EDWARD J. JEWELL
DEPUTY ATTORNEY GENERAL
IDAHO PUBLIC UTILITIES COMMISSION
PO BOX 83720
BOISE, IDAHO 83720-0074
(208) 334-0314
IDAHO BAR NO. 10446

Street Address for Express Mail:
11331 W. Chinden Blvd.
Bldg. 8, Ste. 201-A

Attorney for the Commission Staff

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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF IDAHO POWER'S PETITION TO DETERMINE THE PROJECT ELIGIBILITY CAP FOR PUBLISHED AVOIDED COST RATES AND THE APPROPRIATE CONTRACT LENGTH FOR ENERGY STORAGE QUALIFYING FACILITIES	**CASE NO. IPC-E-20-02** **REVISED COMMENTS OF THE COMMISSION STAFF**

The Staff of the Idaho Public Utilities Commission, by and through their attorney of record Edward Jewell, comments as follows on Idaho Power Company's Petition.

BACKGROUND

On January 21, 2020, Idaho Power Company ("Company") filed a petition requesting the Commission determine avoided cost rates, contract terms, and conditions applicable to energy storage qualifying facilities ("QF" or "QFs") under the Public Utility Regulatory Policies Act of 1978 ("PURPA").

PURPA, and Federal Energy Regulatory Commission ("FERC") rules require state commissions to establish published avoided cost rates for QFs with a nameplate capacity of 100 kilowatts ("kW") or less. 18 C.F.R. § 292.304(c)(1). The state commissions, in their discretion, may establish published avoided cost rates for QFs greater than 100 kW. 18 C.F.R. § 292.304(c)(2). State commissions may differentiate among QFs using various technologies based on the supply characteristics of the resource. 18 C.F.R. § 292.304(c)(3)(ii).

In Idaho, this Commission has established a 100 kW project eligibility cap for wind QFs and solar QFs to receive published avoided cost rates. Order Nos. 32262 at 8, 32697 at 13. All other QF types have a 10 average Megawatt ("aMW") project eligibility cap for published avoided cost rates. Order No. 32697 at 14. Published avoided cost rates in Idaho are calculated using a surrogate avoided resource—a combined cycle combustion turbine ("CCCT")—that is assumed to be the Company's marginal resource 100% of the time ("SAR Method" or "Published Rate Method"). *See* Order No. 32697 at 17. Negotiated rates, which are available for QFs above the project eligibility cap, are calculated by the Incremental Cost Integrated Resource Plan Method ("ICIRP Method"). The ICIRP Method calculates the marginal value of energy on the Company's system on an hourly basis given the Company's actual resource stack. *See* Order No. 32697 at 20-21.

In addition to eligibility for published avoided cost rates, the project eligibility cap determines the length of contract for which a QF is eligible. Those above the project eligibility cap in Idaho are entitled to two-year contracts. Order No. 33357 at 25. Those below the project eligibility cap in Idaho are entitled to 20-year contracts. *See* Order No. 33253 at 4.

In Order No. 33785, the Commission determined five energy storage QFs were entitled to the terms and conditions available to solar QFs because the generation profiles of those QFs aligned closely to the generation profiles of solar QFs, and based on the Commission's interpretation of Luz Development and Finance Corporation, 51 FERC ¶ 61,078 (1990). Order No. 33785 at 11-12. *See* also Order No. 33858 at 3.

On January 17, 2020, the United States District Court for the District of Idaho issued a Memorandum Decision and Order in Franklin Energy Storage One et al. v. Kjellander et al., Case No. 1:18-cv-00236-REB, holding that the Commission's decision in Order No. 33785 "established an implementation plan that impermissibly classified the QF status of Plaintiffs' energy storage facilities that are certified under [PURPA] as energy storage facilities." Memorandum Decision at 37. "Classifying such facilities as 'solar QFs' is outside the Commissioners' authority as state regulators and therefore in violation of federal law." *Id.* While finding that the Commission could not treat these energy storage QFs as solar QFs, the Court specifically declined "to order [the Commission] to require utilities under their jurisdiction to afford energy storage QFs all rights and privileges afforded to 'other QFs' under the IPUC's PURPA implementation plan." *Id.*

In response to the Memorandum Decision, and to two energy storage QF applications received by Idaho Power immediately following the Memorandum Decision, Idaho Power filed this petition requesting the Commission determine the proper avoided cost rates and contract terms applicable to energy storage QFs. Petition at 5. Idaho Power requests the Commission establish a 100 kW eligibility cap for energy storage QFs to receive published avoided cost rates and 20-year contracts, the minimum project eligibility cap allowed by FERC rules. Idaho Power requests any energy storage QF above the eligibility cap receive avoided cost rates calculated by the ICIRP Method and be eligible for two-year contracts. Petition at 2.

On July 16, 2020, Commission Staff filed a Request for Public Input and Initial Comments. Public Input was received from Renewable Northwest, Idaho Conservation League ("ICL"), and Clenera, LLC.

Staff now files these revised comments reflecting public input received and further analysis completed.

