ITEM NO. RA4

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: IDAHO POWER:
(Docket No. UM 1911)
Idaho Power Resource Value of Solar and Compliance Filing in Response to Order No. 19-022.

STAFF RECOMMENDATION:

The Public Utility Commission of Oregon (Commission) should accept Idaho Power Company's (Idaho Power) July 18, 2019, Compliance Filing inclusive of January 7, 2020, responses to Staff's data requests and direct Idaho Power 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 Idaho Power's definition used in the locational distribution classification.

2. Review its OASIS information posted as compared to the information and format provided in response to OPUC Data Request No. 23, and post on its website as necessary, by April1, 2020, for any type of information not already provided, as well as consider format changes relating to the capacity deferral values of its Oregon substations in preparation for potentially posting hosting capacity data, as part of UM 2005.

In addition to adopting Staff's recommendation for next steps for Idaho Power 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 Idaho Power 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 Idaho Power's March 18, 2019 and July 18, 2019, Compliance Filings to Order No. 19-022.

Applicable Rule or Order

In Order No. 19-022, 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 Idaho Power Company (Idaho Power) will use to produce its initial set of RVOS values. We direct Idaho Power to develop revised RVOS calculations consistent with this order, and file them in this docket by March 18, 2019. We also direct Idaho Power to file additional information regarding avoided transmission and distribution, generation capacity, and line loss values no later than July 18, 2019.[1]

Analysis

Background
This docket, along with companion dockets UM 1912 for Portland General Electric (PGE) and UM 1910 for PacifiCorp, are designed to analyze the resource value of solar. The Idaho Power specific RVOS Order No. 19-022 provides a useful background for RVOS as well as a discussion on the framework for analysis.

As noted above, Idaho Power was directed to make compliance filings to Order No. 19-022 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 Judge, Alison Lackey, issued a memorandum requesting that Staff provide a

[1] Order No. 190-022, p. 1.

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 Idaho Power to both confirm Idaho Power's compliance to Commission Order No. 19-022, as well as better understand the context of Idaho Power's prior March 18 and July 18 Compliance filings.

Table 1 summarizes Staff's view of the status of Idaho Power's compliance to Order No. 19-022.

Table 1

Element	Determination	Compliance?	2020 $/MWH
Energy	Idaho Power's approach adopted, with the following changes: Idaho Power is ordered to use uncapped EIM data for price shaping. 12 x 24 expression of value required.	Yes. March 18, 2019 Compliance filing, Excel Energy Price Shape workpaper.	28.77
Generation Capacity	Idaho Power'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 , 2019 Compliance filing, pages 1-4.	11.42
T&D Capacity Deferral	Staff's recommendation is adopted. Idaho Power should use its latest Marginal Cost of Service Study for calculating T&D capacity deferral. Idaho Power should shape this value over 12 x 24 blocks to express temporal value of system T&D capacity need. Idaho Power 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 4-9; and, Idaho Power January 7, 2020 response to OPUC Data Request 19. Idaho uses same marginal cost approach as PGE. For Locational value, July 18, 2019, compliance filing page 11 and Response to OPUC Staff Data Request 23.	7.23
Line Losses	Idaho Power's value and approach adopted. Idaho Power should express these values in 12 x 24 blocks rather than levelized via solar performance assumptions.	Yes. July 18, 2019 Compliance filing, page 13.	2.33
Integration	Idaho Power's value adopted.	Yes. No update required.	-0.57
Administration	Staff's recommendation adopted as a proxy; value to be developed consistent with individual program implementation costs.	Yes. March 18, 2019 Compliance filing pages 4-5.	-5.80
Market Price Response	Idaho Power 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 Idaho Power.	Yes. March 18, 2019 Compliance filing, page 5; and, IPCo response to OPUC data Request 22.	-0.02
Hedge Value	Idaho Power's value adopted.	Yes. No update required.	1.44
Environmental Compliance	Idaho Power's value adopted as a proxy; value to be developed according to individual program implementation needs.	Yes. No update required.	0.00
RPS Compliance	Staff's recommendation adopted.	Yes. March 18, 2019 Compliance filing, page 6.	0.00
Grid Services	Idaho Power's value is adopted, until such time as additional investigation identifies grid service benefits.	Yes. No update required.	0.00
RVOS Total Value			44.80
Utility Scale Proxy (As Filed November 29, 2017)			50.51

