January 13, 2020

VIA ELECTRONIC FILING

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

Re: Docket No. UM 2011 – General Capacity Investigation
Idaho Power Company's Comments (Questions 6-16)

Filing Center:

Idaho Power Company ("Idaho Power" or the "Company") submits the following comments in response to Oregon Public Utility Commission ("Commission") Staff's request for written comments in Docket No. UM 2011 - General Capacity Investigation. As requested by Staff, the Company's submittal provides responses to questions 6-16, which focus on the valuation of capacity.

I. RESPONSES TO QUESTIONS

Part B. How should Capacity be Valued?

Idaho Power views capacity as a resource attribute critical to system reliability in two primary respects: (1) critical to reliably meeting peak-hour load conditions and (2) increasingly critical to balancing variable energy resources ("VER") and their effect on net load. A definition of capacity consistent with the provision of these peaking and balancing attributes is "a generating resource's firm generation range from minimum to maximum as dispatched on demand." This on-demand range of generation has been the traditional sense of capacity and remains a critical resource attribute for today's grid. However, the Company recognizes that VER production, while uncontrolled, can occur at times of capacity need. Resource production occurring at times of peak-hour load conditions is of particular importance; a level of production achieved with high confidence during all peak-hour load conditions should be a valued attribute.

Q6. Does capacity value compensation require a capacity resource to be available to meet all reliability needs in all time frames?

- **a. Can a dedicated physical asset qualify to meet all reliability needs, or does it need to be supplemented with other resources?**
- **b. Can a portfolio of resources that meet the availability requirement qualify for the same or better compensation than a dedicated physical asset?**
- c. **Can a financial contract qualify for the same or better compensation than a physical asset?**

The key attributes of traditional capacity resources are dispatchability, reliability and ramping capabilities. While VERs don't typically provide these attributes, the Company recognizes that VER production achieved with high confidence during peak-hour load conditions provides

capacity value to the system. Consequently, capacity value compensation does not necessarily require a capacity resource to be available to meet all reliability needs in all time frames, though the ability to provide reliable generation during peak-hour load conditions is critical. Further, the value should be reflective of the limitations of VERs, particularly if the baseline for valuation is a conventional capacity resource.

a. At a high level a single dedicated physical asset, such as a hydro or combustion turbine ("CT") resource, can come close to meeting all reliability needs, but supplementing with other resources is also necessary due to various factors, such as: maintenance, forced outages and fuel supply. To assume a single, dedicated physical asset meets **all** reliability needs at **all times** is not realistic and therefore any physical asset must be supplemented to ensure a diverse mix of resources.

b. Regarding a portfolio of resources, one with appropriate diversity could qualify to meet all reliability needs if it can mitigate the factors listed above and provide the necessary characteristics of capacity. Thus, in total such a diverse portfolio could qualify for the same or better compensation than a dedicated physical asset. In the case of VER's, even with type and location diversity, the lack of dispatchability would impair its ability to meet all reliability needs. As another example, if the Company had several gas units online but running at their upper limit they are not providing point-in-time capacity, they have no incremental capacity available. VER's always run at their maximum limit given current conditions (e.g. wind blowing at a certain level), requiring the traditional assets to run at a reduced output to provide capacity for contingency, load regulation and regulation related to VER's.

c. A contract for the physical provision of firm power could provide capacity. However, on its own, a financial contract has no physical attributes, meaning the Company could not use a financial contract to meet a physical obligation. Financial deals are more for hedging and risk management. A purely financial contract with no physical attributes would not qualify for compensation from a capacity perspective. However, a physical Power Purchase Agreement may have capacity value dependent on the flexibility allowed in the contract as well as the communications implemented to manage that capacity. Idaho Power enters into many physical power purchase agreements to serve load for either economics or reliability, but a capacity value is not assigned to these agreements due to the inability to dispatch the energy being received on demand.

Q7. Regarding the capabilities listed in question 4 above, what should be the qualification criteria for determining if a resource can meet these needs, assuming the information, communications and control systems are in place to support development of qualification criteria?

