

**STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH**

DOCKET NO. E-7, SUB 1134
DOCKET NO. E-7, SUB 1276

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1134

In the matter of
Application of Duke Energy Carolinas,
LLC for Approval to Construct a 402
MW Natural Gas-Fired Combustion
Turbine Electric Generating Facility in
Lincoln County

DOCKET NO. E-7, SUB 1276

In the Matter of
Application of Duke Energy Carolinas,
LLC for Adjustment of Rates and
Charges Applicable to Electric Service
in North Carolina and Performance
Based Regulation

**PARTIAL PROPOSED ORDER OF
THE SIERRA CLUB**

BY THE COMMISSION:

Based on the entire record in this proceeding, the North Carolina Utilities Commission (Commission) now makes the following:

FINDINGS OF FACT

MYRP Capital Investments and Transmission Planning

1. Proactive multi-value transmission planning offers long-term cost savings to ratepayers by utilizing a forward-looking approach that considers a range of future scenarios and evaluates the diverse benefits of new transmission investments. Comparatively, traditional transmission planning, which is a reactive process responding to frequent and incremental generator interconnection requests and studies, is more costly to ratepayers.

2. The North Carolina Transmission Planning Collaborative (NCTPC), which Duke Energy Carolinas, LLC (DEC) relies on for local transmission planning, currently is not utilizing proactive multi-value transmission planning.

3. The transmission investments in DEC's proposed three-year multiyear rate plan (MYRP) do not rely on proactive multi-value transmission planning. Further, DEC omitted numerous transmission investments from its proposed MYRP that would have been identified by proactive multi-value transmission planning and provided substantial net benefits.

4. It is reasonable and appropriate for DEC, in parallel to NCTPC, to prepare its own proactive multi-value transmission plan to inform future MYRP and Carbon Plan Integrated Resource Plan (CPIRP) applications. Other Regional Transmission Organizations and vertically integrated utilities have effectively employed a proactive multi-value transmission planning process to identify a comprehensive portfolio of transmission upgrades that address reliability, economic, and state renewable energy policy requirements.

5. It is reasonable and appropriate to require DEC, within one (1) year of the issuance of an order in this proceeding, and/or any other proceeding that the Commission deems appropriate, such as the CPIRP, to file a proactive multi-value transmission plan with the Commission for all transmission expansion and upgrades needed to accommodate the interconnection of all new renewable resources required by the Carbon Plan.

6. It is reasonable and appropriate to require DEC, within three (3) years of the issuance of an order in this proceeding, and/or any other proceeding that the Commission deems appropriate, such as the CPIRP, to file the necessary Certificates of Environmental Compatibility and Public Convenience and Necessity (CEPCPN) for the transmission projects identified in DEC's plan.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 1–6

The evidence supporting these findings is found in DEC's January 19, 2023, application seeking authority to adjust and increase its retail electric base rates and charges and for approval of performance-based regulation; the direct, supplemental, second supplemental, and rebuttal testimony and exhibits of DEC witness Daniel J. Maley; the testimony and exhibits of Sierra Club witness Michael Goggin; and the entire record in this proceeding.

Summary of Evidence

As part of its application in this proceeding pursuant to N.C.G.S. §§ 62-133, 62-133.16, and 62-134, and Commission Rules R1-5, R1-17, R1-17B and R8-27, DEC requested approval of a series of rate increases based on a proposed three-year MYRP which included investments for distribution and transmission projects. Witness Maley testified in support of the transmission system investments portion of DEC's MYRP. Tr. vol. 8, 262. In describing project types and how projects were selected, witness Maley explained that the transmission portion of DEC's MYRP

included grid investments in the following categories: (1) System Intelligence; (2) Hardening and resiliency; (3) Transformer and breaker upgrades; and (4) Capacity & Customer Planning. *Id.* at 278.

