May 20, 2024

Ms. Shonta Dunston
Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699

RE: In the Matter of: Biennial Determination of Avoided Cost Rates for Electric Utility Purchases from Qualifying Facilities — 2023
Docket No. E-100, Sub 194

Dear Ms. Dunston,

Please find enclosed for filing the Partial Proposed Order of the North Carolina Sustainable Energy Association ("NCSEA") for the above captioned proceeding. NCSEA's Partial Proposed Order seeks to address the concerns raised in *NCSEA's Initial Comments*, as filed on February 21, 2024, and *NCSEA's Reply Comments*, as filed on March 27, 2024. These concerns include the ability of Qualified Facilities to pursue the Energy Storage System Retrofit avoided cost rates, the quality and applicability of Duke Energy's Inverter-Based Resources Testing Report, and the procedural schedule for future biennial avoided cost proceedings as they relate to the timing of the development of the biennial Carbon Plan and Integrated Resource Plan.

Counsel for NCSEA has also reviewed near-final versions of the partial proposed orders of the Southern Alliance for Clean Energy ("SACE") and the Carolinas Clean Energy Business Association ("CCEBA"). NCSEA, as identified in its reply comments, continues to support and endorse the recommendations enclosed in SACE's Partial Proposed Order and CCEBA's Partial Proposed Order.

NCSEA appreciates this opportunity to file a Partial Proposed Order, if you have any questions please do not hesitate to reach out.

Kind regards,

/s/ Justin T. Somelofske

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Enclosures
cc: Parties of Record

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION
DOCKET NO. E-100, SUB 194

In the Matter of:	)	**PARTIAL PROPOSED**
Biennial Determination of Avoided Cost	)	**ORDER OF**
Rates for Electric Utility Purchases from	)	**NCSEA**
Qualifying Facilities — 2023	)	
	)	

BY THE COMMISSION: This is the 2023 biennial proceeding held pursuant to Section 210 of the Public Utility Regulatory Policies Act of 1978 ("PURPA"), 18 U.S.C. § 824a-3, and the Federal Energy Regulatory Commission ("FERC") regulations, which delegated to this Commission responsibilities for determining each utility's avoided costs with respect to rates for purchases from qualifying facilities, as defined in federal law. This proceeding is also being held pursuant to N.C. Gen. Stat. § 62-156, which requires the Commission to determine rates to be paid by electric utilities for power purchased from small power producers as defined in N.C. Gen. Stat. § 62-2(27a).

On August 7, 2023, the Commission filed its *Order Establishing Biennial Proceeding, Requiring Data, and Scheduling Public Hearing*. To facilitate the determination of avoided cost rates, the Commission made parties to this proceeding Duke Energy Carolinas, LLC ("DEC"), Duke Energy Progress, LLC ("DEP", collectively with DEC, "Duke Energy" or the "Companies"), Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina ("DENC"), Western Carolina University ("WCU"), and Appalachian State University, d/b/a New River Light and Power Company ("NRLP"). These parties filed their initial statements and exhibits on November 1, 2023.

The following parties filed Petitions to Intervene and were granted intervention by the Commission: North Carolina Sustainable Energy Association ("NCSEA"), Carolinas Clean Energy Business Association ("CCEBA"), Southern Alliance for Clean Energy ("SACE"), and the Carolina Industrial Group for Fair Utility Rates I ("CIGFUR I"), Carolina Industrial Group for Fair Utility Rates II ("CIGFUR II"), and Carolina Industrial Group for Fair Utility Rates III ("CIGFUR III") (collectively, "CIGFUR"). Public Staff's intervention was recognized pursuant to N.C. Gen. Stat. § 62-15(d) and Commission Rule R1-19(e). The Attorney General's Office ("AGO") gave notice of its intervention pursuant to N.C. Gen. Stat. §§ 62-20, 114-2(8).

On January 30, 2024, NCSEA, CCEBA, and SACE filed a *Joint Motion for Extension of Time* through and including February 21, 2024, for the parties to file their initial comments and through and including March 27, 2024, for parties to file their reply comments. This Commission granted the motion on February 6, 2024.

On February 6, 2024, Duke Energy filed a letter stating the "Companies have determined that it is reasonable and appropriate to update their standard offer avoided cost rates filed in this proceeding pursuant to N.C.G.S. § 62-156(b)(1) to reflect the new P3 Fall Base reference portfolio such that the avoided cost rates presented for Commission approval incorporate the Companies' most current projections of avoidable energy and capacity needs as identified in the Supplemental Planning Analysis," as filed on January 31, 2024. Duke Energy filed its updated avoided cost rates and exhibits on February 15, 2024.

On February 21, 2024, NCSEA, SACE, CCEBA, the AGO, and the Public Staff each filed initial comments.

