

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

In the Matter of:) Biennial Determination of Avoided Cost) Rates for Electric Utility Purchases from) Qualifying Facilities — 2023))	REPLY COMMENTS OF CCEBA
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Pursuant to the North Carolina Utilities Commission’s (“Commission”) orders¹ in this docket, the Carolinas Clean Energy Business Association (“CCEBA”), hereby replies to the initial comments or statements of the Southern Alliance for Clean Energy (“SACE”), the North Carolina Public Staff (“Public Staff”), the North Carolina Sustainable Energy Association (“NCSEA”) and the Office of the Attorney General of North Carolina (“AGO”).

These comments address the following topics brought up by the parties in their initial comments:

- I. Addressing the value of existing QFs and how to encourage their extension and the retrofit of existing facilities with battery electric storage systems (“BESS”);
- II. The current avoided cost peaker methodology and its ability to measure the value of carbon-free QFs in a carbon-restrained environment;

¹ Order Establishing Biennial Proceeding, Requiring Data, and Scheduling Public Hearing (E-100, Sub 194, August 7, 2023); Order Granting Extension of Time to File Comments (E-100, Sub 194, February 6, 2024).

- III. Critique of the study with which Duke purports to value the ancillary services provided by Inverter Based Resources such as solar and storage; and
- IV. The Net Excess Energy Credit for rooftop solar customers.

I. The Value of Existing QFs and How to Encourage Their Extension and the Retrofit of Existing Facilities with Battery Electric Storage Systems (“BESS”)

In the context of discussing Duke’s proposal to discontinue predetermined ESS retrofit rates, NCSEA raises the important fact that “significant amounts of contracted solar capacity are reaching the end of their initial QF PPAs term” and that retirement of these resources within Duke’s Carbon Plan planning horizon is “[n]ot anticipated in the Companies’ supplemental portfolios and supporting analysis” (NCSEA Initial Comments at 4.) Although CCEBA supports NCSEA’s proposal that ESS retrofit rates be made available to QFs that renew their PPA for an additional term, CCEBA submits 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.

Duke’s planning appears to assume that those QFs will either enter into new PPAs or be replaced in kind by new solar generation. Because Duke has maintained since its initial Carbon Plan filings that restricted interconnection capacity limits the amount of new solar that can be brought online in any one year for the foreseeable future, in-kind replacement of or backfilling for retiring QFs with new solar PPAs would *reduce* the amount of solar that could be added to Duke’s fleet in that same calendar year. There is no such backfilling with new solar forecast in Duke’s Carbon Plan portfolios, leading to the conclusion that

Duke's modeling assumes that existing solar QFs will continue to provide carbon-free energy to Duke without cannibalizing the annual procurement of additional solar resources needed to meet the carbon mandates of HB 951.

However, in past avoided cost dockets (specifically the E-100, Sub 158 proceeding) Duke has maintained that for planning purposes, Duke does not assume that QFs will continue providing capacity after the QF's PPA term ends, but rather reduces the exiting capacity by the amount of capacity provided by the expiring wholesale purchase contract in the year following the contract expiration.² And the Commission has held that it "agrees with Duke and the Public Staff that QFs commit to deliver their power for a specified term *and that it would be imprudent resource planning to assume that QFs are obligating themselves to deliver capacity and energy past the end of their contract term.*"³ Duke has taken a different approach in past avoided cost dockets, and has assumed that solar QFs (and solar QFs alone) would continue to deliver power after the expiration of their PPAs. However, the Commission has emphasized "the significant interplay between the IRP and avoided cost proceedings and the need for consistency between the studies, models, and assumptions used in these proceedings."⁴ The Commission has also reminded Duke of its "expectation ... that the same models and analyses will be utilized in both the IRP and avoided cost proceedings to achieve this consistency."

² See *Order Establishing Standard Rates and Contract Terms for Qualifying Facilities*, Docket No. E-100, Sub 158 (Apr. 15, 2020) ("Sub 158 Order") at 47.

