule or Order

In Order No. 19-023, issued January 22, 2019, the Commission stated:

In this order, we complete Phase II of the resource value of solar (RVOS) proceeding, and adopt the final methodologies that Portland General Electric Company (PGE), will use to produce its initial set of RVOS values. We direct PGE to develop revised RVOS calculations consistent with this order, and file them in this docket by March 18, 2019. We also direct PGE to file additional information regarding avoided transmission and distribution, generation capacity, and line loss values no later than July 18, 2019.<sup>1</sup>

### Analysis

#### *Background*

This docket, along with companion dockets UM 1910 for PacifiCorp and UM 1911 for Idaho Power Company, are designed to analyze the resource value of solar. The Portland General Electric specific RVOS Order No. 19-023 provides a useful background for RVOS as well as a discussion on the framework for analysis.

As noted above, Portland General Electric was directed to make compliance filings to Order No. 19-023 on March 18 and July 18, 2019. Following the utilities compliance filings on July 18, 2019, Staff held a workshop with the utilities and stakeholders to gather input on the compliance filings.

At the October 29, 2019, Special Public Meeting in docket UM 1930, the Commission requested an informational update on the status of the resource value of solar proceedings. On October 31, 2019, the OPUC Hearings Division Administrative Law

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<sup>1</sup> Order No. 19-023, p. 1.

Judge, Alison Lackey, issued a memorandum requesting that Staff provide a presentation summarizing the compliance filings, addressing the status of the compliance filings, and outlining any next steps. The presentation was initially scheduled for the January 14, 2020, Public Meeting, but in a communication dated December 23, 2019, was rescheduled to the February 13, 2020, Public Meeting instead.

### *Discussion*

On December 16, 2019, Staff issued several data requests to Portland General Electric (PGE) to both confirm Portland General Electric's compliance to Commission Order No. 19-023, as well as better understand the context of Portland General Electric's prior March 18 and July 18 Compliance filings.

Table 1 on the following page summarizes Staff's view of the status of PGE's compliance to Order No. 19-023.

Based on PGE's responses and Staff's final analysis, Staff provides additional comments and clarifications below to place a broader context on PGE's compliance, identifies near-term improvements that could be made, and provides an overall view on the status of RVOS.

- In the July 18, 2019, compliance filing, Portland General Electric notes that its LOLP analysis is based on its 2019 IRP, which had not been acknowledged. PGE supports its approach as this information is its most current, and better reflects resource needs than its 2016 acknowledged IRP. Staff views this choice by PGE as reasonable. The LOLP focuses on the year 2025. The LOLP shows greater losses of load in the January and December with substantive LOLP values; there are almost as significant LOLP values appearing as well in August.

In the January 7, 2020, response to OPUC Data Request 20, Portland General Electric notes it is still considering what the appropriate planning horizon is. This is a substantive issue as PGE notes that LOLP values change over time. PGE advocates using a single year (perhaps five years out) as appropriate for analysis.

In comparison to PacifiCorp's analysis, in PGE's response to OPUC Data Request 23, if a solar resource supplied power in all non-zero LOLP, the annual payment would not equal the cost of a capacity resource. PGE notes in that same response that it discussed this issue at the September 19, 2019 workshop.