On March 27, 2024, DENC, Duke Energy, NCSEA, SACE, CCEBA, and the Public Staff each filed reply comments.

On April 10, 2024, this Commission issued an order requiring proposed orders and briefs be filed on or before May 10, 2024. This Commission then granted Duke Energy's and the Public Staff's *Joint Motion for Extension of Time to File Proposed Orders* to allow additional time for Duke Energy and the Public Staff to prepare a joint proposed order and other parties to file their proposed orders and briefs by May 20, 2024.

Based on the foregoing and the entire record in this proceeding, the Commission makes the following:

FINDINGS OF FACT

Energy Storage Retrofit Rates

1. As of November 1, 2023, no qualified facilities ("QFs") had submitted to Duke Energy a Notice of Commitment form or otherwise elected to receive the predetermined Energy Storage System ("ESS") retrofit avoided cost rates.

2. The ESS retrofit avoided cost rates framework, which allows solar QFs selling power to Duke Energy to materially alter their facility to incorporate a co-located ESS and amend their power purchase agreement ("PPA") to receive an ESS retrofit avoided cost rate for the remainder on the power purchase agreement, failed to properly incentivize the deployment of ESS at existing solar QFs.

3. Macroeconomic conditions beyond the control of eligible solar QFs and Duke Energy—like the COVID-19 pandemic, which was followed by inflation and supply chain issues during the subsequent recovery—prevented eligible solar QFs from having the necessary economic certainty to materially alter their facilities by incorporating ESS.

4. It is in the public interest to discontinue the existing predetermined ESS retrofit avoided cost rates to develop updated predetermined ESS rates for consideration in the 2025 avoided cost proceeding.

5. It is in the public interest to design programs that appropriately incentivize the co-location and deployment of ESS at existing solar QFs in order to achieve HB 951 carbon emission reduction requirements in a least-cost manner.

Inverter-Based Resources Study

6. Duke Energy duly filed its Inverter-Based Resource Report ("IBR Report") on Aug. 1, 2023, in Docket E-100, Sub 175.

7. The IBRs tested include two standalone solar facilities and one standalone storage facility (40 MW_{ac} and 54MW_{ac}) and one standalone storage facility (8.8 MW_{ac}, 1-hour duration.

8. Active Power Testing for the solar facilities occurred on one day (May 12, 2023), and Reactive Power Testing was done over a 2-day period (May 23–24, 2023). The storage facility was only tested for a limited period on June 16, 2023.

9. Reactive power management/voltage support is one ancillary service that inverter-based resources are already providing.

10. Further testing is required to fully evaluate the ancillary services IBRs can provide.

Procedural Schedule

11. The current procedural schedule for the biennial avoided cost proceeding requires the Commission to approve avoided cost rates based on Carbon Plan IRP portfolios that will not be approved until 14 months following Duke Energy filing and other utilities filing their initial statements in this proceeding.

12. Good cause exists to amend the procedural schedule for the biennial avoided cost proceeding to be staggered with the procedural schedule for the biennial Carbon Plan IRP proceedings.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT 1 – 5

The evidence supporting these Findings of Fact is found in Duke Energy's Joint Initial Statement, the Initial Statement of the Public Staff, the Initial Comments of NCSEA, Reply Comments of Duke Energy, Reply Comments of the Public Staff, the Reply Comments of NCSEA, and the Reply Comments of CCEBA.

Summary of the Comments

In Duke Energy's Joint Initial Statement, the Companies proposed to allow the ESS Retrofit avoided cost rates approved in the 2021 Sub 175 proceeding to expire and discontinue offering predetermined ESS Retrofit avoided cost rates after November 1, 2023. In support of this conclusion, Duke Energy pointed to the absence of any project applications or Notice of Commitment Forms submitted by QFs to the Companies. *Joint Initial Statement*, at 44. On January 23, 2023, pursuant our *Order Granting Waivers to Implement Energy Storage System Expedited*

Study Processes and Approving Process to Establish Eligibility of Avoided Cost Rates for Retrofit Energy Storage Systems, Docket No. E-100, Sub 101 & E-100, Sub 158 (May 12, 2022) ("ESS Retrofit Order"), Duke Energy filed their *Update Regarding Expedited Study Processes Available to ESS Retrofit* and notified the Commission that "there was no relevant data to report given the absence of any ESS Retrofit projects participating in the 2022 DISIS Phase 1 Study." *Id.* On July 31, 2023, Duke Energy filed a second update informing the Commission that the Companies still had not received any ESS Retrofit project applications or Notice of Commitment Forms. *Id.* As of the filing of Duke Energy's Joint Initial Statement, no QFs submitted an application or Notice of Commitment Form. *Id.* Duke Energy maintains, consistent with the ESS Retrofit Order, that despite it proposing to discontinue predetermined ESS retrofit avoided cost rates, QFs that submit a Notice of Commitment Form after November 1, 2023, will be eligible for a negotiated rate calculated at the time the Notice of Commitment Form is submitted based on the most recent Commission-approved avoided cost methodology. *Id.*

In its Initial Statement, the Public Staff agreed with Duke Energy's proposal to discontinue predetermined ESS retrofit avoided cost rates. The Public Staff agreed "due to the lack of interest by QFs and the adoption of cluster studies under queue reform." *Initial Statement of the Public Staff*, at 12.

