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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF IDAHO POWER COMPANY'S PETITION TO ESTABLISH AVOIDED COST RATES APPLICABLE TO PURPA ENERGY STORAGE QUALIFYING FACILITIES	)	**CASE NO. IPC-E-20-02**
	)	**REQUEST FOR PUBLIC INPUT AND INITIAL COMMENTS OF THE COMMISSION STAFF**

The Staff of the Idaho Public Utilities Commission 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 by the Surrogate Avoided Resource ("SAR") Method, which is based on the assumed cost of a hypothetical combined cycle combustion turbine. See Order No. 32697 at 17. Negotiated rates, which are available for QFs above the project eligibility cap, are calculated by the Incremental Cost Integrate Resource Plan ("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 QFs 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 twenty-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 energy storage 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, the minimum project eligibility cap allowed by FERC rules, and twenty year contracts. 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.

STAFF REVIEW

I. Scope of this Docket and Scope of Preliminary Comments.

Staff recommends that this docket determine the project eligibility cap for battery QFs in Idaho Power's service territory. Staff understands that the energy storage technology being addressed in Idaho Power's Petition is battery storage and is the most likely storage technology to be developed as a QF in the near future. Staff recommends that, consistent with Commission practice, the project eligibility cap determine the avoided cost rate methodology and the contract term for battery storage QFs in Idaho Power's service territory. Staff recommends a follow-on docket to examine refinement or alteration of avoided cost rate methodologies for battery QFs for all electric utilities in Idaho and to evaluate applying the project eligibility cap principles established in this docket to the other Idaho electric utilities. Establishing the project eligibility cap for battery QFs in Idaho Power's service territory in this docket addresses an immediate request. The follow-on docket would implement the Commission's practice of similarly applying PURPA across Idaho's electric utilities. *See* Order No. 29880.

In these preliminary comments and request for public input, Staff discusses some of its analysis completed so far, identifies areas in which it would like additional information, and indicates the direction in which its analysis appears to be heading. Other than Staff's recommendations on the scope of this docket indicated above, Staff refrains from making specific recommendations at this time. Instead, Staff provides a general trajectory its analysis is

expected to take given information currently known. Requests for Public Input are included in each section of these comments and are collected for easy reference in Attachment A.

II. Overview of Staff's Analysis So Far.

At this point in time, Staff believes the ICIRP Method is a more accurate way to calculate the avoided cost of energy than the SAR Method. Staff believes the ICIRP Method for calculating capacity could be improved and is examining whether to make a recommendation to the Commission to adopt a method to calculate the avoided cost of capacity similar to the method used by Duke Energy. Staff believes that battery QFs are modular and capable of disaggregation. Based on these considerations, Staff believes a project eligibility cap on the lower end of the spectrum would likely be appropriate in order to ensure that the avoided cost rates paid to battery QFs are as accurate as possible and to discourage disaggregation. However, Staff also acknowledges that there may be reasons for a project eligibility cap higher than the 100 kW minimum established by FERC regulation.

Staff is also considering whether to recommend calculating published avoided cost rates for battery storage using the ICIRP Method but with a standard generation profile for the resource type. Staff acknowledges this would be a departure from longstanding Commission precedent of using the SAR Method to calculate published avoided costs. Staff also notes that the incentive to disaggregate could be diminished if the difference in the contract length and the avoided cost prices were less for projects above and below the project eligibility cap. By reducing incentives to disaggregate, Staff will evaluate if it may be reasonable for the Commission to establish a higher project eligibility cap than the 100 kW minimum.