Table 1			
Element	Determination	Compliance?	2020 \$/MWH
Energy	PGE's approach adopted, with the following changes: PGE is ordered to use uncapped EIM data for price shaping. 12 x 24 expression of value required.	Yes. March 18, 2019 Compliance filing, spreadsheet. Corrected for slight scaling error in July 18, 2019 Compliance Filing spreadsheet.	27.89
Generation Capacity	PGE's standard PURPA approach adopted, but pricing must be shaped across 12x24 blocks to express temporal value of system generation capacity need, rather than levelized and spread equally over estimated total solar generation.	Yes. July 18, 2019 Compliance filing, pages 2-3.	7.49
T&D Capacity Deferral	PGE's value adopted. PGE should shape this value over 12 x 24 blocks to express temporal value of system T&D capacity need. PGE is ordered to begin development of rudimentary locational pricing that will begin to identify areas with high, average, and low T&D capacity deferral value relative to system average value.	Yes. July 18, 2019 Compliance filing, pages 4-5. PGE January 7, 2020 response to OPUC Data Request 29.	6.40
Line Losses	PGE's value and approach adopted. PGE should express these values in 12 x 24 blocks rather than levelized via solar performance assumptions.	Yes. July 18, 2019 Compliance filing, page 7.	1.65
Integration	PGE's value adopted.	Yes. No update required.	-0.86
Administration	PGE's value adopted as a proxy; value to be developed consistent with individual program implementation costs.	Yes. No update required.	-5.81
Market Price Response	PGE is ordered to use E3's price elasticity model, in the middle of the provided range at -0.0015%. This approach should take into account the short or long positions of PGE.	Yes. Uses PacifiCorp calculation per conversation with Staff.	-0.04
Hedge Value	PGE's value adopted.	Yes. No update required.	1.39
Environmental Compliance	PGE's value adopted as a proxy; value to be developed according to individual program implementation needs.	Yes. No update required.	12.74
RPS Compliance	Staff's recommendation adopted. PGE is ordered to use values from its RPS compliance reporting to calculate this value as a proxy.	Yes. July 18, 2019 Compliance filing, page 7.	3.92
Grid Services	PGE's value is adopted, until such time as additional investigation identifies grid service benefits.	Yes. No update required.	0.00
RVOS Total Value			54.76
Utility Scale Proxy (2016 IRP OR Solar Resource)			86.58

- Staff does not think the RVOS forum is the appropriate forum for determining the need for capacity, as that would be more appropriately addressed in both Portland General Electric avoided cost filings as well as IRP reviews. For greater transparency, perhaps a “marriage” of the LOLP analysis and avoided cost/IRP reviews would be useful in the sense that the LOLP analysis would identify which month(s) of the year Portland General Electric would need capacity and the avoided cost/IRP filings would identify what year additional capacity is required. The RVOS would translate that information into discounted values, to the extent necessary, reflecting the difference in time between the applicability of the RVOS and the timing of need for a new resource.
- Another concept that could be considered in the context of capacity is distinguishing between a resource that happens to provide power during months and hours of capacity need and the ability for utilities to plan for capacity needs based on the availability of certain resources. This could be thought of as one of the distinguishing differences between a dispatchable versus non-dispatchable resource. It would seem sensible that capacity payments are made relative to the ability of a utility to change its plans for acquiring capacity based on the availability of different types of resources including solar resources. Related to that, is a distinction between the ability to plan for output at certain hours for a single non-dispatchable resource as compared to a large set of non-dispatchable resources potentially located in varying regions. A utility might not be prudent in changing its plans to acquire a resource because of the availability of a single solar array panel as compared to a large number of solar panel installations. Given that broad nature of these questions, Staff is not recommending they be taken up in the RVOS forum. To the extent these questions are relevant, perhaps they could be taken up in the capacity docket UM 2011.
- With respect to transmission and distribution deferral, Portland General Electric provided a summary table in its July 18, 2019, Compliance Filing identifying the transformer and substation with high, medium, and low projected capacity deferral costs. In reviewing the values provided, Staff discussed with PGE how the transmission marginal costs were developed. Specifically, Staff informally asked if the transmission marginal cost values were indeed based on BPA’s long-term point-to-point transmission rates. PGE checked and stated, “Yes.” However, PGE also stated that the transmission marginal cost values should have been based on the methods PGE uses for rate case rate spread and rate design; namely, the transmission marginal costs should be based on PGE’s transmission investments. PGE revised its transmission marginal cost estimate and resulting T&D Capacity Deferral Value and filed that on January 21, 2020.