NCSEA, in its initial comments, outlined the importance of solar, battery storage, and combined solar-plus-storage systems in Duke Energy's plans to comply with HB 951 as a least-cost solution. *Initial Comments of NCSEA*, at 1–4. NCSEA also offered additional context regarding why no eligible QFs enrolled for the ESS Retrofit avoided cost rates. First, NCSEA argued that the eligibility criteria for the existing QFs to take advantage of predetermined ESS Retrofit avoided costs rates did not appropriately incentivize the co-location of ESS at existing solar QFs. *Id.*, at 5, 8–12. Per the *ESS Retrofit Compliance Filing*, Attachment C, Docket Nos. E-100, Sub 101; E-100, Sub 158, 1 of 3 (Sept. 29, 2021),

> Eligibility for a New ESS retrofit avoided cost rate shall be limited to existing QFs that established either a legally enforceable obligation ("LEO") or entered into a PPA with the Companies under rates and terms approved by the Commission on or before November 15, 2016, and shall extend only for the term of the QF's PPA, whether currently existing or executed pursuant to an existing LEO established prior to November 15, 2016.

Subsequently, this Commission approved predetermined ESS Retrofit avoided cost rates for PPAs with 2, 3, 4, 5, 6, 7, 8, 9, and 10 years remaining in term. *Order Establishing Standard Rates and Contract Terms for Qualifying Facilities*, Dkt. No. E-100, Sub 175, 67–68 (Nov. 22, 2022). NCSEA noted that many of the eligible solar QFs, due to the framework and the timing of the approval of the ESS Retrofit avoided cost rates, could not take advantage of "the more generous ESS Retrofit avoided cost rates for systems with more remaining years in the term of their PPA—particularly the most lucrative 10-year ESS Retrofit avoided cost rates." *Initial Comments of NCSEA*, at 8. NCSEA then argued that the avoided cost rates for QFs with fewer years on their PPA "were insufficient for a QF to justify the short payback period for its investment in an ESS." *Id.*, at 9. In support of this assertion, NCSEA renewed testimony it previously sponsored from Witness Norris stating, "there is no reason to believe that any QF can finance an addition of storage

device to its facility with only five years of price certainty." *Id.*; *see also Order Approving SISC Avoidance Requirements and Addressing Solar-Plus-Storage Qualifying Facility Installations*, Dkt. Nos. E-100, Sub 101; E-100, Sub 158, 10 (Aug. 17, 2021) (Witness Norris testifying that "a five-year avoided cost rate would 'undercut or fully eliminate the capacity value of the storage equipment and make it wholly unfinanceable.").

Second, NCSEA argued that economic conditions beyond the control of the Commission, Duke Energy, the Public Staff, intervenors, or QFs further disincentivized QFs from taking advantage of the ESS retrofit avoided cost rates. *Initial Comments of NCSEA*, at 12–17. NCSEA identified that the enrollment window for the ESS Retrofit Study process overlapped with peak inflation experienced in the United States following the recovery of the COVID-19 pandemic. *Id.*, at 13–14. NCSEA also cited a study from the National Renewable Energy Laboratory that quantified the impacts of inflation and additional market distortions and explained how these conditions contributed to heightened costs for solar and storage components. *Id.*, at 14–17.

Accordingly, NCSEA agreed with Duke Energy's recommendation to discontinue the predetermined ESS Retrofit avoided cost rates approved in the 2021 Sub 175 proceeding, but "recommends that the Commission order Duke [Energy] to develop updated predetermined ESS rates for consideration in the 2025 avoided cost proceeding . . . ." *Id.*, at 5. NCSEA also proposed amendments to the eligibility criteria and framework to the predetermined ESS Retrofit avoided cost rates that it contends "provide certainty to QFs that their investments in ESS will be fully recovered and provides increased certainty to Duke that it can successfully interconnect additional storage to its system." *Id.*, at 12. NCSEA's proposal would allow QFs that renew their PPA for a subsequent term and agree to materially alter their facilities with an ESS addition to be eligible for the 10-year energy and capacity credits in the updated predetermined ESS Retrofit avoided cost rates. *Id.*, at 12. NCSEA suggests that this framework is simpler as it only requires one set of ESS retrofit rates instead of nine separate rates, will not unduly discriminate certain QFs over others, and properly incentivize the deployment of ESS at existing solar QFs. *Id.* NCSEA also identified that this framework may be further bolstered by the incorporation of new federal tax credits available for energy storage systems, pending forthcoming federal regulations. *Id.*, at 17–19. NCSEA concluded that "it is in the public interest to adopt the amended framework to evaluate the efficacy and interest in an ESS Retrofit program under more stable economic conditions. *Id.*, at 17.

