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December 23, 2022

VIA ELECTRONIC FILING

Jan Noriyuki, Secretary
Idaho Public Utilities Commission
11331 W. Chinden Blvd., Bldg 8,
Suite 201-A (83714)
PO Box 83720
Boise, Idaho 83720-0074

Re: Case No. IPC-E-22-06
In the Matter of Idaho Power Company's Application for Approval of a Replacement Special Contract with Micron Technology, Inc. and A Power Purchase Agreement with Black Mesa Energy, LLC

Dear Ms. Noriyuki:

Attached for electronic filing is Idaho Power's Compliance Filing in the above-entitled matter.

Please feel free to contact me directly with any questions you might have about this filing.

Very truly yours,

Megan Goicoechea Allen

Megan Goicoechea-Allen

MGA:sg
Enclosure

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Attorneys for Idaho Power Company

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF IDAHO POWER COMPANY'S APPLICATION FOR APPROVAL OF A REPLACEMENT SPECIAL CONTRACT WITH MICRON TECHNOLOGY, INC. AND A POWER PURCHASE AGREEMENT WITH BLACK MESA ENERGY, LLC.	CASE NO. IPC-E-22-06 IDAHO POWER COMPANY'S COMPLIANCE FILING

Idaho Power Company ("Idaho Power" or "Company"), pursuant to Idaho Public Utilities Commission ("Commission") Order No. 35532,[1] hereby respectfully submits the following compliance filing for the rate structure to calculate Micron Technology, Inc.'s ("Micron") Renewable Capacity Credit ("RCC") under Micron's Revised Special Contract ("Micron ESA").

I. INTRODUCTION

As more fully described herein, in its compliance filing, Idaho Power proposes to implement an RCC performance mechanism payment structure that was the outcome of

[1] Order No. 35532, p. 6, 10.

significant collaboration with Staff and the Company. Importantly, while the proposed performance mechanism does not match existing prescribed Incremental Cost Integrated Resource Plan ("ICIRP") Qualifying Facility ("QF") storage methodology for agreements under the Public Utility Regulatory Policies Act of 1978 ("PURPA"), the recommended approach achieves the spirit of the Commission's directive, while also addressing limitations associated with application of the ICIRP QF storage method to non-dispatchable Clean Energy Your Way ("CEYW") resources. Specifically, the proposed approach determines unique per-renewable-Power Purchase Agreement ("PPA")-resource specific performance standards and eliminates the potential to over-compensate for capacity from the renewable PPA resource.

II. <u>BACKGROUND</u>

On August 1, 2022, the Commission issued its ruling on Idaho Power's Application seeking approval of the Micron ESA in Order No. 35482, which directed, in pertinent part, modifications to the Micron ESA, including use of a new method for calculating RCCs based on Staff's recommendations: "We find it fair, just, and reasonable that the RCC utilize the rate and payment structure for IRP-based energy storage projects."[2] The Commission instructed the Company to file an updated ESA and Schedule 26 based on its modifications.

In response, the Company filed a Petition for Clarification and Reconsideration, which, among other things, sought clarification on how to calculate the RCCs under the Micron ESA. In granting the Company's Petition, the Commission found it would be beneficial to have the Company and Staff "work together to develop a rate structure for

[2] Order No. 35482, p. 17.

calculating Micron's RCC under the ESA which the Company shall file as a compliance filing in this case by December 13, 2022."[3] Subsequently the Company requested additional time, until December 23, 2022, to work through details of the rate structure and finalize understanding between Idaho Power and Staff, which was granted by the Commission on December 13, 2022.[4]

Beginning November 2, 2022, with a two-hour in-person meeting between Staff and Idaho Power, significant collaborative efforts have been undertaken to implement the Commission’s directive. In total, Staff and the Company have participated in six meetings, with the most recent held December 14, 2022. In the early discussions, it became apparent that simply implementing the ICIRP QF methodology could result in unexpected outcomes. As the discussions progressed, the Company and Staff identified several critical elements necessary for inclusion in a performance mechanism applied to a large non-dispatchable CEYW-Construction resource that can have a large impact on the Company’s system. This proposal provides the following, including additional elements that are not present in the existing ICIRP QF storage methodology:

- Payment for performance during specific hours;
- Emphasis of current system capacity need;
- Recognition of the resource’s capacity contribution to the Company’s resource stack even as critical hours shift through time (new);
- Non-dispatchable renewable resource agnostic (new);
- Reduced risk of capacity payment over-compensation (new);
- Incent renewable resources to maintain performance in consideration of future

[3] Order No. 35532, p. 10.
[4] Order No. 35625, p. 1.

capacity need (new).

The proposed RCC performance mechanism improves upon the ICIRP QF storage methodology for capacity payments. Limitations of the ICIRP QF storage methodology in meeting all the elements listed above are described in more detail in Section IV.

It is important to highlight regardless of which performance mechanism is utilized, the proposed, or the ICIRP QF storage methodology, the eligible first year for payment, and annual value of capacity for which Micron has the opportunity to receive payment for is identical in either approach. That is, applying either the Company's proposed method or the ICIRP QF storage methodology both utilize the same Commission-directed calculation to determine the RCC numerator and eligibility date.[5] Both of these variables are locked in at the time of PPA execution and remain unchanged for the duration of the PPA.

That RCC numerator is defined as:

Capacity Contribution based on the methodology from the most recently acknowledged IRP * nameplate of the renewable resource * levelized capacity value of the least-cost selectable capacity resource from the most recently acknowledged IRP.

In the case of the Black Mesa project: 36.42% * 40,000 kilowatt ("kW") * $121.19/kW-yr; or $1,765,496 annually, with Micron eligible to begin receiving RCC payments July 1, 2026.