- In the January 7, 2020, response to OPUC Data Request, No. 27, Portland General Electric clarified that the July 18, 2019, was not an exhaustive list. PGE stated that its Attachment 27-A provides a full listing covering its entire service territory. That attachment covers roughly 260 substation transformers. PGE's classification levels are as follows:
  - High: 90 percent and more capacity deferral threshold.
  - Medium: Between 80 and 90 percent capacity deferral threshold.
  - Low: Less than 80 percent capacity deferral threshold.
- Staff infers that the capacity deferral threshold relates to capacity utilization of substation transformers.
- PGE provides 12 x 24 matrix values for transmission and distribution as directed by the Commission. PGE differs from PacifiCorp and Idaho Power in that PGE used the same 12 x 24 matrix for transmission and distribution and PacifiCorp and Idaho Power do not. It is not obvious why the same 12X24 matrix should be used for transmission and distribution.
- In OPUC Data Request 25, Staff asked Portland General Electric where on Portland General Electric's website such locational information is, or could be, made available to inform solar developers. In Portland General Electric's response the company stated it provides such information on its OASIS website within the Distribution Data spreadsheet. Indeed that website has an extensive listing of facilities but the format of the data is not the same as that provided in response to the OPUC data request of the July 8, 2019, compliance filing.
- Staff recommends the Commission direct Portland General Electric to review its OASIS information posting as compared to the information and format provided in response to OPUC Data Request No. 27, and update its website as necessary, by April 1, 2020, for any type of substation-level capacity deferral, values in preparation for potentially posting hosting capacity data, as part of UM 2005.
- Given the locational information, it makes sense for RVOS cost estimates to be identified by the high, medium and low distribution classification. This information would be valuable in guiding whether to require utility tariffs and programs being offered by cost of location. Given that there are increased administrative costs associated with this construct, careful consideration should be given to the merits of using average versus locational costs.

- A separate issue is raised by a requirement on page 13 of Order No. 19-023, “Accordingly, we order that in expressing T&D capacity value, Portland General Electric do so through 12 x 24 blocks that do not assume solar performance.” As relatively new to the RVOS investigation, this statement has two potential meanings that are both plausible. One meaning is as the information that has been filed. That is, provide fundamental utility cost information, that shows utility costs by month and hour, and do not base the values assuming likely output times of solar. This then would provide a matrix informing solar and other developers when it is most valued by the utility to supply energy. Such information would also provide incentives to find ways to reshape solar power to when it is most needed such as through batteries.
- This information and matrix could also be applied to other applications such as avoided costs, other renewable resource types, alternative rate design, and demand control pilots, for example. The RVOS construct has broad applicability and Staff recommends the Commission consider applying this construct elsewhere to establish a consistent framework by which to evaluate resources.
- Yet there is also another interpretation of the order’s language. The language could be read to mean that the facilities should be evaluated as if no solar facilities were actually loaded on the substations. If without the solar facilities substation investments would be required, then the existing solar facilities should be credited for that cost savings. This assumes that solar facilities increase the capacity to serve based on solar facilities providing energy during peak times. Whether or not this is true would be analyzed through the assumption of not including solar performance. To the extent that this alternate interpretation has merit, it too could be analyzed in the UM 2011 capacity investigation docket. Basically, the issue is whether existing third party projects should be paid for capacity if but for that capacity the utility would need to add its own capacity even with the understanding that the utility is currently capacity surplus.
- Staff has one other compliance comment that arose in the context of preparing this compliance review. The issue is Market Price response. Order No. 19-023 discusses the E3 proxy method and characterizes the method as an elasticity value of -0.0015 percent. In looking over the background materials, the E3 analysis has that market prices decrease by -0.0015 \$/MWH for every additional MWH of renewable energy. That is, the -0.0015 is not expressed in percentage terms and is not strictly an elasticity as discussed in standard economic texts. PGE contacted Staff for further clarification of the method for fulfilling this request. Staff suggested to PGE that it use PacifiCorp’s estimate for compliance requirements and PGE adopted that suggestion.

