

**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

DOCKET NO. E-2, SUB 1297  
DOCKET NO. E-7, SUB 1268

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 1297 )  
DOCKET NO. E-7, SUB 1268 )

In the Matter of )  
Duke Energy Progress, LLC, and )  
Duke Energy Carolinas, LLC, 2022 )  
Solar Procurement Pursuant to )  
Session Law 2021-165, Section 2(c) )

INITIAL COMMENTS OF THE  
PUBLIC STAFF

NOW COMES THE PUBLIC STAFF – North Carolina Utilities Commission (Public Staff), by and through its Executive Director, Christopher J. Ayers, and responds to the petition filed March 14, 2022, by Duke Energy Progress, LLC (DEP), and Duke Energy Carolinas, LLC (DEC) (together, Companies or Duke), for authorization of the Companies’ 2022 solar procurement program (Petition).

1. On March 8, 2022, the Companies filed their 2022 Solar Procurement Stakeholder Engagement Mtg. 3 Update & Plans for Procurement Plan Filing (Procurement Plan) in Docket No. E-100, Sub 179. The Procurement Plan summarized stakeholder engagement regarding the procurement of solar resources in 2022 to achieve the authorized carbon reduction goals set by S.L.

2021-165 or House Bill 951 (HB 951). Section 2.(c) of HB 951 authorized the Commission to direct the procurement of solar energy facilities in 2022 if, after stakeholder participation and review of preliminary analysis developed in preparation of the initial Carbon Plan, the Commission finds that such solar energy facilities will be needed.

2. On March 11, 2022, the Commission issued its Order Opening Separate Dockets and Establishing Procedural Deadlines, which allowed initial comments from the Public Staff and intervenors responsive to the Companies' Petition on or before March 28, 2022, and permitting the Companies to file reply comments on April 4, 2022.

3. On March 14, 2022, the Companies filed their Petition proposing a system-wide solar procurement request for proposal (RFP), which would seek to competitively procure a minimum of 700 megawatts (MW) of utility-owned and third-party solar capacity, after preliminary analysis in advance of the Companies' 2022 Carbon Plan (2022 Solar RFP). The Companies indicate they have had three open stakeholder meetings with intervenors, including the Public Staff, to discuss the RFP. The Petition notes that the 2022 Solar RFP will be aligned with the 2022 Definitive Interconnection System Impact Study (DISIS) cluster and will be overseen by an Independent Evaluator (IE). The proposed schedule and framework are largely similar to recent solar capacity procurement through the Competitive Procurement of Renewable Energy (CPRE) program, involving a robust pre-solicitation process with review and input from stakeholders and market

participants to develop the 2022 Solar RFP draft and pro forma power purchase agreements (PPAs).

4. The Companies state that due to required transmission network upgrades, projects in the 2022 DISIS cluster may not come online until 2026. Thus, the Companies anticipate that there may only be four DISIS windows by which to procure additional renewable capacity necessary to meet the Carbon Plan emission reduction goals. The limited number of DISIS clusters and the Companies' estimated limits on their ability to annually interconnect solar resources will impact the amount of capacity needed to satisfy the emission reduction targets of HB 951 in the least cost manner.

5. The Companies request that the Commission issue an order authorizing the 2022 Solar RFP with a target minimum of 700 MW. After the proposed Carbon Plan has been filed, the Companies request that the Commission issue a separate order by November 1, 2022, authorizing the final amount of solar to be procured, which will be based upon the Carbon Plan with possible adjustments based on a comparison of 2022 Solar RFP bids received to solar costs used within the Carbon Plan models.

6. For purposes of the 2022 Solar RFP, the Public Staff supports procurement of solar resources in 2022 within the framework of DISIS and the use of an IE. Given the results from the Companies' 2020 Integrated Resource Plans (IRPs), new solar resources will be necessary to meet the carbon reduction goals of HB 951.

7. While further details still need to be resolved for the 2022 Solar RFP, the Public Staff is concerned that, given the likelihood and uncertainty of transmission upgrades and their respective costs necessary to interconnect large volumes of solar, individual competitive procurements may not result in the least cost compliance with HB 951's carbon reduction goals.

8. The Public Staff participated in the stakeholder meetings. The discussions among the stakeholders were constructive and insightful, leading to broad stakeholder consensus on some features of the 2022 Solar RFP. All stakeholders agreed that a 2022 Solar RFP is needed to facilitate the Carbon Plan, but some disagreed on the amount of capacity to be procured. Most stakeholders agreed that the established CPRE process is a reasonable starting point for the 2022 Solar RFP, but some want changes in the evaluation and contracting process.