III. BATTERY STORAGE QUALIFYING FACILITIES AVOIDED CAPACITY PAYMENT BACKGROUND

As discussed above in reviewing the ESA between Micron and Idaho Power, Staff recommended, and the Commission agreed, that the avoided capacity cost rate and

[5] Order No. 35482, p. 17.

payment structure used to compensate PURPA IRP-based energy storage QF projects should be applied in the Micron ESA. As noted by Staff, "the PURPA energy storage payment structure . . . departed from previous PURPA rate structures when it was initially developed. . ."[6]

As alluded to by Staff's comment, Idaho's implementation of PURPA has been an ongoing and iterative process based on changing circumstances, emerging technologies, and the benefit of hindsight. In a series of cases culminating in 2012, the Commission overhauled PURPA implementation in Idaho, including setting the published and negotiated cost rate parameters that are still used today. It noted, however: "As is evident from this Commission's history with PURPA, avoided cost methodologies, inputs and calculations need to be reviewed and refreshed periodically."[7]

To carry out the purpose and intent of PURPA - that a utility pays a QF only the costs it avoids by not having to build or procure alternative energy - the Commission previously confirmed that payments for both energy and capacity should be considered in determining avoided costs. Considering a QF's ability to provide capacity to a purchasing utility against the backdrop of PURPA's "must take obligation" and in recognition of the fact that "[t]he value of all renewable resources is not equal", the Commission noted:

> PURPA *requires* public utilities to purchase generation from QFs *without regard for whether the utility needs the energy*. If a QF resource provides energy but no capacity, then the utility is not avoiding a portion of costs that will be required to build generation that provides capacity.[8]

[6] Staff's Answer to Petitions for Reconsideration, p. 3.
[7] *In the Matter of the Commission's Review of PURPA QF Contract Provisions Including the Surrogate Avoided Resource (SAR) and Integrated Resource Planning (IRP) Methodologies for Calculating Avoided Cost Rates*, Case No. GNR-E-11-03, Order No. 32697, p. 14 (Dec. 18, 2012).
[8] *Id.*, p. 16 (emphasis added).

Under these circumstances the Commission determined that assigning a value to a QF's ability to provide capacity using a resource-specific capacity factor would encourage QFs to develop resources that would provide the utility with capacity that it actually needs.

More recently, advances in battery technologies to meet energy storage needs raised the question of how this type of QF resource should be treated under Idaho's PURPA framework. One such shortcoming with the method that was in place subsequent to the 2012 orders was that it failed to account for the nuances of the utility's incremental capacity needs such that avoided capacity cost payments did not accurately capture the avoided cost of capacity or encourage the QF to dispatch stored energy in a manner that would contribute to the Company's actual capacity needs. In order to fully recognize the "time-shifting value of battery storage QFs," Staff recommended implementing more granular avoided cost rates in an effort to align economic interests of QFs with the Company's needs.[9] In calculating capacity for battery storage QFs, Staff felt that fine tuning the existing ICIRP Method by only paying capacity cost payments if the QF generated during peak hours would more accurately value the time difference of capacity and would incentivize a battery storage QF to actually contribute to the Company's capacity needs.[10]

Ultimately the Commission agreed with Staff's recommendations regarding how battery storage QFs should be treated under Idaho's PURPA framework. In pertinent part, the Commission found that avoided cost rates for battery storage QFs above the project eligibility cap should be calculated using the ICIRP Method for avoided energy rates and

[9] *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 Facilities*, Case No. IPC-E-20-02, Revised Comments of the Commission Staff, p. 7 (Aug. 27, 2020).
[10] *Id*., p. 14.

an Idaho-specific version of the Duke Energy Method for calculating capacity, under which avoided capacity rates are paid for production hours identified as Company's peak hours as opposed to averaging capacity payments over all hours.[11]

The Commission ordered the Company to file an updated avoided cost capacity methodology to be used in the mandatory purchases of battery storage QF PURPA generation. In its compliance filing, Idaho Power noted its understanding of the Commission's directive was that no changes to the avoided cost of capacity in the ICIRP Methodology were to be made except that the capacity portion of the avoided cost rate should be paid only during peak hours.[12] Accordingly, the Company made no changes to the underlying methodology that calculated the avoided cost of capacity for battery storage QFs and only changed the payment of that capacity amount to being paid only during peak hours rather than being paid upon every kilowatt-hour ("kWh") of generation. The Commission approved the Company's Compliance Filing with a modification relating to updating peak hours.[13]

Though the Micron ESA is not under the scope of PUPRA, which is a complex regulatory scheme with multiple interconnected variables, Staff initially recommended that the PURPA energy storage payment structure be implemented with respect to the Micron ESA. "The hallmark of this payment structure is its pricing for production delivered during 'peak' and 'premium peak hours'."[14] The Company was concerned with this proposed application for a single, CEYW-specific large project, which can be easily identified through time when it came online and the term it will provide capacity, because

[11] *Id*., Order. No. 34794, p. 10 (Oct. 2, 2020).
[12] *Id*., Idaho Power Company's Compliance Filing, p. 2 (Oct. 30, 2020).
[13] *Id*., Order No. 34913, p. 6-7 (Feb. 5, 2021).
[14] Staff's Answer, p. 3.

the Commission's determination relative to avoided capacity for battery storage QFs was based on a very different set of circumstances, distinguishable from the Micron ESA as to both the type of resources at issue and the underlying legal framework.

As to the first matter, the efficacy of efforts to motivate a QF to shape or shift their energy production necessarily depends on the resource type; as the Commission has noted the "value of all renewable resources is not equal." For example, an energy storage QFs ability to be dispatched on demand means it can be influenced to adjust its operations in response to price signals. As the Commission Noted in Case No. IPC-E-20-02:

> By identifying its Peak Hours and Premium Peak Hours, the utility sends a price signal to energy storage QFs to dispatch energy at the times the utility most needs the energy. Because energy storage QFs *can alter* their output *to respond to price signals*, identifying and pricing high-value hours accordingly can encourage QF development and help the utility avoid higher-cost resources, benefiting ratepayers.[15]

An intermittent resource QF, on the other hand, cannot control when it generates and is therefore unable to adjust its output to align with utility needs as they shift through time, it does, however, continue to provide the capacity benefit, and is relied on in its position in the Company's resource stack as was determined when the resource joined the system.

