**Kendrick C. Fentress**
Associate General Counsel

NCRH 20 / P. O. Box 1551
Raleigh, North Carolina 27602

o: 919.546.6733
f: 919.546.2694

Kendrick.Fentress@duke-energy.com



March 5, 2021

**VIA ELECTRONIC FILING**

Ms. Kimberley A. Campbell
Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

**Re: Duke Energy Carolinas, LLC's and Duke Energy Progress, LLC's Reply Comments**
**Docket No. E-100, Sub 167**

Dear Ms. Campbell:

Enclosed please find the Reply Comments of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC for filing in the above-referenced docket.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Kendrick C. Fentress

Kendrick C. Fentress

Enclosure

cc: Parties of Record

**STATE OF NORTH CAROLINA**
**UTILITIES COMMISSION**
**RALEIGH**

DOCKET NO. E-100, SUB 167

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

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| In the Matter of<br>Biennial Determination of Avoided Cost Rates<br>for Electric Utility Purchases from Qualifying<br>Facilities – 2020 | )<br>)<br>)<br>) | REPLY COMMENTS OF DUKE<br>ENERGY CAROLINAS, LLC AND<br>DUKE ENERGY PROGRESS, LLC |

NOW COME Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP" and together with DEC, "the Companies" or "Duke"), pursuant to the North Carolina Utilities Commission's ("Commission" or "NCUC") August 13, 2020 *Order Establishing Biennial Proceeding, Requiring Data, and Scheduling Public Hearing* ("2020 Scheduling Order"), October 30, 2020 *Order Granting Continuance and Establishing Reporting Requirements* ("2020 Procedural Order"), and subsequent order granting extension of time, and submit the Companies' Reply Comments in response to the initial comments filed by the Public Staff – North Carolina Utilities Commission ("Public Staff"), and jointly, by the Southern Alliance for Clean Energy ("SACE"), the North Carolina Clean Energy Business Alliance ("NCCEBA"), and the North Carolina Sustainable Energy Association ("NCSEA") (collectively, the "Joint Solar Advocates").

## DUKE REPLY COMMENTS

### I. The Public Staff Generally Supports the Companies' 2020 Avoided Cost Rates

The Public Staff generally supports DEC's and DEP's quantification of their avoided energy and capacity costs using the peaker methodology.

Specific to the Companies' avoided energy costs, the Public Staff has reviewed the Companies' PROSYM inputs and modeling and resulting avoided energy costs and state

that the Companies' "MW capacities, heat rates, and other inputs that characterize the Companies' generation units" used for determining avoided energy rates in this proceeding "are reasonably consistent with the 2018 Proceeding and are appropriate for this proceeding."[1] The Public Staff does not recommend any changes to the Companies' avoided energy inputs or calculations in this streamlined proceeding, although the Public Staff does raise several "issues of concern" that the Companies address in Section II below.[2]

Specific to the Companies' avoided capacity costs, the Public Staff concluded that the Companies' avoided capacity rates were overall reasonable, stating that they had "reviewed the [Companies'] capital inputs, line losses, seasonal allocations, and other assumptions incorporated in DEC's and DEP's avoided costs and finds them reasonable for the determination of their avoided capacity rates."[3]

In addition, the Public Staff recommends one modification to the Companies' standard offer Schedule PP purchase power agreement ("PPA"), which the Companies accept. The Companies' acceptance of the Public Staff's recommendation is addressed in Section III below.

Consistent with the Public Staff's comments and general support for the Companies' 2020 standard offer avoided cost rates, the Companies recommend the Commission approve their avoided energy and capacity cost calculations as reasonable and appropriate for purposes of this proceeding, as well as their respective avoided energy and capacity rates, as further addressed below.

[1] Public Staff Initial Statement, at 24.
[2] *Id.* at 24-25.
[3] *Id.* at 21.

## II. Duke's Response to the Public Staff's Issues of Concern and the Joint Solar Advocates' Criticisms of 2020 Avoided Cost Rates

### a. Duke's long-term natural gas price forecasts and underlying gas transportation assumptions align with the Companies' 2020 IRPs and are reasonable for quantifying avoided costs in this streamlined proceeding.