Capacity & Customer Planning Projects

For the Capacity & Customer Planning projects, witness Maley stated that, in addition to equipment upgrades such as line conductors, transformers, breakers, and switches, transmission expansion projects were included to ensure that the grid is adequately prepared for the transition towards lower carbon and cleaner energy sources. *Id.* at 288. Witness Maley explained that for the transmission expansion plan projects, past and continuing studies of proposed generator interconnections inform the need for capacity updates to accommodate future additions of generation sources. *Id.* at 289. Witness Maley also noted that the Capacity & Customer Planning projects are informed by the NCTPC, particularly identifying projects and locations referred to as the Red Zone Expansion Plan (RZEP). *Id.* at 295–96. The RZEP projects are proposed to add reliability benefits while interconnecting renewable energy generators in support of the Carbon Plan emission reduction goals. *Id.* at 294. He stated that while the RZEP project locations in DEC's MYRP are the only ones identified in the Carbon Plan, the remainder of the MYRP project locations play a role in achieving carbon reduction goals because they address the challenges associated with maintaining a secure and dependable modern grid that can support a conversion to new sources of energy. *Id.* at 296.

Sierra Club witness Goggin analyzed and reviewed DEC's proposed MYRP transmission expansion projects. Witness Goggin did not oppose DEC's proposed projects but opined that they are insufficient to support the requirements of N.C.G.S. § 62-110.9. Witness Goggin recommended that the Commission (1) require DEC, within one (1) year of the issuance of an order in this proceeding, to file a proactive multi-value transmission plan with the Commission for all transmission expansion and upgrades needed to accommodate the interconnection of all new renewable resources required by the Carbon Plan, and (2) require DEC, within three (3) years of the issuance of an order in this proceeding, to file the necessary CECPCNs for transmission projects identified in DEC's plan. Tr. vol. 15, 1117–118. He also recommended that to reduce costs for ratepayers, the Commission should direct DEC to adopt a multi-value approach when planning transmission projects to ensure that identified upgrades meet a range of needs, such as those related to public policy, economics, reliability, and expanded interconnection with neighboring Balancing Authorities. *Id.* at 1118.

Regarding witness Goggin's recommendation for the Commission to require DEC to adopt proactive multi-value transmission planning, he explained that such planning incorporates realistic projections of the anticipated generation mix, public policy mandates, load levels, and load profiles throughout the lifespan of the transmission investment to project future generation and load requirements. *Id.* at

1126. He also noted that such planning accounts for the full range of transmission project benefits to comprehensively identify investments that cost-effectively address all categories of needs and benefits. *Id.* Furthermore, witness Goggin stated that employing comprehensive transmission network portfolios enables more efficient and less contentious addressing of system needs and cost allocation compared to an approach based on individual projects. *Id.* at 1127.

Witness Goggin also explained that the NCTPC, which DEC relies on for local transmission planning, currently is not utilizing proactive multi-value transmission planning. The NCTPC has not incorporated this planning methodology despite the Commission having previously determined that “[t]he addition of proactive transmission planning through the local transmission process, . . . integrated with resource planning, is reasonable and appropriate to meet the carbon dioxide emissions reduction mandates reliably and in a least cost manner.” Order Adopting Initial Carbon Plan and Providing Direction for Future Planning, Dkt. No. E-100, Sub 179, 41 (NCUC Dec. 30, 2022). Witness Goggin described the NCTPC and DEC’s reliance on multiple past and continuing studies through separate processes to evaluate reliability, economic, and public policy projects as siloed transmission planning, which ineffectively evaluates the universe of transmission benefits. Tr. vol. 15, 1129. Witness Goggin highlighted that on a regional scale, the Southeastern Regional Transmission Planning (SERTP) process also uses siloed transmission planning and, as a result, large-scale transmission investments have not occurred under both processes. *Id.* at 1129-130. He emphasized that in June 2023, Americans for a Clean Energy Grid released a report card scoring regions based on their transmission planning methods and scored the Southeast as the only region in the country with an overall “F” grade and the only region that failed to build any transmission lines at or above 300-kV during the 2020-2022 timeframe. *Id.* at 1130. Witness Goggin stated that by relying exclusively on the proposed generator interconnection queue and studies, the NCTPC process will not effectively drive proactive transmission development. *Id.* at 1130. Instead, witness Goggin asserted that the planning processes DEC relies on only results in a reactive process that meets shorter-term needs with more incremental and costly investments. *Id.* at 1133.

