

**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

DOCKET NO. E-2, SUB 1127

In the Matter of	)	
Application of Duke Energy Progress, LLC,	)	ORDER GRANTING
for a Certificate of Public Convenience and	)	CERTIFICATE WITH
Necessity to Construct a Microgrid Solar	)	CONDITIONS
and Battery Storage Facility in Haywood	)	
County, North Carolina	)	

BY THE COMMISSION: On November 10, 2016, Duke Energy Progress, LLC (DEP or the Company) filed a verified Application pursuant to G.S. 62-110.1 and Commission Rule R8-61 for a certificate of public convenience and necessity (CPCN) to construct the Mt. Sterling Microgrid Solar and Battery Storage Facility (Mt. Sterling Microgrid Project) on National Park Service property in the Great Smoky Mountains on Mount Sterling, Haywood County, North Carolina. As part of the CPCN Application, the Company included exhibits and the supporting pre-filed direct testimony of Jonathan A. Landy, Business Development Manager for Duke Energy Business Services LLC, an affiliate of DEP.

On December 2, 2016, DEP filed a revision to its Application to clarify that the Company is requesting a CPCN for the solar generation-related components of the Mt. Sterling Microgrid Project and not for the battery storage components. The Company also requested that the Commission approve the Company's decision to construct the complete project as an appropriate project on behalf of its customers, and as consistent with the Commission's directive in its March 28, 2016 Order Granting Application in Part, with Conditions, and Denying Application in Part in Docket No. E-2, Sub 1089, to move forward in a timely manner on DEP's commitment to site solar and battery storage in the Company's western service area as part of the Western Carolinas Modernization Project.

The intervention of the Public Staff is recognized pursuant to G.S 62-15(d) and Commission Rule R1-19(e). On November 22, 2016, the North Carolina Sustainable Energy Association (NCSEA) filed a motion to intervene, which was subsequently granted by the Commission on December 1, 2016.

On December 15, 2016, the Commission issued its Order Scheduling Hearings, Requiring Filing of Testimony, Establishing Discovery Guidelines, and Requiring Public Notice (Scheduling Order). The Scheduling Order, among other things, scheduled a public witness hearing on the Company's Application to be held in Haywood County on February 7, 2017, and an expert witness hearing to be held in Raleigh on February 28, 2017. Further, the Scheduling Order required DEP to publish a notice containing a summary of the Application, the details of the public witness hearing and other information.

On January 26, 2017, DEP filed a motion requesting that the Commission cancel the public witness hearing scheduled for February 7, 2017. No protests had been filed, and the Company reported receiving positive feedback regarding the Mt. Sterling Microgrid Project. The Commission issued its Order Cancelling Public Witness Hearing on January 27, 2017.

On January 31, 2017, the State Environmental Review Clearinghouse (State Clearinghouse) filed a letter with agency comments about the project, stating that no further action was needed on the Commission's part for compliance with the North Carolina Environmental Policy Act.

On February 9, 2017, the Public Staff filed the Affidavits of Jack L. Floyd, Electric Engineer in the Electric Division of the Public Staff, and Michelle Boswell, Staff Accountant in the Accounting Division of the Public Staff, recommending that the Commission issue the CPCN with certain conditions.

On February 13, 2017, NCSEA filed a letter supporting the Application.

Also on February 9, 2017, DEP filed affidavits of publication evidencing that DEP published notice of its Application in The Mountaineer and the Asheville Citizens-Times, newspapers having general coverage in Haywood County.

On February 13, 2017, DEP filed a motion requesting that the Commission cancel the expert witness hearing scheduled for February 28, 2017. At that time, two statements of consumer support for the project had been filed with the Commission, but no protests.

On February 23, 2017, the Commission issued its Order Cancelling Expert Witness Hearing, Receiving Evidence into Record and Requiring Late-Filed Exhibits. The Order, among other things, required DEP to file two late-filed exhibits and a proposed Order on or before March 28, 2017.

On March 10, 2017, the Company filed the required late-filed exhibits in compliance with the Commission's February 23, 2017 Order.

DEP and the Public Staff filed a joint proposed order on March 21, 2017.

Based upon the Company's verified Application, the testimony and exhibits received into evidence by Commission Order, and the record as a whole, the Commission makes the following:

#### FINDINGS OF FACT

1. DEP is a public utility with a public service obligation to provide electric utility service to customers in its service area in North Carolina and is subject to the jurisdiction of the Commission.

2. The Commission has jurisdiction over this Application. Pursuant to G.S. 62-110.1 and Commission Rule R8-61(b), a public utility must receive a CPCN prior to constructing electric generating facilities.

3. DEP plans to construct a microgrid which consists of an approximately 10-kilowatt (kW) direct current (DC) solar photovoltaic (PV) electric generating facility and an approximately 95-kilowatt hour (kWh) zinc-air battery energy storage system on Mt. Sterling in Haywood County, North Carolina (the Facility). The Facility will serve a National Park Service (NPS) communication tower in the Great Smoky Mountain National Park. The NPS radio equipment is considered critical infrastructure for NPS personnel and visitors to the Great Smoky Mountains National Park. The NPS radio equipment is currently served by DEP's existing four-mile 12.47-kV grid-connected distribution feeder. This line traverses rugged terrain, is difficult to access, and the restoration of service following an outage is both time-consuming and costly. Further, the existing grid-connected facilities are likely to require upgrades in 2017.