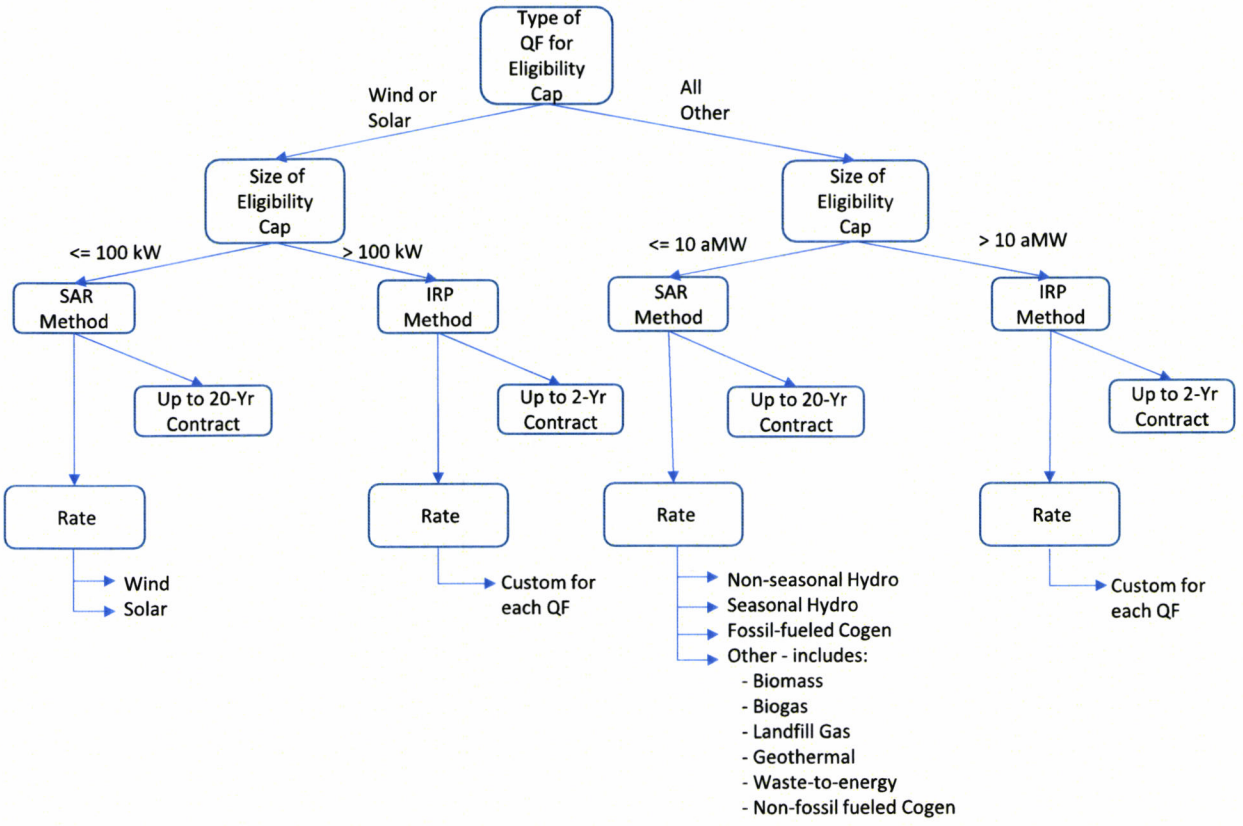
Staff anticipates recommending the ICIRP Method to apply to most battery storage QFs because it more accurately reflects avoided costs and minimizes potential harm to customers. Staff is analyzing the contract term length—given the costs of developing a battery QF and the ICIRP rates—that would allow a battery QF a reasonable opportunity to recoup its investment and be able to attract financing. In analyzing the proposed contract length, Staff is also examining the likely lifespan of different battery technologies. Additionally, Staff is looking at the QF contract length in neighboring jurisdictions for points of reference.

Briefly stated, at this point in its analysis, Staff anticipates recommending the ICIRP Method apply to a majority of battery QF projects. Staff is evaluating if applying the more

accurate ICIRP Method will diminish concerns related to longer term contracts. Staff is also evaluating if it may be prudent for the Commission to change the methodology it uses to calculate published avoided costs and align it with the ICIRP Method, which could potentially justify setting a project eligibility cap greater than 100 kW.

III. Background.

A diagram of the current PURPA avoided cost framework is provided below.



IV. The ICIRP Method Is More Sophisticated, Includes More Variables that Affect Avoided Cost, Makes More Reasonable Assumptions, and is Updated More Frequently than the SAR Method.

The ICIRP Method and SAR Methods use significantly different assumptions for both energy and capacity that result in different rates. Staff identified the key differences in the two methods below.

a. Comparison between the ICIRP Method and the SAR Method in calculating avoided energy costs.

The factors used to derive avoided cost energy rates for the ICIRP Method and the SAR Method are compared below.