One other comment on the market price response. The notion of the market price response is that as renewable power increases that tends to depress the wholesale market price for power. Is that a good thing or bad? I believe the answer depends on whether you are a buyer or seller of electricity. Assuming the utilities in this case are buyers of electricity, lower wholesale market prices are a good thing. That means the Market Price response should increase RVOS, not decrease it, meaning it should not be negative. The wholesale market response factor is negative, but a negative in this case is a positive for RVOS. Given that the Market Price Response element has a small absolute value in the compliance filings submitted by the utilities, this incorrect sign effect is very small.

#### Other non-compliance matters

There are three other recommendations Staff offers for Commission consideration. These recommendations are:

- Direct Portland General Electric to annually update its RVOS estimates and submit a filing by July 1 of each year with the estimates stated in that year's dollars.
- Consider using the RVOS framework for other regulatory purposes such as the value of other types of resources.
- Consider directing utilities to develop locational rates to match with RVOS results showing locational cost differences in various solar and other distributed resources.

Each of these will be discussed in turn. It would be useful to have the RVOS estimates updated each year. All elements of RVOS should be updated to reflect the most recent information the company has available. For some element estimates, like administration, the update could simply be to restate the value for inflation if there is no improvement in precision that the company can identify as useful to incorporate. The July 1 date recommendation reflects comments from PacifiCorp that the RVOS filing be coordinated with the standard avoided cost filing. PacifiCorp noted that the QF filing occurs around April 30, with rates effective 30 days later. The timing for all three electric utilities should fall under the same schedule so the July 1 date is recommended to be applicable to PGE as well. Updating would inform the Commission whether and to what extent RVOS has changed. Also, to the extent the utility purchases solar power through various programs such as, for example, Community Solar, to the extent the amount "paid" for that solar power differs from RVOS, that would represent a better understanding of the level of subsidy being contributed towards that program.



The second recommendation is a general one in that the RVOS framework seems like a good approach that should have general applicability. The RVOS approach starts with identifying the utility costs for specified elements and then maps those elements as applicable to the resource. This certainly appears that it could be applied to other resources and power acquisition including QFs. The benefit of applying the RVOS to other resources has the benefit of helping to ensure consistency in evaluation. Therefore Staff recommends the Commission consider applicability to other arenas. Such direction could be for the utilities to the RVOS methodology to other arenas along with whatever method the utility chooses to use for its filing.

The third recommendation is to consider directing the utilities to develop locational rate offerings for solar and other demand-side resources reflecting the locational cost differences the RVOS studies have illustrated. The RVOS study for PGE shows that transmission and distribution capacity deferral costs are a large component of overall costs of 6.40 \$/MWH. Presumably, areas with surplus substation capacity, along with transmission, would have costs close to 0\$/MWH. Therefore there are substantive cost differences. Consideration should be made on this recommendation with regards to the administrative costs of handling locational prices, but clearly this should be a forward looking goal that will improve economic efficiency.

### Conclusion

The Portland General Electric second amended compliance filing, inclusive of responses to OPUC's Data Requests, complies with the Commission Order No. 19-023.

### **PROPOSED COMMISSION MOTION:**

Approve Portland General Electric's July 18, 2019, Compliance Filing inclusive of January 7, 14, and 21, 2020, responses to Staff's data requests and direct Portland General Electric to:

1. Annually update its RVOS estimates and file those estimates no later than July 1 of each year stated in that year's dollars.
  - a. Include in the estimates values for high, medium, and low distribution costs consistent with Portland General Electric's definition used in the locational distribution classification.
2. Review its OASIS information posting as compared to the information and format provided in response to OPUC Data Request No. 27, and post on its website, by

April 1, 2020, substation-level information for capacity deferral values in preparation for potentially posting hosting capacity data, as part of UM 2005.

In addition to adopting Staff's recommendation for next steps for Portland General Electric in this RVOS docket, Staff has more general recommendations for the Commission itself:

- A. Consider using the RVOS framework for other regulatory purposes such as developing the value of other types of resources.
- B. Consider directing Portland General Electric to develop locational rates to match with RVOS results showing locational cost differences in various solar and other distributed resources.