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September 8, 2022

VIA ELECTRONIC FILING

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

**RE: Duke Energy Carolinas, LLC and Duke Energy Progress, LLC's Third
Update on Responses to RFIs
Docket No. M-100, Sub 164**

Dear Ms. Dunston:

By this letter, Duke Energy Carolinas, LLC and Duke Energy Progress, LLC (the "Companies") are providing the North Carolina Utilities Commission and interested parties with an additional update on the Companies' continued involvement in the Infrastructure Investment and Jobs Act federal funding process.

On September 6, 2022, the Companies submitted to the U.S. Department of Energy a response to a Request for Information to obtain feedback on issues related to the development of hydroelectric incentive programs authorized under sections 243 and 247 of the Energy Policy Act of 2005, as amended by sections 40332 and 40333 of the Bipartisan Infrastructure Law. That response is attached to this letter.

Please contact Jason Higginbotham (Jason.higginbotham@duke-energy.com) if there are any questions.

Sincerely,

Jack E. Jirak

Enclosure

cc: Jason Higginbotham
Parties of Record

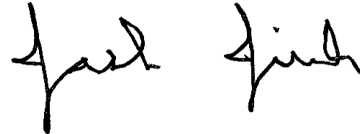
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Sep 08 2022

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC's Third Update on Responses to RFIs, in Docket No. M-100, Sub 164, has been served by electronic mail, hand delivery or by depositing a copy in the United States mail, postage prepaid, to parties of record.

This the 8th day of September, 2022.

A handwritten signature in black ink, appearing to read "Jack Jirak", written in a cursive style.

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September 6, 2022

Request for Information (RFI): DE-FOA-0002762

U.S. Department of Energy
Grid Deployment Office

Duke Energy Contacts:

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Duke Energy respectfully submits the following comments in response to the Notice of Request for Information (RFI) issued by the U.S. Department of Energy (DOE) on June 30, 2022, to obtain feedback on issues related to the development of hydroelectric incentive programs authorized under sections 243 and 247 of the Energy Policy Act of 2005, as amended by sections 40332 and 40333 of the Bipartisan Infrastructure Law (BIL).

Duke Energy (NYSE: DUK), a Fortune 150 company headquartered in Charlotte, N.C., is one of America's largest energy holding companies and employs 28,000 people. Our electric utilities serve 8.2 million customers in North Carolina, South Carolina, Florida, Indiana, Ohio and Kentucky, and collectively own 51,000 megawatts of energy capacity. Our natural gas utilities serve 1.6 million customers in North Carolina, South Carolina, Tennessee, Ohio and Kentucky. Duke Energy owns and operates 31,000 miles of transmission infrastructure and 283,000 miles of electric distribution infrastructure. Duke Energy has set ambitious climate goals for our company, striving toward at least a 50% reduction in CO₂ emissions from electricity generation in 2030 and net-zero CO₂ by 2050. We are also targeting net-zero methane emissions for our natural gas distribution business by 2030.

INTRODUCTION & KEY RECOMMENDATIONS

Duke Energy began its operations in the Carolinas as a hydroelectric company. Harnessing the waterpower of the Catawba River, the company's first power plant provided electricity to the area's emerging textile industry. Today, we're the second-largest investor-owned hydroelectric operator in the United States. Duke Energy currently operates more than 1,300 megawatts (MW) of conventional hydro and 2,300 MW of pumped-storage hydro across our system, primarily in the Carolinas.

Hydropower is an important contributor to keeping energy affordable and reliable as we make progress on our ambitious emissions reduction goals. Pumped-storage hydro, in particular, plays a critical role in integrating solar generation.

As we continue to operate our existing hydro fleet, we are making important investments to maintain its safety and efficiency. Looking to the future, we also have the potential – contemplated in our Carolinas Carbon Plan¹ – to expand pumped-storage hydro capacity to support integration of our growing solar resources in the Carolinas region.

