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September 26, 2022

VIA ELECTRONIC FILING

Ms. Shonta Dunston,
Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, NC 27699-4300

RE: In the Matter of: Duke Energy Progress, LLC, and Duke Energy Carolinas, LLC, 2022 Biennial Integrated Resource Plan and Carbon Plan, Docket No. E-100, Sub 179

Dear Ms. Dunston:

Pursuant to Ordering Paragraph 3 of the Commission's August 30, 2022 Order Establishing Expert Witness Hearing Procedures, enclosed for filing is the Summary of Testimony of Jay Caspary on behalf of the North Carolina Sustainable Energy Association, Southern Alliance for Clean Energy, Natural Resources Defense Council, and the Sierra Club.

By copy of this letter, we are forwarding a copy to all parties of record by electronic delivery. Please do not hesitate to contact us should any questions arise in connection with this filing.

Sincerely,

s/ Gudrun Thompson
s/ David Neal
s/ Nicholas Jimenez

Enclosures
cc: Parties of Record

Summary of Testimony of Jay Caspary on Behalf of North Carolina Sustainable Energy Association, Southern Alliance for Clean Energy, Sierra Club, and Natural Resources Defense Council

Docket No. E-100, Sub 179

My name is Jay Caspary. When I prepared my testimony I was Vice President of Grid Strategies LLC (Grid Strategies).[1] I have worked in the utility industry for over 40 years, including senior roles at Southwest Power Pool (SPP) and at Illinois Power. At Grid Strategies, I provided analysis and strategic guidance on transmission grid planning and operations.

The purpose of my testimony is to inform the North Carolina Utilities Commission (Commission) as to six main issues covered in my report, Transmission Issues and Recommendations for Duke's Proposed Carbon Plan: 1) proactive multi-value transmission planning, 2) the "Red Zone Transmission Expansion Plan" (RZEP), 3) collaborative planning studies, 4) advanced transmission technologies, 5) regional integration, and 6) synchronizing development of Carbon Plans with transmission planning processes.

(1) Proactive multi-value transmission planning incorporates future scenarios in order to frame decisions and better manage uncertainties. Rather than only reacting to generator interconnection requests, proactive planning looks forward and takes into account new resources that could be enabled by new transmission. Multi-value transmission planning takes account of the

[1] Mr. Caspary no longer works at Grid Strategies as of September 1, 2022.

actual value of transmission expansion, which typically is not fully captured by the conventional production cost savings analysis. In its transmission rulemaking in Docket No. RM21-17, the Federal Energy Regulatory Commission (FERC) provided a good list of twelve unique benefits associated with long-term regional transmission expansion that are not captured by the conventional analysis.

Proactive multi-value transmission planning saves money through efficient planning and helps to identify and connect low-marginal-cost resources like wind and solar at lower cost. It should be applied regionally and inter-regionally. Unfortunately, Duke's proposed Carbon Plan does not really employ proactive multi-value transmission planning. Its ten-year planning horizon is too short, and I do not see evidence that Duke applied the principles of proactive transmission planning nor a multi-value evaluation framework. Carbon Plans should be based on proactive scenario-based multi-value transmission planning.

(2) I agree with Duke that the RZEP upgrades are necessary—but not sufficient—to achieving the 2030 carbon-reduction requirement at least cost. However, the projects do not appear to be the product of proactive multi-value transmission planning as I have described. For example, proactive transmission planning would take into account whether more low-cost solar could be unlocked by additional projects. Furthermore, it is very likely that additional projects will be needed to reach the 2030 reduction level. I do not think it is likely that the RZEP projects will be underutilized; to the contrary, if I

were starting fresh I would consider right-sizing at least one of the projects, doubling the proposed voltage to take into account future needs.

(3) Coordinated and collaborative planning is critical to designing an efficient and effective future grid. Neighboring systems must work together to identify and address future system needs in an open and transparent manner to improve grid performance and avoid issues at the “seams” between different regions of the bulk power system. The Commission should engage in collaborative planning processes and encourage Duke to provide leadership to expand the current Southeastern Regional Transmission Planning (SERTP), and North Carolina Transmission Planning Collaborative (NCTPC) processes and leverage other existing studies such as the Atlantic Offshore Wind Transmission Study. Expanding these study processes will be important to achieving future carbon-reduction requirements at least cost.

(4) Advanced transmission technologies (ATTs) and grid-enhancing technologies (GETs)—sometimes used interchangeably—are non-traditional hardware and software solutions that incorporate advanced technologies to improve the performance and utilization of existing transmission assets. Examples include dynamic line ratings (DLR), advanced power flow controllers, and advanced conductors such as low-sag composite core conductors with embedded fiber optics. Although they cannot replace high-capacity backbone transmission expansion projects to support long-term needs, ATTs/GETs can be a low-cost way to increase transmission capacity, creating “energy headroom” for renewable generation, and to accelerate the interconnection of

new resources. Unfortunately, Duke's proposed Carbon Plan did not evaluate the use of ATTs/GETs.

(5) Regional integration is important to achieve an efficient and effective bulk power system within North Carolina, as well as within the region surrounding North Carolina. Interregional transmission can provide large economic, reliability, and public policy benefits that can lower electricity costs. It is crucial to understand that "least-cost" planning and development should not be driven solely by the lowest initial cost investments. An approach based on lowest initial investment can cost more in the long run as additional investments continue to be required, and higher operating costs, e.g., losses, are incurred. The Commission should direct Duke to synchronize development of its proposed Carbon Plans with its transmission planning processes, including regional and interregional transmission planning.

(6) Currently, the processes for resource and transmission expansion are disjointed and untimely. Synchronizing development of Carbon Plans with transmission planning will allow co-optimizing resource and transmission expansion plans to support the future grid, resulting in better decisions and least-regrets plans that maximize net benefits and achieve carbon-reduction requirements.