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March 17, 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
Attachment to Third Joint 45-Day Progress Report
Docket No. E-100, Sub 167**

Dear Ms. Campbell:

On March 8, 2021, Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP") (collectively, the "Companies") filed their Third Joint 45-Day Progress Report ("Progress Report"). It has come to the Companies' attention that the DEC/DEP Solar Ancillary Service Study Scope of Work – Independent Technical Review ("Attachment 1") was inadvertently omitted from the Progress Report. I have enclosed Attachment 1 for filing in the above-referenced docket.

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

Sincerely,

Kendrick C. Fentress

Enclosure

cc: Parties of Record

OFFICIAL COPY

Mar 17 2021

SOLAR ANCILLARY SERVICE STUDY – INDEPENDENT TECHNICAL REVIEW
INTENDED SCOPE OF WORK
DUKE ENERGY CAROLINAS, LLC AND DUKE ENERGY PROGRESS, LLC

1.1 Duke Energy

Duke Energy Corporation is headquartered in Charlotte, N.C. Its regulated electric utility operations serve approximately 7.5 million retail electric customers in six states in the Southeast and Midwest.

In North and South Carolina, Duke Energy has two regulated electric utilities, Duke Energy Carolinas (“DEC”) and Duke Energy Progress (“DEP”), (together referred to as “The Companies”), that operate in both states and are responsible for PURPA implementation. DEC operates approximately 23,200 megawatts of electric capacity serving 2.7 million customers while DEP operates approximately 13,700 megawatts of owned electricity capacity to serve 1.6 million customers.

1.2 Astrapé Consulting LLC

Headquartered in Hoover, Alabama, Astrapé Consulting LLC (“Astrapé”) has provided electric system planning services and resource adequacy studies for many of the largest utilities and regulators in the U.S. and Europe. In 2018, Astrapé completed a study (attached) titled “Duke Energy Carolinas and Duke Energy Progress Solar Ancillary Service Study” (referred to herein as the “Solar Ancillary Service Study”). The purpose of the Astrapé Study was to analyze and quantify the ancillary service impact of integrating existing and future solar generation on both the DEC and DEP systems. The Companies used the Solar Ancillary Service Study to develop the Solar Integration Services Charges (“SISC”) applied to intermittent solar generation facilities requesting to sell power to DEC and DEP. More information about Astrapé is available at <https://www.astrape.com>.

1.3 Independent Technical Review of the Solar Ancillary Service Study

On April 15, 2020, the North Carolina Utilities Commission (“NCUC”) issued a final Order Establishing Standard Rates and Contract Terms for Qualifying Facilities in Docket No. E-100, Sub 158 (attached). On page 12 of the Order, the NCUC made the following ruling regarding the SISC proposed by DEC and DEP:

(34) The determinations based upon the results of the Astrapé Study demonstrate that an additional 26 MW of load following reserves are required to integrate 840 MW of solar-QF capacity in DEC at an average cost of \$1.10/MWh and that an additional 166 MW of load following reserves are required to integrate 2,950 MW of solar-QF capacity in DEP at an average cost of \$2.39/MWh, and are reasonable for use in this proceeding.

(36) It is appropriate to apply the integration services charge as a fixed amount of \$1.10/MWh for DEC and \$2.39/MWh for DEP during the term of the contracts for those QFs that establish a LEO (“Legally Enforceable Obligation”) during the availability of the rates established in this proceeding as a decrement to and included in DEC’s and DEP’s respective avoided energy rates.

Furthermore, on page 95 of the Order, the NCUC directed Duke to organize and coordinate an independent technical review of the Astrapé Study, stating:

. . . the Commission directs Duke to assemble a technical review committee to provide a review of the Astrapé Study. The technical review committee shall be comprised of individuals, not otherwise affiliated with Duke or any of its affiliates or organizations in which Duke is a member, who have technical expertise, knowledge, and experience related to the integration of solar generation as well as the development of complex research, development, and modeling. The committee should include personnel employed by the National Laboratories with relevant experience and expertise. The purpose of the work with a technical review committee is to provide an in-depth review of the study methodology and the model used for system simulations. The technical review committee should provide specific comments or feedback to Duke in the form of a report, which report is to be included in the initial filing made in Duke’s 2020 biennial avoided cost proceeding.

The Public Service Commission of South Carolina (“PSCSC”) also approved the Companies’ proposed SISCs based on the Astrapé Study, and similarly directed Duke to undertake “an independent technical review of the underlying modeling, inputs, and assumptions of the Integration Services Charge prior to the next avoided cost proceeding.” See PSCSC Order No. 2019-881-A, at 31, 121 (attached). Moreover, Duke agreed with certain interveners to complete the independent technical review in a Partial Settlement Agreement filed with the PSCSC on October 21, 2019, in Docket Nos. 2019-184-E and 2019-185-E. That Partial Settlement Agreement, which was approved by the SCPCSC in Order No. 2019-881-A, provided, in pertinent part, that:

The Astrape Study used to calculate the SISC presents novel and complex issues that warrant further consideration. Duke shall submit the study methodology and inputs to an independent technical review and include the results of that review and any revisions in its initial filing in the next avoided cost proceeding. To the maximum extent practicable the independent review of the study methodology shall take into consideration the South Carolina Integration Study called for by S.C. Code Ann. § 58- 37-60.