The Public Staff raises an "issue of concern" relating to the Companies' reliance upon forecasted lower cost natural gas pricing utilizing the Appalachian basin's lower cost Dominion South ("DS") Point hub starting in year 2026, as opposed to continued utilization of the Transco Zones 4 and 5 pricing through and past year 2026. The basis for this concern is the current lack of operating gas pipeline infrastructure near the DS Point hub due to the recent cancellation of the Atlantic Coast Pipeline, as well as the uncertain future regulatory landscape for the construction of new gas pipelines, specifically the Mountain Valley Pipeline ("MVP"), in this region.[4] Despite its concern, the Public Staff "accepts the DS trading hub price assumption as reasonable for this proceeding" and additionally notes the "difficulty in forecasting long-range prices of natural gas, as well as other fuels...."[5]

The Companies agree with the Public Staff that for purposes of this proceeding, the Companies' natural gas forecasting assumptions, including longer-term reliance on lower-cost gas at the DS trading hub, are reasonable and should be utilized, as they align with the Companies' 2020 IRP base planning assumptions.[6] The Companies also agree with the Public Staff's recommendation for the Companies to further evaluate their assumptions regarding the availability of additional interstate pipeline capacity, and to provide the Commission and stakeholders with updated information on expected actions by various

[4] *Id.* at 43-44.
[5] *Id.* at 41.
[6] As discussed in the Companies' Joint Initial Statement and discussed in Section II.b below, the Companies have relied upon assumptions consistent with their 2020 IRPs but have utilized the methodology approved in the *2018 Sub 158 Order* for purposes of transitioning from reliance on forward market prices for natural gas to the Companies' fundamental forecasts.

pipeline developers and other parties and to address expected timelines that are needed for project completion, as well as identification of major challenges associated with planned or potential pipelines.[7] As circumstances evolve regarding the status of additional interstate pipeline capacity into the Carolinas, the Companies commit to provide updated information on this topic to the Commission in either their reply comments in the current 2020 IRP proceeding and/or in the 2021 IRP update and avoided cost filings, as appropriate, and note that this is first and foremost an IRP issue that will then influence subsequent valuations of avoided costs.

In response to the Public Staff's further recommendation for the Companies to consider developing an IRP portfolio or sensitivity in the 2021 IRP Update that is similar to their base case but which includes natural gas import restrictions or less reliance on DS trading hub gas, the Companies generally accept the Public Staff's recommendation to consider developing an IRP portfolio or sensitivity in their future IRPs that is similar to their base case but which includes natural gas import restrictions or less reliance on DS trading hub gas. Importantly, however, as the Companies will discuss in their 2020 IRP reply comments, the Companies believe the next comprehensive IRP filing in 2022 is more appropriate for developing this type of sensitivity analysis as it will provide a more informed view on this issue than can be provided in the 2021 IRP update filing. Changing the assumption of natural gas availability has fundamental implications for many aspects of the IRP such as the timing of coal generation retirements and the selection of resources that could reliably replace coal and reliably meet load growth. Furthermore, as a practical matter, the 2021 IRP is an update that will be based on information that exists this summer

[7] Public Staff Initial Statement, at 46.

as the IRP update is being prepared. Given the potential for new policy mandates at the state and federal level as a result of the change in the administration and the recent events in ERCOT, it may be premature to analyze the potential impacts of interstate gas supply and the consequences it would have on a future resource plan. Finally, the Companies reiterate the Public Staff's statements regarding the difficulties in forecasting long-range prices of natural gas and other fuels, and cite to the historically declining price of natural gas.[8] As the Commission has stated in the past "lower natural gas prices in the short- and long-term will result in benefits to ratepayers."[9]

The Joint Solar Advocates also criticize the Companies' reliance on the lower cost DS Point hub natural gas assumptions in their 2020 IRPs and suggest—without clearly explaining how—that Duke failed to comply with the Commission's *2018 Sub 158 Order* by relying upon these IRP planning assumptions in calculating their avoided energy cost rates.[10] The Joint Solar Advocates argue that it is "not reasonable or appropriate for Duke to change several of the combined-cycle plants to the Dominion South zone beginning in 2026,"[11] and request that the Commission require Duke to use the Transco Zones 4 and 5 for the entire applicable forecast period. In addition, the Joint Solar Advocates argue that "Duke's updated differential basis does not appear to incorporate capacity reservation costs," which they claim "must be considered when determining the economics of a prospective new pipeline."[12]

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[8] *Id.* at 41.

[9] *Order Establishing Standard Rates and Contract Terms for Qualifying Facilities*, at 27, Docket No. E-100, Sub 140 (Dec. 17, 2015) ("Phase II Sub 140 Order").

[10] Joint Solar Advocates Initial Comments, at 8-9. The Companies have reviewed the confidentiality designations in the Joint Solar Advocates' Reply Comments—which were based on information produced by the Companies in discovery—and have limited such designations, as appropriate, for purposes of these Reply Comments.