STAFF REVIEW

I. <u>Introduction and scope</u>.

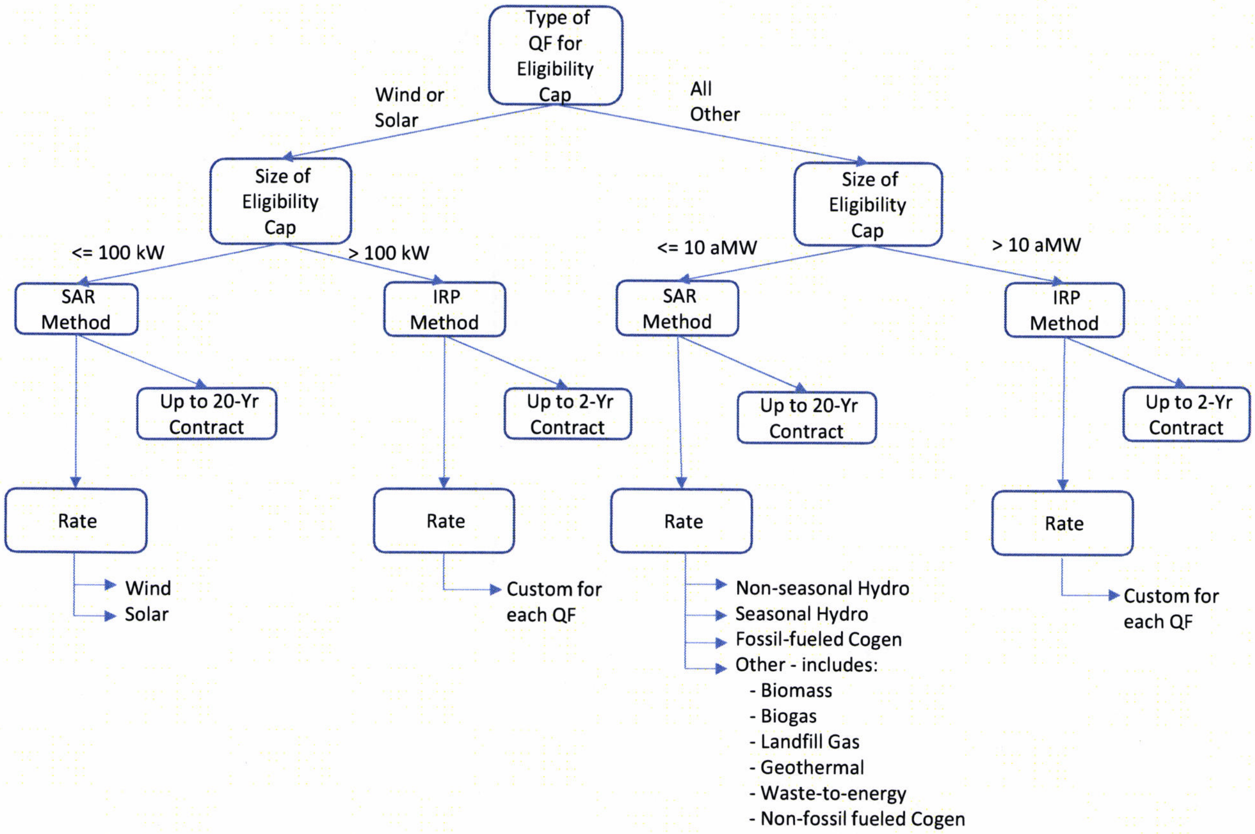
Idaho Power requests "a determination from the Commission that energy storage QFs up to a maximum nameplate capacity of 100 kW are entitled to and eligible for published avoided cost rates and a 20-year maximum contract term and that energy storage QFs over 100 kW are entitled to and eligible for negotiated avoided cost rates determined by the [ICIRP Method] and a maximum contract term of two-years." Petition at 11. The Company's petition responds to an immediate need to determine the terms for energy storage. Staff recommends the scope of this docket be limited to addressing Idaho Power's specific request and determine how battery storage QFs fit within the existing PURPA framework in Idaho. Staff also recommends a later docket or dockets to align battery storage QF terms and conditions for Idaho's other electric utilities and to address potential enhancements to Idaho's avoided cost methodologies that would allow for greater granularity in avoided cost rates and compensation of ancillary services.

Staff believes the scope of this docket is properly limited to battery storage rather than the more generic concept of energy storage. Staff believes it is appropriate to limit the discussion to battery storage because there is a wide variety of characteristics of energy storage technologies, and battery storage is currently the industry leader in energy storage technologies. Staff also recognizes there is a diversity of characteristics within battery storage based on different battery chemistries and designs, but Staff believes it is reasonable to distinguish battery storage QFs as their own category within Idaho's PURPA framework because they are reasonably distinct from other types of energy storage.

Staff recommends opening a multi-utility generic case after the conclusion of this case to determine and implement the rights and privileges of battery storage QFs for all three of Idaho's major electric investor-owned utilities. This approach would respect previous Commission statements encouraging alignment of PURPA implementation among Idaho's utilities. *E.g.* Order No. 29880 (stating, "It is reasonable for QFs to expect that the contract requirements of Idaho's regulated electric utilities will be similar and that a QF will not be disadvantaged by choosing to sell to one utility rather than another.") Second, it would allow further refinement of Idaho's avoided cost methodologies to more accurately value energy and capacity based on the time of production, and account for ancillary services provided by battery QFs. Finally, it would allow for examination of potential updates to Idaho's avoided cost methodologies based on FERC Order No. 872, Qualifying Facility Rates and Requirements Implementation Issues Under the Public Utility Regulatory Policies Act of 1978, issued July 16, 2020. Public input generally reflected commenting parties' desire to continue the investigation into battery storage QFs in Idaho.

II. <u>Analysis approach.</u>

Staff's main objective for its analysis in this case was to determine where battery storage QFs fit within Idaho's existing implementation of PURPA. A flowchart illustrating Idaho's current PURPA implementation is provided below.



To meet this objective, Staff compared the characteristics of battery storage QFs with the characteristics of wind, solar, and other types of QFs and considered relevant factors important to each of the four key questions Staff addressed in its analysis:

1. Do the unique characteristics of battery storage justify its own category?
2. What is the appropriate method to value the output from battery storage QFs among Idaho's presently established methods?
3. What is the appropriate project eligibility cap for a battery storage QF to be entitled to published avoided cost rates?
4. What is the appropriate contract length for battery storage QFs above and below the project eligibility cap?

Staff did not approach the case as a strict dichotomy between whether battery storage QFs should receive the same treatment as wind, solar or "other" QFs, instead opting to use these categories as guideposts.

Circumstances have changed since Idaho's PURPA framework was developed. Additionally, Staff and the Commission now have the benefit of hindsight to understand the results of previous Commission orders relative to its objectives. By examining historical data, Staff has been able to measure the effect of the current framework and determine how current policies are meeting Commission goals, as well as PURPA's overall objectives. Furthermore, significant learning has taken place both in Idaho and other state jurisdictions that can shed light on potential improvements to Idaho's current framework.

III. <u>The Commission should establish a separate category for battery storage QFs.</u>

Staff identified several key reasons why a separate category for battery storage QFs should be established based on differences in the output characteristics of battery storage QFs as compared to other QF resource types. Other baseload QF resource types do not have the same limitations with respect to the duration of output, as do battery storage QFs. Battery storage QFs are capable of providing a host of ancillary services that other resources are not able to provide such as frequency regulation, variable energy firming and smoothing, black start/voltage support, load following, reserve capacity, local capacity, and deferrals of transmission and distribution investments. Batteries also have a steeper degradation factor than other resources, which varies based on the cycling of the battery storage QF. Wind and solar QFs are intermittent while battery QFs can be dispatched. Because of these reasons, Staff believes it is appropriate for the Commission to establish a separate battery storage QF category.

IV. <u>Staff analyzed the relative merits of the ICIRP Method and the Published Rate Method for valuing the output from battery storage QFs.</u>

To determine the reasonableness of the ICIRP and Published Rate Methods for battery storage QFs, Staff first performed comparisons between the two methods, then analyzed the appropriateness of ICIRP Methods and Published Rate Methods for both energy and capacity. Both methods determine an overall avoided cost rate, composed of two separate components: an avoided cost rate for capacity component, and an avoided cost rate for energy component. Each component uses a separate and distinct method to derive their respective avoided cost rates. Because they are separate, Staff performed comparisons between the two methods for each component and evaluated the relative merits of each component of each method separately. Additionally, if a method was not appropriate, Staff identified changes required to make them appropriate for battery storage, as well as identified potential incremental improvements. Through its analysis, Staff came to the following conclusions listed below.