Moreover, in reviewing a transaction under PURPA, the Commission's interest in ensuring that QFs are adequately incentivized to align their output with the Company's needs ensures that ratepayers are kept indifferent from the utility's must purchase obligation. Because a QF has the ability to force a utility to take its power outside of the

[15] Case No. IPC-E-20-02, Order No. 34913, p. 6 (emphasis added).

utility planning process and even if it does not need the power, the Commission's role in this regard is critical since the Company itself is constrained.

Despite its concerns, the Company has been working with Staff diligently and in good faith in an effort to implement the Commission's intent for treatment of RCCs under the Micron ESA. The results of the effort are set forth in this compliance filing.

IV. LIMITATIONS OF IRP-BASED ENERGY STORAGE PROJECT CAPACITY PAYMENT MECHANISM

As the Company worked to incorporate the ICIRP Storage QF methodology, it quickly identified both challenges of using that methodology for a non-dispatchable resource, and through collaboration with Staff, additional critical elements which the ICIRP Storage QF methodology does not meet. In applying the Peak Hour and Premium Peak Hour payment methodology to Micron's RCC numerator, both the Company and Staff agree it meets the first two elements of emphasizing current system capacity need through payment for resource performance during specific hours.

However, that prescriptive method has limitations which are addressed by the proposed performance mechanism. First, there is potential to both over-compensate, and not recognize the value of capacity the renewable resource provides. The Peak Hour and Premium Peak Hour rate is determined by dividing the RCC numerator by the expected kWh output of the renewable resource in those respective critical hours. While the renewable resource will on average over time perform similar to the expected output, actual output will be lower or higher than forecast in any given month. In any month above-forecast generation occurs, that additional generation is multiplied by the fixed Peak Hour or Premium Peak Hour rate and the potential exists that payments will exceed the RCC numerator in those periods.

A single renewable resource the scale of Black Mesa, with nameplate of 40,000 kW, can be easily tracked to identify when and the amount of capacity it provides the system, along with the duration of the PPA to identify the term under which the Company can continue to expect that capacity be delivered. In terms of recognition of the resource's capacity contribution to the Company's resource stack as critical hours shift through time, the Commission directed updates to the RCC Peak Hours and Premium Peak Hours occur every two years with acknowledgement of the IRP. There is potential that future Peak Hours and Premium Peak Hours, representing the Company's future capacity needs, shift to a portion of the day when solar does not generate. However, the renewable resource continues to provide capacity to the Company's resource stack as identified at the time of PPA execution. If that capacity position in the Company's resource stack is not maintained, hours of critical need may arise in hours outside of the deemed Peak Hours and Premium Peak Hours, resulting in not recognizing the capacity benefit the resource continues to provide through time. This outcome is counter to the Commission's rationale in determining that once a QF qualifies to receive capacity payments, contract renewals and extensions continue to receive capacity payments because "an existing QF's capacity would have already been included in the utility's load and resource balance…".[16] It is the expectation that the CEYW renewable resource continues to deliver the capacity it was evaluated for at the time of PPA execution, and maintains its position in the Company's resource stack to meet load requirement, even if future capacity needs present themselves in other periods of time.

[16] Case No. GNR-E-11-03, Order No. 32697, p. 21.

Issues identified above are present for the Black Mesa solar resource, but the considerations are magnified for other non-dispatchable resources such as wind. Idaho Power agrees that providing payments only for capacity actually delivered to Idaho Power's system is an important mechanism to be included in RCCs, and the Company believes it's proposed performance mechanism achieves the same intent as directed by the Commission, with additional enhancements which incentivize the resource to perform as expected for that resource. It is critical that resource capacity contributions remain in their position in the Company's resource stack through time. If they do not because only a small band of critical hours are incentivized based on today's need, it creates a future risk of a resource not delivering capacity in "non-critical hours" as initially modeled at the time of PPA execution, which results in a "capacity hole" for capacity needs if today's non-critical hours become critical in the future, such as winter periods.

V. PROPOSED RENEWABLE CAPACITY CREDIT PAYMENT PERFORMANCE MECHANISM

Included as Attachment 1 is a detailed description of the methodology for Company's proposed RCC performance mechanism for monthly payments. The proposed mechanism may be summarized as paying for performance in critical hours based on system needs today, as well as a weighting for future system needs. The goal of the proposed RCC performance mechanism is that performance is measured in a resource-agnostic manner, and compensation is offered to that resource as an incentive to perform at the output expected for that specific resource. The maximum value Micron is eligible to be paid for capacity delivered by the Black Mesa project is capped at the RCC annual numerator of $1,765,496.

A. Determination of Critical Periods

The first step is to determine the months of capacity need at the time of PPA execution in the year the resource is expected to come online, in this case 2023. Because Black Mesa utilized the National Renewable Energy Laboratories ("NREL") 8,760-based top 100 hours methodology to determine capacity contribution, the 2023 monthly load and resource balance was utilized to determine monthly capacity needs. For future CEYW resources, Effective Load Carrying Capability will be the basis for capacity contribution determinations, and monthly capacity needs will be calculated from Loss of Load Expectations ("LOLEs"). Next, Idaho Power anticipates future load conditions in 2027 will have considerable differences from today's load conditions and used the 2027 load and resource balance to also determine monthly LOLEs. The combination of the 2023 and 2027 LOLEs is used to inform the appropriate minimum and maximum values, critical hours, seasonal groupings, and monthly weighting. The value of the annual RCC numerator is spread to each month based on monthly weighting, representing the maximum RCC payment value if the renewable resource performs as expected in the identified monthly critical hours. As listed in Table 1 below, today's critical hour needs represent the overwhelming majority of weighting, 70 percent in the June through August period, but weighting is also included for future winter needs to incent the resource to maintain output the Company will rely on outside of today's critical periods.