[11] Joint Solar Advocates Initial Comments, at 9.

[12] *Id.*

In response to the Joint Solar Advocates, it is unclear to Duke how reliance in this proceeding on the gas forecasting assumptions presented in their 2020 IRPs failed to comply with the *2018 Sub 158 Order*. As addressed in Duke's Joint Initial Statement, the Companies have adhered to the Commission's directive in the *2020 Procedural Order* to "update the inputs to their avoided . . . cost rates based upon the methodological guidelines and requirements approved in the [*2018 Sub 158 Order*], as outlined in [the Companies' and Dominion Energy North Carolina's ("DENC's")] October 20, 2020 filing."[13] For the avoidance of doubt, the Companies have generally relied upon the natural gas forecasting transportation assumptions presented in DEC's and DEP's 2020 IRPs, as confirmed by the Public Staff.[14]

Duke also takes issue with the Joint Solar Advocates' unsubstantiated assertion that the MVP "will not be constructed."[15] The Public Staff makes no such definitive conclusion[16] and Duke is not aware of any decision by MVP to cancel its plans for construction. As addressed in response to the Public Staff, Duke generally agrees that it is appropriate to continue to monitor market developments and to evaluate the continuing reasonableness of its long-term planning assumptions relating to available natural gas transportation infrastructure in future IRPs in order to inform future avoided cost proceedings.

Duke would also highlight for the Commission's information that these longer-term natural gas transportation assumptions for providing natural gas to the Companies'

[13] *2020 Procedural Order,* at Ordering Paragraph 1 (Oct. 30, 2020).
[14] Public Staff Initial Statement, at 41.
[15] Joint Solar Advocates Comments, at 9.
[16] Public Staff Initial Statement, at 44 (. . . MVP "is now delayed and scheduled to enter service in late 2022.").

combined cycle fleets and potential future combustion turbines ("CT") may not have as material of an impact on avoided cost rates as the Commission might assume. First, the Companies have utilized conservative planning assumptions that the DS trading hub would not be available until 2026 to provide gas to certain of the Companies' existing combined cycle ("CC") fleets.[17] This means that this gas transportation hub assumption will only impact resource planning and avoided costs beginning in year six of the current planning period (as well as year six of the avoided cost rate calculation). Second, as recognized by the Public Staff, "[t]he impact of this lower priced gas will occur when Duke's natural gas units, that receive gas from the DS hub, ***are the marginal resource***, and avoided energy costs will be less than if the natural gas was sourced from Transco Zone 4 or 5."[18] In sum, the Companies' CCs, CTs and coal units can each be the marginal resource in a given hour during the 2021 through 2030 time period used to develop avoided costs, and the IRP's reliance on DS hub gas beginning in 2026 only impacts the avoided cost in the 2026 to 2030 period when CCs are on the margin.

Moreover, the Joint Solar Advocates' assertion that capacity reservation costs "must be considered when determining the economics of prospective new pipeline,"[19] is not accurate for purposes of calculating the Companies' avoided capacity costs under the peaker methodology. As the Public Staff recognizes,[20] the Companies' avoided CT cost assumptions have consistently assumed #2 fuel oil as the backup fuel source as opposed to relying upon firm gas capacity reservations, and, as such, the Companies did not include the cost to reserve firm upstream capacity for the avoided CT. While this issue may be

[17] Public Staff Initial Statement, at 45.
[18] Public Staff Initial Statement, at 41 (emphasis added).
[19] Joint Solar Advocates Comments, at 9.
[20] Public Staff Initial Statement, at 11.

appropriate to consider in the broader resource planning context, it would be improper for the Companies to accept the Joint Solar Advocates' recommendation to incorporate capacity reservation costs into their avoided cost calculations.

In sum, the Companies support the Public Staff's recommendations to continue to evaluate the reasonableness of its long-term planning assumptions relating to available natural gas transportation infrastructure in its future IRPs and, as appropriate, avoided cost proceedings.