³ *Id.* at 51 (emphasis added).

⁴ *Order Denying Reconsideration*, Docket No. E-100, Sub 158 (July 21, 2020) at 6.

Despite all this, Duke appears to assume in its avoided cost calculations and methodologies that existing solar QFs will continue to provide their power to Duke's system even after the expiration of their current PPAs.

The potential impact of PPA expiration on avoided cost *rate* calculations is discussed further below. But this discussion also highlights the need to take affirmative steps to help ensure that these existing QFs continue to provide carbon-free power to Duke's system after the expiration of their current PPAs.

It bears noting that most of the QF PPAs that will be expiring in the next few years are projects around 5 MW AC capacity, which were eligible for Duke's standard offer contracts. However, H.B. 589 lowered the eligibility threshold for standard offer rates and terms to 1 MW AC, and also provided that larger QF solar projects would only be entitled to PPAs with a maximum term of five years. If the status quo does not change, those QFs will only be entitled to five-year PURPA PPAs going forward, meaning that there will be continued uncertainty about the availability of those resources for Duke's portfolio until the end of their service lives.

CCEBA submits that Duke should explore, with other stakeholders, the possibility that there may be other contracting structures that would provide more certainty about the availability of these critical carbon-free resources, and potentially provide more value and flexibility to the system than traditional PURPA "must-take" contracts. This conversation should start *now*, so that QFs with expiring PPAs have enough lead time to plan capital investments, such as repowering or the addition of battery storage, before the expiration of their PPAs.

NCSEA's proposal for properly designed ESS Retrofit Rates for existing QFs after their initial PPA term represents one potential structure for keeping solar QFs in Duke's portfolio while providing more value to the system. CCEBA supports NCSEA's recommendation that, rather than eliminating predetermined ESS Retrofit Rates entirely, as proposed by Duke in its Joint Initial Statement, "the Commission [should] order Duke to develop updated predetermined ESS rates for consideration in the 2025 avoided cost proceeding." (NCSEA Initial Comments at 5.) CCEBA further supports NCSEA's proposal to amend the current ESS Retrofit rates to incentivize the addition of storage by offering those rates "to QFs that renew their PPA for an additional term and agree to materially alter the existing facility by co-locating a battery energy storage system" instead of limiting the Retrofit Rates only to the remainder of a QF's initial term.

CCEBA continues to believe, as it noted in Docket No. E-100, Sub 158 ("2018 Sub 158 proceeding") and as quoted by NCSEA in its Initial Comments (*Id.* at 6-7), that offering standard ESS retrofit rates in addition to the opportunity for a QF to negotiate a rate will "provide a more efficient means for QF owners to participate in an ESS retrofit process without being required to engage in the resource-intensive process of rate and PPA negotiation with Duke." (Reply Comments of CCEBA, Docket No. E-100, Sub 158, 6 (Oct. 21, 2021).) CCEBA supports the amendments to the framework of predetermined ESS Retrofit Rates proposed by NCSEA, particularly allowing ESS Retrofit rates to extend to the full term of a renewed PPA, rather than limiting it to the expiration of the exiting term. NCSEA's proposal would increase certainty for QFs and incentivize them to

execute new PPAs and to undertake BESS retrofits. Providing for renewal of PPA terms and the addition of BESS to existing QFs would at least partially address the QF retirement issue and avoid the deficit noted above. It would further be worth considering whether other contractual options would assist in continuing the contribution of these facilities to the grid.

Duke's proposal to terminate the program entirely based on lack of participation in the more limited program during a time of great economic upheaval is not a prudent approach. CCEBA prefers NCSEA's recommendation as more appropriately meeting the needs of QFs, establishing more certainty of compensation for investing in BESS upgrades over an economically-viable period for those QFs, and providing more chance of QF renewal in order to avoid a solar deficit that would need to be back-filled in future RFPs.