1. The ICIRP Method is overall more accurate because it is more sophisticated, includes more variables that affect avoided cost, makes more reasonable assumptions, and is updated more frequently than the current Published Rate Method.
2. The ICIRP Method for determining avoided energy cost rates and payments is reasonable for battery storage QFs but could be improved.
3. The ICIRP Method for determining avoided capacity cost rates and payments is reasonable for battery storage QFs but could be improved. Staff recommends capacity payments be separated from energy payments. Capacity payments should only be made for energy delivered during peak capacity months and hours, and only after the Company becomes capacity deficient.
4. The current Published Rate Method for determining avoided energy cost rates and payments is reasonable for battery storage QFs under the project eligibility cap. However, to reduce the difference between Published Rate Method and ICIRP Method rates and to improve accuracy, Staff believes that the method should be changed to better align to the ICIRP Method in a later docket.
5. The Published Rate Method for determining avoided capacity cost rates and payments is not reasonable for battery storage QFs. To make it reasonable for battery storage QFs, Staff recommends capacity payments be separated from energy payments. Capacity payments should only be made for energy delivered during peak capacity months and hours, and only after the Company becomes capacity deficient. As an improvement and to reduce the difference between Published Rate Method and ICIRP Method rates, Staff believes that the surrogate be changed to a Simple Cycle Combustion Turbine ("SCCT"), the same used in the ICIRP Method, and input assumptions should be updated on a more regular basis.

More granular avoided cost rates, for both energy and capacity, should be implemented before the time-shifting value of battery storage QFs can be fully recognized. By fine-tuning the existing ICIRP Method of calculating avoided cost rates to more closely reflect the Company's system needs, the Commission can align economic incentives for QFs with the Company's needs, thereby ensuring that QFs are fairly compensated and ratepayers are indifferent. This change could be applied to battery storage QFs in Idaho Power's service territory first in this docket, to battery storage QFs in the service territories of Idaho's other major electric utilities in a subsequent docket, and to other QF types in a later docket, if the Commission so desires.

In a report[1] conducted by Pacific Northwest National Laboratory ("PNNL") to assist Commission Staff in this docket, PNNL identified battery storage QFs as a potential opportunity to make PURPA more resource agnostic and more focused on the QF's contribution to the grid, regardless of its resource type. This could be accomplished by time of delivery price signals when energy and capacity are most valuable to the grid.

a. Staff compared the ICIRP Method and Published Rate Method.

i. Comparison between ICIRP Method and Published Rate Method for avoided cost of energy.

Whereas the current Published Rate Method assumes that a CCCT natural gas plant is the marginal cost resource 100% of the time, the ICIRP Method uses a production cost model (AURORAxmp) that simulates the Company's operation of its entire system, capturing the displaceable incremental cost resource at the top of the Company's resource stack for every hour of operation throughout the term of a contract. Based on the Company's response to Staff Production Request No. 16, Langley Gulch, the only CCCT in the Company's system, is the marginal resource only 9.3% of the time.

As shown in Table No. 1 below, the ICIRP Method incorporates more variables and is updated on a more regular basis. Variables such as customer load, the cost and amount of power purchase agreements, and market electricity prices are included in the ICIRP Method and excluded from the Published Rate Method. Additionally, in the ICIRP Method, the Company updates the resource stack with each QF application, whereas in the Published Rate Method, the resource stack is not updated when new QFs come online. Without a queue, all proposed QFs are treated as if they are all the first project to receive the next indicative pricing, resulting in inaccurate avoided cost rates because earlier projects will displace the high-valued resources in the resource stack, and later projects will displace lower valued resources in the resource stack. Also, if a higher-positioned QF drops out of the queue, all the QFs after that project will get

[1] PNNL Report is provided for public use and can be found at
https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/IPC/IPCE2002/CaseFiles/20200827PNNL%20Report.docx
Staff acknowledges the research performed by PNNL, but the findings and opinions expressed are those of the authors and do not necessarily reflect the official policy or positions of Idaho Public Utilities Commission and Staff.

updated indicative pricing to ensure avoided costs are accurate. Staff believes that because of these factors, the ICIRP Method produces more accurate results than the Published Rate Method for determining avoided energy costs.

Table No. 1: ICIRP and Published Rate Methods Avoided Energy Inputs Comparison

Avoided Energy	ICIRP Method	Published Rate Method
Method	Custom based on generation profile of each project and the marginal cost resource at top of the generation stack in each hour across contract term.	Assumes CCCT is marginal cost resource being avoided 100% of the time.
Natural Gas Price	Updated every year using IRP forecast	Updated every year using Mountain Region EIA[1] forecast
Performance of Generation Resources	Updated each IRP every two years	Heat Rate of CCCT based on 2008 NWPP[2]
Market Electricity Prices	WECC[3] market prices generated each AURORA run for each contract.	Not used
Power Purchase Agreements	New, terminated, or expired contracts are updated on a continuous basis.	Not used
QF Queue	QF application queue is maintained real-time and is included in the resource stack in AURORA.	Not used
Forecasted Customer Load	Updated annually in October	Not used

[1] EIA – Energy Information Administration
[2] NWPP – Northwest Power Plan
[3] WECC – Western Energy Coordinating Council

Staff quantified the difference in ICIRP Method rates and Published Rate Method rates. To perform its analysis, Staff created "reference" projects with 12-month by 24-hour generation profiles for each QF type by averaging actual generation data from up to 6 actual QFs in operation and under contract with the Company. To establish a relative comparison, Staff normalized each reference project to be equivalent to a 10 MW nameplate project and asked the Company to develop the energy and capacity avoided cost ICIRP Method rates across a 20-year period. After taking the net present value ("NPV") over 20 years, Staff compared these rates with the NPV of these same reference projects over the same 20 years but using published rates.

Table No. 2 below illustrates the difference between the Published Rate Method avoided energy cost rates and ICIRP Method avoided energy cost rates.

Table No. 2: Published Rate Method and ICIRP Method Avoided Energy Cost Rates.

Reference Project Avoided Energy Cost Differences Levelized over 20 years without integration charges Rates authorized December 2019	Negotiated Rate ICIRP Method ($/MWh) ($/MWh)	Published Rate Surrogate Method ($/MWh)	Difference ($/MWh)	% Difference
Wind (10 MW nameplate)	35.15	40.60	$5.45	15.5%
Solar (10 MW nameplate)	33.28	40.60	$7.32	22.0%
Non-seasonal Hydro (10 MW nameplate)	35.00	40.60	$5.60	16.0%
Seasonal Hydro (10 MW nameplate)	31.52	40.60	$9.08	28.8%
Other (10 MW nameplate)	34.97	40.60	$5.63	16.1%

As can be seen from Table No. 2, published avoided energy cost rates range from $5.45/MWh higher to $9.08/MWh higher. Staff believes that aligning the source of the natural gas forecast for both methods may reduce the difference between the two methods but would not address the flawed assumption that a CCCT is always the marginal resource on the Company's system. Staff did not have a battery storage QF generation profile to determine the likely ICIRP Method rates for a battery storage QF because there is not historical data for battery storage QFs in Idaho. Staff believes that a battery storage QF would be able to take some actions to tailor its generation profile to capture additional value by producing at more high load hours, and therefore would likely receive somewhat higher ICIRP Method rates than those reflected above.

ii. Comparison between ICIRP Method and Published Rate Method for Avoided Cost of Capacity.