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

Avoided Energy	ICIRP Method	SAR 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[1] 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[2] forecast
Performance of Generation Resources	Updated each IRP every 2 years	Heat Rate of CCCT based on 2008 NWPP[3]
Market Electricity Prices	WECC[4] 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] CCCT – Combined Cycle Combustion Turbine
[2] EIA – Energy Information Administration
[3] NWPP – Northwest Power Plan
[4] WECC – Western Energy Coordinating Council

Generally, there are three factors driving the difference in the avoided cost of energy. First, the SAR Method assumes that a combined cycle combustion turbine ("CCCT") gas plant is the marginal cost resource 100% of the time, while the ICIRP Method captures the marginal cost resource at the top of the Company's resource stack for every hour of operation throughout the term of the 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. Second, the sources of the natural gas price forecasts are different. Third, committed resources and QF applications are considered in AURORA's resource stack and are not considered for developing published avoided energy cost rates.

b. Comparison between the ICIRP Method and the SAR Method in calculating avoided capacity costs.

The factors used to derive avoided capacity rates for the ICIRP Method and the SAR Method are compared below.

Table No. 2: ICIRP and SAR Methods Avoided Capacity Inputs Comparison

Avoided Capacity Cost	ICIRP Method	SAR Method
Method	Based on fixed cost of SCCT[1] surrogate	Based on fixed cost of CCCT surrogate
Cost of surrogate	Updated every 2 years with IRP acknowledgement	2008 Northwest Power Plan adjusted for inflation
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 2 years using IRP load/resource balance	Updated every two years using IRP load/resource balance
[1] SCCT – Simple Cycle Combustion Turbine		

Staff is evaluating the appropriate resources and methodologies to determine avoided cost of capacity. The frequency of updating the cost of surrogate using the ICIRP Method occurs every two years with each IRP acknowledgment, whereas there is no established timeframe to update it in the SAR model.

Although the Company uses contract provisions to assess a price adjustment when the Company deviates from the generation profile included in the contract, Staff believes that a method used by Duke Energy in North and South Carolina could be a significant improvement

potentially reducing or eliminating the need for price adjustment contract provisions to ensure accountability and could be applied for all avoided capacity payments regardless of the type of QF or method. Although Duke Energy's method is similar to Idaho's method for determining the amount of avoided capacity cost by using an SCCT surrogate, Duke Energy will only pay the QF avoided capacity cost payments provided during specific hours and during specific months that Duke has identified as capacity hours, which has been defined by a Duke representative as periods that represent "the hours of capacity need and thus reflect the value of QF capacity to ensure customers are paying for QF capacity that actually reduces the utilities' needs for future capacity." Snider Testimony, South Carolina Docket No. 2019-185-E, p. 20. In contrast, Idaho currently pays an avoided capacity rate for all output from a QF regardless of the month or time of day, as long as the capacity deficiency date has passed that is established in the contract. Staff is evaluating using this method for payment of avoided capacity cost for both negotiated and published rates in this case.

V. Factors Affecting the Eligibility Cap for Battery Storage QFs.

Given the greater accuracy of the ICIRP Method compared to the SAR Method, as described above, and the Commission's historic concern with disaggregation, Staff believes it may be appropriate to set the project eligibility cap at or near the 100 kW minimum established by 18 C.F.R. § 292.304(c)(1). Staff believes that battery storage technologies are capable of easy disaggregation. However, Staff acknowledges the time and resources required to develop a forecasted generation profile in order to receive tailored ICIRP rates may be prohibitive for small battery QFs, and there are longer timelines in Schedule 73 for projects not using a standard contract. Additionally, Staff acknowledges that the incentive to disaggregate could be reduced if the difference in prices and contract term lengths above and below the project eligibility cap is reduced.

a. Impact of Prior Decreases in Project Eligibility Caps for Other Technologies.

Staff has examined the effect on wind and solar development when the Commission reduced the 10aMW cap to 100kW in Order No. 32176 by comparing the amount of development that occurred prior to the change and the amount of development that occurred after the change. In order 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. To limit the scope so that the results only reflected projects that would have been affected by the change in the cap, Staff calculated the amount of generation in each month for each project. Staff concluded that projects with a nameplate capacity below 25 MW would be able and would likely choose to qualify for published rate contracts had they all been under a 10aMW eligibility cap so that a fair comparison could be made.