9. The Public Staff believes the minimum capacity target of 700 MW proposed by Duke in its Petition is appropriate even in the absence of an approved Carbon Plan. Duke based the 700 MW minimum capacity target on an analysis of its 2020 IRPs and projections of its future interconnection capabilities, which is a reasonable initial target for the 2022 Solar RFP.<sup>1</sup> The Public Staff, however, recommends that the Commission base the final 2022 Solar RFP capacity on the amount of solar resources in the Commission approved Carbon Plan, as Duke proposes in its Petition. In its Petition, the Companies have committed to perform

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<sup>1</sup> In Carbon Plan stakeholder meetings, Duke has indicated it believes it can only connect approximately 750 MW of solar annually. Duke is exploring potential sensitivities of this interconnection limit.

a comparison between the average bid prices received in the 2022 Solar RFP, inclusive of network upgrade costs, and the total solar costs used in the Carbon Plan model. If the bid prices are higher than the modeled solar costs, the final capacity procured may be reduced by as much as 20%, down to the 700 MW minimum (Volume Adjustment Mechanism). If the bid prices are lower than the modeled solar costs, the final quantity may be increased by as much as 20%. Higher modeled solar costs will tend to decrease the amount of solar economically selected and vice versa. The Volume Adjustment Mechanism should provide some ratepayer protection and offer some assurance that the 2022 Solar RFP adheres to the Carbon Plan's least cost pathway.

10. The Public Staff supports the use of an IE for the 2022 Solar RFP even though the earlier CPRE program RFPs were performed by an independent administrator (IA). The main difference between an IE and an IA is that an IA conducts the entire RFP and bid evaluation. In the CPRE program, the IA generally did not collaborate with Duke except to the extent necessary to perform anonymized system impact studies for projects under consideration. The IA ranked the bids after input from the system impact studies, then Duke contracted with the most competitive projects until the target capacity was reached. Duke has proposed using an IE for the 2022 Solar RFP that will respond to market participant inquiries, review the draft RFP, and provide input to the Duke evaluation team to ensure reasonable transparency and consistency with accepted industry standards and practices for a competitive solicitation. The IE will also review bids received and perform an independent evaluation of both utility and third-party

proposals to ensure all projects are evaluated fairly. The IE will file two reports with the Commission, one summarizing the RFP prior to the opening of the 2022 Solar RFP and one after the solicitation process summarizing the bids and evaluation process. However, Duke, not the IE, will administer the RFP and evaluate the bids under the approved RFP evaluation methodology.

11. The Public Staff has no objection to the IE selection process or the IE's scope of work for the 2022 Solar RFP, given the short timeline for Duke to implement the RFP.

12. The Public Staff recommends additional ratepayer protections be included in the RFP to ensure it aligns with HB 951's least cost requirements, minimizes risks to ratepayers, provides transparency to market participants, and ensures a successful solicitation.

13. DEC and DEP are currently separate Balancing Authorities and utilities and must, at least in the near term, plan and operate their individual utilities separately.<sup>2</sup> Regardless of how Duke models its system in the Carbon Plan, as long as DEC and DEP are separate Balancing Authorities and utilities, they must use their own generation resources to meet required reserve margins, and costs have traditionally been allocated to the utility which incurs the cost. While the Public Staff supports exploring a combination of the Balancing Authorities, it should

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<sup>2</sup> Regulatory Condition 3.5 of Appendix A to the Commission's September 16, 2016, Order Approving Merger Subject to Regulatory Conditions and Code of Conduct requires that DEC and DEP retain the obligation to separately plan and procure resources to meet the needs of their respective retail native load customers in a least cost manner according to North Carolina law. Further, as separate Balancing Authorities, DEC and DEP cannot share generation capacity to satisfy their individual reserve margins, nor can they share operational reserves to meet reliability standards.

be noted that if Duke files a plan that allows solar capacity to be selected in DEP's territory in order to satisfy DEC's portion of the Carbon Plan goals, it may result in ratepayers in one Balancing Authority/utility receiving disproportionate increases in base rates caused by transmission upgrades to support the build-out of sufficient carbon-free capacity to serve both utilities and also satisfy individual utility reserve margin requirements.<sup>3</sup> For example, stakeholders from the solar industry have emphasized the need to site solar capacity in DEP's southeastern service territory due to available land and lower land costs to solar developers. However, DEP's southeastern territory has significant transmission congestion because of the large amount of solar generation currently located in this area. The large quantities of new solar capacity in the interconnection queue in that area are already resulting in larger transmission upgrade costs compared to DEC.<sup>4</sup> If solar capacity and the necessary transmission upgrades are built in DEP's territory to meet DEC's carbon reduction goals, current cost allocation methodologies could cause the costs to be largely recovered from DEP customers.<sup>5</sup>