The factors used to derive avoided capacity rates for the ICIRP Method and the Published Rate Method are compared in Table No. 3 below.

Table No. 3: ICIRP and Published Rate Methods Avoided Capacity Inputs Comparison.

Avoided Capacity Cost	**ICIRP Method**	**Published Rate Method**
Method	Based on fixed cost of SCCT surrogate	Based on fixed cost of CCCT surrogate
Cost of surrogate	Updated every two years with IRP acknowledgement	Set in GNR-E-08-02
Capacity Factor	Custom using QF's generation profile	Set in GNR-E-11-03
Capacity Contribution at Peak	Custom using QF's generation profile	Set in GNR-E-11-03
Deficit Date	Updated every two years using IRP load/resource balance	Updated every two years using IRP load/resource balance

Table No. 4 below illustrates the difference between the Published Rate Method and the ICIRP Method avoided capacity cost rates.

Table No. 4: Published Rate Method and ICIRP Method Avoided Capacity Rates.

Reference Project Avoided Capacity Cost Differences Levelized over 20 years without integration charges Rates authorized December 2019	Negotiated Rate ICIRP Method ($/MWh) ($/MWh)	Published Rate Surrogate Method ($/MWh)	Difference ($/MWh)	% Difference
Wind (10 MW nameplate)	3.84	1.82	($2.02)	-52.5%
Solar (10 MW nameplate)	15.92	18.65	$2.73	17.1%
Non-seasonal Hydro (10 MW nameplate)	7.74	17.01	$9.27	119.8%
Seasonal Hydro (10 MW nameplate)	11.82	28.46	$16.64	140.8%
Other (10 MW nameplate)	4.90	12.58	$7.68	156.8%

Examining the difference in avoided capacity cost rates shows that there are large differences ranging from a negative difference of $2.02/MWh for wind and a positive difference of $16.64/MWh for seasonal hydro. Both the Published Rate Method and the ICIRP Method use a surrogate resource for calculating the avoided cost of capacity. However, this is where the similarities between the methods diverge. The Published Rate Method uses a CCCT plant for its surrogate, which has capital and fixed costs that are significantly more expensive than a SCCT natural gas plant on a dollar per Megawatt ("MW") basis. At the time that the Commission reaffirmed the use of a CCCT as the surrogate for published rates, the Commission stated,

> We further find it reasonable to continue to utilize a combined-cycle combustion turbine (CCCT) surrogate as the basis for all calculations in the SAR model. The SAR Methodology is intended to represent a surrogate base load natural gas resource. Simple cycle combustion turbines (SCCT) are primarily utilized for meeting a utility's peak loads; CCCTs provide base load energy. The proposals of some of the parties to use an SCCT for calculating capacity value and a CCCT to compute energy value would create a very awkward and not representative surrogate resource. Consequently, we decline to utilize a SCCT.

Order No. 32697 at 17.

However, Staff believes that continuing to use a CCCT as a surrogate for both capacity and energy avoided cost has downsides and should be re-examined for several reasons. First, as shown by Staff's analysis and discussed later, using different surrogates contributes to differences in avoided cost rates between the Published Rate Method and ICIRP Method rates, contributing to the problem of disaggregation. Second, Staff has shown that a CCCT as a surrogate may no longer be a good proxy for the avoided cost of energy in the Company's system based on Langley Gulch being a marginal resource less than 10% of the time. Third, since the value of a CCCT can provide both capacity and energy, it doesn't make sense to use the full investment cost of a CCCT for the avoided cost of capacity when much of the value from a CCCT is used to provide energy. Finally, in Order No. 32697, when determining the appropriate basis for determining the avoided cost of capacity for the ICIRP Method, the Commission stated,

> We further find that a simple-cycle combustion turbine (SCCT) is the most appropriate basis for computing capacity value for all resource types. SCCT's are added to a utility's resource portfolio to satisfy capacity needs. Because energy and capacity are being calculated separately, it is reasonable to use a SCCT because it represents the lowest cost, nearly capacity only resource.

Id. at 19.

The other factor causing differences between the Published Rate Method and the ICIRP Method is the frequency of updates for key inputs used in the calculations. The annual capacity factor and capacity contribution at peak used in the Published Rate Method are based on amounts set in Case No. GNR-E-11-03, which occurred approximately nine years ago. This is compared to the ICIRP Method, which uses annual capacity factors and capacity contribution at peak that are unique for each project and are determined from the generation profile provided by the project developer.

Staff believes developing an Idaho Power specific method of calculating and paying capacity costs based on output actually delivered during peak times, similar to the Duke Energy method, and applying this method to QFs below and above the project eligibility cap would be an improvement to both methods. Alternatively, Staff believes that the difference in the two sets of avoided capacity cost rates could be reduced by using the same surrogate and by updating the assumptions used in calculating published rates on a more frequent basis.

b. Appropriateness of the ICIRP Method for energy and capacity.

As mentioned earlier, Staff believes the ICIRP Method provides more accurate avoided cost rates than does the current Published Rate Method, but there is room to strengthen the ability of the ICIRP Method energy and capacity methods to differentiate the value of energy based on when it is produced.

i. Avoided energy value using the ICIRP Method.

Under the ICIRP Method, the avoided cost of energy is determined by the displacement of the Company's marginal resource each hour in the Company's ICIRP model given a 12-month by 24-hour generation profile supplied by the developer regardless of the type of QF. Staff believes that this is a conceptually sound method of deriving an avoided cost rate because the model reflects the Company's entire portfolio of resources, and numerous forecasts and other inputs that are vetted through a public process. The resulting accuracy of the overall process depends on two things. First, if the generation profile submitted by the QF is accurate, the avoided cost will be as accurate as the ICIRP model. Second, the accountability of the QF to provide generation according to its forecast is based upon contract provisions that assess a price adjustment when actual output from the QF deviates from the output generation profile. If these provisions are sufficient and enforced, Staff believes that the avoided cost of energy paid to the QF will reflect the marginal value of energy on the Company's system, thereby holding customers reasonably indifferent while equitably compensating the QF developer.

ii. Avoided capacity value using the ICIRP Method.