The capabilities listed in question 4 were:

a. Availability to meet system resource adequacy ("RA") needs
b. Availability to meet system flexibility needs
c. Availability in a certain time frame
d. Availability in a certain location

a. Dispatchability should be a qualification criterion for meeting resource adequacy needs. A utility must have the ability to dispatch resources in order to reliably meet system loads at all times. Due to the non-dispatchable and intermittent nature, VERs do not support

resource adequacy needs. On the contrary, Idaho Power must hold dispatchable resources in reserve in order to shore up the variability in VER production.

b. Ramping capability should be a qualification criterion for meeting system flexibility needs and timing needs. The temporal availability and flexibility of a resource must coincide with the arising of need. For example, VERs can experience severe down-ramps over the course of minutes, and a resource only capable of ramping up its production over the course of an hour or more could not help with this sub-hour timeframe and thus, does not qualify as a flexible resource able to match the need for flexible capacity. Further, resources already running at maximum output do not, by themselves, provide incremental flexible capacity.

c. A resource must demonstrate a generation profile or the capability to shape its generation to closely match the timeframe of the system's capacity need in order to receive capacity value. Further, the resource's actual performance would then also need to match such a profile within a reasonable tolerance.

d. As mentioned in the Company's response to question 4, if the focus is on capacity (either system reliability or flexible resource need), then location is less likely to provide significant relevant benefits to Idaho Power's system as long as adequate transmission capacity is available.

Q8. Should supply-side and demand-side resources that demonstrate the capability to satisfy the qualification criteria for that type of capacity be valued in the same way?

Yes. For example, it is reasonable that dispatched demand response would be valued in the same manner as a dispatchable supply-side resources, all other characteristics being equal.

Q9. How should the value of each type of capacity be calculated and how should its temporal availability (e.g. short vs. long-term capacity) affect the valuation?

Capacity resources with different attributes and temporal availability should be valued differently. For example, a hydro unit can start and ramp very fast as opposed to a gas/coal plant, providing greater flexibility and ramping capability, which may or may not be a need of the system.

Alternatively, hydro resources and battery storage are flexible but may be fuel-limited and not available for as long of durations as a coal/gas resource. The short vs. long term availability can impact the capacity value. When adjusting to the change in VER's, fast start/ramping hydro has more value, but with regard to resource adequacy (i.e. meeting peak loads), base load units that can load follow are very valuable.

Idaho Power believes it will be difficult to quantify not only a capacity value, but assign some factor depending on the duration. Modeling the various resource types within the Company's resource portfolio models might be the most appropriate way to arrive at a value.

Q10. How should temporal and durational attributes of capacity be calculated? How could temporal and durational availability affect the valuation?

i. How could availability of a system peak capacity product at critical times affect its valuation?

ii. How could availability and sustained duration of ramping capability affect valuation of a capacity product?
iii. How could seasonal availability affect valuation for a capacity product?
iv. How could ability to provide ancillary services at times of system stress affect valuation?

A resource with the ability to respond quickly and sustain that response is more valuable than those that respond slowly and cannot sustain that response. Further, the ability to preserve and then call upon capacity as needed provides additional benefit.

i. The availability of a resource at system peak capacity is of paramount importance. System peak is when capacity has potential value. A resource that is frequently not available when needed due to factors such as fuel availability, transmission constraints, or other failures to start/respond does not meet the definition of capacity. At a minimum, a resource will have a lower capacity value, or potentially no value, if not available at critical times.

ii. The faster a resource ramps up and the longer it can stay at that output level directly impacts the value the capacity. A resource with the ability to respond quickly and sustain that response is more valuable than those that lack those attributes. Further, the ability to preserve and then call upon capacity as needed provides additional benefit.

iii. In Idaho Power's case, peak loads occur during summer afternoons, with a smaller winter peak typically occurring in the morning hours. If a resource is not available during these peak load periods then it does not provide peak capacity value; therefore seasonal availability directly impacts capacity value.

iv. As discussed in Idaho Power's response to Question No. 3, the capability to provide capacity, whether it is peaking capacity or flexible capacity, is essentially considered the capability to provide ancillary services, specifically ancillary services related to regulating reserves and contingency reserves. Thus, Idaho Power believes potential ancillary services do not represent a distinct category of capacity.

Q11. If locational capacity is something that should be compensated, which factors should be used to inform the locational value of capacity?

a. Avoided transmission costs (or needed upgrades),
b. Avoided distribution costs (or needed upgrades),
c. Impact of new capacity in a "load pocket," if applicable, or
d. Other factors

Idaho Power does not believe that location is relevant in valuing generation capacity. Location becomes important from the perspective of transmission and distribution ("T&D") capacity. That is, the Company believes that bulk load-serving capacity can potentially be sited in a location where it could also help meet or defer T&D capacity needs, and if so then its valuation should properly account for the potential locational benefit. However, Idaho Power believes that locational value of T&D is a separate value element from generation capacity (just as it was considered a separate element in the resource value of solar ["RVOS"] in Docket No. UM 1911), and is therefore beyond the scope of this docket.