**b. Duke's methodology of relying upon natural gas market prices for eight years and then transitioning to its 2020 IRP fundamental forecast assumptions is appropriate in this proceeding, and the Joint Solar Advocates may raise their arguments in a future proceeding.**

As explained in the Companies' Joint Initial Statement, the Companies' 10-year avoided cost rates are calculated utilizing forward market natural gas pricing for the first eight years before transitioning to rely upon natural gas commodity prices based on the Companies' fundamental gas price forecasts for years nine and ten.[21] The Public Staff finds that this method is "consistent with the Commission Orders in Docket No. E-100, Subs 148 and 158 respectively" and the Public Staff accepts the Companies' natural gas commodity price forecasting methodology as reasonable for purposes of this proceeding.[22] The Joint Solar Advocates, however, recommend that "Duke should rely on fewer than eight years of forward natural gas market price data before transitioning to a fundamentals forecast in both the avoided cost proceeding and the IRP proceeding."[23] The Crossborder Energy Report ("Crossborder Report") supports the Joint Solar Advocates' arguments,

[21] Duke Joint Initial Statement, at 18-21.
[22] Public Staff Initial Statement, at 40.
[23] Joint Solar Advocates Initial Comments, at 15.

generally presenting the same arguments in opposition to Duke's reliance upon longer-term forward natural gas market prices presented in prior avoided cost proceedings.[24]

The Companies request that the Commission reject the Joint Solar Advocates' recommendation and reiterate, as explained in their Joint Initial Statement and restated by the Public Staff, that their natural gas commodity price forecasting methodology is reasonable and appropriate for this streamlined proceeding and consistent with the Commission's recent Sub 148 and Sub 158 Orders on this issue.[25] As noted in the Joint Initial Statement, the Companies (as well as the Joint Solar Advocates and Public Staff) may support a different position on natural gas commodity price forecasting methodologies in future proceedings.[26]

**c. The Joint Solar Advocates' recommendation that Duke should be required to blend its natural gas fundamental forecasts with another publicly available (and higher) forecast should be rejected.**

The Joint Solar Advocates also argue that the Companies should supplement and average the long-term natural gas commodity price fundamental forecast utilized in their 2020 IRPs with a publicly available Henry Hub forecast, such as the Energy Information Administration's ("EIA") 2020 Annual Energy Outlook forecast of Henry Hub prices.[27] In support of their argument, they attempt to rely upon the fact that the Commission's *2018 Sub 158 Order* recognized transparency and the use of publicly available data as an

[24] Joint Solar Advocates Initial Comments, Cross Border Energy Report, at 2-4.
[25] Duke Joint Initial Statement, at 21.
[26] *Id.*
[27] Joint Solar Advocates Initial Comments, at 10. While not material, Duke notes that the Joint Solar Advocates are incorrect in their underlying assumptions that "Duke currently uses fundamentals forecasts for Henry Hub prices from the private consultancies IHS and ICF." The Companies' 2020 IRPs relied exclusively on the IHS fundamental forecast while Dominion relies upon ICF.

important element of CT price estimates and then go on to make the dubious assertion that "it is not entirely clear whether Duke complied with the Sub 158 Order[]" on this issue.[28]

The Companies have in fact adhered to the *2018 Sub 158 Order* as they have used the same forecasting methodology specifically approved in that Order. The Companies have also adhered to the Commission's directive in the *2020 Procedural Order* to rely upon updated inputs consistent with the methodological guidelines approved in the *2018 Sub 158 Order*.[29] In their initial Notification Filing[30] in this proceeding, the Companies indicated their intent to "update the inputs in their avoided energy rates…consistent[] with the requirements of N.C. Gen. Stat. § 62-156, and based upon the methodological guidelines and requirements approved in the [*2018 Sub 158 Order*]." As an example of this then-proposed and now accepted approach, the Companies specifically stated that they "plan[ned] to adopt, without recommending any modifications, the Commission's determinations in the [*2018 Sub 158 Order*] on the inputs to their avoided cost rates, including, for example, the methodology for transitioning to fundamental forecasts in calculating avoided energy rates."[31] Despite the Commission's approval of this approach, the Joint Solar Advocates ask the Commission to require the utilities to change their fundamental forecast inputs, most likely for the single unstated purpose of increasing the avoided cost rates paid to solar QFs. Accordingly, the Joint Solar Advocates' request should be rejected.

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[28] Joint Solar Advocates Initial Comments, at 10.
[29] *2020 Procedural Order*, at 3.
[30] Duke Energy Carolinas, LLC, Duke Energy Progress, LLC's and Dominion Energy North Carolina's Notification of Intended Compliance with N.C. Gen. Stat. 62-156(b), Request for Continuance of Compliance with Certain 2020 Filing Requirements, and Request to Prospectively Modify Timing of Biennial Proceedings, at 6, Docket No. E-100, Sub 167 (filed Oct. 20, 2020) ("Notification Filing").
[31] Notification Filing, at 7.