The ICIRP Method for determining the avoided cost of capacity looks at the amount of generation forecasted to be delivered by the QF from 3 to 7 pm during the month of July, as determined by an output generation profile submitted by the QF. The avoided cost is based on the investment costs of an SCCT surrogate gas plant. Capacity payments begin based on the capacity deficiency date authorized at the time that the first contract is signed. Once capacity payments begin to be paid, they are spread across every unit of QF production, regardless of whether those units of production are supplied to the utility during months or times of the day when the utility needs incremental capacity.

Staff believes certain features of the ICIRP Method for calculating capacity are adequate, and others should be improved. Staff believes a SCCT is a reasonable surrogate for capacity costs because it is a more reasonable proxy resource in terms of cost to meet a capacity deficiency. Staff believes the Company's definition of system peak, from 3 to 7 pm during the month of July, adequately reflects the Company's system and is determined through the public IRP process. Staff believes it is reasonable for QFs to not be paid capacity payments until the utility's first capacity deficiency date, because prior to this date, the Commission has determined that the QF is not avoiding incremental capacity cost. Staff is concerned that the practice of paying for capacity during all months and hours of QF production does not adequately incentivize a QF to actually contribute to the Company's capacity needs. Therefore, QFs that do not actually contribute to the Company avoiding capacity costs are over-compensated for their production, and QFs that do contribute to the Company avoiding capacity costs are under-compensated for their production under the current method.

Staff believes that a method used by Duke Energy would be a significant improvement over the current method for calculating capacity. Similar to the ICIRP Method, Duke Energy uses a SCCT as a surrogate resource to determine capacity costs. However, Duke Energy only pays the QF avoided capacity cost payments if the QF generates during specific pre-determined months of the year and hours of the day that reflect the Company's peak hours. If the QF generates during those hours, it gets capacity payments. If it does not generate during those hours, it does not get capacity payments. This method provides a price incentive to align utility costs and needs with QF output and ensures the QF provides the avoided cost capacity benefit in return for their compensation. Staff recommends that the Commission adopt this method of calculating avoided capacity costs for QFs that use the ICIRP Method and the Published Rate Method in this case. Staff recommends the Commission direct the Company to make a compliance filing proposing the Company's implementation of this method within 30 days and provide Staff and the public the opportunity to review the filing before implementation.

Doing so would help alleviate the concerns identified by PNNL and public input that there is not sufficient granularity in the existing rates to adequately incent the development of battery storage QFs. Public comments reflected an acknowledgment that current avoided cost methodologies must be improved upon in order to accurately capture the value of services provided by battery storage QFs to the grid. ICL states that intra-hour compensation needs to be defined and a wider array of benefits unique to battery storage need to be recognized. ICL Comments at 2-3. Renewable Northwest details the types of grid benefits battery storage QFs are capable of providing given their ability to react to signals in a fraction of a second, much faster than conventional thermal plants. Renewable Northwest Comments at 5. Although shifting to an Idaho Power specific method of calculating capacity costs similar to the Duke Energy method would more accurately value the time difference of capacity, it will still be necessary to address the additional ancillary services provided by battery storage QFs in further docket or dockets.

c. Appropriateness of the Published Rate Method.

The Commission currently applies the Published Rate Method to all QFs below their respective resource-type project eligibility caps.

i. Avoided energy value using the Published Rate Method.

The method for determining the avoided cost of energy for published rates is based on three things: (1) the actual amount of QF output during high and low load hours and in different seasons; (2) the forecasted cost of natural gas; and (3) the heat rate of a CCCT surrogate natural gas plant. Because none of the characteristics associated with the type of QF is taken into account, the Published Rate Method energy avoided cost rate is agnostic to the type of QF. Since it can be generically applied to all QF types, the Published Rate Method can be equally applied to battery storage QFs. However, the Published Rate Method assumes that a CCCT is the marginal resource at all times, which Staff maintains is a flawed assumption.

In Response to Staff Production Request No. 15, the Company calculated that the actual percentage of time the Langley Gulch CCCT plant was the marginal resource in 2018 and 2019 was 10.2 % and 7.3%, respectively. Because the ICIRP Method uses a modeled result, Staff also requested the percentage of time the ICIRP model reflects Langley Gulch as the marginal resource over a two-year timeframe. In the Company's Response to Staff Production Request No. 16, the Company stated that the ICIRP model run over this period showed that Langley Gulch was the marginal resource 9.3% of the time. The similarity between these two results confirms that the ICIRP Method more closely reflects reality at least regarding how often a CCCT plant is the marginal resource. Therefore, Staff believes that using a CCCT as the marginal resource 100% of the time assumed in the Published Rate Method is highly dubious.

Despite its flawed assumption that a CCCT is the marginal resource 100% of the time on the Company's system, Staff believes the Published Rate Method is still appropriate to determine the avoided energy value for battery storage QFs under the project eligibility cap. Doing so aligns with the Commission's treatment of other resources that use the Published Rate Method for published avoided cost rates. Staff believes that examining whether to move away from the use of a surrogate resource for published avoided cost energy rates for battery storage QFs should be examined in the next docket for all Idaho electric utilities.

ii. Avoided capacity value using the Published Rate Method.

Staff does not believe that the current Published Rate Method for establishing avoided capacity rates for battery storage is appropriate and should belong in its own category under published rates because it will require different treatment.

The Published Rate Method to calculate avoided capacity costs takes into account three factors: (1) the inflation rate and rate of return adjusted fixed cost of a CCCT; (2) the capacity contribution at peak of resources included in the "other" category to determine how much of the fixed cost of a CCCT will be avoided on a $ per kW basis; and (3) the annual capacity factor based on historical generation of resources included in the "other" category which is used to determine a $/kWh rate. In addition, capacity payments do not begin until the first capacity deficiency date passed that is established at the time of establishing the QF's first contract.

Staff identified two key reasons why battery storage needs to belong in a separate category based on differences in the output characteristics that determine avoided capacity cost compared to other resource types in the "other" category. First, resources classified in the "other" category do not have the same limitations with respect to the duration of output which is limited for battery storage QFs. Because of limited duration, the output of an energy storage QF will likely be manipulated to maximize revenue for the developer without proper price signals to provide output during peak periods to avoid capacity cost. Second, battery storage suffers degradation and will likely not provide the same amount of capacity when the utility becomes capacity deficient compared to when batteries are new. Certain types of battery storage degrade faster with deep-cycling, which will likely occur if developers offset generation to maximize output during high load hours. Both of these reasons have implications from an accountability standpoint if the utility and customers are to receive the amount of avoided capacity benefit in return for the amount of compensation paid to the developer. To receive the amount of avoided capacity, batteries need to be replaced on a regular basis or adjustments made to capacity factors and the capacity contribution at peak depending on how often the battery storage QF has been duty-cycled over the duration of a contract. Even if batteries are maintained to provide the same amount of capacity when new, the release of energy from the QF needs to be managed to ensure it provides capacity benefit during system peak periods. Public comments support Staff's contentions with degradation of 10% in the first three years of a battery's life and with deep discharge, the amount of charge and discharge cycles can be reduced to one third of Li-Ion battery's normal life.