Witness Goggin also highlighted various Regional Transmission Organizations (RTO) and vertically integrated utilities that have employed a proactive multi-value transmission planning process to identify a holistic portfolio of transmission upgrades. Witness Goggin pointed to the Midcontinent Independent System Operator and the Southwest Power Pool, and vertically integrated utilities such as Nevada Power and Xcel Energy as examples. *Id.* at 1127–128. Witness Goggin informed the Commission that these RTOs and utilities have effectively implemented proactive multi-value transmission planning, resulting in significant net benefits while fulfilling various economic, reliability, and generator interconnection requirements. *Id.*

Regarding transmission investments for renewable energy interconnection, witness Goggin noted that about \$201 million of the MYRP transmission investment for DEC is for RZEP, which is approximately 10% of the total DEC MYRP transmission spending. *Id.* at 1119. Witness Goggin further explained that this spending represents a nominal portion of the \$1.5–1.7 billion in transmission spending required by 2035 for the DEC service territory identified in Duke Energy’s Carbon Plan. *Id.* While the RZEP projects will enable the interconnection of increased amounts of carbon-free solar resources, more transmission upgrades are needed to successfully execute the Carbon Plan in a least-cost manner. Witness Goggin determined that planning for the transmission needs identified by the Carbon Plan must commence in the near-term to ensure the resources’ timely implementation and availability for service by 2035. *Id.* at 1120–121.

In rebuttal testimony, DEC witness Maley responded to the transmission planning-related testimony and recommendations proposed by witness Goggin. Tr. vol. 8, 392–94. Witness Maley stated that witness Goggin’s recommendations are more appropriately addressed through the new CPIRP or the NCTPC. *Id.* at 392. Witness Maley also stated that because the MYRP has a limited three-year horizon, the CPIRP process is the more appropriate forum for long-term planning processes. *Id.* Witness Maley concluded that witness Goggin’s recommendations are unnecessary because Duke Energy shared in the March 15, 2023, NCTPC Transmission Advisory Group (TAG) presentation that it is pursuing the integration of a Multi-value Strategic Transmission Planning study into the local transmission planning process. *Id.* at 393–94. Witness Maley, in response to cross-examination and Commission questions, also stated that further details associated with these changes were filed with Duke Energy’s Carolinas Resource Plan on August 17, 2023. *Id.* at 396; Tr. vol. 9, 16–17.

Sierra Club witness Goggin addressed Duke Energy’s proposed integration of a Multi-value Strategic Transmission Planning study as shared in the March 15, 2023 and June 21, 2023 NCTPC TAG presentations in his direct testimony. Witness Goggin stated that although the addition of a “Multi-value Strategic Transmission Projects” category is potentially promising, direction from the Commission is still needed to address concerns and guarantee an efficient transmission planning process for several reasons. Tr. vol. 15, 1131. First, witness Goggin noted that Duke Energy’s proposal retains a siloed and participant-driven approach to transmission planning that does not ensure that the NCTPC, or Duke Energy, will utilize the multi-value category to plan and evaluate proposed transmission expansion. *Id.* He explained that studies and plans arising from the NCTPC’s other categories (reliability, economic, and public policy) will be sub-optimal because those plans are not designed to maximize value across all categories of transmission benefits. *Id.* at 1131–132. Second, witness Goggin stated that because the NCTPC process does not integrate generation planning and includes other load-serving entities with different generation plans, it is likely not the appropriate forum for synchronized and iterative generation and transmission planning, which is necessary to ensure generation and transmission

are built in optimal locations in a least cost manner. *Id.* at 1132. Finally, witness Goggin emphasized that with Duke Energy's proposed changes, there is no assurance that planning through the NCTPC will be proactive or encompass a long-term view of transmission need in light of future supply and demand, as well as other relevant factors. *Id.*

DEC's Cost Benefit Analysis

Witness Maley explained DEC's selection of MYRP transmission projects and testified that DEC used a Cost Benefit Analysis (CBA) methodology at the project location level for most of its proposed transmission projects. Tr. vol. 8, 290. Witness Maley further testified that value models are developed for each investment type with specific value measures that quantify the reliability benefits of each investment. *Id.* He explained that the Capacity & Customer Planning projects utilized a value model that calculates annual benefits based on failure avoidance, using both the probability and consequence of failure to determine the value associated with each investment. *Id.* at 290–91. Furthermore, the output of a value model is the project's net benefits, which is the net present value of the benefit stream minus the net present value of the cost. *Id.* at 291. Witness Maley posited that DEC's portfolio is optimized within budget and resource constraints to select the final project locations to be included in the MYRP. *Id.* Witness Maley also testified that in addition to the quantitative reliability benefits, the selection and prioritization of projects also accounted for additional factors, including compliance risks and the facilitation of renewable energy integration. *Id.* at 291–92.