II. Avoided Cost Methodology in a Carbon-Constrained Environment

The comments of CCEBA, the AGO and the Public Staff reveal that all three parties share concern that the existing peaker methodology may not continue to allow for an accurate determination of Duke's avoided costs in the carbon-constrained environment created by HB 951. All these parties acknowledge that the enactment of HB 951, the approval of the 2022 Carbon Plan, and the filing of the 2023 CPIRP update have a material impact on the costs that Duke avoids as a result of purchasing the output of a QF, such that the continued use of the CT Peaker method in its current form is problematic. The parties differ only on the timeframe and approach for addressing this problem.

As both CCEBA and the AGO noted in their initial comments, in its E-100, sub 175 Order the Commission ordered the Companies to “explain in their next biennial avoided cost filings how the Carbon Plan has been incorporated into avoided cost rates and how any Commission-approved avoidable cost of carbon is factored into Duke’s calculation of avoided cost rates.” CCEBA and the AGO agree that Duke failed to comply with this mandate. In its initial comments, CCEBA requested that the Commission “order Duke and DENC to undertake a process that will, in light of the changing energy and regulatory landscape, *fully* consider all alternatives to the peaker method and identify the most accurate method for calculating avoided costs going forward.” (CCEBA Initial Comments at 5.) CCEBA proposed that the Commission address this issue and Duke’s non-compliance in one of three ways: through a stakeholder process with a defined timeframe, a technical conference, or an evidentiary hearing. CCEBA maintains that this process is necessary, and should include efforts to appropriately value both the energy and capacity contribution of renewable resources as measured in the carbon-constrained environment required by HB951. CCEBA submits that the current methodology fails to capture that value appropriately.

Further, CCEBA notes that Duke’s current avoided cost methodology may fail adequately to address the seasonal nature of the value of solar energy in particular. While Duke has in multiple dockets and materials maintained that it is a winter-peaking system and assigns solar a capacity value of zero for meeting winter morning peaks when the sun is not shining, it fails to address solar’s evident value in meeting the significant summer afternoon peaks on Duke’s

system. The addition of significant storage assets in the near term will also affect the value solar provides as it enables capacity to be shifted through the use of even short-duration battery systems. The current methodology for calculating avoided cost rates simply does not account for these subtleties in the grid of the very near future.

In its initial comments, the AGO states that “the Companies’ proposed avoided cost rates do not reflect the value of carbon emissions reductions of many QFs and thus fail to fully reflect the Companies’ avoided costs as required by PURPA.” (AGO Initial Comments at 8.) The AGO notes that the Companies’ avoided cost calculations do not comply with the PURPA mandate to represent “the costs that the electric utility would have been required to spend ‘but for’ the purchase from the QFs” where HB951 restrains the amount of carbon-emitting resources that Duke can include in its system. (*Id.* at 9-10.) The AGO rightly notes that “not only are there serious concerns regarding the adequacy of natural gas supply, but in order to achieve the carbon emission reduction targets... the Companies would be required to account for the carbon emission impact of a carbon-free QF versus a CT.” (*Id.*)

The AGO correctly points out that the adoption of the initial Carbon Plan renders the costs of carbon compliance more “known and verifiable” than they were in previous avoided cost proceedings. (*Id.* at 10.) As the AGO points out, in the Sub 175 Order the Commission approved DENC’s assignment of a cost of carbon in its “Alternative Plan B,” which included participation in the Regional

Greenhouse Gas Initiative (“RGGI”) – thus, the concept of a carbon cost in avoided cost rates is not new or inappropriate. (*Id.* at 11.)

Based on its critiques and the need for an avoided cost methodology that accurately and adequately compensates renewable QFs for their true value in a carbon-constrained system, the AGO requests the Commission reject Duke’s avoided cost proposal and order “the Companies, in consultation with the AGO, the Public Staff, and other interested intervenor, to develop a method of deriving the value of carbon emission reductions from the CPIRP to be included in avoided cost rates for carbon free QFs” or if such carbon value cannot be accurately reflected in the peaker methodology, to require the Companies, in consultation with those same parties “to propose an alternative method for calculating avoided cost rates.” (AGO Initial Statement at 20.)