Based on Idaho Power's responses and Staff's final analysis, Staff provides additional comments and clarifications below to place a broader context on Idaho Power'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, Idaho Power notes that strictly applying its LOLP analysis would yield results with fairly concentrated values in its 12 x 24 matrix. Idaho Power created a translation approach to provide a range of weightings to its LOLP to provide a smoother or flatter value pattern to avoid the other-wise highly concentrated cost assignment. Idaho Power notes it is summer peaking primarily with peaks occurring in June through August in the afternoon through evening hours with peaks associated with electricity use for cooling and irrigation pumping. The winter LOLP values occur when electricity is used for lighting and heating. The LOLP values in the winter are much lower than the summer values, even with the flattening of load approach used by Idaho Power that roughly doubles the larger winter LOLP values.

- In response to OPUC Data Request 17, Idaho Power notes it has sufficient capacity until 2026, and even then generally has low LOLP values. Also in that same response, Idaho Power focuses on the dispatchable versus non-dispatchable issue to question whether solar should be considered as capable of contribution to system peak needs. Idaho Power notes that, "However, during times of capacity need, if a solar resource was capable of contributing to system peak needs in the same manner as the deferrable resource, the capacity value of solar, as determined by the RVOS model, would theoretically equal the capacity value of the deferrable resource."

- While preparing this memorandum, Idaho Power received approval from the Idaho Commission to buy 120 MW from the Jackpot Solar project. A "Clearing Up" article dated, January 10, 2020, states that the project, "…will help the utility offset a capacity deficit projected to begin in 2026." That twenty-year Jackpot Solar power purchase contract has pricing of 21.75 $/MWH beginning in 2022 and escalates at 1.5 percent per year. In reviewing the testimony filed April 4, 2019, by Idaho Power witness Larkin, page 15, the cost savings benefits are attributable to, "reduced total operating costs by offsetting generation from higher priced resources and allowing for more surplus sales." I note this testimony language because absent is any discussion of capacity savings.

  Also of note is that in Idaho Power's 2019 IRP filing, pages 35 to 40, in the State of Idaho, to determine the capacity savings from solar resources, Idaho Power presents a NREL modelling approach. This approach looks at the top 100 hours of load duration curve (sorted from high to low) with and without solar generation.

The top 100 hours of load are associated with the highest risk for loss of load.[2] The Idaho IRP summarizes the results of its analysis on page 39 of the IRP finding that the capacity value of solar is 47.92 percent of the solar project nameplate rating and that this capacity contribution decreases as the number of solar projects increase. For example, at 400 MW of additional solar projects, the capacity contribution is 20 percent.

- 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 Idaho Power 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 Idaho Power 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. This is consistent with the Idaho Power response to OPUC Data Request 17. 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, Idaho Power provided a summary table in its July 18, 2019, Compliance Filing identifying the transformer and

[2] The July 18, 2019, filing unadjusted LOLP analysis has roughly 100 non-zero entries for the 12 x 24 matrix. While this may seem consistent with the 100 hours IRP analysis, there are roughly 30 days each month. This implies that the July 18, 2019, LOLP values includes perhaps up to 30 times more values than the top 100 hours.

substation with high, medium, and low projected distribution costs. In the January 7, 2020, response to OPUC Data Request, No. 23, Idaho Power provided greater detail and fuller explanation of its grading criteria. The classification levels are as follows:

- High: Less than three years to reach planning capacity.
- Medium: Between three and ten years to reach planning capacity.
- High: More than ten years to reach planning capacity.

- Planning capacity is defined as 80 percent of capacity. In looking over Idaho Power's response to OPUC Data Request No. 23, the company has several transformers that are well over the 80 percent capacity value, with several exceeding 90 percent.

- 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.

- For transmission, Idaho Power used the PGE's marginal cost approach for transmission which is believed at the time to be based on the BPA long-term firm Point-to-Point BPA Transmission service. Staff contacted PGE whether transmission marginal costs are based on BPA's Long Term Firm Point-to-Point marginal costs, and PGE stated its uses its own projects to estimate transmission marginal costs. Staff discussed with PGE how the transmission marginal costs were developed for RVOS. 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 22, 2020.