Witness Goggin determined that DEC assessed and failed to include in its proposed MYRP portfolio various transmission projects that offer large net benefits. Tr. vol. 15, 1121. He testified that DEC evaluated but did not pursue \$534 million in transmission projects that offered a benefit-cost ratio greater than 1:1. *Id.* Further, the portfolio of net beneficial projects that were evaluated but not selected offer over \$13 billion in reliability benefits—indicating a benefit-cost ratio of nearly 25:1. *Id.*

Witness Goggin also testified that DEC's CBA only accounts for how transmission projects reduce customer outages, but that transmission provides other benefits that are essential for cost-effective planning. Witness Goggin pointed to the Federal Energy Regulatory Commission's Notice of Proposed Rulemaking in Docket RM21-17-000 as a resource that comprehensively defines and addresses the other benefits provided by transmission. *Id.* at 1124. Witness Goggin noted that transmission planners in other regions have accounted for these additional benefits and highlighted that production cost savings are typically one of the primary benefits transmission planners account for when evaluating cost-benefit ratios for transmission projects. *Id.* at 1125. Witness Goggin also asserted that relying on separate processes to evaluate transmission benefits, such as an Integrated Resource Planning analysis or a multi-year rate plan analysis, would not yield a transmission plan that optimally delivers cost savings for ratepayers

because of missed opportunities to meet various needs with the same project. *Id.* at 1125-26. For example, he noted that Integrated Resource Planning does not capture the reliability benefits associated with necessary transmission upgrades for interconnecting new generation sources. *Id.* Also, a multiyear rate plan analysis does not capture the economic benefits of transmission upgrades required to maintain system reliability. *Id.* For optimal efficiency, proactive multi-value transmission planning should rely on synchronized resource planning and transmission planning, rather than separate processes in isolation from each other. *Id.* at 1126.

As a result, witness Goggin concludes that DEC is underinvesting in transmission, as additional proposed projects would have achieved the cost-benefit ratio threshold had DEC studied and considered the other benefits of transmission. *Id.* at 1124.

Based on the foregoing, the Commission recognizes that the current organization of the NCTPC process lacks a guarantee for proactive transmission planning that comprehensively evaluates multiple benefits. The Commission further acknowledges that requiring DEC to use a multi-value approach to planning transmission would identify upgrades for future MYRPs that would meet needs related to public policy, economic, and reliability benefits. The Commission concludes that to ensure the continuation of safe and reliable electric service and encourage carbon reductions in a least-cost manner through just and reasonable rates, it is reasonable for (1) DEC to file a proactive multi-value transmission plan with the Commission for all transmission expansion and upgrades needed to accommodate the interconnection of all new renewable resources required by the Carbon Plan in this proceeding, and/or any other proceeding that the Commission deems appropriate, such as the CPIRP;¹ and (2) file the necessary Certificates of Environmental Compatibility and Public Convenience and Necessity for the transmission projects identified in DEC's plan.

IT IS, THEREFORE, SO ORDERED as follows:

1. That DEC, within one (1) year of the issuance of an order in this proceeding, and/or any other proceeding that the Commission deems appropriate, such as the CPIRP, shall file a proactive multi-value transmission plan with the Commission for all transmission expansion and upgrades needed to accommodate the interconnection of all new renewable resources required by the Carbon Plan.

2. That DEC, within three (3) years of the issuance of an order in this proceeding, and/or any other proceeding that the Commission deems appropriate, such as the CPIRP, shall file the necessary Certificates of Environmental

¹ See, e.g., Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Public Notice, Dkt. No. E-2, Sub 1300, 71 (NCUC Aug. 18, 2023).

Compatibility and Public Convenience and Necessity (CEPCN) for the transmission projects identified in DEC's plan.

ISSUED BY ORDER OF THE COMMISSION.

This the __ day of _____, 2023

NORTH CAROLINA UTILITIES COMMISSION

A. Shonta Dunston, Chief Clerk

CERTIFICATE OF SERVICE

The undersigned attorney for Sierra Club hereby certifies that she has caused the foregoing *Partial Proposed Order of the Sierra Club* to be served upon all parties of record to these proceedings, based upon the Service List for this docket maintained by the NCUC Chief Clerk's Office, by electronic mail.

This the 11th day of October, 2023.

/s/ Andrea C. Bonvecchio
Andrea C. Bonvecchio