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<sup>3</sup> When calculating a utility's reserve margin, solar nameplate capacity is deeply discounted by the Effective Load Carrying Capability (ELCC) of solar, as identified in Duke's 2020 IRPs. If solar is built in one Balancing Authority to satisfy state-wide carbon reduction goals, the total contribution to reserve margin from the solar resources may not be sufficient to meet reserve margins, which could require older, inefficient units to remain online or spur the construction of new, dispatchable generation capacity. In addition, under the Joint Dispatch Agreement (JDA), non-firm energy transferred from DEP to DEC may result in losses to DEP customers with the crediting policies underlying the JDA.

<sup>4</sup> DEC and DEP's Transition Cluster Study Phase 1 results under Generator Interconnection Information, Generator Study, Transition Cluster folder.

DEC: <https://www.oasis.oati.com/duk/>

DEP: <https://www.oasis.oati.com/cpl/>

<sup>5</sup> While beyond the scope of this docket, the ongoing, significant rate disparity between DEC and DEP will need to be taken into consideration in future discussions of utility planning and cost allocation and recovery. For example, as of March 1, 2022, the average residential bill for DEP customers using 1000 kWh of electricity is \$122.66, excluding sales tax, while the average bill for DEC customers using 1000 kWh is \$106.37, excluding sales tax, a difference of over 15%. By contrast, on March 1, 2012, just prior to the merger of DEC and Progress Energy Carolinas (PEC,

14. Because the Companies' Petition does not allocate solar resources between DEC and DEP, the Carbon Plan could economically select solar resources sited in both DEC and DEP to meet utility-specific requirements, even if the most competitively priced 2022 Solar RFP bids are located mostly in DEP. If the total 2022 Solar RFP procurement capacity is less than 1,000 MW, the location of the projects may not be a significant issue at this time. However, if the Carbon Plan's selected solar capacity is significant and there is a large disparity between the location of solar resources selected in the Carbon Plan and the location of solar resources competitively ranked in the 2022 Solar RFP, the Public Staff may recommend that the Commission split capacity between DEC and DEP in its final approval of the 2022 Solar RFP.<sup>6</sup>

15. Another ratepayer protection that Duke proposes in its Petition is the inclusion of additional limited termination rights in the event that transmission upgrade costs increase above a specified threshold relative to the DISIS upgrade costs. The Public Staff supports such a measure as a last resort to ensure that transmission upgrade costs are reasonable and that the solar resources selected in the 2022 Solar RFP are the least cost resources that satisfy the emissions reduction targets in the Carbon Plan. However, the termination of a project could affect other projects that depend upon the same upgrades. The Commission may have difficulty enforcing this provision without impacting projects both participating in the 2022 Solar RFP and those not participating in the 2022 Solar RFP. This

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now DEP), the PEC average residential bill for 1000 kWh usage was \$106.00, while the DEC average bill for 1000 kWh usage was \$105.99, essentially equal.

<sup>6</sup> If necessary, the Public Staff would seek to file such comments before the proposed November 1, 2022 date for final approval of the 2022 Solar RFP amount.



provision could trigger the need for restudies late in the interconnection study process.

16. The Public Staff is committed to the Commission achieving the carbon reduction goals of HB 951 by “tak[ing] all reasonable steps” to “achieve the least cost path” to meeting those goals. A significant amount of stakeholder time and effort has been dedicated to addressing the issue of transmission upgrade costs, as the uncertainty around the magnitude of these costs has the potential to derail HB 951’s least cost mandate. The Carbon Plan and procurement of large volumes of renewable resources should be guided by a comprehensive transmission expansion plan. However, given the limited amount of time to procure renewable resources to meet the 2030 targets, waiting for such a study prior to the 2022 Solar RFP is not feasible. Therefore, the Public Staff recommends the additional ratepayer protection described below.

17. Duke has stated that it intends to include a transmission cost adder (\$ per kW of installed capacity) in its modeling of various resources in its Carbon Plan, as it did in its 2020 IRP.<sup>7</sup> Duke has proposed utilizing a tiered transmission cost adder that increases as blocks of capacity are added to the system. In the 2020 IRP, Duke estimated the transmission cost adder based on prior interconnection studies. The Public Staff recommends that Duke utilize the

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<sup>7</sup> In the 2020 IRPs, certain utility resources had an interconnection cost adder and some did not. An interconnection cost adder would capture the interconnection and network upgrade cost based on the best known information used in the model at that time. The cost of interconnection upgrades plus the cost of the resource would be evaluated as a total cost when compared between resources. The Public Staff’s 2020 IRP comments identified that some resources’ interconnection costs were added post analysis, thus disabling the model to consider if the cost plus the cost of the interconnection upgrades were ideally the least cost resource/portfolio.

transmission cost adders from the recent Transitional Cluster Study (TCS) Phase 1 report as the adder for the first block of resources selected by the Carbon Plan, per utility, with the adder increasing for later blocks. The adder will ensure that the transmission upgrade costs estimated in the Carbon Plan reflect the most recently updated values from a large-scale study of interconnection projects.