Duke Energy's reply comments reiterated that "[a]lthough the Companies are not proposing to renew the predetermined ESS Retrofit Rates in this proceeding, QFs that submit their Notice of Commitment Forms after November 1, 2023, will be eligible for a negotiated rate calculated at the time the Notice of Commitment Form is submitted based on the most recent Commission-approved avoided cost methodology, consistent with N.C.G.S. § 62-156(c)." *Reply Comments of Duke Energy*, at 27. Duke Energy then suggests that NCSEA's proposed alternative framework "would require the Companies to pay 'renewing' QFs that elect to add energy storage at rates *above* the Companies' avoided costs for future contract terms that do not align with North Carolina law limiting negotiated QF PPAs to rates established for 'a fixed five-year term.'" *Id.*, at 28 (emphasis in original). Duke Energy continues that "[i]n proposing that the Companies should develop new, predetermined ESS Retrofit Rates which will become available only upon the expiration of an existing PPA, NCSEA is implicitly suggesting that the Companies should pay

these existing facilities for a new PPA term at avoided costs fixed for longer than five years, presumably to incentivize the addition of energy storage." *Id.* Duke Energy then argues that

> the "must purchase" obligation under PURPA requires utilities to offer to purchase QF power at just and reasonable rates that "make ratepayers indifferent as to whether the utility used more traditional sources of power or the newly encouraged alternatives. Accordingly, at the expiration of the contract term, the existing facility, with or without new energy storage, would be eligible for the Companies' avoided cost rates available at that time and there is no need to develop any separate, special ESS Retrofit Rates. The Companies continue to believe that the most appropriate course is to offer negotiated rates to QFs electing to add storage to their existing facility at the expiry of their current PPA term consistent with North Carolina law implementing PURPA." *Id.*, at 29 (internal citations omitted).

The Public Staff acknowledged that the intent of NCSEA's recommendation to amend the predetermined ESS Retrofit avoided cost rates framework was "to make them more workable and provide a better incentive to QF owners to install energy storage." *Reply Comments of the Public Staff*, at 12–13. Alternatively, the Public Staff proposed that Duke Energy initiate a request for proposals specifically for energy storage co-located at existing QFs, to be administered as part or in parallel to the annual competitive procurement process pursuant to N.C. Gen. Stat. § 62-110.9. *Id.*, at 13. "However, the Public Staff notes that any such solicitation should not be mandatory, and QFs that do not wish to participate can continue to sell their power under PURPA rates." *Id.* The Public Staff expressed its intention to expand on this proposal in its CPIRP testimony. *Id.*

NCSEA, in response to the Public Staff's rationale in acceptance of Duke Energy's recommendation to discontinue the predetermined ESS Retrofit avoided cost rates, argued that the Public Staff's reasoning was not supported by material, substantial evidence. *Reply Comments of NCSEA*, at 1. In contrast, NCSEA "1) outlin[ed] stated concerns with the framework and eligibility criteria for the current ESS Retrofit avoided cost rates prior to their approval, and 2) . . . acknowledg[ed] the market distortions that acutely afflicted the solar and ESS industries and forestalled interest in the ESS Retrofit avoided cost rates." *Id.*, at 1–2. NCSEA also expressed concern over the lengthy process for a QF participating in an annual DISIS study outside of the ESS Retrofit expedited process. *Id.*, at 2. Overall, NCSEA stated that "the treatment of solar QFs as they approach the expiration of their standard offer PPA term is a priority" for the organization. *Id.*, at 8. NCSEA continued that its purpose in proposing an amended ESS Retrofit avoided cost rates framework was, in part, "to address the significant amount of generation and capacity provided by solar QFs that are reaching the end of their PPA term."