**d. Duke agrees with the Public Staff that carbon emissions costs should not be included in avoided energy costs.**

Within the issues of concern section of their comments, the Public Staff recognizes that the Companies have been ordered by the Commission to base avoided costs on "known and verifiable" costs, which do not include the costs of carbon emissions.[32] The Public Staff also recognizes that the Commission has "ruled that the expansion plans used in the calculation of avoided energy should be based on IRP expansion plans that take into account only known and quantifiable costs," and concludes that "DEC's and DEP's calculation of avoided energy rates utilizing generation expansion plan scenarios that [are] selected based on the inclusion of the $CO_2$ costs is inconsistent with the Commission's directives…."[33]

Similar to the Commission, the Federal Energy Regulatory Commission ("FERC") has held that only "real costs" that are actually avoidable by a utility and its customers when the utility purchases QF power are properly accounted for and included in a utility's avoided costs.[34]

In compliance with these Commission directives, the Companies have utilized inputs from their 2020 IRPs' least cost "Portfolio A Base without Carbon Policy" to calculate their respective avoided energy rates. The Public Staff agrees with the Companies' use of Portfolio A, stating that "the use of Portfolio A is appropriate and consistent with prior Commission direction to consider only "known and verifiable" costs,

[32] *Order Setting Avoided Cost Input Parameters,* Finding of Fact 14, at 42-44, Docket No. E-100, Sub 167 (Dec. 31, 2014).
[33] Public Staff Initial Statement, at 38 (citing to *Phase II Sub 140 Order*, at 23-24.).
[34] *See e.g., Cal. Pub. Utility Comm'n*., 132 FERC ¶ 61, 047, 61,267-68 (July 15, 2010), *clarification granted & rehearing denied*, 133 FERC ¶ 61, 059 (October 21, 2010), *rehearing denied*, 134 FERC ¶ 61,044 (Jan. 20, 2011) (clarifying that if environmental costs "are real costs that would be incurred by utilities," then they "may be accounted for in a determination of avoided cost rates.").

as neither DEC nor DEP are currently subject to any regulations imposing a carbon price."[35]

In contrast to the Public Staff's position, the Joint Solar Advocates recommend that the Companies be required to use one of their 2020 IRPs' alternative modeling scenarios that include carbon price assumptions.[36]

Duke agrees with the Public Staff that, today, there is no known and verifiable legal or regulatory requirement setting a mandatory price on carbon emissions applicable to the Companies. While it is true that the Companies' IRPs present multiple alternative long-term planning pathways or scenarios that do forecast carbon emission costs in the future, that does not mean they are known and verifiable costs for the Companies in North Carolina today.

Acceptance of the Joint Solar Advocates' request would cause the Companies to be non-compliant with the Commission's prior directives, as well as FERC's guidance on what constitutes properly includible avoided costs. The Joint Solar Advocates' proposal to require the Companies to assume a carbon price in calculating the Companies' avoided costs in this proceeding should, therefore, be rejected.

**e. The Companies have included avoided hedging costs consistent with the *2018 Sub 158 Order* and the Joint Solar Advocates' recommendation to consider a new methodology should be rejected.**

As explained in the Companies' Joint Initial Statement, the Companies utilized the avoided fuel hedge values for purposes of calculating their avoided cost rates in this proceeding consistent with the Commission's direction in the *2018 Sub 158 Order*.[37] The

[35] Public Staff Initial Statement, at 38.
[36] Joint Solar Advocates Initial Comments, at 16-17; Crossborder Energy Report, at 10-11.
[37] Duke Joint Initial Statement, at 21-22.

Public Staff does not comment on the Companies' utilization of the avoided hedging values and supports the overall reasonableness of the inputs to the Companies' avoided energy cost rates. The Joint Solar Advocates, however, argue that the "Black-Scholes Model does not represent the added fuel price stability gained through each year in a long-term fixed-price PPA with a renewable QF."[38] Citing to the *2018 Sub 158 Order*, which states that the method used to calculate a fuel hedge must value "the added fuel price stability gained through each year of the entire term of the QF power purchase agreement," the Joint Solar Advocates argue that the Companies' utilization of the Black-Scholes Model does not adhere to the Commission's Sub 158 directives, and request the Commission require the Companies to apply a purportedly "more accurate model that better conforms to the Commission's prior order."[39] In the alternative, the Joint Solar Advocates state that should the Commission view this fuel hedge issue "as a methodological issue rather than a compliance issue then it would be appropriate to revisit the issue in the full proceeding beginning in November."[40]