Q12. How does the scale of a given resource affect its value?

a. Is there a threshold size of a project, above or below which its value to the system as a whole changes categorically, or out of proportion to an increase or decrease the number of MWs of power it can produce?
b. Could a threshold size in a specific location sometimes affect valuation?
c. Could a threshold size affect whether MW-year or MWh compensation is appropriate.

a. The size of a project affects valuation if it exceeds the utility's capacity deficiency threshold. For example, if the utility's next capacity deficiency is 35 megawatts ("MW"), and a 50-MW project is being valued, the portion above the utility's capacity deficiency — 15 MW in this case — should be viewed differently than the amount directly serving a need-based capacity deficiency.

Further, although integration is a separate issue and outside the scope of this docket, Idaho Power notes that it does not have an infinite ability to integrate VERs, and consequently there is a threshold to additional VER capacity that Idaho Power can reliably support. Once this threshold is reached, Idaho Power is exposed to increasing risk of violating regulating reserve requirements.

b. Please see the Company's response to Question No. 11 above.

c. The Company believes that differentiating compensation structure (MW-year vs. MWh) is not necessary and adds unneeded complexity.

Q13. Currently, simple-cycle gas plant costs are generally used to value capacity. Is this method still appropriate for some types or categories of capacity?

a. If yes, for which types?
b. If no, for which types?
i. Further, is a new or different benchmark or proxy more appropriate? If so, for which types/categories of capacity?

Possibly. Simple-cycle gas plants are currently used to determine an avoided capacity cost. From an avoided cost perspective, capacity values should be based on the utility's next planned capacity resource, which is not necessarily a simple-cycle gas plant. The appropriate resource should be determined on a case-specific basis.

Q14. Should capacity compensation for Distributed Energy Resources (DER) be based solely upon contribution to meeting an identified system need, or should it be supplemented with other factors considered in DER valuation? How relevant are the following factors for capacity valuation, and which are missing?

a. Avoided environmental costs
b. Avoided fuel costs
c. Avoided plant O & M costs
d. Avoided generation capacity costs (capex)

e. Avoided cost of transmission upgrade
f. Avoided distribution capacity costs
g. New costs for new distribution system technologies
h. Costs associated with forecasting (variable renewables)
i. Ability to dispatch (i.e. small turbines, gen sets, storage) vs. lack of ability to dispatch (i.e. variable renewables)
j. Avoided (or differently calculated) costs of reserve capacity

Capacity is a standalone component in DER valuation. The majority of the factors listed above have been investigated as separate DER valuation components in the RVOS docket. While some of these factors may be relevant to DER valuation, they are separate from capacity, and therefore outside the scope of this docket. Additionally, revisiting these other components within this docket would be procedurally redundant.

Q15. How can proper calculation of RA capacity help to cost effectively address the region's RA issues?

Proper calculation of RA capacity will ensure building the right-sized, right-timed assets that complement the existing load and resource mix of the region.

Q16. Given your answers to all of the above questions, do you have recommendations about what types of capacity should be compensated, how to define those types of capacity, and do you have examples of calculations or methodology suggestions you would like to offer?

From a VER capacity compensation perspective, capacity valuation should be based on avoidance of the next planned capacity resource, which is not necessarily a simple-cycle combustion turbine. Furthermore, if the next planned resource that is serving as the baseline for compensation is a traditional capacity resource that provides any or all of the defining characteristics of capacity (dispatchability, reliability and ramping capabilities), and the resource being valued does not possess the same characteristics, the capacity value ascribed to the resource being valued should be adjusted to reflect such differences. For example, if a value for regulation services was available, it should be considered when adjusting the capacity value of the resource.

Importantly, compensation should incorporate the utility's capacity deficiency date, wherein resources would not receive compensation for capacity while the utility is resource sufficient and incremental capacity is not needed.

Compensation should also account for the contribution to peak, or the on-peak capacity factor, of the resource being valued. For solar resources specifically, valuation should reflect the diminishing contribution to peak with increased levels of penetration. Increasing levels of solar penetration are expected to shift peak-hour *net* load conditions during the summer season to evening hours when solar production is negligible.

Valuation should also consider negative impacts to the system of a non-dispatchable resource. An example is solar ramp at the end of the day. Additional capacity is held by a utility specifically to make up for all the solar ramp and more (e.g. to accommodate ramping capabilities of traditional units) so the net effect of the solar resource is *negative* capacity in those time periods.

Given these challenges, the Company does not currently have specific examples that it would like to propose regarding valuation methodologies, but looks forward to joining in on the process of developing, evaluating and implementing proposals.

II. CONCLUSION

The Company appreciates the opportunity to provide its thoughts as the Commission conducts this investigation. Idaho Power looks forward to continued discussions regarding the valuation of capacity.

Sincerely,

Donovan Walker

DEW/kkt