As summarized below, NCSEA shares CCEBA's concerns with Duke Energy's planning practices regarding existing QFs and concludes "it is imprudent to assume that a non-carbon emitting resource can be replaced in kind at the end of its contract given the changes and limits to the procurement of solar in recent years." *Id.*, at 7. "NCSEA seeks an opportunity to collaborate with the Companies, Public Staff, and other interested parties to develop solutions for the renewal of existing solar QF PPAs that may be more advantageous to ratepayers, the utility, and the developer as this energy transition progresses." *Id.*, at 8. In stating its intention, NCSEA maintained that ESS Retrofit avoided cost rates are a sound concept that can help Duke Energy

maximize the use of existing solar QFs to improve management of the grid and incentivizes maintaining existing solar generation while interconnecting more storage through a least-cost and expedited path. *Id.*, at 2. NCSEA does not wish to see the concept of predetermined ESS Retrofit avoided cost rates expire with the rates approved in the 2021 Sub 175 Proceeding. *Id.*

CCEBA agreed with NCSEA's proposals regarding the ESS Retrofit avoided cost rates but submitted "that more must be done to ensure that existing solar QFs have a viable path forward after the end of their current PPAs and can continue providing carbon-free energy and capacity to Duke's system." *Reply Comments of CCEBA*, at 2. Specifically, CCEBA identified NCSEA's proposal as "one potential structure for keeping solar QFs in Duke's portfolio while providing more value to the system." *Id.*, at 5. CCEBA mainly expressed concern with Duke Energy's planning for QFs after the expiration of their PPAs in both the CPIRP proceeding and avoided cost calculations and methodologies. *Id.*, at 3–4. CCEBA recommends Duke Energy should explore with other stakeholders additional contracting structures that provide solar QFs more certainty regarding their availability, and more value and flexibility to the system than traditional "must-take" contracts. *Id.*, at 4.

Discussion and Conclusions

The Commission finds good cause to discontinue the predetermined ESS Retrofit avoided cost rates approved in the 2021 Sub 175 proceeding. However, the Commission is not persuaded by Duke Energy or the Public Staff that the reason no QFs submitted a Notice of Commitment Form or enrolled in the ESS Retrofit Study Process was due to "a lack of interest" in such an offering. Nor is the Commission persuaded that the alternatives identified by Duke Energy and the Public Staff are efficient means to cost-effectively co-locate ESS at existing solar QFs. Therefore, Duke is directed to develop new predetermined ESS avoided cost rates to be considered in the 2025 biennial avoided cost proceeding.

Given the minimal experience and understanding gained from offering predetermined ESS Retrofit avoided cost rates due to no QFs submitting a Notice of Commitment Form or enrolling in the ESS Retrofit Study process, it is difficult to draw conclusions about the program. However, the Commission concludes that it is more likely than not that a confluence of the eligibility criteria compounded with unfavorable macroeconomic conditions and market distortions affected this program.

Nevertheless, Duke Energy and the Public Staff proposed to discontinue the predetermined ESS Retrofit Avoided Cost rates and offered alternative paths to procure energy storage at existing QFs. Duke Energy suggests that it will continue to honor Notice of Commitment forms submitted after November 1, 2023, as eligible for a negotiated rate calculated at the time the Notice of Commitment Form is submitted based on the most recent Commission-approved avoided cost methodology. *Duke Energy Reply Comments*, at 27. Particularly, Duke Energy argues in its reply comments that "at the expiration of the contract term, the existing facility, with or without new energy storage, would be eligible for the Companies' avoided cost rates available at that time and there is no need to develop any separate, special ESS Retrofit Rates. The Companies continue to believe that the most appropriate course is to offer negotiated rates to QFs electing to add storage to their existing facility at the expiry of their current PPA term consistent with North Carolina law implementing PURPA. *Id.*, at 29. NCSEA argues that maintaining this offering is an important

"stop-gap," but expressed concerns that such a project-by-project process may become untenable. *Initial Comments of NCSEA*, at 6. The Commission agrees with NCSEA and is further concerned that the concept of a negotiated rate does not address whether a QF will have a sufficient payback period to be incentivized to make this material alteration. The Commission understands Duke's proposal for the ESS negotiated rate to be for the remainder of the QFs existing PPA or for the five-year negotiated rate.

Previously, the Commission was persuaded by intervenors that the utilities' recommendation on term for retrofit energy storage—*i.e.*, the lesser of a five-year or 10-year term (depending on eligibility for standard offer) or the remaining PPA term—was not commercially reasonable. *Sub 158 Avoided Cost Order*, Aug. 17, 2021, at 10. In the Sub 158 proceeding, "NCSEA testified that five-year avoided cost rates are not economically viable, and 10-year avoided cost rates would be needed to finance a facility with energy storage." *Id.*, at 9. NCSEA and other intervenors ultimately compromised in that proceeding by agreeing that "offering storage the term that remains on the PPA was reasonable at [that] time." *Id.* Here, the Commission concludes that Duke's proposal to maintain a negotiated rate for ESS does not address one of the largest hurdles for QFs opting to materially alter their facilities by adding a co-located energy storage system—the payback period necessary to recover the cost of its investment.