Although the Public Staff supports the continued use of the peaker method in this proceeding and approval of Duke’s proposed avoided cost rates, and did not request any action by the Commission to address the issue of accurately calculating the costs avoided by carbon-free resources, it did note its prior suggestion in the E-100, sub 179 proceeding that a “carbon adder” could be included in the peaker methodology to account for costs avoided by carbon-free resources in a carbon-constrained environment. The Public Staff states that:

With regard to the Utilities’ efforts to quantify carbon emission reduction benefits, Duke’s carbon-constrained capacity expansion plan in CPIRP does consider the carbon cap *but may not fully capture the avoided costs of carbon compliance in the future....* [in comments in Docket Nos. E-2, Sub 931; E-7, Sub 1032; and E-100 Sub 179] the Public Staff stated that the generation expansion plans subject to a carbon emission limit would include lower emitting resources that tend to have lower marginal energy costs

and higher capital costs per kW of capacity. These lower carbon emitting resources reduce avoided energy costs without a commensurate increase to avoided capacity costs as calculated under the peaker methodology. To address this reduction, the Public Staff noted that the Commission could approve a carbon reduction benefits adder for avoided energy rates, initially set at \$0 per MWh as a placeholder, and direct parties to propose a calculation methodology in the next biennial avoided cost proceeding or Duke's next CIPRP filing. *This adder could help recognize the full measure of benefits provided by renewable energy QFs and Energy Efficiency/Demand Side Management measures.*

(Public Staff Initial Comments at 8-9 (emphasis added).)

CCEBA agrees wholeheartedly with the AGO that avoided cost rates must accurately reflect the actual value that carbon-free resources bring to the grid, and that the CT-peaker method does not adequately address that value given that HB951 restricts the deployment of carbon-based generating assets.⁵ A process to address that change is necessary, and Duke's recitation and rejection of FERC-approved methodologies is not a sufficient consideration of that need.

CCEBA further agrees with the AGO that improper valuation of carbon free resources through long-term continuation of the peaker methodology fails to account for externalities and will eventually result in a disconnect between value and system planning (see AGO Initial Comments at 15.) Left unchecked, this disconnect will pose risks to ratepayers and potentially to the reliability of the grid, as potential carbon-free providers – including those that currently operate facilities pursuant to existing but soon-to-expire PPAs - seek to deploy their

⁵ In its initial comments, CCEBA gave particular attention to the failure of current methodology to accurately account for avoided capacity costs. However, as the AGO's initial comments reflect, the peaker methodology also fails to accurately capture the energy costs avoided by carbon-free resources in a carbon-constrained environment.

resources elsewhere, in places where they will be more accurately compensated for the true value they bring to the grid.

Duke's apparent assumption that existing solar QFs will continue to provide power even after the expiration of their current PPAs also highlights problems with its avoided cost calculations, and the need for Duke to revise its avoided cost methodologies to reflect its need for carbon-free generation.

Since filing its initial comments, CCEBA has learned from its members that there are some QFs on Duke's system for which existing PPAs will expire in 2027. In order for both the QF and Duke to plan for the future contribution of those resources to Duke's system and to HB 951 compliance, such QFs will need to make a determination by early 2026 as to whether to tender a new Notice of Commitment and seek a new PURPA PPA from Duke or to make some alternative offtake arrangement, such as bidding into a future competitive solicitation or seeking to become a GSA supplier for an eligible commercial or industrial customer. Moreover, other QFs expiring in the next few subsequent years would need lead time to consider significant capital investment, such as repowering or addition of BESS. That means that such QFs need to be able to determine the avoided cost rate that will be available to them at that time and to have that avoided cost rate be accurately and appropriately calculated. Thus, it is not sufficient simply to kick the can down the road on this issue to the next biennial avoided cost proceeding, which is not likely to conclude before late 2026.