As an initial matter, the Companies disagree that their avoided hedge value used in this proceeding—which was specifically accepted in the 2018 Sub 158 proceeding—could in any way be a Sub 158 "compliance issue" as the Joint Solar Advocates suggest. As alluded to in Joint Solar Advocates' own comments, the method the Companies utilize to calculate the fuel hedge applicable to QFs is just that, a methodological issue that the parties and this Commission have agreed to address in a future proceeding rather than at this time. Setting aside the fact that the Companies disagree with the Joint Solar Advocates'

[38] Joint Solar Advocates Initial Comments, at 12.
[39] *Id.*
[40] *Id*.

allegations and, in the future, will likely continue to oppose the inclusion of any avoided hedging costs (as Duke did in the Sub 158 proceeding), the Companies agree that the fuel hedge issue should be addressed in the Companies' November 2021 avoided cost filing.

**f. Duke agrees to work with the Public Staff to assess continued line loss adjustment between now and the November 2021 filing.**

As explained in the Companies' Joint Initial Statement, the Companies' Schedule PPs offer different avoided energy credits depending on the QF's point of interconnection to the Companies' systems, as this approach more accurately reflects differences in DEC's or DEP's actual avoided costs due to differences in avoided energy line losses for transmission level and distribution level QFs.[41] The Companies' Joint Initial Statement also updated the Commission on their study of distribution-connected generators causing power backflow on substations and the appropriateness of retaining the line loss adjustment for distribution connected QFs.[42] The Public Staff states that they have "reviewed the information submitted by [DEC and DEP] related to line loss adders and back-feeding of substations and agrees with the [the Companies'] proposals."[43] The Joint Solar Advocates do not comment on the Companies' proposed line loss adders.

The Public Staff additionally recommends, as part of the next avoided cost filing, that "DEC and DEP evaluate and report on any geographical concentrations of back-feeding substations and whether a rate design with and without a line loss adder based on the amount of back-feeding at a substation would be appropriate in order to provide appropriate market-based signals to QFs regarding the value of the energy at the selected

[41] Duke Joint Initial Statement, at 22-23.
[42] *Id.*
[43] Public Staff Initial Statement, at 48.

location."[44] The Companies agree with the Public Staff's recommendation and commit to discuss this issue with the Public Staff prior to the Companies' November 2021 filing. The Companies further request the Commission approve the Companies' currently-proposed distribution line loss adder included in the standard offer Schedule PP rates for purposes of this proceeding.

**g. The Companies' updated avoided energy rate design is appropriate for use in this proceeding.**

On February 12, 2021, the Companies filed their Supplemental Filing of Revised Energy Rate Calculations and Updated Avoided Energy Rates ("Supplemental Filing"). As explained in the Supplemental Filing and addressed in the Public Staff's and Joint Solar Advocates' initial comments, the Companies' initially proposed avoided energy costs resulted in counterintuitive energy pricing periods, which included on-peak rates being lower than off-peak rates in certain periods. As also explained in the Supplemental Filing, this was due to a change in the Companies' production cost modeling's treatment of unit start costs as compared to the 2018 Sub 158 proceeding. After discussing this issue with the Public Staff, the Companies have reverted to modeling unit start costs in the same manner as was done in the 2018 Sub 158 proceeding, and have committed to further discuss this issue with the Public Staff and address any resulting rate design changes in the upcoming 2021 filing.

Based upon the Companies' Supplemental Filing and updated avoided energy credits filed therein, the Companies believe that the Public Staff's and the Joint Solar Advocates' stated concerns regarding the initially-filed rate designs are now resolved.

[44] *Id.*, at 49.

Accordingly, the Companies request that the Commission approve the Companies' Supplemental Filing and rate designs included therein.

**h. The Joint Solar Advocates' advocacy for use of higher CT capital cost assumptions should be rejected.**

As noted above, the Public Staff supports the Companies' avoided capacity capital cost inputs and assumptions as reasonable for purposes of developing avoided capacity rates in this proceeding.[45] The Joint Solar Advocates, however, take issue with the fact that the Companies have continued to base their hypothetical avoided CT costs on publicly available EIA data for a single F-Class CT constructed at a greenfield site, adjusted to reflect the economies of scale associated with gas pipeline interconnection. For the avoidance of doubt, the Companies' approach is fully consistent with the methodological approach approved in the *2018 Sub 158 Order* (with inputs updated for 2020 data, as recognized by the Public Staff[46]). However, the Joint Solar Advocates' Initial Comments and Crossborder Report assert that "[i]t is not entirely clear whether Duke complied with the Commission's [*2018 Sub 158 Order*]" on this issue and argues that "DEC and DEP should, instead, use the costs of an H-Class Turbine as the CT cost assumption for its avoided capacity costs."[47]