The Public Staff alternatively proposes that "instead of offering separate avoided cost rates to QFs that install energy storage, the Public Staff recommends that Duke initiate a request for proposals specifically for energy storage co-located at existing QFs, either as part of its annual procurement or conducted in parallel. However, the Public Staff notes that any such solicitation should not be mandatory, and QFs that do not wish to participate can continue to sell their power under PURPA rates." *Reply Comments of the Public Staff*, at 13. But qualifying the solicitation as optional and stating that existing QFs can elect to continue selling their power under PURPA rates suggests that the Public Staff believes a QF must terminate its existing PURPA contract and its legally enforceable obligation with Duke Energy in order to co-locate an ESS at an existing QF. Since the Public Staff will expand on this proposal in a separate proceeding, the Commission cannot determine its efficacy at this time.

NCSEA's proposal, like Duke Energy's, seeks to offer an avoided cost rate for ESS retrofits at an existing QF after the expiry and renewal of the current PPA. The key difference is the tenure of the avoided cost rate for ESS. Duke Energy proposes the avoided cost rate be folded into the five-year negotiated rate for both the solar generation and energy storage following the expiry of the initial PPA. By contrast, NCSEA proposes an updated bifurcated avoided cost rate that allows the energy storage component to collect a predetermined ESS Retrofit avoided cost rate for ten years. NCSEA's proposal assumes the solar QF will renew—and be incentivized to negotiate with Duke Energy to renew—its "must-take" contract(s) with Duke Energy for the duration of the ESS retrofit avoided cost rates but did not address whether the rate for the solar generation component would be negotiated and last for more than five years. NCSEA's proposal, on its face, was merely an attempt to amend the eligibility for bifurcated ESS avoided cost rates in a manner that would appropriately incentivize the deployment of ESS at existing QFs. Therefore, the Commission finds that NCSEA, in proposing its alternative framework, was not "implicitly suggesting" Duke Energy pay QFs materially altering their facilities with ESS avoided cost rates in excess of North Carolina law. Rather, NCSEA was proposing a solution that works for both the QFs and Duke Energy customers.

The Commission concludes that the record is insufficient in this proceeding to determine whether Duke Energy's and the Public Staff's proposals properly incentivize the co-location of ESS retrofits at existing QFs and are reasonable. In contrast, the Commission has previously determined that ESS Retrofit avoided cost rates and bifurcated rates were reasonable and appropriate. *See Sub 175 Avoided Cost Order*, Nov. 22, 2022, at 68. Accordingly, the Commission finds no harm in directing Duke to develop updated 10-year ESS Retrofit avoided cost rates for consideration in the next biennial avoided cost proceeding. Since the Commission has previously concluded that a five-year payback period is not commercially reasonable for a QF to justify the material alteration of its facility with the addition of an ESS—and through the experience of offering the initial ESS Retrofit avoided cost offering, the remaining term on a QF's PPA also may not send the appropriate signals to incentivize the co-location of ESS at existing QFs—the Commission concludes that NCSEA's proposal to allow QF's that materially alter their facility a 10-year ESS Retrofit avoided cost rate is reasonable. Moreover, the Commission agrees with NCSEA that the ESS Retrofit avoided cost rates stand to benefit from analysis under typical economic conditions before directing Duke to administer requests for proposals outside and *in lieu* of the avoided cost context. The Commission does not intend this last conclusion to preempt and predetermine such requests for proposals to co-locate ESS at existing QFs in addition to the updated ESS Retrofit avoided cost rates. The Commission concludes that it is in the public interest to design programs that appropriately incentivize the co-location and deployment of ESS at existing solar QFs to maximize the use of existing assets and to achieve HB 951 carbon emission reduction requirements in a least-cost manner.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT 6 – 10

The evidence supporting these Findings of Fact is found in Duke Energy's IBR Testing Report, the Initial Statement of the Public Staff, the Initial Comments of NCSEA, Reply Comments of Duke Energy, Reply Comments of the Public Staff, and the Reply Comments of NCSEA, and the Reply Comments of CCEBA.

Summary of the Comments

In the 2021 biennial avoided cost proceeding, E-100, Sub 175, this Commission directed Duke "to conduct a preliminary investigatory study of the operating characteristics of IBRs at certain of its own IBR facilities to understand which ancillary services each resource or combined resources could provide. *Initial Comments of NCSEA*, at 19 (citing *Order Establishing Standard Rates and Contract Terms for Qualifying Facilities*, Dkt. No. E-100, Sub 175, 45 (Nov. 22, 2022)). The Commission also directed Duke Energy to "address the potential benefits, if any, to customers, of QFs providing ancillary services and whether a pilot program would be worthwhile." *Id.* Duke Energy filed its IBR Report on Aug. 1, 2023. *Id.*

NCSEA commended Duke for the "rapid and timely production" of the IBR Report, but ultimately found it to be too limited and conducted over a compressed timeline to draw significant conclusions. *Id.* The IBR Report only examined two standalone solar facilities across a few days for active power and reactive power testing, and one standalone storage facility for a limited period on one day. *Id.*, at 20. NCSEA ultimately agreed with Duke Energy's own conclusion in the IBR Report that additional testing is needed:

> additional testing with different, larger Duke-owned IBR resource types (standalone batteries and solar plus storage) could allow for design of the testing with plans to record more parameters for post testing data analytics to thoroughly evaluate the capabilities of IBRs to provide certain ancillary services. Additional testing would also allow for assessing the costs for the testing and the IBR design/modifications needed to provide the ancillary service.