Table 1. Proposed Maximum Monthly Performance Payments

Month	Weight	Payment
January	5.25%	$ 92,689
February	5.25%	$ 92,689
March	0%	$ -
April	0%	$ -
May	0%	$ -
June	17.50%	$ 308,962
July	35.00%	$ 617,924
August	17.50%	$ 308,962
September	4.50%	$ 79,447
October	4.50%	$ 79,447
November	5.25%	$ 92,689
December	5.25%	$ 92,689
Total	**100%**	**$ 1,765,496**

For the Black Mesa resource, this results in three seasons with unique critical hours (hour beginning to hour ending):

- Winter (Nov-Feb) 6:00 am to 11:00 am and 5:00 pm to 10:00 pm
- Summer (June-Aug) 2:00 pm to 11:00 pm
- Non-summer (Sept-Oct) 6:00 am to 11:00 am

B. <u>Performance Measurement</u>

The energy generation of the Black Mesa project will be evaluated during these hours and compared to the potential energy generation as measured by a co-located Plane of Array irradiance measurement device. The comparison of actual generation and expected generation during these critical hours results in a performance ratio, which is evaluated against the performance metric target, 1.0 October through February, and 0.95 June through September. The less than 1.0 performance metric target for June through September reflects that the performance metric captures irradiance variation but does not capture the impact of temperature on solar array performance. High temperature impact is considered in determining capacity contribution of the resource, so this adjustment is necessary to maintain consistent assumptions between the determination of capacity contribution and what expected generation at the site is actually possible. The ratio of actual generation to expected generation informs the reduction to capacity payment for that month.

The performance mechanism methodology described above is specific to a solar project, however, the same concepts may be applied to wind projects with measurement of wind speed, hub height, and rotor diameter to calculate expected performance.

In addition to the six elements previously listed as benefits of the proposed mechanism as compared to the ICIRP QF storage method, this methodology provides for a unique performance benchmark specific to the PPA resource. If additional CEYW solar resources are added in the same year, each project is evaluated for critical hours in consideration of each preceding project, including the impacts of those projects on critical hours as well as in determination of season groupings, something not completed by the ICIRP QF storage methodology.

Finally, the proposed method eliminates the opportunity for a developer to be overcompensated for capacity because the maximum cap on monthly payments and output measurement methodology ensures no additional compensation is possible.

VI. ALTERNATIVE IRP-BASED ENERGY STORAGE PROJECT RENEWABLE CAPACITY CREDIT PAYMENT PERFORMANCE MECHANISM

Idaho Power believes the proposed performance mechanism captures the spirit of the Commission's directive for capacity payments to only be paid for capacity delivered to Idaho Power's system. The comprehensive work between Staff and Idaho Power to develop and refine the proposed performance metric incorporates concerns Staff raised in the filing which drove their initial recommendation to apply the ICIRP QF storage Peak Hour and Premium Peak Hour payment mechanics to Micron's RCC. If the Commission believes the proposed performance metric is not aligned with the Commission's directive, Idaho Power presents an alternative RCC payment approach consistent with the ICIRP methodology but for two modifications developed with Staff's input.

A. Rates Set for Term of PPA

As noted earlier, the Commission directed updates to the RCC Peak Hours and Premium Peak Hours occur every two years with acknowledgement of the IRP. Because there is potential for future Peak Hours and Premium Peak Hours to shift outside of solar generating hours, Idaho Power proposes Peak Hours and Premium Peak Hours be locked for the duration of the 20-year PPA based on the currently-approved hours.

> **Peak Hours: Hours that occur in July starting at 2:00 PM and ending at 10:59:59 PM, and hours that occur in August starting at 4:00 PM and ending at 8:59:59.**
>
> **Premium Peak Hours: Hours that occur in July, starting at 5:00 PM and ending at 8:59:59 PM, and hours that occur in August, starting at 5:00 PM and ending at 8:59:59 PM.[17]**

B. Non-Premium Peak and Premium Peak Hour Differential

In developing the alternative RCC payment rates, Idaho Power incorporated a methodology update proposed by Staff,[18] and agreed to by Idaho Power,[19] as part of the

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[17] *Idaho Power Company's Annual Compliance Filing to Update the Load and Gas Forecasts in the Incremental Cost Integrated Resource Plan Avoided Cost Model*, Case No. IPC-E-21-35, Supplement to Idaho Power Company's Annual Compliance Filing, p. 3 (Nov. 5, 2021), approved by Order No. 35395 (May 4, 2022).

[18] *Idaho Power Company's Annual Compliance Filing to Update the Load and Gas Forecasts in the Incremental Cost Integrated Resource Plan Avoided Cost Model*, Case No. IPC-E-22-26, Staff Comments p. 9-10 (Dec. 6, 2022).

[19] *Id.*, Reply Comments, p. 2 (Dec. 13, 2022).

Company's annual Compliance Filing to update the load and gas forecasts in the ICIRP avoided cost model. Specifically, Staff recommended to modify the calculation of the Non-Premium Peak and Premium Peak hour such that rates for Premium Peak Hour are consistently 20 percent above Non-Premium Peak Hour rates without changing the total amount of annual capacity payments that a qualifying facility can receive. The calculation of the Non-Premium Peak Hour rate is as follows, with a 20 percent premium applied to Premium Peak Hour rates. Idaho Power proposes this methodology update be applied to the alternative RCC payment rates as well.

Non-Premium Peak Hour rates = Annual Capacity Payment / (Generation during Non-Premium Peak Hours * Generation during Premium Peak Hours * 1.2)

C. Alternate RCC Payment Rates

Incorporating the two modifications described above, the alternate RCC payment rates for Micron's Black Mesa project are $0.219609 per kWh for Peak Hour output, and $0.263530 per kWh of Premium Peak Hour output for the 20-year term of the Black Mesa PPA. Attachment 2 includes Black Mesa projected output and calculations of Peak Hour and Premium Peak Hour rates.