We appreciate the investment the BIL makes in incentivizing efficiency, maintenance and enhancement of the nation's hydroelectricity resources. Based on the company's extensive experience and expertise as one of the largest hydroelectric operators, our key recommendations for implementation of sections 40332 and 40333 of the BIL include:

- **Defining capital improvements:** The company supports DOE's proposed definition of capital improvements.
- **Timing considerations:** The company encourages DOE to remain flexible with respect to the definition of a project and its status to account for the nature of capital investments in hydro facilities, which are often multiyear and multi-phase projects that may require Federal Energy Regulatory Commission (FERC) approval.
- **Considerations for applying the BIL's definition of facility:** The company opposes DOE using FERC Project Numbers to identify individual eligible facilities.

Below, we have expanded on these themes in response to the questions posed in the RFI. We appreciate the opportunity to provide feedback on implementation of these important incentives and look forward to continued dialogue with DOE on this topic.

Category 1.1 Defining Capital Improvements

¹ See Appendix K at <https://www.duke-energy.com/our-company/about-us/carolinas-carbon-plan>

The company supports DOE's proposed definition of capital improvements, which aligns with our definition. In general, within both programs, we recommend that DOE prioritize projects with longer useful lives.

Category 1.2. Timing of Funds

Capital investments for hydro are often contemplated and identified many years in advance and may also require FERC approval. Project implementation can also take multiple years, with the potential for multiple phases of a single "project." As such, flexibility in how DOE defines the project and status of the project for eligibility is critical. In general, we recommend that incentives be awarded when a project begins (at the start of physical construction) or is committed (is funded and has a defined start date) and require project developers to verify project completion.

Category 2: Section 243 of the Energy Policy Act of 2005 (EPAct) Program Design

2.A.1: Duke Energy recently completed capacity upgrades to two pumped storage hydro units at our Bad Creek facility in South Carolina, which serve as a prime example of the type of capacity improvement that can increase unit efficiency by 3% or more. This project replaced the pump-turbine sections of two units, along with other associated work, to gain additional generation capacity and pumping capacity on each unit. Associated projects required to accomplish these gains included the replacement of the main generator step-up (GSU) transformers, replacement of the generator breakers and exciters, modifications to the cooling system and modification of the planned motor-generator rewinds from in-kind rewinds to rewinds capable of supporting the uprated pump-turbines.

To further incentivize efficiency improvements, we recommend DOE exclude from eligibility life cycle maintenance projects that return a unit to previous efficiency and instead focus on funding projects that achieve a 3% or more improvement in efficiency in addition to correcting degradation. Unit degradation can be validated by comparing previously published capacity letters.

2.A.2: We recommend that DOE validate the 3% efficiency improvement requirement by comparing the previously published capacity of the unit prior to the project to the capacity published once the project is completed.

For example, prior to the upgrades described above, the capacity letter listed the upgraded units at Bad Creek as 340 MW of capacity. Following the upgrades, the capacity letter now lists them as 420 MW, which is a 23.5% increase. Testing results are available to support this efficiency improvement.

We also recommend that DOE not use FERC Project Numbers when identifying facilities for Section 243 and Section 247, as elaborated further in our answer to 3.E below.

Category 3: Section 247 of the Energy Policy Act of 2005

3.B.1. Grid Resiliency Improvements: In addition to qualifying as efficiency improvements, projects like Duke Energy's previously described Bad Creek uprate project should receive priority as grid resiliency projects under section 247. These projects increase the pumping and generating capacity of the units, which allows for the reliable and resilient integration of variable renewables onto the grid. As more variable renewables are added to the grid, there will be an increasing need to store excess electricity when demand is low. Incremental storage and release capability from pumped storage hydro can help mitigate the impacts of this intermittency on the system by providing energy or ancillary services when intermittent renewable resources create such needs. Additionally, incremental storage will help store zero-carbon energy when non-dispatchable resources are producing at times of low demand. Similar to capacity upgrades, the addition of an additional powerhouse to an existing pumped hydro storage facility should also fall into this priority category; such a project would carry a much larger grid resiliency benefit due to the size of the project.

3.C.1. Dam Safety Improvements: Duke Energy has completed and planned several large projects to enhance dam safety. Examples of types of projects that could be submitted include technology upgrades, spillway expansions and liquefaction mitigation.

3.D. Environmental Improvements: With respect to environmental improvements, DOE should consider eligibility for projects such as adding fish passage, dissolved oxygen turbine runner installations and minimum flow generating unit additions.