Between August 5, 2009 and December 14, 2010, 2 projects would have qualified for published rates under the 10 aMW cap, which is approximately 0.125 projects per month.[1] This is compared to 10 projects that would have qualified for published rates under the same cap between December 14, 2010 and August 20, 2015, which is approximately 0.180 projects per month. This analysis shows 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.

Staff's analysis isolated the effect of the reduced eligibility cap by not considering projects authorized after August 20, 2015, when the Commission reduced contract term length to two years for IRP-based projects, since reducing contract terms would also affect project development. However, Staff was not able to factor into its analysis changes in rates during the study period which could also have affected project development.

b. Ability of Battery Storage QFs to Disaggregate.

Based on Staff's investigation so far, Staff believes that Li-Ion batteries are predominant in the industry. Staff believes that the size of the inverter is the limiting factor in how small a Li-Ion battery storage QF can be. Staff believes inverters range from about 70 kW to 4 MW.

Staff is requesting public input on:

- The time, costs, and resources required to develop a forecasted generation profile.

[1] Staff excluded all the disaggregated projects in the calculation, because large, combined projects fall outside the range between 100 kW and 10 aMW. The results are calculated based on the number of qualified projects divided by the number of months for each timeframe before and after the eligibility cap reduction to 100 kW.

- Whether there are additional benefits to the utility's system that are achieved by battery storage projects at specific thresholds.
- Whether there are limitations on the ability of battery storage QFs to disaggregate.
- Whether Staff's understanding of the prevailing state of battery technology and inverter size is correct.

VI. Factors Affecting the Contract Length Analysis.

Given Staff's analysis that the ICIRP Method more accurately values avoided cost rates, Staff is evaluating the importance and weight that should be placed on the payback period for a battery storage QF receiving ICIRP Method rates when establishing the contract term for battery storage QFs. To determine the payback period, Staff requires a better understanding of the costs to build a typical battery storage QF and the expected generation profile of a typical battery storage QF. Staff is also evaluating the expected life of a battery storage QF as a relevant consideration. Additionally, Staff has examined the contract terms for QFs in surrounding states as a possible point of reference.

a. Staff is Conducting a Quantitative Analysis of Costs Associated with Developing a Battery Storage QF.

Staff is working with the Pacific Northwest National Laboratory ("PNNL") to quantitatively analyze contract lengths for battery QF projects. This analysis will take the costs for a range of battery storage projects over 100kW and optimize the generation profile of the project to maximize revenue under the Company's ICIRP Method. The revenue produced by optimizing the generation profile will then be compared against the total cost of the project to determine a payback period.

It is Staff's understanding that financial institutions utilize cash flows when approving finance applications. Cash flow is determined by rates and contract lengths. Lending institutions generally prefer to finance projects that have contract lengths that generate sufficient cash flow to be equal or greater than project costs. This calculation provides a quantitative framework for estimating a range of contract lengths that might provide a fair opportunity for financing.

Staff understands that battery storage projects can be extremely different from each other in many aspects, including cost, which means that a contract length that may be sufficient to

finance one project may not be sufficient to finance another. Staff's intent is not to ensure financing for battery projects, but rather, to identify a range of contract terms that could meet the threshold of providing a reasonable opportunity to acquire financing.

Staff recognizes the Commission's concern that long contract lengths can harm customers when those contracts are based on inaccurate rates. Because ICIRP rates are more accurate than SAR rates, Staff is evaluating if a contract length longer than 2 years could be supported in contracts with rates based on the ICIRP Method. But as previously discussed, Staff believes that the ICIRP Method could be improved to increase both accuracy and accountability. As those revisions are made, Staff is evaluating longer contract lengths that could meet the customer indifference standard and also provide a fair financing opportunity for QFs.

Staff seeks additional public input on:

- The all-in costs to develop and build a battery QF.
- The expected life of different battery technologies.
- How ancillary services provided by battery QFs could be valued and what impact this would have on the payback period.

b. Contract Lengths in Surrounding States.