To address issues identified above related to accountability and assurance that the QF provides avoided capacity cost benefits commensurate with its capacity payments, Staff proposes the Company develop an Idaho Power version of the Duke Energy method similar to Staff's recommendation to update the ICIRP Method for calculating avoided capacity costs. The method would provide the proper price signals to ensure that QFs release energy from their battery storage project during peak hours. If a QF releases energy outside of the hours designated as peak periods, it would not receive any compensation for avoided capacity cost. The method would still withhold capacity payments until the capacity deficiency date established in the QF's initial contract.

In addition, Staff maintains the CCCT is not a reasonable surrogate because it is not used primarily used as a capacity resource. In revising the method, Staff advocates revising the capacity surrogate from a CCCT to a SCCT to match what is used in the ICIRP Method.

Staff believes that by establishing and publishing the capacity rates and applicable times in advance, and allowing a QF to lock-in the capacity deficit date, including applicable rates and times, upon executing its first contract or establishing a legally enforceable obligation with the utility, that the Commission would comply with FERC rules implementing PURPA and statutory requirements to provide published avoided cost rates known at the time of contracting, and would align with the treatment of other QFs.

V. Appropriate Published Rate Eligibility Cap for Energy Storage.

Staff evaluated the four factors listed below to determine if the Company's proposed 100kW published rate eligibility cap for energy storage QFs is appropriate or if it should be set higher.

a. The incentive for projects over the eligibility cap to disaggregate to qualify for Published Rate Method rates because of differences between Published Rate Method rates and ICIRP Method rates;
b. The minimum module size of battery storage projects that might allow developers to disaggregate large projects into smaller projects;
c. The difference in the amount of time, effort, and money required to develop an ICIRP Method contract versus a Published Rate Method contract that can act as a disincentive for legitimately smaller projects to be developed; and

d. The impact on customers and QF developers due to an increase in the number of projects required to use more accurate ICIRP Method rates from a lower eligibility cap.

After consideration of all four factors, Staff believes that until the Commission can address incentives for large battery storage QFs to disaggregate into smaller QFs, and because battery storage QFs, can be easily disaggregated due to the minimum size of a module of capacity, the eligibility cap should be set at a size that prevents disaggregation. This would likely prevent battery storage QFs from qualifying for less accurate and higher avoided cost rates that would be unfair to customers and prevent similar disaggregation that occurred with large wind projects prior to the Commission setting a 100 kW eligibility cap on December 14, 2010.

In addition, Staff determined that the potential dampening impacts of contracting differences between the Published Rate Method and the ICIRP Method for projects under 10 aMW was inconclusive. By requiring more projects to use the more accurate ICIRP Method, the Commission will continue to ensure that customers are indifferent to QF purchases because they will be paying no more and no less than the Company's marginal cost of energy. *See* 18 C.F.R. § 292.304(a)(2).

a. Published Rate Method rates are higher than ICIRP Method rates, which creates an economic incentive for projects to disaggregate.

Staff believes that the current avoided cost framework, using Published Rate Method rates for published avoided cost rates, and ICIRP Method rates for QFs above the project eligibility cap, creates an inherent incentive for QFs to disaggregate to receive the higher Published Rate Method rates. As stated earlier, Staff developed "reference" projects for each of the different QF types and then compared the resulting rates between the two established methods.

Table No. 5: Published Rate Method and ICIRP Method Avoided Cost Rates.

Reference Project Avoided Cost Differences Levelized over 20 years without integration charges Rates authorized December 2019	Negotiated Rate ICIRP Method ($/MWh) ($/MWh)	Published Rate Surrogate Method ($/MWh)	Difference ($/MWh)	% Difference
Wind (10 MW nameplate)	$38.99	$42.43	$3.44	8.8%
Solar (10 MW nameplate)	$49.20	$59.25	$10.05	20.4%
Non-seasonal Hydro (10 MW nameplate)	$42.74	$57.62	$14.88	34.8%
Seasonal Hydro (10 MW nameplate)	$43.34	$69.06	$25.72	59.4%
Other (10 MW nameplate)	$39.87	$53.18	$13.31	33.4%

As shown in Table No. 5 above, overall published rates are approximately 8.8% higher for wind, 17.1% for solar, and almost 60% higher for seasonal hydro. These rates are a composite of a separate rate for the avoided cost of energy and the avoided cost of capacity.

Staff believes it may be appropriate for the Commission, in the next docket, to look at using a modified version of the ICIRP Method to set published rates as a way to collapse the distinction between projects above and below the project eligibility cap, use the same input assumptions, and to encourage the use of more accurate avoided cost rates for all project types.

b. Battery storage QF technology allows for potential disaggregation.

Staff believes that battery storage QFs have a minimum capacity module size that allow QF developers to disaggregate their projects to qualify for higher published rates. The ability to disaggregate was the main factor the Commission used to justify setting the eligibility cap at the minimum FERC cap of 100kW for wind and solar. In Order No. 32176, the Commission said,

> A 100 MW wind farm or solar project can be broken up into 10 aMW pieces in order to obtain multiple published rate contracts, i.e., disaggregation. When a 100 MW wind or solar project is disaggregated, we find the SAR Methodology no longer produces a rate that accurately reflects the value of the energy to the utility. A 100 MW project is not even eligible under PURPA nor is a utility bound to purchase power from a 100 MW facility under PURPA's "must purchase" provision. 18 C.F.R. § 292.204(a). Therefore, to prevent large projects from disaggregating in order to not only become eligible under PURPA but also obtain published avoided rates, and based on the unique characteristics of wind and solar resources to disaggregate, we find that the eligibility cap for published avoided cost rate contracts for wind and solar projects shall be set at 100 kW or less.

Order No. 32176 at 13.

To determine if energy storage projects fall under the same criteria, Staff evaluated energy storage on whether or not it can be disaggregated into smaller projects by evaluating the same type of characteristics that allow wind and solar to be easily disaggregated. To prevent disaggregation using the eligibility cap, it is first necessary to determine the minimum size of a module of battery storage. The cap would then need to be set lower than the minimum size of a module of battery storage.

From a QF developer's standpoint, if the incremental cost of separating modules of capacity of a large project into several smaller projects is less than the incremental revenue that can be earned through higher published rates, the QF developer may choose to disaggregate. To make this evaluation, the developer would need to account for the incremental cost of separate contracts, additional meters, additional transformers, and other interconnection costs associated with establishing separate projects and weigh those costs against the economies of scale associated with different module sizes for their project.

Although there are several different battery types used in utility-scale energy storage, Li-Ion batteries have become predominant in the industry. A Li-Ion storage cell necessary to store energy is only slightly larger than an AA-battery and is rated at less than 5 volts. To achieve the amount of energy and capacity needed to be useful to a utility, thousands of these batteries are combined in different combinations and configurations to achieve a desired result.