18. In order to ensure that the capacity of solar resources procured through the 2022 Solar RFP aligns with the least cost path ultimately selected by the Carbon Plan, the Public Staff recommends that, upon the conclusion of DISIS Phase 1, Duke calculate the actual transmission cost adder for each resource studied. If the projected solar transmission costs from DISIS Phase 1 are less than 150% of the transmission cost adder used for solar capacity in the Carbon Plan, the final procurement volume should be determined based upon the Volume Adjustment Mechanism. If the projected solar transmission costs from DISIS Phase 1 are greater than 150% of the transmission cost adder used for solar resources in the Carbon Plan, Duke should re-model the Carbon Plan base case using the actual DISIS Phase 1 transmission cost adder, which will produce a revised capacity expansion plan (Revised Carbon Plan). The final 2022 Solar RFP volume should be no greater than the amount of solar that is selected in the Revised Carbon Plan, subject to the 700 MW floor previously discussed.

19. In its Petition, Duke stated that the 2022 Solar RFP will procure the amount of incremental solar selected in the Carbon Plan that has a 2026 in-service year, which represents a reasonable amount of time to interconnect. Given the timing of the DISIS process, it may be appropriate to also include in the 2022 Solar

RFP target solar capacity selected by the Carbon Plan with a 2027 in-service year and allow market participants a degree of flexibility to select an in-service year in their 2022 Solar RFP bids. Allowing the total installed capacity of the 2022 Solar RFP resources as selected by the Carbon Plan, to be placed in-service in 2026 or 2027 may reduce risk to both ratepayers and market participants as well as enable potential cost savings for ratepayers. In addition, the larger volume of solar capacity in the 2022 DISIS cluster could reduce the risk of redundant transmission upgrades.<sup>8</sup> A further benefit of this proposal is related to how solar capacity and transmission upgrade costs will be modeled in the Carbon Plan. The 2022 Solar RFP capacity will be determined using the most current information in the 2022 Carbon Plan. As future Carbon Plans are filed biennially, model inputs will be updated and new technologies may become available, which could alter future capacity expansion plan(s). If and when Duke seeks to competitively procure renewable resources in 2023, the target volume and resource types will also be based on the 2022 Carbon Plan inputs.

20. Some stakeholders suggested that a map and list of transmission lines and substations that have significant amounts of interconnection capacity (green zones) would help with the siting of solar resources.<sup>9</sup> The Public Staff agrees that this map and list would help third party solar developers avoid costly transmission upgrades. The green zone map and list should identify substations,

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<sup>8</sup> The Public Staff defines 'redundant transmission upgrades' as transmission upgrades necessary to interconnect a generation facility that require replacement prior to being fully depreciated in order to interconnect new generation facilities.

<sup>9</sup> The term 'green zones' is in reference to the locational guidance Duke provided in the CPRE program, where large areas of DEC's and DEP's territory were marked as a 'red zone' with high transmission congestion.

at a minimum, and transmission lines 100kV and above, and if possible, estimate potential hosting capacity. The Public Staff recommends green zone maps of circuits with a predetermined hosting capacity (before overloads would be triggered during the Companies' power flow analysis). The Public Staff understands that this effort may be burdensome for the Companies to provide, and recommends that the Companies address in their reply comments the feasibility of green zone mapping, including the hosting capability threshold and the minimum voltage threshold to be mapped.<sup>10</sup>

21. The Public Staff recommends approval of Duke's petition for authorization of the 2022 Solar Procurement Program with the Public Staff's modifications discussed above.

Respectfully submitted this the 28th day of March, 2022.

PUBLIC STAFF

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<sup>10</sup> The Public Staff also requests input from other stakeholders on whether they would find this green zone locational guidance helpful and what information should be included.

CERTIFICATE OF SERVICE

I certify that a copy of these Initial Comments of the Public Staff has been served on all parties of record or their attorneys, or both, in accordance with Commission Rule R1-39, by United States Mail, first class or better; by hand delivery; or by means of facsimile or electronic delivery upon agreement of the receiving party.

This the 28th day of March, 2022.

Electronically submitted  
/s/Robert B. Josey  
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