This process shall be subject to Commission oversight and comment from interested stakeholders.¹

SECTION 2 – Formation of Technical Review Committee

2.1 DEC and DEP

DEC and DEP will facilitate the formation of the Technical Review Committee (“TRC”), to be established consistent with the NCUC and PSCSC requirements. Astrapé, as consultant to the Companies, will present its updated solar ancillary service study methodology, inputs, and modeling to the TRC for its independent review. The TRC will complete an in-depth independent technical review of the study methodology, inputs, and the model used for system simulations to develop the SISC. The Companies and Astrapé technical personnel will provide analytical support and information to the TRC. Subsequent to the TRC’s issuance of its report, as discussed in Section 2.5 below, the Companies will file an updated solar ancillary service study (conducted by Astrapé) and updated SISC for review and approval by the NCUC and the PSCSC. The TRC’s report will provide valuable third-party review and feedback that the Companies will incorporate into future regulatory filings as applicable. The Companies will not serve as members of the TRC but will attend every meeting to answer pertinent questions.

2.2 TRC Principal Consultant: The Brattle Group

The Companies, with input from the NC Public Staff and SC Office of Regulatory Staff (“ORS”), have retained The Brattle Group (“Brattle”) as TRC Principal consultant who will coordinate the TRC meetings, incorporate feedback from the TRC Technical Leads, and author the TRC report for the Companies to incorporate into their 2021 regulatory filings. Brattle has proven expertise in understanding the intra-hour impacts of renewable energy and the impacts of its associated intermittency on a regulated electric utility’s system operations. Additionally, through various past consulting engagements, Brattle has demonstrated experience in collaborating with various entities in the development and presentation of technical studies related to solar integration. Brattle will be responsible for coordinating the work of the TRC and delivering a report to Duke Energy summarizing the TRC’s review, findings and recommendations.

2.3 TRC Technical Leads

¹ S.C. Code Ann. § 58- 37-60 provides in pertinent part that “[t]he commission and the Office of Regulatory Staff are authorized to initiate an independent study to evaluate the integration of renewable energy and emerging energy technologies into the electric grid for the public interest. An integration study conducted pursuant to this section shall evaluate what is required for electrical utilities to integrate increased levels of renewable energy and emerging energy technologies while maintaining economic, reliable, and safe operation of the electricity grid in a manner consistent with the public interest. Studies shall be based on the balancing areas of each electrical utility.” At this time, no South Carolina Integration Study has commenced.

Pursuant to NCUC guidance provided in Docket E-100, Sub 158, the TRC “*should include personnel employed by the National Laboratories with relevant experience and expertise.*” The Companies have retained the following TRC Technical Leads as members of the TRC:

- Nader Semaan: Chief Engineer and Team Lead (Grid Analytics), Electricity Security Group at Pacific Northwest National Laboratory (PNNL)
- Gregory Brinkman: Researcher V-Model Engineering and Member, Grid Systems Group in the Strategic Energy Analysis Center at National Renewable Energy Laboratory (NREL)
- Andrew Mills: Research Scientist, Electricity Markets and Policy Group, Lawrence Berkeley National Laboratory (LBNL)

2.4 Regulatory Observers

2.4.1 The NC Public Staff and the SC ORS have designated the following individuals to participate in the TRC as Regulatory Observers subject to substitution if needed:

- NC Public Staff Primary Regulatory Observer: Jeff Thomas
- NC Public Staff Alternate Regulatory Observer: Dustin Metz
- SC Office of Regulatory Staff Observer: Robert Lawyer
- SC Office of Regulatory Staff Observer: O’Neil Morgan

The Regulatory Observers will actively participate with the TRC Technical Leads and TRC Principal, providing input and recommendations, as needed, to the TRC throughout the review process. The Companies will facilitate communication between the Regulatory Observers, Technical Leads, and Principal during the TRC review process. The participation of the NC Public Staff and SC ORS Regulatory Observers is designed to encourage open dialogue and ensure the transparent nature of the TRC review process. The positions or perspectives raised by the Regulatory Observers in those discussions do not, however, limit the ability of those agencies to ultimately agree or disagree with the findings of the TRC or to take positions in later proceedings that do not align with the TRC’s findings and recommendations, or for the personnel that specifically participated as Regulatory Observers from being able to develop positions or file testimony on behalf of their respective organizations that may differ from the TRC’s findings and recommendations.

2.5 Timeline

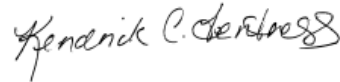
- A. January-February 2021: Engaged with NC Public Staff and SC ORS regarding SISC TRC study scope and timeline. During this period, The Brattle Group was selected as the TRC Principal and the aforementioned TRC technical leads from the National Labs were identified.

- B. March – July 2021: Astrapé will present the SISC methodology and modeling approach to the TRC for review. Duke will subsequently host a stakeholder meeting on March 19th to introduce the TRC, discuss plans for completing the scope of study required by the NCUC and PSCSC, and solicit any comments to be provided to the TRC in writing to inform the upcoming study. The Principal will coordinate regular meetings of the TRC to review the SISC study methodology and modeling with the Technical Leads, as well as the Observers participating as desired. Duke and Astrapé will participate in meetings, as requested, and provide technical information to TRC members within 10 calendar days of request. The Principal will compile a report for the Companies who will then present the TRC's findings to stakeholders.
- C. July 2021: The TRC report will be developed for inclusion in the Companies' South Carolina Act 62 PURPA filing.
- D. November 2021: The TRC report will also be filed with the NCUC.

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Carolinas, LLC's and Duke Energy Progress, LLC's Attachment 1 to Third Joint 45-Day Progress Report, in Docket No. E-100, Sub 167, has been served by electronic mail, hand delivery, or by depositing a copy in the United States Mail, 1st Class Postage Prepaid, properly addressed to parties of record.

This the 17th day of March, 2021.



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