Because the energy stored in batteries is stored as direct current, to be fed into the utility's grid, it must be converted into alternating current through an inverter and stepped up in voltage to match the voltage rating of the utility interconnection. Staff reviewed several different module sizes and standard configurations offered by utility-scale battery storage solution providers. Because a module of battery storage is upwardly scalable from the size of a single battery, and because the size of inverters for utility application are more limited, Staff based the size range of a module of capacity based on inverters, which range from about 70 kW to 4 MW. As discussed above, a battery storage QF developer would need to examine the cost tradeoffs of earning more revenue through higher published rates against the incremental cost associated with creating multiple projects. A 100 kW published rate eligibility cap would increase these incremental costs making disaggregating a large facility into smaller projects less economically viable, and would protect customers from paying potentially higher, less accurate published rates. Public input concurred with Staff's assessment that battery storage QFs are modular and limited to the inverter sizes.

Public comments from Clenera, LLC verified the range of Staff's inverter size and that Li-Ion batteries are currently the predominate technology. Comments from Renewable Northwest verified that battery storage is modular and flexible making them comparatively easier to disaggregate and that disaggregation is limited by the inverter capacity of the battery storage QF.

c. Staff reviewed the impact of a previous project eligibility cap decrease.

Staff did not find strong evidence that more onerous requirements to develop an ICIRP Method contract discourage QFs between 100kW and 10aMW from being developed. Staff did not see a significant decrease in the number of projects in this size range that were developed after the Commission set the eligibility cap to 100kW for wind and solar. In Order No. 32262, the Commission acknowledged that setting the eligibility cap to 100kW for wind and solar might have an impact on small wind and solar QFs. To understand the potential impact on battery storage QF development by setting an eligibility cap at the 100kW minimum versus 10 aMW, Staff analyzed: (1) the differences in process requirements between the two methods to establish a contract; and (2) the change in the number of wind and solar projects that were developed as a result of lowering the eligibility cap to 100 kW.

Staff analyzed the process QF developers are required to use for negotiated rate contracts versus published rate contracts. Both types of contracts use Schedule 73, which outline the steps needed to establish a contract. Staff identified two differences that could make the process more difficult and impose barriers to development of QFs above the project eligibility cap. First, the Company is required to provide indicative pricing within 10 days of published rate contracts and 20 days for QFs above the project eligibility cap. Since published rates are readily available online, ICIRP Method contracts may experience up to a 20-day delay. Second, projects above the project eligibility cap require an accurate generation profile used to determine contract rates, while published rate contracts use rates that are generic for a given QF type. The development of a generation profile for projects above the project eligibility cap require the developer to conduct a study, which adds additional time and expense not necessarily incurred by a developer who qualifies for published rates.

To determine the effect on project development of lowering the eligibility cap to 100 kW for projects that were under 10 aMW, Staff requested a list of all wind and solar projects approved between February 20, 2008 and December 14, 2010 when the eligibility cap was set to 10 aMW through Order No. 30488, as well as projects approved on or after December 14, 2010 when the eligibility cap for wind and solar was set at 100 kW through Order No. 32176. After adjusting for projects that were disaggregated, and recognizing the limited amount of data, the analysis suggests that that lowering the eligibility cap to 100 kW likely did not impact the amount of QF development for wind and solar projects under 10 aMW.

d. Impacts to customers and QF developers.

Staff considered the potential impact on customers and QF developers due to more projects using more accurate ICIRP Method rates that would result from a lower eligibility cap. As discussed earlier, Staff concluded that the ICIRP Method is likely to produce a more accurate rate than the Published Rate Method. If the Commission sets a project eligibility cap close to or at the FERC 100 kW minimum rather than at 10aMW or higher, the lower eligibility cap would increase the proportion of projects using more accurate rates.

Although allowing developers to qualify for higher and less accurate avoided cost rates through a higher eligibility cap would allow more energy storage QF projects to be economically viable to developers, the Commission has been clear on the issue of accuracy of rates and its impact on retail customers as well as developers. In Order No. 32262, the Commission stated, "Rates should not be set to allow QFs to be cost effective. PURPA entitles QFs to a rate equivalent to the utility's avoided cost, a rate that holds utility customers harmless — not a rate at which a project may be viable. 18 C.F.R. § 292.304(a)(2)." Order No. 32262 at 8.

In addition, the Commission also stated in Order No. 32262 when reducing the eligibility cap to 100kW:

> While we recognize the impact that this decision will have on small wind and solar projects, it would be erroneous, and illegal pursuant to PURPA, for this Commission to allow large projects to obtain a rate that is not an accurate reflection of the utility's avoided cost for the purchase of the QF generation." Id, citing Rosebud Enterprises v. Idaho PUC, 128 Idaho 609, 623, 917 P.2d 766, 780 (1996), citing Connecticut Light & Power Co., 70 FERC 61,012 (1995), reconsid. denied, 71 FERC 61,035 (1995).

Public input received generally advocates for a higher project eligibility cap. Renewable Northwest details technological and economic reasons why a developer would not disaggregate their project to meet a lower project eligibility cap and Clenera states that a project eligibility cap of 10 to 20 MW would achieve meaningful cost savings through integration of components.

VI. Contract length analysis.

As described above, Staff believes that the ICIRP Method more accurately values avoided cost rates. Neither the Company nor any of the three groups who responded to Staff's Request for Public Input disputed this point. If battery storage QFs are assigned avoided costs rates under the ICIRP Method, Staff believes that the more accurate pricing method – which more closely aligns with how the Company values all other resources – mitigates concerns that contract lengths exceeding two years harm customers.

All three groups who responded to Staff's Request for Public Input confirmed that a payback period is critically important to secure project financing. No new QFs have signed a two-year contract since the Commission made the change to two-year contracts in 2015. Therefore, Staff believes the payback period is a very important aspect to consider when determining contract length for battery storage QFs receiving ICIRP Method rates. In addition to considering the payback period, Staff also evaluated the expected life of battery storage QFs and the contract terms in surrounding states as points of reference. Based on consideration of all these factors, a contract term length between 10 and 15 years is reasonable. Staff recommends the Commission establish a 10-year contract term for battery storage QFs above the project eligibility cap.

a. Results of quantitative analysis of battery storage QF costs and expected return.

Staff worked with PNNL to quantitatively analyze contract lengths for battery QF projects. This analysis took the costs for a range of battery storage projects and optimized the generation profile of the project to maximize revenue under a simplified version of the Company's ICIRP Method. The revenue produced by optimizing the generation profile was then compared against the total cost of the project to determine a reasonable payback period.

