**BEFORE THE PUBLIC UTILITY COMMISSION**
**OF OREGON**

LC 78

| In the Matter of<br><br>IDAHO POWER COMPANY,<br><br>2021 Integrated Resource Plan. | Renewable Northwest's<br>Initial Comments<br><br>**July 7, 2022** |
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## I. INTRODUCTION

Renewable Northwest thanks the Oregon Public Utility Commission (the "OPUC" or the "Commission") and OPUC Staff ("Staff") for this opportunity to comment on Idaho Power Company's ("Idaho Power") 2021 Integrated Resource Plan ("IRP"). Renewable Northwest has actively participated in Idaho Power's 2021 IRP stakeholder process beginning in January 2021. In these comments, we express our general support for Idaho Power's IRP stakeholder process and the portfolio modeling framework with suggestions to enhance them further to ensure selection of the least-cost, least-risk portfolio. We also briefly discuss the procurement process that follows the IRP and provide recommendations that would improve Idaho Power's Request for Proposal ("RFP") efforts. We are encouraged by the efforts that Idaho Power is taking to ensure that it is on track to meet its target of 100% clean energy by 2045, and we look forward to continued engagement in this docket.

## II. COMMENTS

### 1. General Support for Idaho Power's Resource Planning and Portfolio Modeling Framework

Renewable Northwest supports Idaho Power's modeling improvements after the difficulties in the 2019 IRP. Overall, the 2021 IRP process was more inclusive and receptive of stakeholder feedback and we appreciate the work of the IRP Advisory Council in providing technical feedback to Idaho Power. Specifically, in the 2019 IRP, the long-term capacity expansion ("LTCE") modeling was incapable of simultaneously optimizing for Idaho Power's service area and the western interconnection which led to an inefficient manual optimization process to determine Idaho Power's Preferred Portfolio. The 2021 IRP's updated method of co-optimization between the western interconnection and Idaho Power allowed for a more streamlined and efficient modeling process. The company's LTCE model has visibility into the entire WECC territory including resource and transmission build-outs in the region. We recommend Idaho

Power continue to utilize this methodology for upcoming IRPs by working with Energy Exemplar to update their database periodically as states across the West procure more resources and move along the path towards meeting their clean energy targets and decarbonizing the electric grid. As regions become more interconnected, it is critical to consider the change in dynamics and prices of wholesale power markets.

Renewable Northwest has continued to recommend that Idaho Power, along with other IOUs, use updated methods such as Effective Load Carrying Capability ("ELCC") for all supply-side resources as well as recognize that emerging resources such as demand response and battery storage can play a significant role in achieving the company's target of 100% clean energy resources by 2045. Specifically, Idaho Power adopted the concept discussed in Oregon's General Capacity Investigation docket (UM 2011) called "last-in ELCC" wherein from the future resources being modeled, only one resource is added at a time to obtain its capacity contribution. We also supported Staff's recommendation to eliminate the 80 MW cap on battery storage as well as solar paired with storage that artificially stymies selection of cost-effective clean resources in the resource portfolios. We are encouraged to see that Idaho Power took the feedback seriously and has since updated and expanded the contribution-to-peak calculations to analyze solar, wind, demand response, storage, and solar plus storage using the ELCC methodology and avoided artificial caps or restrictions that stymie selection of cost-effective, clean and non-emitting resources. It is important to note here that while ELCC methods for solar, wind, and storage are a step in the right direction, there is a considerable risk in not applying that (or a similar) methodology for calculating the capacity value of thermal resources, given that traditional methods for determining thermal capacity value do not reflect real-world conditions -- especially given today's rapidly changing climate.[1]

For the resource adequacy assessment, Renewable Northwest would like to clarify a potential area of confusion around the company's selection of a more stringent reliability threshold. For the 2021 IRP, Idaho Power adopted a reliability threshold of 0.05 days per year. They stated that:

*The 0.05 (1-in-20) reliability threshold was chosen to 1) account for the extreme weather events that are becoming more frequent in the Northwest, and 2) factor in water availability uncertainty year to year. A poor water year, resulting in reduced hydro generation, can look equivalent to a season-long resource outage. This 0.05 days per year threshold aligns with the reliability threshold used by the Northwest Power & Conservation Council (NWPCC).*

While Renewable Northwest does not have a preference on a specific reliability threshold, we would like to clarify here that the 0.05 days per year threshold is different from the Northwest Power & Conservation Council's 5% Loss of Load Probability ("LOLP") threshold utilized for

[1] For more information, see below in section II.3.

the development of the 2021 Power Plan adequacy assessment. This reliability threshold set by Idaho Power directly correlates with the amount of resources needed and it is critical that this assessment be accurate. Idaho Power's updated load and resource balance analysis in May 2021 identified a first capacity deficit of 78 MW in June of 2023, growing each year through 2026. Recognizing the importance of this potential deficit, we recommend Idaho Power consult with the Council and the Resource Adequacy Advisory Committee ("RAAC") to ensure that correct definitions and methodologies are being used to conduct resource adequacy assessments.

Another important topic related to reliability and resource adequacy is modeling the risks due to climate change. While we appreciate Idaho Power's efforts to conduct additional scenarios, we would also like to encourage Idaho Power to use downscaled climate-adjusted models in the baseline scenarios instead of consideration as an additional scenario. In the 2021 Power Plan, the Council implemented climate change projections into the analytics that support the plan, with projections on temperatures and precipitation going into the future. From analysis of the temperature and streamflow data of the three climate scenarios, the Council projected that, "in general, increasing winter hydropower generation due to increasing fall and winter stream flows and decreasing summer hydropower generation from decreasing summer streamflows caused by a shrinking snowpack and less summer precipitation."[2] This shift in the dynamics of hydro power has a particularly significant impact on summer peaking utilities dependent on hydro such as Idaho Power. To counter this effect, suitable resources have to be procured which have the ability to provide capacity during those particular hours, which were earlier not high demand hours. Thus, we recommend Idaho Power work with the Council to develop particular datasets for temperature and stream flow conditions that reflect the current reality in the baseline rather than an additional scenario.

Additionally, for supply-side resources, we recommend modeling multiple configurations of solar plus storage power plants in the 2023 IRP cycle to provide the model the flexibility to select resources based on operational characteristics rather than legacy inputs as has been conducted in the past. The multiple configurations include AC-coupled and DC-coupled solar and wind paired with multiple durations (2-, 4-, and 6-hour) of Li-ion and 8 to 12 hours for iron-flow storage systems. Going forward, medium- to long-duration storage resources will likely be critical for Idaho Power's system to absorb energy during high renewable generation and provide capacity during high-risk hours. This can be seen practically from the almost 10% increase in ELCC value of 8-hour storage compared to 4-hour storage in this IRP. Renewable Northwest would be happy to follow up on the technical aspect of modeling these resources including setting inputs, assumptions, and parameters to efficiently include these as supply-side resource options in the next IRP cycle.

[2] Northwest Power and Conservation Council. 2021 Power Plan (Publication Version). May 2022. https://www.nwcouncil.org/fs/17680/2021powerplan_2022-3.pdf

2. **Idaho Power's Preferred Portfolio highlights the importance of procuring a diverse set of clean & non-emitting generation resources.**

Renewable Northwest is encouraged by the resources selected in the preferred portfolio, which includes 700 MW wind, 1405 MW solar, and 1685 MW battery storage resources. In our previous comments on Idaho Power's 2019 IRP, we stated that "hybrid renewables, or solar/wind paired with battery storage -- could help the company reach a decarbonized resource mix by shifting energy in time for delivery during hours when net demand is highest."[3] The resource selection in the preferred portfolio portrays the synergy between Idaho Power's net peak demand hours especially during summer evenings and the ability of solar paired with storage resources and/or standalone storage to fulfill that need cost-effectively.