Staff reviewed QF contract lengths in several surrounding states to provide context for a similar decision in this case. While these contracts lengths are not specific to battery storage projects, Staff believes that the terms established for a range of other resources in nearby states may help indicate a reasonable threshold under which QF projects have a fair opportunity to acquire financing. Staff notes that several of these decisions were made recently.

Table No. 3: Surrounding States Contract Lengths

State	Contract Type	Contract Length
Washington* U-161024 (July 2019)	New QF contract, 5MW or larger	15 years, not less than 12
	Existing QF contract, renewal	10 years
Oregon UM 1734, 1129 (March 2016 and May 2015)	Standard QF contracts, 10MW or less	20 years: 15 fixed pricing, last 5 market pricing
	Non-Standard, 10 MW or larger	20 years
Utah	Co-gen QFs, 1MW or less	Not to exceed 15 years

Docket No. 15-035-53 (January 2016)	Small Power Production QFs, 3 MW or less	Not to exceed 15 years
	QFs, 3 MW or larger	Not to exceed 15 years
Wyoming** Docket No. 20000-545-ET-18 (June 2020)	Published rates 1 MW or less, or Hydro 5 MW or less, historic Hydro or other projects 10 MW or less	15 years, Small Hydro 20 years
	Non-Standard, QF 1 MW or larger, or Hydro 5 MW to 80 MW	15 years
* A new Washington rule eliminates the need to negotiate contracts for projects less than 5MW. Instead, utilities will provide standard contract rates for those generators. Avoided cost rate methodologies for each QF contract are brought before the Washington UTC.		
**PacifiCorp requested to reduce contract terms from 20 years to 7 years on the basis that developers can finance QF projects on shorter terms due to declining renewable energy project costs		

Staff notes the discussion in many of these cases focused on the contract length necessary for a QF to have a fair opportunity to acquire financing. This is similar to the discussion in IPC-E-15-01 and is also relevant in this case. Staff observes that no QF contracts for wind or solar have been signed since the contract length for projects was changed from 20 years to 2 years, even though these projects would be eligible for subsequent 2-year contracts after the first contract expires. This appears to indicate that the length of the initial contract is an important factor when attracting financing and that the 2-year contract length should be extended.

Staff seeks additional public input on:

- The contract term necessary in order for a battery storage QF to have a reasonable opportunity to obtain financing.
- Using multiple successive contracts with shorter length terms to maintain accuracy of avoided cost pricing over the life of a PURPA project and the QFs ability to obtain financing.
- Best practices in surrounding states and analysis on the development of QFs in those states.

STAFF RECOMMENDATIONS

Staff does not have any substantive recommendations at this time. Rather, Staff looks forward to receiving more information that will aid its analysis. In addition to incorporating information received from the public, Staff will continue to gather information on its own to

ensure that it can support its recommendations in its revised comments. Staff notes that on July 16, 2020, FERC revised its regulations implementing PURPA. Staff will evaluate the potential impacts of FERC's rulemaking on this docket going forward.

Respectfully submitted this 16th day of July 2020.

Edward Jewell
Deputy Attorney General

i:umisc/comments/ipce20.2ejyymlrfsdtnc comments

Requests for Public Input

- The time, costs, and resources required to develop a forecasted generation profile.

- Whether there are additional benefits to the utility's system that are achieved by battery storage projects at specific thresholds.

- Whether there are limitations on the ability of battery storage QFs to disaggregate.

- Whether Staff's understanding of the prevailing state of battery technology and inverter size is correct.

- The all-in costs to develop and build a battery QF.

- The expected life of different battery technologies.

- How ancillary services provided by battery QFs could be valued and what impact this would have on the payback period.

- The contract term necessary in order for a battery storage QF to have a reasonable opportunity to obtain financing.

- Using multiple successive contracts with shorter length terms to maintain accuracy of avoided cost pricing over the life of a PURPA project and the QFs ability to obtain financing.

- Best practices in surrounding states and analysis on the development of QFs in those states.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT I HAVE THIS 16th DAY OF JUNE 2020, SERVED THE FOREGOING **REQUEST FOR PUBLIC INPUT AND INITIAL COMMENTS OF THE COMMISSION STAFF,** IN CASE NO. IPC-E-20-02, BY E-MAILING A COPY THEREOF, TO THE FOLLOWING:

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