PNNL analyzed Lithium-ion battery QF projects of 20 MW, 50 MW, and 80 MW powered by fixed tilt and single-axis solar photovoltaics. Battery cost assumptions were taken from the "Energy Storage Technology and Cost Characterization Report" prepared by multiple national laboratories. Solar PV cost assumptions were taken from U.S. Solar Photovoltaic System Cost Benchmark: Q1 2018 prepared by the National Renewable Energy Laboratory. Costs were estimated at $1130/kW DC for the solar PV component and $1,446/kW for the battery component. Fixed O&M costs were estimated at $10.40/kW-yr for PV and $9/kW-yr for the Lithium-ion battery. PNNL then optimized the generation profiles of the reference projects to maximize revenue using the Company's solar monthly ICIRP Method rates and calculated that the project would not pay back in a meaningful time frame.

PNNL noted that a lithium-ion battery has an 86% roundtrip efficiency, which may be a disincentive to developers to utilize the technology, unless there are rates that are correspondingly higher. Current ICIRP Method rates are not sufficiently time differentiated to take advantage of the benefits that battery storage can provide.

While this is a reasonable approach to evaluating the payback period, Staff cautions that the availability of data to PNNL makes this analysis a rough-cut approach and several considerations should be made clear. Staff clarifies that these considerations are limited to the payback period analysis – they do not impact the calculation of QF avoided cost rates that Staff recommends be addressed in the follow-on docket.

The first consideration regarding the payback analysis is that because the Company does not yet have battery storage avoided cost rates, PNNL used the Company's monthly solar ICIRP Method rates to determine the battery QF's revenue stream. However, this approach likely decreased revenue for the battery QF project because solar QFs cannot be dispatched to align with the Company's peak and therefore does not capture the full value.

A second consideration is that PNNL only had access to monthly, rather than hourly or sub-hourly, avoided cost data from the Company for its analysis. With more granular avoided cost data, PNNL could more closely match the generation profile of the battery QF project to the Company's system needs, which would likely increase revenue for the project. Staff believes it would be beneficial for PNNL, through Staff, to provide the Company with a variety of battery storage QF generation profiles to be to modeled in the ICIRP Method to more accurately determine the revenue stream of these projects.

The third consideration is that because the Company does not yet have battery storage avoided cost rates, there is no value in these avoided rates to reflect the ancillary services these projects may be able to provide. Staff notes that all three considerations listed here served to decrease the hypothetical revenue stream calculated by PNNL.

Staff also notes that while PURPA requires the Commission to encourage the development of QFs, PURPA does not require the Commission to make economically infeasible projects feasible, either through rates or contract terms. Instead, avoided cost rates are to be set at the Company's marginal resource value, as described above, and contract terms "should be long enough to allow QFs reasonable opportunities to attract capital from potential investors." *Windham Solar LLC and Allco Finance Limited*, 157 FERC ¶ 61134 (2016).

b. Expected Life of Battery Storage QFs.

Another important aspect Staff considered in its contract length analysis is the the expected life of a battery storage system. Staff's research and work with PNNL indicates that this is approximately 10 years, although it can be longer or shorter depending on how frequently the battery storage project is cycled. Renewable Northwest stated battery storage projects have a calendar life (i.e. inactive or under minimal use) of 11– 15 years that decreases as the battery is cycled. Clenera stated the expected useful life is 20 – 25 years before accounting for degradation.

Although the life of the original battery cells may be limited to 10 – 15 years, Staff understands that some battery storage PPAs now include capacity refills. This means that when a developer signs a PPA with a utility, the developer commits to producing a certain amount of energy for the entire duration of the contract (i.e. 20 years). As the battery performance degrades, the developer simply replaces or adds additional battery cells to the original project to meet the generation production required by the contract. The developer accomplishes this by building extra rack space into the original project – which remains empty in the early years of the project – to hold the additional battery cells that will supplement, or refill, the original battery capacity as it degrades in later years. Maintaining battery storage system production with capacity refills is about 20 – 30% of the original project cost, which makes it a much less expensive alternative than building an entirely new battery storage project at the end of the original project's useful life. Staff believes that the ability of a developer to extend the life of the project may also assist with the QF's ability to secure financing.

c. Contract Lengths in Surrounding States.

As discussed in Staff's Initial Comments, Staff reviewed QF contract lengths in several surrounding states to provide context for a similar decision in this case. Staff's research found that surrounding states have contract lengths of 10, 12, 15, and 20 years for various technologies and that those contract lengths were chosen because they provided an adequate opportunity for QFs to attract financing. This aligns with the recommendation from Renewable Northwest of 10 to 15 years and Clenera's recommendation for 15 to 20 years. ICL stated that it does not know the correct contract length, but that five years is the minimum that should be considered.

d. Staff conclusion on contract lengths.

Staff's quantitative analysis on contract lengths indicates that no duration of contract length will be sufficient to attract financing for the majority of battery storage QFs under a constrained view of the current ICIRP Method rates. However, Staff believes by feeding an actual battery storage QF generation profile into the ICIRP model, taking further steps to improve the granularity of the ICIRP model, and accounting for the possibility of battery storage QFs to extend the lives of their QFs, a 10 to 15 year contract length would be sufficient to allow QFs a reasonable opportunity to attract financing while maintaining ratepayer indifference. Staff notes that this aligns with the shorter end of the contract length spectrum offered in surrounding states.

STAFF RECOMMENDATIONS

- Staff recommends the Commission establish a 100 kW project eligibility cap for battery storage QFs in order to ensure that as many battery storage QFs as possible use the more accurate ICIRP Method of calculating avoided cost rates.
- Staff recommends a 10-year contract term length for battery storage QFs above the project eligibility cap, and continue to give QFs below the project eligibility cap 20-year contracts.
- Staff recommends the Commission order the Company to make a compliance filing within 30 days detailing how it will implement an Idaho Power specific version of the Duke Energy Method for calculating capacity payments for battery storage QFs above and below the project eligibility cap, which compensates capacity only for energy actually delivered during specific peak hours.
- Staff recommends the Commission direct Avista, Rocky Mountain Power, and Idaho Power to file a battery storage QF case to:
    a. align battery storage QF treatment across Idaho's major electric utilities;
    b. modify the ICIRP Method to provide greater time-differentiated granularity of avoided energy costs;
    c. determine compensation of ancillary services, and
    d. refine implementation of Idaho-specific capacity costs similar to the Duke Energy Method.

Respectfully submitted this 27th day of August 2020.

Edward J. Jewell
Deputy Attorney General

i:umisc/comments/ipce20.2ejrfyytnc comments

CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT I HAVE THIS 27th DAY OF AUGUST 2020, SERVED THE FOREGOING **REVISED COMMENTS OF THE COMMISSION STAFF,** IN CASE NO. IPC-E-20-02, BY E-MAILING A COPY THEREOF, TO THE FOLLOWING:

DONOVAN E WALKER
REGULATORY DOCKETS
IDAHO POWER COMPANY
PO BOX 70
BOISE ID 83707-0070
E-MAIL: dwalker@idahopower.com
dockets@idahopower.com

SECRETARY