VII. OTHER CONSIDERATIONS

As an outcome of the additional study of existing PURPA ICIRP QF storage methodology in development of the proposed mechanism for Micron and discussion with Staff, Idaho Power remains open to the application of those discussions to the capacity methodologies applied to PURPA avoided cost pricing and will continue to work with Staff towards any modifications or changes that would make sense for customers in that context.

VIII. CONCLUSION

The collaborative process directed by the Commission has resulted in an improved performance mechanism for Micron's RCC payments. The diligent work between Staff and Idaho Power to address the expressed concerns that payments for capacity contribution only be made for energy actually delivered to Idaho Power's system has additionally addressed shortfalls of the ICIRP QF storage methodology when applied to a non-dispatchable resource. Idaho Power thanks Staff for their time and effort in working with the Company to develop a proposed performance mechanism that addresses additional elements uncovered during the collaborative process. Idaho Power believes the proposed performance mechanism not only meets the Commission's intent but is a superior methodology that captures the unique impacts of each CEYW renewable resource, including those added in the same year as other CEYW resources. The ability to incentivize performance to meet today's system capacity needs, while ensuring the resource performs as expected in the future, provides recognition of Idaho Power's reliance on that resource's capacity contribution.

In Order No. 35532, the Commission stayed its initial directive for Idaho Power to file an updated Micron ESA and Schedule 26 addressing the Commission's modifications by October 30, 2022, pending the outcome of reconsideration in this case. Reconsideration of issues in this case has been settled, and in light of the anticipated commercial operation date of June 1, 2023 for the Black Mesa project, Idaho Power respectfully requests the Commission approve the Company's proposed performance mechanism to calculate Micron's RCC payments by May 1, 2023 to provide for 30 days for the Company to file a final Micron ESA and Schedule 26 by June 1, 2023.

Respectfully submitted this 23rd day of December 2022.

Megan Goicoechea Allen

MEGAN GOICOECHEA ALLEN
Attorney for Idaho Power Company

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on the 23rd day of December 2022, I served a true and correct copy of the foregoing Idaho Power Company's Compliance Filing upon the following named parties by the method indicated below, and addressed to the following:

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Stacy Gust, Regulatory Administrative Assistant

BEFORE THE

IDAHO PUBLIC UTILITIES COMMISSION

CASE NO. IPC-E-22-06

IDAHO POWER COMPANY

ATTACHMENT 1

PROPOSED PAYMENT STRUCTURE

Attachment 1 – Case No. IPC-22-06 - Proposed Payment Structure for Micron & CEYW

The base annual payment will be determined based on the Effective Load Carrying Capability ("ELCC") methodology. The ELCC value will be calculated with the "last-in" ELCC approach at the time of contract execution. A "last-in" ELCC value means that the project will be modeled after all existing and contracted resources have been added to the resource stack.

The in-service year shall be used as the Load and Resource ("L&R") year for the calculation of the ELCC. When available, a rolling average of the last eight years of historical data will be used to determine the ELCC. If/when eight years of data are not available, the maximum amount of historical data available will be used.

The final ELCC is calculated by taking the average of each of the ELCC values calculated using each of the historical years scaled to the desired L&R year:

$$ELCC_{avg} = \sum_{n=1}^{N=8} \frac{ELCC_N}{N}$$

In the case of Micron, the contract was executed before the acknowledgement of the Company's 2021 Integrated Resource Plan ("IRP"). During the 2019 IRP, capacity contribution was calculated based on the 8,760-based method developed by the National Renewable Energy Laboratories ("NREL").

The capacity contribution calculated at the time of contract execution was 36.42%. The annual payment is determined by multiplying the average capacity contribution, as calculated by the ELCC method (or NREL 8,760-based method for projects executed before the 2021 IRP acknowledgement), by the avoided cost of capacity. The avoided cost of capacity is the levelized fixed cost associated with the least-cost dispatchable resource from the Company's most recently acknowledged IRP; for the 2019 IRP the identified resource was a reciprocating internal combustion engine ("RICE"), and for the 2021 IRP the identified resource was a simple-cycle combustion turbine. For the case of Micron, the avoided cost of capacity at the time of contract execution was RICE with levelized capacity cost of $121.19 kW per year.

Determine Annual Payment

The annual payment is calculated by multiplying the capacity contribution times the nameplate of the selected project times the avoided cost of capacity:

$$Annual\ Payment = ELCC * Nameplate * Avoided\ Cost\ of\ Capacity$$

Applying the annual payment calculation to the Micron project, the resulting value is determined to be $1,765,496 per year:

$$Annual\ Payment = (36.42\%) * (40{,}000\ kW) * \left(\frac{\$121.19}{kW \cdot yr}\right) = \$1{,}765{,}496/yr$$

Determine Months of Capacity Need

The annual payment will be calculated at the time of contract execution and distributed proportionally over the months that capacity is expected to be needed. To determine the months of capacity need, the LOLE per month of the different historical years would be used to calculate an average LOLE for each month. If a significant resource stack change is expected in the near future, a five-year case would be used to guide the monthly weighted average calculations. For the Micron case, the average monthly LOLE values for the 2023 L&R year are described in Table 1.

Table 1. 2023 L&R Average Monthly LOLE

Month	Average LOLE
January	0.0011
February	0.0001
March	0.0000
April	0.0000
May	0.0000
June	0.0167
July	0.1113
August	0.0258
September	0.0034
October	0.0001
November	0.0042
December	0.0062

In the Micron case, because the contract was executed prior to the 2021 IRP acknowledgement the NREL 8,760-based method was used to determine capacity contribution, there were no monthly LOLE values calculated. A 2023 L&R year was used to determine the months of capacity need because it is the year the project is expected to be online. Idaho Power is expecting a considerable shift in its load forecast within the next five years; to capture this change in load, a 2027 L&R was analyzed to obtain the average and weighted monthly LOLE values as shown in Table 2.