  I relayed to Idaho Power that PGE revised its transmission marginal cost estimate, and Idaho Power decided to update its RVOS estimate of transmission and distribution capacity deferral value. In an email from Idaho Power to me, dated January 30, 2020, Idaho Power stated, "We've updated the T&D capacity

deferral value. The marginal cost of transmission in 2020$ is $39.79/kW-year. This translates to $5.42/MWh in 2020$ for the transmission value that is included in the total T&D capacity deferral value of $7.23/MWh." I have included Idaho's revised value of $7.23/MWH in Table 1. Staff appreciates Idaho Power revisiting its transmission marginal cost value given PGE's correction of its transmission marginal cost value.

In the July 18, 2019, Compliance filing, Idaho Power notes it has no transmission-related projects in Oregon that could be deferred through generation sited in Oregon. This would call into question whether the current inclusion of transmission marginal costs value for RVOS should be re-evaluated in future Idaho Power relevant dockets.

- In OPUC Data Request 20, Staff asked Idaho Power where on Idaho Power's website such locational information is, or could be, made available to inform solar developers. In Idaho Power's response the company stated it does not provide the locational information from this compliance filing on the Company's website.

  However, the Company states in its response to OPUC Data Request No. 20 that it provides on its OASIS much of the substation and transformer information including the following:

  Idaho Power Interconnection Data
  - Substation Name
  - Substation State
  - Feeder Name
  - Feeder Voltage
  - Oregon Feeder County
  - SCADA
  - Transformer Name
  - Transformer Voltage
  - Transformer Planning Load Limit
  - Number of Feeders on Transformer
  - Peak Load
  - Daytime Minimum Load
  - Distribution Line Limit
  - DER Capacity Connected
  - DER Capacity in the Queue

  Idaho Power currently provides much useful information on its OASIS, but in a different format than the information provided in this docket. Staff recommends the Commission direct Idaho Power to review its OASIS information posted as compared to the information and format provided in response to OPUC Data Request No. 23, and post on its website as necessary, by April1, 2020, for any

type of information not already provided, as well as consider format changes relating to the capacity deferral values of its Oregon substations in preparation for potentially posting hosting capacity data, as part of UM 2005.

- A separate issue is raised by a requirement Order No. 19-022, "Accordingly, we order that in expressing T&D capacity value, Idaho Power do so through 12 x 24 blocks that do not assume solar performance."[3] As relatively new to the RVOS investigation, this statement has two potential meanings that are both plausible. One meaning is as the information 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 framework 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 could 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. 19-022 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 appears to have market prices decrease by -0.0015 $/MWH for every

[3] Order No. 19-022, p.13.

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. The E3 analysis takes into account several studies and seems more like a placeholder valuation than a clear conclusion.

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 two other recommendations Staff offers for Commission consideration. These recommendations are:

- Direct Idaho Power 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 Idaho Power 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 resources reflecting the locational cost differences the RVOS studies have illustrated. The RVOS study for Idaho Power shows that transmission and distribution capacity deferral costs are a large component of overall costs of 6.03 $/MWH. Presumably, areas with surplus substation capacity, along with transmission, would have costs close to 0$/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 Idaho Power second amended compliance filing, inclusive of Staff’s additional language, complies with the Commission Order No. 19-022.

PROPOSED COMMISSION MOTION:

Approve Idaho Power’s July 18, 2019, Compliance Filing inclusive of January 7, 2020, responses to Staff’s data requests and direct Idaho Power 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 Idaho Power’s definition used in the locational distribution classification.

2. Review its OASIS information posted as compared to the information and format provided in response to OPUC Data Request No. 23, and post on its website as necessary, by April 1, 2020, for any type of information not already provided, as well as consider format changes relating to the capacity deferral values of its Oregon substations in preparation for potentially posting hosting capacity data, as part of UM 2005.

In addition to adopting Staff's recommendation for next steps for Idaho Power 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 Idaho Power to develop locational rates to match with RVOS results showing locational cost differences in various solar and other distributed resources.