4. Current Company analysis shows that construction of the Mt. Sterling Microgrid Project is the less-costly alternative to upgrading and maintaining the existing facilities. Should further analyses reveal a significant change in the cost estimate, the Company should perform a re-evaluation of the net costs and benefits of the Mt. Sterling Microgrid Project prior to undertaking construction to ensure the continued cost-effectiveness of the project.

5. Although the Mt. Sterling Microgrid Project is designed to serve a relatively small existing customer, the project is consistent with DEP's 2016 Integrated Resource Plan (IRP), filed with the Commission on September 1, 2016 (as revised on September 30, 2016) in Docket No. E-100, Sub 147.

6. Because the NPS is a very small, geographically isolated retail customer of DEP, and the Mt. Sterling Microgrid Project is being proposed as a cost-effective alternative to the current traditional grid-connected utility service, exploring the wholesale market for the capacity and energy to serve this need is not feasible, and DEP was not obligated to solicit third parties to fulfill this need.

7. The Company's estimated construction cost for the Mt. Sterling Microgrid Project is reasonable for purposes of this proceeding. DEP shall file a progress report and any revisions in the cost estimates for the Mt. Sterling Microgrid Project on an annual basis, with the first report due no later than six months from the date of issuance of this Order.

8. The Mt. Sterling Microgrid Project is consistent with the Commission's March 28, 2016 Order Granting Application in Part, with Conditions, and Denying Application in Part in Docket No. E-2, Sub 1089, in which the Commission noted that DEP committed to work with customers in the Asheville region to site solar and battery storage facilities as part of the Western Carolinas Modernization Project.

9. Due to the unique characteristics of the Mt. Sterling Microgrid Project, it is reasonable that DEP be relieved from compliance with the metering requirements of Commission Rule R8-8(a), and the standard voltage requirements of Commission Rule R8-17, and be authorized to proceed with the proposed customer service agreement that was included as an exhibit to the Application.

10. Pursuant to G.S. 62-110.1, the issuance of a CPCN for the solar generation-related components of the Mt. Sterling Microgrid Project proposed by DEP is required by the public convenience and necessity, subject to the conditions proposed by the Public Staff and set forth in the ordering paragraphs below.

#### EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 1-2

These findings are informational, procedural, and jurisdictional in nature and are uncontroverted.

#### EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 3-8

These findings are supported by the Application and exhibits, the testimony of DEP witness Jonathan A. Landy, and the affidavits of Public Staff witnesses Jack L. Floyd and Michelle M. Boswell.

Company witness Landy offered testimony describing the need for the 10-kW DC solar facility and the 95-kWh battery of the Mt. Sterling Microgrid Project, which is based on the unique circumstances of the only customer affected, the NPS. The NPS has a communications tower on Mt. Sterling in the Great Smoky Mountains National Park (Park), which is under the jurisdiction of the U.S. Department of the Interior. The project will be situated on one parcel totaling approximately 5,000 square feet. For approximately 50 years, DEP has maintained service to the Mt. Sterling Fire Tower, which provides critical communication support for Park personnel and visitors, through a 12.47-kV overhead distribution feeder. The existing feeder line carrying electricity to the tower extends approximately four miles through remote and hazardous terrain inside the Park, incurs high restoration costs during outage events and is expected to require high-cost equipment upgrades beginning this year. Investing in the project in lieu of maintaining the existing, traditional service will allow DEP to de-energize and decommission the existing feeder, enhancing employee safety and productivity by reducing ongoing operations and maintenance activities in a high-risk, labor-intensive environment.

Witness Landy testified that the economics of the project compared favorably to those of the existing service and that the economic evaluation of the project, which compared the lifecycle cost of the project as well as the cost to de-energize and decommission the existing distribution feeder to the expected costs of continuing to maintain the existing service, including vegetation management, equipment upgrades and replacement, and outage restoration events, demonstrated that the project was a lower cost alternative for serving the NPS. DEP utilized a competitive bid process to select Fluidic Energy as the battery provider and EPC contractor. Witness Landy also

testified that the Facility would be DEP's first regulated investment in a remote, renewable-based microgrid as well as DEP's first DC-based microgrid, increasing the overall efficiency of service to its customer, the NPS.

The only intervenors to this proceeding were the Public Staff and NCSEA. On February 9, 2017, the Public Staff filed the affidavits of Jack L. Floyd and Michelle M. Boswell. Witness Floyd testified that the Mt. Sterling Microgrid Project is designed to address the unique circumstances related to the provision of electric service to the NPS radio equipment. He also testified that although the output of the Mt. Sterling Microgrid Project is only 10 kW, construction of the project is consistent with DEP's 2016 IRP. He stated that DEP's 2016 IRP identifies a need for an additional 1,844 megawatts (MW) of new resources, including 141 MW of utility-owned solar resources, to meet customers' energy needs by 2019.