Table 2. 2027 L&R Average & Weighted Monthly LOLE

Month	2027 Average LOLE	2027 Weighted LOLE
January	0.2309	2.74%
February	0.0148	0.18%
March	0.0004	0.00%
April	0.0000	0.00%
May	0.0000	0.00%
June	0.5088	6.05%
July	2.9850	35.47%
August	1.0587	12.58%
September	0.1477	1.76%
October	0.0351	0.42%
November	1.3934	16.56%
December	2.0399	24.24%
Non-Summer Average		**5.10%**

From the 2027 L&R, an average LOLE of the non-summer months was calculated to be utilized as a minimum value for the non-summer months (also excluding March, April, and May) in the 2023 L&R. The minimum monthly LOLE was added to the corresponding average monthly LOLE calculated in the 2023 L&R. Using the results from the 2023 L&R and 2027 L&R, the monthly LOLE weighted averages are described in Table 3.

Table 3. Monthly LOLE Weighted Average

Month	Weighted Average
January	4.40%
February	3.94%
March	0.00%
April	0.00%
May	0.00%
June	7.58%
July	50.49%
August	11.71%
September	5.43%
October	3.94%
November	5.79%
December	6.73%

The twelve months of the calendar year can be grouped into three different periods given their Loss of Load Probability ("LOLP") profiles, as described in the bulleted list below:

- **Summer** which includes June, July, and August
- **Winter** which includes January, February, November, and December
- **Off-season** which includes September and October

Note that March through May will remain at 0%. A weighted average per period is calculated by adding the percentages of each month within the corresponding period together, as shown in Table 4.

Table 4. LOLE Weighted Average per Period

Summer		Winter		Off-Season	
June	7.57%	January	4.40%	September	5.44%
July	50.49%	February	3.95%	October	3.95%
August	11.71%	November	5.80%		
		December	6.72%		
Summer Total	**~70%**	**Winter Total**	**~21%**	**Off-Season Total**	**~9%**

For the winter and off-season periods, the total is spread out relatively evenly over the various the months; this means the approximate 21% for the winter total would be divided by the 4 months for 5.25% and the approximate 9% for the off-season total would be divided by the 2 months for a 4.5%.

For the summer period, the high LOLP hours span from the last 2 weeks of June through the first 2 weeks of August (totaling 8 weeks), meaning there are 4 weeks in July, 2 weeks in June and 2 weeks in August that encompass the high LOLP hours. Since the summer total is set to equal the approximate 70%, the high LOLP hours weekly weighting can be used to smooth the summer period spread:

- **June** - $70\% * \left(\frac{2\ weeks}{8\ weeks}\right) = 17.5\%$
- **July** - $70\% * \left(\frac{4\ weeks}{8\ weeks}\right) = 35.0\%$
- **August** - $70\% * \left(\frac{2\ weeks}{8\ weeks}\right) = 17.5\%$

The final weights by month are shown in Table 5.

Table 5. Seasonal Monthly LOLE Weighted Average

Month	Weighted Average
January	5.25%
February	5.25%
March	-
April	-
May	-
June	17.5%
July	35.0%
August	17.5%
September	4.5%
October	4.5%
November	5.25%
December	5.25%

The monthly payment is calculated by taking the previously calculated annual payment of $1,765,496 per year and multiplying it by the weighted average for each month, as shown in Table 6.

Table 6. Seasonal Monthly Payment

Month	Weighted Average	Monthly Payment
January	5.25%	$92,689
February	5.25%	$92,689
March	-	-
April	-	-
May	-	-
June	17.5%	$308,962
July	35.0%	$617,924
August	17.5%	$308,962
September	4.5%	$79,447
October	4.5%	$79,447
November	5.25%	$92,689
December	5.25%	$92,689
Total	**100.00%**	**$1,765,496**

Performance Metric

The Performance Ratio ("PR") is a metric widely used to track performance of photovoltaic ("PV") systems in the industry.[1][2][3] The PR metric can be used to ensure a project is being well maintained and is performing as expected. PR can be defined as the ratio of measured output to the expected output for a given reporting period based on the system nameplate rating. Traditionally, PR is mathematically expressed as

$$PR = \frac{\frac{kWh_{AC}}{kW_{DC,STC}}}{\frac{\frac{kWh_{sun}}{m^2}}{\frac{1kW}{m^2}}}$$

where

$kWh_{AC} = Energy\ Generated\ by\ the\ Plant$

$kW_{DC,STC} = Rated\ Direct\ Current\ Power\ of\ the\ Plant\ at\ Standard\ Test\ Conditions$

$kWh_{sun} = Plane\ of\ Array\ (\text{"}POA\text{"})\ Irradiance$

The PR metric is most often used by power plant operators to track plant performance. Idaho Power proposes to modify the previously shown equation to consider the contracted nameplate of the plant on the Alternating Current ("AC") side and not on the Direct Current ("DC") side. The contract with Idaho Power is on the AC side and it has the potential to be the limiting factor during operation. The proposed modification would result in the following PR equation:

$$PR = \frac{kWh_{AC}}{kW_{NP,AC} * kWh_{sun}}$$

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[1] IEC 61724-1: 2017 Photovoltaic System Performance
[2] Performance of Photovoltaic Systems Recorded by oSPARC, NREL 2020
[3] PV System Performance Assessment, Sunspec Alliance, San Jose State University, 2014

One of the interconnection requirements is for the project to provide Idaho Power with weather data via Supervisory Control and Data Acquisition ("SCADA"). One of the variables required is the Plane of Array ("POA") irradiance (kWh_{sun}). The energy injected into the system is also measured via SCADA, making the PR calculation relatively simple.