The singular basis for the Joint Solar Advocates' alternative recommendation is that DEC is currently constructing an H-class CT at its Lincoln County site. However, the Joint Solar Advocates fail to recognize that this unit reflects a unique arrangement with Siemens Energy allowing Siemens to build and test its newest H-Class technology at DEC's Lincoln County site. In exchange, DEC's customers realize a significant capital

[45] Public Staff Initial Statement, at 21.
[46] *Id.*, at 10 (citing to the Companies' reliance on 2020 EIA CT cost data).
[47] Joint Solar Advocates Initial Comments, at 10-11; Crossborder Report, at 11.

cost savings and will receive all of the H-Class unit's energy during a four-year testing period while only paying a portion of the fuel costs—again, a unique arrangement for this single test project. In short, this H-class CT is a unique CT that is part of a new demonstration project, and not reflective of the Companies' actual system CT conditions or indicative of future system CT conditions.

In contrast to the Joint Solar Advocates' recommendation—which seems intended solely to increase avoided costs by increasing the installed cost of the assumed avoided unit—even a cursory assessment of the Companies' fleets show that the Lincoln #17 CT is unique and should not be the basis for the avoided CT unit.[48] DEC and DEP operate a total of ***32 F-class units*** in either simple-cycle or combined-cycle mode in the Carolinas, as opposed to the one new H-class Lincoln #17 CT cited by the Joint Solar Advocates. And, more importantly, the Companies' 2020 IRPs, as well as prior IRPs, also similarly and consistently reflect F-class CTs as the generic peaking resource addition.

Further, the Companies' use of a simple cycle F-class CT unit is appropriate under the peaker methodology as a proxy for pure capacity. The peaker methodology assumes that when a utility's generating system is operating at equilibrium, the installed fixed capacity cost of a simple-cycle combustion turbine generating unit (a "peaker") plus the variable marginal energy cost of running the system will produce a reasonable proxy for the marginal capacity and energy costs that a utility avoids by purchasing power from a QF. Consistent with PURPA, the peaker methodology is designed to ensure that purchases from new QF generators are not more expensive than the avoided capacity cost of a peaker plus the utility's forecasted avoided system marginal energy cost. From an installed cost

[48] *See* Appendix B of the Companies' 2020 IRPs filed in Docket No. E-100, Sub 165.

perspective, a simple cycle F-frame peaking unit is typically the least expensive type of traditional resource that the Companies can construct to provide capacity for reliability purposes, and, therefore, is appropriate for use in the peaker methodology for purposes of quantifying avoided costs.

The Companies would also respond to the Crossborder Report's assertion that an H-class turbine is appropriate for use in calculating avoided costs because this more expensive class of CT unit offers "important operational improvements (a lower heat rate, faster start-ups, and higher ramp rate) which will be important and beneficial to ratepayers in a world with intermittent renewable resources with low variable costs."[49] The Companies generally agree that H-class or other more advanced aeroderivative CTs could be a future way for the Companies to manage the intermittent output of must-take solar generators. In that event, however, the cost causer for the more expensive CT unit would be the solar providers themselves and, thus, the incremental cost of constructing H-class or aeroderivative CTs versus F-class CTs should not also be paid for by customers to the solar providers as avoided costs.

Finally, it is worth noting the Joint Solar Advocates' alternative CT capital cost recommendation seems singularly designed to inflate the Companies' avoided capacity costs simply by recommending a higher cost CT unit. The Crossborder Report points to the H-class CTs from the Brattle Group's 2018 Cost-of-New-Entry ("CONE") study for PJM and notes that DENC uses the H-class as a basis for its avoided CT capacity cost.[50] The Crossborder Report then recommends that the $835/kW cost from the PJM CONE

[49] Crossborder Report, at 11-12.
[50] *Id.* at 11.

study should be used as the basis for DEC's and DEP's avoided capacity costs.[51] Duke initially notes that the $835/kW capacity cost is not an overnight cost but rather reflects the total installed cost in nominal dollars (including financing costs) for a 2022 in-service date in the PJM region. And, while it is true that the PJM CONE data and $835/kW capacity costs looks to be the starting point for DENC's avoided CT cost unit, DENC made numerous adjustments[52] (none of which were opposed by Public Staff or the Joint Solar Advocates) and actually used a capacity cost of $592.5/kW, which is significantly lower than the PJM CONE study, as well as significantly lower than the Companies' filed overnight CT cost of $712.7/kW.