IBR Testing Report, Dkt. No. E-100, Sub 175, 17 (Aug. 1, 2023). NCSEA recommended that the Commission consider making such an additional study—which Duke Energy acknowledges it needs to fully evaluate the ancillary services and capabilities of IBR—a cyclical study part of each biennial avoided cost proceedings due to the rapid evolution of IBRs. *Initial Comments of NCSEA*, at 21. NCSEA argued that iterative studies would allow for "a more prospective, intentional approach to the integration of new technologies, rather than determining what value they may, or may not, provide after already being deployed at scale." *Id.* NCSEA also requested that the potential benefits and ancillary services of solar-plus-storage facilities should be studied prior to the Commission cancelling the predetermined ESS Retrofit avoided cost rates. *Id.*, at 22. CCEBA, in its initial comments, joined and endorsed NCSEA's recommendations regarding the IBR Report and subsequent actions involving ancillary services. *Initial Comments of CCEBA*, at 6–7.

Finally, NCSEA also acknowledged Duke's position that further study is needed before determining if a pilot is worthwhile. However, NCSEA determined that one ancillary service, reactive power management/voltage support, is "ripe" for a pilot as the IBR Report confirmed this service is already being provided by Duke Energy assets. *Initial Comments of NCSEA*, at 21. Accordingly, NCSEA recommended the Commission direct Duke Energy "to scope a pilot program to accurately compensate IBRs for the reactive power management and voltage support ancillary services they already provide." *Reply Comments of NCSEA*, at 3.

The Initial Statement of the Public Staff reached similar conclusions to NCSEA regarding the IBR Testing Report. The Public Staff concluded that the IBR Report "reveals the need for research using larger scale batteries, which are not subject to the sunlight variations that affect solar facilities. Transmission-connected solar facilities can provide some ancillary services, but energy storage will likely be necessary if QFs are to provide significant ancillary services in the future." *Initial Statement of the Public Staff*, at 12. However, the Public Staff did not make any recommendations in its initial comments.

In its reply comments, the Public Staff "agree[d] with CCEBA and NCSEA that Duke should further study IBRs, especially solar plus storage, and include the financial value of the ancillary services IBRs provide in each configuration studied. However, the Public Staff does not believe that now is the time to conduct such a study nor is this docket the appropriate venue to determine when such study should take place and what it should look like." *Reply Comments of the Public Staff*, at 8. The Public Staff stated its belief that competitive solicitation is the best way to procure energy storage from QFs and that a subsequent study would require "a significant amount of energy storage installed across Duke's system and would inform future CPIRP updates and utility system operations." *Id.* The Public Staff ultimately concluded that the CPIRP proceedings are the appropriate venue for a subsequent ancillary services study, and it will request the Commission require a study of ancillary services of solar plus storage in that docket at the

appropriate time. *Id.*

Duke Energy, in its reply comments, argued that no action is needed nor is it appropriate to compensate QFs in this proceeding. *Duke Energy Reply Comments*, at 14–18. Duke Energy contends that it complied with the Commission's Order in the Sub 175 proceeding and completed a preliminary study of IBR resources. *Id.*, at 14.

Discussion and Conclusions

Similar to the Commission's conclusion in its Order in the Sub 175 proceeding, though "there is disagreement among the utilities and the intervenors regarding compensation for ancillary services, there [again] appears to be agreement that further investigation into ancillary services is warranted." *Sub 175 Avoided Cost Order*, Nov. 22, 2022, at 45. The Commission is persuaded that further study with more varied and larger utility-owned IBR resource types, particularly standalone storage and solar-plus-storge, is warranted. The Commission is further persuaded that such a study is not appropriate until greater quantities of these IBR resources are interconnected and operating within Duke Energy's system.