Idaho Power assigned capacity values to solar, wind, and storage resources using the ELCC methodology tuned by calculating the perfect generation required to achieve an LOLE of 0.05 days per year. The average ELCC value applied to future storage projects was 87.5% for 4-hour and 97% for 8-hour. The ELCC value of solar paired with 4-hour storage is almost 97% which aligns well with what we observed after studying Idaho Power's load shape, especially being a summer-peaking utility. For the 2023 IRP, we recommend Idaho Power consider a wide variety of supply-side resources including longer-duration Li-ion batteries and other medium- to long-duration storage technologies which are available in the market currently, especially focusing on the 6 to 12-hour storage range. Based on Idaho Power's renewable procurement strategy, energy storage resources should be deployed for the purposes of providing firm capacity and supporting resource adequacy in the post-2030 timeframe.

3. **Idaho Power should reconsider investing in coal to gas conversion in favor of cost-effective & reliable hybrid and standalone storage resources.**

Although Idaho Power's portfolio modeling and the resulting preferred portfolio did not select new gas-fired generation in the 2021 IRP, the Company plans to partner with PacifiCorp in conversion of Jim Bridger Units 1 & 2 from coal to gas-fired generation resources in 2024 with retirement for both units planned in 2037. Idaho Power's portfolio modeling incorrectly assumes that gas-powered power plants have capacity values of over 90%. This is principally based on the fact that the effective forced outage rates (or "EFOR") for gas-fired power plants are only dependent on forced outage rates that are not correlated to each other or other factors like

[3] Renewable Northwest Final Comments. LC-74. Idaho Power's 2019 IRP. Oregon PUC. https://edocs.puc.state.or.us/efdocs/HAC/lc74hac164428.pdf

weather. For example, the EFOR value provided for combustion turbine power plant is 2%[4] essentially making its ELCC around 98%. A recent study conducted by Astrape Consulting shows that the traditional valuation method can overstate the capacity value of conventional power sources by over 20% because these methods are incapable of accounting for correlated, weather-dependent outages.[5] The report finds that the ELCC values for a combined cycle gas turbine ("CCGT") for summer and winter conditions are 84% and 76.1% respectively. As per details shared by Idaho Power, the converted Bridger units would primarily be used for peak demand hours. It is important to note here that these peak demand hours would coincide with hours when the probability of correlated, weather-related outages are maximum. Thus, assuming these natural-gas fired units would be able to deliver power when needed is risky for Idaho Power customers.

On the other hand, Idaho Power's capacity accreditation analysis, not assumptions, shows that the ELCC value of future storage projects was 87.5% for 4-hour, 97% for 8-hour and 97% for solar paired with 4-hour storage making them much better resources especially in the conditions when Idaho Power is assumed to hit peak demand i.e. summer evenings. Compared to an optimistic assumption of 85% for CCGT, these resources are more reliable for Idaho Power customers.

Investing in gas-fired resources also runs the risk of cost overruns due to the exorbitantly high price of gas currently. Even during spring, U.S. gas prices surged, with the benchmark futures contract rising to a 13-year high of $8.74 per million British thermal units, at a time when that fuel's price tends to dip due to lack of demand in the spring. With global geopolitics and other factors which are out of reach for Idaho Power, investing in natural gas power plants create financial risks for Idaho Power customers for a generation resource that, according to Idaho Power, "would be used primarily for flexibility and reliability purposes"[6] which means it would typically be operated at a lower capacity factor than other resources.

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[4]Idaho Power IRP Advisory Council Meeting
https://docs.idahopower.com/pdfs/AboutUs/PlanningForFuture/irp/2021/2021_ELCC_IRPAC.pdf

[5] Getting Capacity Right: How Current Methods Overvalue Conventional Power Sources
https://www.aee.net/aee-reports/getting-capacity-right-how-current-methods-overvalue-conventional-power-sources

[6] Idaho Power 2021 Integrated Resource Plan. Ch. 10 Modeling Analysis. Operational Considerations.