Performance Ratio Target

The PR metric is directly influenced by the energy output which is proportional to irradiance and inversely proportional to module temperature. The PR equation accounts for irradiation; changes in irradiation will have little effect on the PR. However, changes in temperature are not accounted for in the PR calculation and the PR will decrease as temperature increases. To account for the impact of temperature on the PR calculation, Idaho Power proposes to set a different PR target for the summer months than the non-summer months. The Company proposes to use the PR targets described in Table 7 and graphically displayed in Figure 1.

Table 7. PR Targets by Period

Period	Target
January through May	$PR \geq 1.0$
June through September	$PR \geq 0.95$
October through December	$PR \geq 1.0$

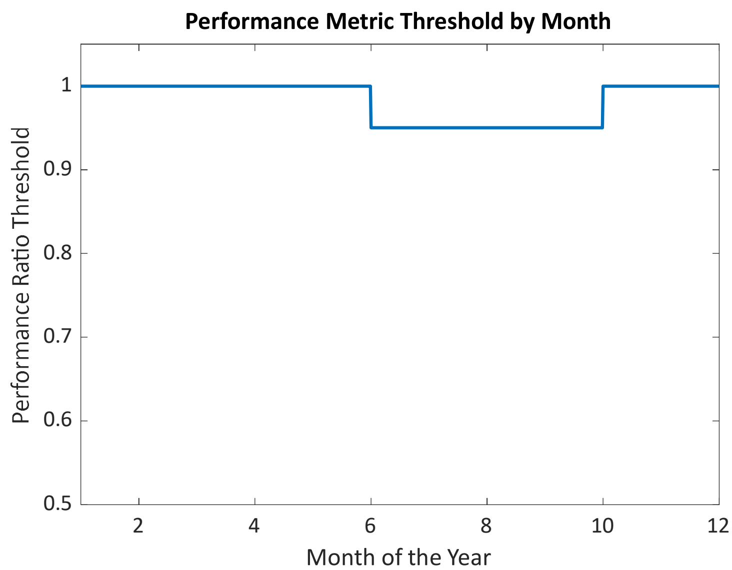

Figure 1. PR Targets by Month

Hours of Need

Capacity is only avoided during certain hours of the calendar year. The hours where capacity is needed are the hours which have high LOLP values. To provide compensation for capacity when it is needed, the PR metric will be calculated based on the high LOLP hours of each period for the 2023 L&R, which have been identified in Table 8.

Table 8. 2023 L&R High LOLP Hours

Period	Identified High LOLP Hours (Hour End)
Summer	3:00 pm - 11:00 pm
Winter	7:00 am - 11:00 am & 6:00 pm - 10:00 pm
Off-Season	7:00 am - 11:00 am

For clarification, the hours presented in Table 8 are Hour Ending (“HE”). Using the summer period as an example, 3:00 pm HE represents the hour spanning from 2:00 pm to 3:00 pm while 11:00 pm HE represents the hour spanning from 10:00 pm to 11:00

pm; this means the identified summer period high LOLP hours begin at 2:00 pm and conclude at 11:00 pm.

Reduction on Payment

To receive the full monthly payment, the project will have to meet the PR threshold in the corresponding high LOLP hours (as set in Table 8). If the PR is not met, a reduction in payment will be applied to the project. The reduction will be calculated based on the impact to capacity as measured by the ELCC. The impact on capacity will be determined by reducing the output of the project and calculating its ELCC. For the Micron project, the relationship between output and ELCC reduction was calculated over the range of 0.5 PR to 1.0 PR, as shown in Figure 2.

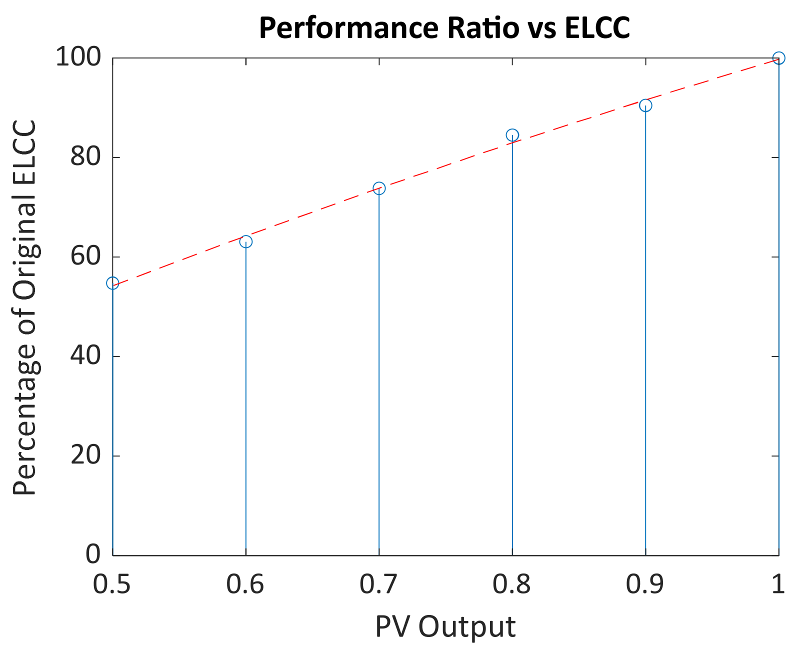

Figure 2. Relationship Between PR & ELCC

The results shown in Figure 2 would be used to determine the monthly payment reduction if the project did not meet the monthly PR target. If any month where capacity payments are applied do not meet the corresponding target PR, a reduction as presented in Figure 2 would be applied (the reduction is calculated by interpolating between the monthly PR value and the target PR value for that month). As an example of how the PR versus ELCC approach would be implemented, data for a similar project near the Micron site was collected for the 2021 L&R; the PRs were then calculated for the corresponding high LOLP hours of each month with the results shown in Table 9 (bolded values represent calculated PR values that did not meet the targets identified in Table 7).