However, recognizing that this Commission has ordered Duke Energy to pursue the integration of significant quantities of IBR resources, including in its *Order Adopting Initial Carbon Plan and Providing Direction for Future Planning* (Dkt. E-100, Sub 179), the Commission agrees with NCSEA and CCEBA that Duke Energy should work with stakeholders to scope and design such a study to be filed in the 2025 biennial avoided cost proceeding. Such stakeholder engagement will, at a minimum, help inform the specific qualifications of the IBR resources selected to be studied, the number and characteristics of locations hosting the selected IBR resources, and the timing and duration of evaluating the selected IBR resources. The stakeholder engagement will further inform what is the appropriate time to direct Duke Energy to commence the subsequent IBR Testing Report. The goal of this stakeholder engagement would be to develop a study that is more comprehensive and representative of Duke Energy's entire system and the impact of IBRs on Duke Energy's system. Although the Commission declines to direct Duke Energy to conduct a subsequent IBR Testing Report at this time, the Commission is persuaded that there is merit to making the IBR Testing Report cyclical to study and evaluate emerging IBR technologies.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT 11 – 12

The evidence supporting these Findings of Fact is found in the Comments of the Attorney General's Office ("AGO") and the Reply Comments of NCSEA.

Summary of the Comments

In the AGO's comments, it suggests changes to the procedural schedule for the biennial avoided cost proceedings are needed to guarantee that avoided cost rates are based on vetted and approved Carbon Plan IRP portfolios. *Comments of the AGO*, at 19. The AGO suggests this need is magnified as Duke Energy also filed an updated Carbon Plan IRP portfolio with significant revisions in the middle of both the instant biennial avoided cost proceeding and the instant Carbon Plan IRP proceeding. The AGO suggests, "[i]n order to more closely align these avoided cost

proceedings with approved—rather than proposed—CPIRPs, the Commission should direct the Companies to recalculate their avoided cost calculations within 90 days of the Commission's approval of its next and subsequent CPIRPs. *Id.*, at 19–20.

NCSEA, in direct response to the AGO's recommendation, agrees with the AGO that avoided cost proceedings should more closely align with approved CPIRP portfolios than proposed CPIRP portfolios. *Reply Comments of NCSEA*, at 5. NCSEA also identified that the need to vet the updated calculations due to the updated CPIRP portfolio was also a point of contention that prompted requests for delay in this proceeding. *Id.* Consequently, instead of requiring the Company to update avoided cost calculations 90 days following the Commission's approval of a CPIRP portfolio, NCSEA recommends "adjusting the Commission calendar to have the Companies file their biennial avoided cost initial statements 90 days after the Commission's approval of any CPIRP portfolio—effectively moving the Companies' initial statement from November 1 to approximately April 1." *Id.* NCSEA suggests that "staggering the biennial CPIRP proceedings with the biennial avoided cost proceedings in this manner will ensure avoided cost rates are based off Commission approved resource portfolios and should avoid any mid-proceeding updates." *Id.*, at 5–6.

Discussion and Conclusions

North Carolina General Statutes, § 62-156(b) requires the Commission to "*at least* every two years . . . determine the standard contract avoided cost rates to be included with the tariffs of each electric public utility and paid by electric public utilities for power purchased from small power producers . . . ." (emphasis added). Accordingly, the Commission finds NCSEA's proposed changes to the Commission calendar to stagger the biennial Carbon Plan IRP proceeding and the biennial avoided cost proceeding consistent with state law. The Commission further agrees that the public interest requires avoided cost rates to be based off of the most recent vetted and approved Carbon Plan IRP portfolios. Therefore, the Commission directs Duke Energy and the other public utilities to file their initial statements in the next biennial avoided cost proceeding 90-days after the Commission files its final order in the Carbon Plan IRP proceeding, but no later than April 1, 2025—whichever comes first.

IT IS, THEREFORE, ORDERED as follows:

1. Direct the Companies to develop new predetermined ESS Retrofit avoided cost rates to be considered in the next biennial avoided cost proceeding, and to adopt NCSEA's proposed amended framework;

2. Direct the Companies to work with stakeholders to design a subsequent ancillary services study for additional IBRs, like larger scale batteries and solar-plus-storage facilities, not studied in the Companies Inverter Based Resources Testing Report filed in the 2021 Sub 175 proceeding, to be filed in the subsequent biennial avoided cost proceeding;

3. Direct Duke Energy and the utilities to file their initial statements for the next biennial avoided cost proceeding, 90-days after the Commission files its final order in the Carbon Plan IRP proceeding, but no later than April 1, 2025—whichever comes first.

ISSUED BY ORDER OF THE COMMISSION.

This the ___ day of ___, 2024.

NORTH CAROLINA UTILITIES COMMISSION

A. Shonta Dunston, Chief Clerk

CERTIFICATE OF SERVICE

I hereby certify that all persons on the docket service list have been served true and accurate copies of the foregoing filing by hand delivery, first class mail deposited in the U.S. mail, postage pre-paid, or by email transmission with the party's consent.

This the 20th day of May, 2024.

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