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October 27, 2020

VIA ELECTRONIC FILING

Kimberley A. Campbell, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

**Re: Duke Energy Progress, LLC's Hot Springs Microgrid Project Interim
Progress Report
Docket No. E-2, Sub 1185**

Dear Ms. Campbell:

I write to provide a status update to the Commission regarding Duke Energy Progress, LLC's ("DEP") Hot Springs Microgrid Solar and Battery Storage Facility for filing in connection with this matter. As described in the attached Interim Progress Report, the projected date for commercial operation has been delayed until October 2021, and cost estimates have increased.

DEP's projected cost to construct the facility is confidential. Public disclosure of such information would impair DEP's ability to negotiate favorable contracts at the lowest reasonable cost for the benefit of its customers. Thus, this information is being filed under seal pursuant to N.C. Gen. Stat. § 132-1.2. It will be provided to interested parties pursuant to an appropriate confidentiality agreement.

Thank you for your attention to this matter. If you have any questions, please let me know.

Sincerely,

Lawrence B. Somers

Enclosure

cc: Parties of Record

OFFICIAL COPY

Oct 27 2020

Hot Springs Microgrid Solar and Battery Storage Facility
Interim Progress Update
NCUC Docket No. E-2, Sub 1185
October 27, 2020

| <u>Original Cost Estimate</u> | <u>February 2020 Progress Report Cost Estimate</u> | <u>March 2020 Hearing Cost Estimate</u> | <u>Current Cost Estimate</u> |
|-------------------------------|--|---|------------------------------|
| [BEGIN CONFIDENTIAL] | | | |
| \$ [REDACTED] million | \$ [REDACTED] million | \$ [REDACTED] million | *\$ [REDACTED] million |

[END CONFIDENTIAL]

* The cost estimate increase can be attributed to the following reasons:

- Higher than expected interconnection study and interconnection equipment costs
- Higher than expected construction oversight and AFUDC costs due to total project cost increase and schedule delays

| <u>Task</u> | <u>Original CPCN Filing Estimate</u> | <u>February 2020 Progress Report Estimate</u> | <u>March 2020 Hearing Estimate</u> | <u>Current Status/Estimate</u> |
|---------------------------|--------------------------------------|---|------------------------------------|--------------------------------|
| Limited Notice to Proceed | March 2019 | July 2019 | July 2019 | July 2019 |
| Interconnection Agreement | August 2019 | March 2020 | September 2020 | January 2021 |
| Begin Construction | September 2019 | March 2020 | May 2020 | *May 2020 |
| Commercial Operation | January 2020 | September 2020 | December 2020 | **October 2021 |

** Began clearing and site remediation activities in May 2020 and remobilized the EPC in October 2020.*

*** The delay of the Commercial Operation Date can be attributed to the following reasons:*

Hot Springs is the first microgrid of its size and scope in Duke Energy's Carolinas service area and, as a pilot, was intended to unearth critical learnings to pave the way for future microgrids. The Hot Springs microgrid has two distinct operational modes that have very different grid and safety impacts: grid parallel mode and islanding mode. Each of these operational modes requires technical due diligence related to integration to the distribution system, generator system site design, and safety considerations. These operational modes are further complicated when considering that there are only inverter-based generation sources (solar and an AC coupled battery) proposed in the interconnection request.

The estimated October 2021 date for commercial operation applies to grid parallel mode specifically, and Duke Energy plans to implement and test the islanding functionality after commercial operation. Grid parallel mode is the typical interconnection service type; however, the bi-directional flow of power and various use cases/capability of the proposed system require further analysis and consideration beyond what a typical interconnection request would need. Because the Hot Springs microgrid is a first of its kind pilot project, additional studies, design, and validation of the islanding mode are required to ensure the safety and reliability of the grid. It is anticipated that islanding design of future microgrid projects would take place outside of the Duke Energy interconnection process.

The preliminary System Impact Study for grid parallel mode was performed by a vendor in 2018, but that study was not performed in a manner that addressed all of the use case concerns. For example, the study did not evaluate the distribution grid impacts caused by proposed use cases such as frequency regulation. Because the knowledge and training to perform parallel and islanding studies is so specialized, there are limited vendors in the industry with experience performing this work. As a result, the Hot Springs interconnection process has taken longer than expected due to scarcity of these specialized engineering skills in the market and limited standardization of industry study methods. The difficulty of studying this project and having to work with multiple vendors have both delayed estimated interconnection timeframes and increased estimated costs (i.e., the studies identified higher than estimated costs for the microgrid system design). Duke Energy has worked closely with the vendor to support overcoming these system design deficiencies and address technical gaps.

Vetting qualified vendors to perform this work has taken time, but this effort will be useful for all future microgrid projects, as well. Any work that is awarded has oversight by technical leaders within Duke Energy to ensure project quality and a consistent approach is maintained through the interconnection process.

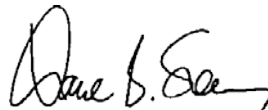
CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Progress, LLC's Hot Springs Microgrid Project Interim Progress Report, in Docket No. E-2, Sub 1185, has been served by electronic mail, hand delivery or by depositing a copy in the United States mail, postage prepaid to the following parties:

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This the 27th day of October, 2020.



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