4. **Idaho Power should conduct a fair and transparent all-source competitive solicitation to procure least-cost, least-risk resources including allowing Power Purchase Agreements (PPA).**

Idaho Power recently conducted a competitive resource acquisition procurement process that resulted in procurement of 120 MW of energy storage capable of being operational to meet the 2023 deficit. The RFP required build-transfer agreement provisions for storage resources because, according to Idaho Power[7]:

*…one of the primary features of an owned peak capacity resource is the ability to configure, reconfigure, maintain, operate, and economically and operationally dispatch the unit without application of the confines of the terms and conditions of a PPA with a third party*.

Renewable Northwest does not take a position on the level of reliance on PPA resources vs BTA resources but would like to point out that Idaho Power, along with other utilities in the West, has yet to be fully equipped to operate and realize the entire value stream of battery storage technology. On the other hand, battery storage project developers have spent a considerable amount of technological, financial, and human resources to develop these products for the market and have a significant level of expertise gained from product development, testing, and simulations. As Idaho Power mentions in their RFP filing to the Idaho Commission, the "dynamic energy landscape" -- referring to the changing market dynamics in the western region -- provides a risk for Idaho Power customers in cases where utilities are operating storage resources without sufficient expertise which may be countered by hedging that risk using fixed energy or capacity contracts with developers.

A PPA for a hybrid or a standalone storage resource allows the offtaker (Idaho Power) to purchase energy or capacity at a fixed price (usually lower) during hours or production minimums negotiated and specified in the contract terms. The practicalities of which party will control the system, whether control will be on-site or remote, and what authority the other parties to the PPA have to step in are all part of the RFP issued by the utility or negotiated in later stages of the RFP. Secondary issues of access, liability, maintenance, and compliance with permits and other regulatory obligations can also be specified in RFPs thereby delineating clearly the responsibility of each party. Idaho Power's argument that only utility-owned resources are able to navigate dynamic energy landscapes is moot if the terms of PPA allow an offtaker to control the project during hours of operation specified in the contract. Performance guarantees are also a useful tool to ensure that the seller (project developer) is adhering to contractual terms regarding

[7] Idaho Power Company's Application for a Certificate of Public Convenience and Necessity to Acquire Resources to be Online by 2023 to Secure Adequate and Reliable Service to its Customers. https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/IPC/IPCE2213/CaseFiles/20220429Application.pdf

energy output of the project and may be subject to a penalty if not. There are several other advantages in purchasing energy or capacity under a PPA including battery cell replacements, ability to navigate tax incentives effectively, reduction in decommissioning costs among others. Thus, Renewable Northwest strongly recommends Idaho Power rethink their focus on owning resources and instead conduct a fair and transparent RFP process which is open to hybrid and standalone storage projects being offered as PPAs.

## III. CONCLUSION

Renewable Northwest again thanks the Commission for this opportunity to comment on Idaho Power's 2021 IRP. We generally support acknowledgment of the 2021 IRP with the following recommendations:

1. Renewable Northwest recommends that Idaho Power consult with the Council and the Resource Adequacy Advisory Committee (RAAC) to ensure that correct definitions and methodologies are being used to conduct resource adequacy assessments.
2. Renewable Northwest recommends utilization of downscaled climate data to generate hydro flows and load forecasts for use in baseline portfolio modeling instead of an additional climate scenario in the 2023 IRP.
3. Renewable Northwest recommends Idaho Power model capacity values of thermal resources using ELCC methodology which accounts for thermal derates due to weather-related conditions instead of using fixed EFOR assumptions.
4. Renewable Northwest recommends that Idaho Power clearly state their plan to model gas price uncertainty and update price curves to ensure that coal to gas conversion for Bridger Units 1 & 2 is techno-economically feasible.
5. Renewable Northwest strongly recommends Idaho Power rethink their focus on owning resources and instead conduct a fair and transparent RFP process which is open to hybrid and standalone storage projects being offered as PPAs.

Respectfully submitted this 7th day of July, 2022,

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