Table 9. Monthly Performance Ratio & Payment Example

Month	Performance Ratio	Payment Reduction	Monthly Payment
January	1.08	0.00%	$92,689
February	1.13	0.00%	$92,689
March	-	-	-
April	-	-	-
May	-	-	-
June	0.98	0.00%	$308,962
July	1.00	0.00%	$617,924
August	0.99	0.00%	$308,962
September	0.97	0.00%	$79,447
October	1.01	0.00%	$79,447
November	1.11	0.00%	$92,689
December	**0.98**	**1.80%**	**$91,020**
Total			**$1,763,828**

BEFORE THE

IDAHO PUBLIC UTILITIES COMMISSION

CASE NO. IPC-E-22-06

IDAHO POWER COMPANY

ATTACHMENT 2

ALTERNATE RCC RATE WORKPAPER

IPC-E-22-06 - Attachment 2 - Alternate RCC Payment Rate

Black Mesa Generation Profile

Hour Start	Hour End	Hour	January	February	March	April	May	June	July	August	September	October	November	December
12:00 AM	1:00 AM	1	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	2:00 AM	2	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	3:00 AM	3	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	4:00 AM	4	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	5:00 AM	5	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	6:00 AM	6	-	-	-	-	0	1	0	-	-	-	-	-
6:00 AM	7:00 AM	7	-	-	-	3	11	16	11	3	0	-	-	-
7:00 AM	8:00 AM	8	-	0	4	19	28	30	30	23	13	4	0	-
8:00 AM	9:00 AM	9	1	6	21	33	32	35	35	34	27	22	8	1
9:00 AM	10:00 AM	10	13	18	26	34	34	36	37	36	31	29	17	11
10:00 AM	11:00 AM	11	15	21	30	34	34	36	37	37	33	28	18	14
11:00 AM	12:00 PM	12	14	23	30	33	34	38	38	37	34	27	18	14
12:00 PM	1:00 PM	13	14	22	28	33	34	38	39	36	34	26	18	13
1:00 PM	2:00 PM	14	15	22	28	31	34	37	38	35	32	27	18	13
2:00 PM	3:00 PM	15	15	23	27	30	33	35	37	36	34	28	20	14
3:00 PM	4:00 PM	16	16	24	27	29	31	32	38	35	35	27	18	13
4:00 PM	5:00 PM	17	8	21	26	28	31	30	35	34	33	20	5	3
5:00 PM	6:00 PM	18	0	6	17	26	32	30	29	30	21	3	0	-
6:00 PM	7:00 PM	19	-	0	2	8	20	22	20	13	3	-	-	-
7:00 PM	8:00 PM	20	-	-	-	0	2	5	4	1	-	-	-	-
8:00 PM	9:00 PM	21	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	10:00 PM	22	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	11:00 PM	23	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	12:00 AM	24	-	-	-	-	-	-	-	-	-	-	-	-

(a)	Nameplate (kW)		40,000
(b)	2019 IRP Capacity Contribution		36.42%
(c)	2019 IRP Surrogate Resource Value ($/kW-yr)	$	121.19
[a * b * c]	Capacity Value from 2019 IRP		$ 1,765,496

(c) https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/IPC/IPCE1919/CaseFiles/20201002Second%20Amended%202019%20IRP.pdf

Idaho Power Company 7. Planning Period Forecasts

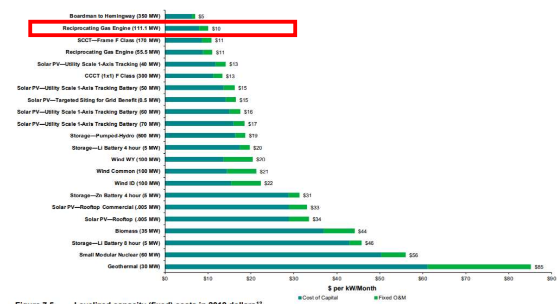

Figure 7.5 Levelized capacity (fixed) costs in 2019 dollars[12]

https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/IPC/IPCE1919/CaseFiles/20201002Appendix%20C%20Technical%20Report.pdf

Demand-Side Resource Data Idaho Power Company

Demand-Side Resource Data

DSM Financial Assumptions

Avoided Levelized Capacity Costs	
Reciprocating Internal Combustion Engine (RICE)	$121.19/kW-year
Financial Assumptions	
Discount rate (weighted average cost of capital)	7.12%
Financial escalation factor	2.20%
Transmission Losses	
Non-summer secondary losses	9.60%
Summer peak loss	9.70%

		July	August
Annual Capacity Credit		$ 1,765,496	
Daily Generation (MWh)	**peak**	109	34
	premium peak	53	44
Days in Month		31	31
Monthly Generation (MWh)	**peak**	3,368	1,051
	premium peak	1,645	1,372
Total kWh	**peak**		4,418,458
	premium peak		3,017,357
Rate/kWh	**peak**	$	0.219609
	premium peak	$	0.263530
Annual $ check		$	1,765,496
20% premium peak check			20%

IPC-E-21-35 Hours:

https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/IPC/IPCE2135/CaseFiles/20211105Supplement%20to%20Application-Redacted.pdf

As a result, Idaho Power is updating the Peak and Premium Peak Hour definitions for battery storage capacity payments as follows:

Peak Hours: Hours that occur in July starting at 2:00~~1:00~~ PM and ending at 10:59:59~~9:59:59~~ PM, and hours that occur in August starting at 4:00~~3:00~~ PM and ending at 8:59:59~~7:59:59~~. Peak Hours are subject to change annually and when a new IRP is acknowledged.

Premium Peak Hours: Hours that occur in July, starting at 5:00~~6:00~~ PM and ending at 8:59:59~~9:59:59~~ PM, and hours in that occur in August, starting at 5:00~~4:00~~ PM and ending at 8:59:59~~7:59:59~~ PM. Premium Peak Hours are subject to change annually and when a new IRP is acknowledged.