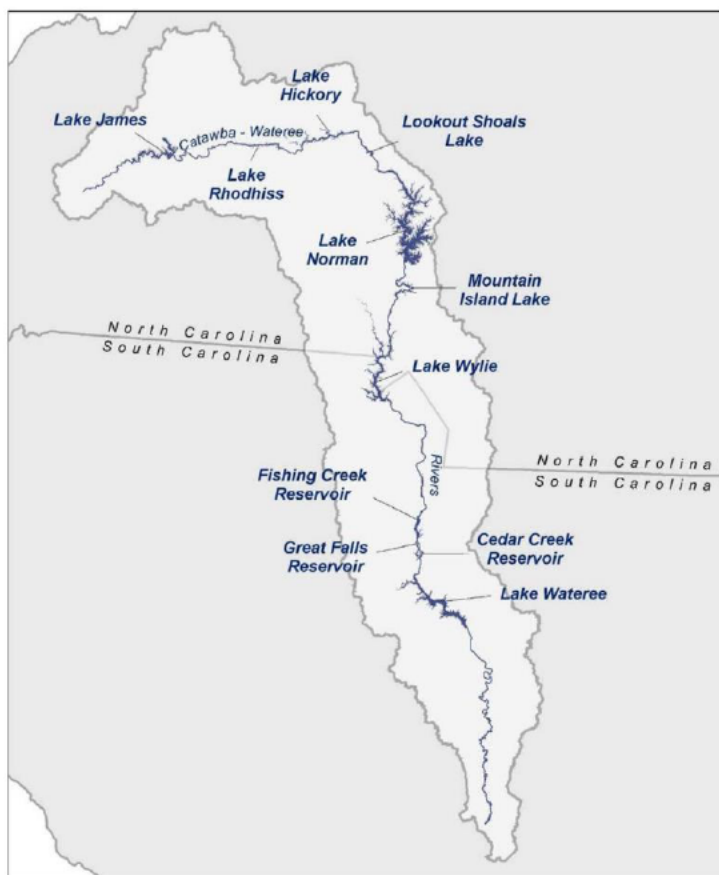
3. E. Other – Facility Definition:

Duke Energy's Catawba-Wateree Project spans an approximately 300-mile stretch of the Catawba River on the east side of the Blue Ridge Mountains in North Carolina and South Carolina. The project operates under a single FERC license and under a single FERC Project Number (2322). The project includes 11 developments from Lake James to Lake Wateree (see Figure 1 below) and is an illustration of how not all FERC regulated projects have a simple one-to-one relationship between the number of dams and individual FERC licenses. As additional detail, the entire Catawba-Wateree Project is rated at over 805 MW and each of the 11 project developments includes a dam(s), powerhouse(s), impoundment(s) and recreation sites. The entire project, including the 11 project developments, was issued a new license by FERC in 2015. Some projects include multiple dams – Bridgewater, for example, includes three dams (Catawba, Paddy Creek and Linville).

As DOE is implementing Section 40333 of the BIL, and specifically further clarifying the definition of a "qualified hydroelectric facility," we encourage DOE to not rigidly interpret each individual FERC project (represented by a single FERC project number) as a single "qualified hydroelectric facility." Instead, we recommend that DOE take other

factors, such as geographic proximity, into account. The Catawba-Wateree Project is one, and certainly not the only example, where multiple facilities exist within a single FERC project. Interpreting the facility definition in 40333 to apply to individual FERC projects would limit the effectiveness of the BIL by directly, and artificially, reducing the number of eligible facilities. Doing so would also create a definition that is not based on facility characteristics, but rather on individual regulatory decisions by project developers often made decades ago.

Figure 1 – Map of the Catawba-Wateree Project (FERC Project Number 2232)



The 11 project developments include, from upstream to downstream and identified by river mile (RM):

- 1) Bridgewater at RM 279.6
- 2) Rhodhiss at RM 248.0
- 3) Oxford at RM 230.0
- 4) Lookout Shoals at RM 220.3
- 5) Cowans Ford at RM 186.9
- 6) Mountain Island at RM 171.5
- 7) Wylie at RM 143.5
- 8) Fishing Creek at RM 104.8
- 9) Great Falls and Dearborn at RM 101.5
- 10) Rocky Creek and Cedar Creek at RM 99.3
- 11) Wateree at RM 76.85