That dilemma presents two options for the Commission – either to address this issue in this proceeding in the manner proposed by the AGO or to require Duke to initiate an expedited stakeholder process that would allow the Commission to make any necessary modifications to its approved avoided cost methodology well before the next biennial avoided cost proceeding. CCEBA notes that the latter would allow the process to benefit from the additional relevant information and certainty about Duke’s resource planning and carbon reductions that will result from the current CIPRP proceeding.

CCEBA therefore urges the Commission to order Duke to undertake a defined and collaborative process for establishing an avoided cost methodology that accurately and appropriately accounts for the value of carbon-free resources and the costs they avoid and to consider QF recontracting options.⁶ CCEBA further requests that the Commission establish a firm deadline for the completion of this process that allows the Commission to approve an alternative methodology in advance of the next biennial avoided cost proceeding.

III. Critique of Duke’s Study of Ancillary Services by Inverter Based Resources

The Public Staff and NCSEA both note that the Inverter Based Resource (“IBR”) Testing Report filed by Duke Energy in Docket No. E-100, Sub 175 (“Sub 175 Proceeding”) on August 1, 2023 provides an insufficient basis on which to determine the capability of such resources to provide ancillary services.

The Public Staff states that its review of the IBR Testing Report “reveals the need for research using larger scale batteries” and that “energy storage will

⁶ Such a process should also address whether there is a difference between the costs avoided by new and existing carbon-free resources.

likely be necessary if QFs are to provide significant ancillary services in the future.” (Initial Statement of Public Staff at 11-12.)

NCSEA commends Duke Energy “for the rapid and timely production of the IBR Report” but notes that “the limitations imposed by the compressed timeline undermine any conclusions that can be made.” (NCSEA Initial Comments at 19.) NCSEA states that the test included no paired solar and storage facility and tested only one storage configuration. (*Id.* at 20.) Moreover, NCSEA points out that testing for Active Power Testing and Reactive Power Testing of the solar facilities were only performed for one day and two days, respectively, and that the storage facility was only tested for a limited period on one day. (*Id.*) NCSEA concludes that “the Commission should require Duke to conduct further testing on the ability of IBRs to provide ancillary services” and that such future testing should be informed by stakeholder engagement “concerning the types of equipment Duke intends to test and the design(s) of the testing Duke intends to carry out.” (*Id.*)

NCSEA also notes that the IBR Testing Report confirms that IBRs “are already providing and are expected to continue to provide” reactive power management / voltage support to the grid. NCSEA argues that these services are currently provided without compensation and that, given that such services are location-specific, “the time is ripe for a pilot program to determine the actual reactive power management/voltage support IBRs would provide if appropriately compensated for such service” by identifying a set of IBRs near a location of

congestion in Duke's balancing areas and measuring their performance. (*Id.* at 21-22.)

CCEBA agrees with the Public Staff and NCSEA that the IBR Testing Report is an insufficient basis on which to determine conclusively the ancillary services value of IBR resources. CCEBA further agrees with NCSEA that the Commission should require more robust testing of solar, solar plus storage, and standalone storage resources prior to the next avoided cost proceeding and that such testing should be conducted with input from stakeholders. CCEBA further agrees that a pilot program to determine the value of reactive power / voltage support provided by IBRs would be helpful and informative to the Commission and help determine the proper compensation for a service that Duke's own testing shows is already likely being provided by IBR resources without compensation.

IV. Support of SACE NEEC Comments

Finally, CCEBA has reviewed and supports SACE's comments and proposals addressing the Net Excess Energy Credit ("NEEC") in order to bring the proposed NEEC into compliance with the law and prior Commission orders and adequately compensate rooftop solar customers for the costs their facilities allow Duke to avoid.

CCEBA appreciates the opportunity to provide these comments and thanks the Commission for its consideration.

Respectfully submitted this 27th day of March 2024.

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This, the 27th day of March 2024.

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