In sum, the technology type used as the basis for the Companies' CT capital cost is consistent with past and present IRPs and avoided cost filings, appropriate under the peaker methodology, and most reflective of current system conditions at this time, as well as supported by the Public Staff. Moreover, the $712.7/kW CT cost based on publicly available data is based on a greenfield site and already overstates the cost that the Companies believe is appropriate for QF purchases based on the more likely installation of a CT at an existing brownfield CT site—which was an "additional issue" raised in the Sub *2018 158 Order* that will be addressed in the Companies' November 2021 avoided cost filing. Accordingly, the Commission should reject the Joint Solar Advocates' request to require DEC and DEP to base their avoided capacity rates on a hypothetical H-class CT.

[51] *Id.* at 12.

[52] *See* DENC Initial Statement, at 15-17. These adjustments were filed confidentially and have not been reviewed by Duke.

## III. Standard Offer Power Purchase Agreement

In their Joint Initial Statement, the Companies amended Section 6 of the Standard Offer PPA to provide that the Companies may require standard offer Sellers above 100 kW to provide prior notice of annual, monthly, and day-ahead forecast(s) of hourly productions, as specified by the Company.[53] However, the Companies explained that they did not have any present intent to require such information from small standard offer QFs, but believed this change was appropriate to better align Section 6 with the revised standard offer eligibility under HB 589. The Companies also recognized that it may become appropriate in the future to request operational data from smaller QFs during the terms of these PPAs as increasing penetrations of distributed energy resources are installed on the Companies' systems.[54]

In its initial statement, the Public Staff recognized the value of accurate production data for system operations, but raised concerns that lowering the reporting threshold from three MW to 100 kW may be "onerous and costly" for some small QFs.[55] The Public Staff also noted that DEC and DEP had indicated that they had not requested operational forecast information from any QFs less than five MW in the past five years.[56] The Public Staff concluded that "a facility greater than one MW may be better situated to agree to certain production forecasting reporting requirements as part of a negotiated contract process with DEC or DEP." The Public Staff therefore recommended that the Companies revise their

[53] Duke Joint Initial Statement, at 34-35.
[54] *Id.*
[55] Public Staff Initial Statement, at 50.
[56] *Id.*

standard offer contracts in this proceeding to require the forecasted hourly production rates from QFs only from facilities greater than one MW in capacity.[57]

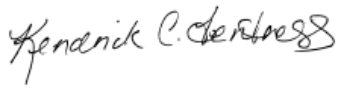
The Companies reiterate that the purpose of this change was solely to have the optionality to request this information from smaller QFs *if necessary* based upon future system conditions and operational needs. However, in the interest of resolving this issue, the Companies agree to revise this standard offer PPA to delete this provision and to prospectively limit the production forecast reporting requirements to QFs greater than one MW entering into negotiated PPAs.

## CONCLUSION

WHEREFORE, Duke Energy Carolinas, LLC and Duke Energy Progress, LLC respectfully request that the Commission accept the Companies' Reply Comments and grant any other relief the Commission deems necessary.

[57] *Id.*

Respectfully submitted, this the 5th day of March, 2021.



Kendrick C. Fentress
Associate General Counsel
Duke Energy Corporation
PO Box 1551 / NCRH 20
Raleigh, North Carolina 27602
Telephone: (919) 546-6733
*Kendrick.Fentress@duke-energy.com*

E. Brett Breitschwerdt
Kristin M. Athens
McGuireWoods LLP
501 Fayetteville Street, Suite 500
PO Box 27507 (27611)
Raleigh, North Carolina 27601
(919) 755-6563 [EBB]
(919) 835-5909 [KMA]
*bbreitschwerdt@mcguirewoods.com*
*kathens@mcguirewoods.com*

Robert W. Kaylor
Law Office of Robert W. Kaylor, P.A.
353 East Six Forks Road, Suite 260
Raleigh, North Carolina 27609
Telephone: (919) 828-5250
*bkaylor@rwkaylorlaw.com*

*Counsel for Duke Energy Carolinas, LLC and Duke Energy Progress, LLC*

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing Reply Comments Of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC, as filed in Docket No. E-100, Sub 167, was served via electronic delivery or mailed, first-class, postage prepaid, upon all parties of record.

This, the 5th day of March, 2021.

Kendrick C. Fentress
Associate General Counsel
Duke Energy Corporation
PO Box 1551 / NCRH 20
Raleigh, North Carolina 27602
Telephone: (919) 546-6733
Kendrick.Fentress@duke-energy.com

*Attorney for Duke Energy Carolinas, LLC, and Duke Energy Progress, LLC*