Regarding assessment of the wholesale market, Public Staff witness Floyd testified that DEP did not indicate that it solicited third-party options from the wholesale market to construct or extend service to the NPS radio equipment. He stated that because the NPS is a very small, geographically isolated retail customer of DEP, and the Mt. Sterling Microgrid Project is being proposed as a cost-effective alternative to the currently-provided, traditional grid-connected utility service, the Public Staff does not believe that exploring the wholesale market for the capacity and energy to serve this need is feasible.

Witnesses Floyd and Boswell testified regarding the cost-effectiveness of the Mt. Sterling Microgrid Project. Witness Floyd testified that the Public Staff reviewed the cost estimate of the Mt. Sterling Microgrid Project, along with a cost-benefit analysis prepared by the Company. He testified that based on the review, the Public Staff concludes that DEP used reasonable methodologies and assumptions in its current cost estimate and cost-benefit analysis.

Public Staff witness Boswell testified that it appeared that DEP utilized conservative estimates for both the cost and benefit calculations based upon actual historical cost data and cost estimates provided by vendors. She stated that the estimates used by DEP are reasonable. Witness Boswell also reviewed the methodology used by the Company in calculating the net benefit of the project. In addition to a review for general reasonableness, the cost and benefit calculations were tested with less conservative amounts to determine if the project was still feasible given more costly scenarios. Public Staff witness Boswell testified that DEP used reasonable methodologies and assumptions in its current cost estimate and cost-benefit analysis and that the project appears to be cost effective. She noted that certain activities regarding pole disposal activities still await final approval by the NPS. She recommended that once the final decision of the NPS is received, should further analyses reveal a significant change in the cost estimate, the Company should perform a re-evaluation of the net costs and benefits of the Mt. Sterling Microgrid Project prior to undertaking construction, to ensure the continued cost-effectiveness of the project.

On February 13, 2017, NCSEA filed a letter stating that it supported the CPCN Application.

Furthermore, as part of DEP's CPCN application for the Western Carolinas Modernization Project in Docket No. E-2, Sub 1089, DEP committed to install up to 15 MW of solar generation at the site of its Asheville generation plant and to invest in a minimum of 5 MW of battery storage in the DEP-Western Region. The Commission finds that the Mt. Sterling Microgrid Project is consistent with the Commission's March 28, 2016 Order Granting Application in Part, with Conditions, and Denying Application in Part in Docket No. E-2, Sub 1089, in which the Commission noted that DEP committed to work with customers in the Asheville region to site solar and battery storage facilities as part of the Western Carolinas Modernization Project.

Based on the foregoing, the Commission finds and concludes that the Mt. Sterling Microgrid Project is consistent with DEP's identified need for utility-owned resources and that under the unique circumstances presented, exploring the wholesale market for the capacity and energy to serve this need is not feasible. Further, the Commission concludes that DEP used reasonable methodologies and assumptions in its current cost estimate and cost-benefit analysis and that the Project appears to be cost effective. However, should further analyses reveal a significant change in the cost estimate, the Company should perform a re-evaluation of the net costs and benefits of the Mt. Sterling Microgrid Project prior to undertaking construction, to ensure the continued cost-effectiveness of the project.

#### EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 9

This finding is supported by the Application and exhibits and the affidavit of Public Staff witness Floyd.

In its Application, the Company requested a waiver of two Commission rules related to metering and standard voltage. Commission Rule R8-8(a) provides that bills "shall be rendered for metered service periodically, and shall show the readings of the meter at the beginning and end of the period for which the bill is rendered, the number and kinds of units of service supplied, and the date of the last meter reading." Electric service from the Mt. Sterling Microgrid Project will be provided to the NPS through Direct Current (DC) at approximately 24 volts. DEP's meter infrastructure does not support DC-rated meters and, therefore, DEP proposed to provide unmetered service and to render bills to the NPS for estimated monthly usage based upon average monthly usage from the period October 2015 through September 2016. Therefore, DEP requested a waiver of Commission Rule R8-8(a). Commission Rule R8-17 adopts "preferred standard nominal service voltages" for North Carolina electric suppliers. Because the proposed approximately 24-volt DC service to the NPS does not comport to the 120/240 volt standard voltage preferred by the Commission, DEP requested a waiver of the voltage requirement in the rule. In addition, DEP attached as Exhibit 5 to its Application a proposed customer service agreement and requested approval by the Commission.

Public Staff witness Floyd testified regarding the Company's request to waive the requirements of Commission Rule R8-8(a). He stated that the Public Staff reviewed DEP's calculations of estimated usage and believes that billing for the provision of electric service from the Mt. Sterling Microgrid Project based on estimated usage is reasonable for the unique service to the NPS radio equipment. Therefore, the Public Staff recommended that the Commission approve DEP's request for a waiver of Commission Rule R8-8(a).

Public Staff witness Floyd also testified regarding DEP's request to waive the voltage standard requirement in Commission Rule R8-17. He testified that DEP will install necessary equipment to convert the DC voltage to standard AC voltage for site maintenance power needs. Witness Floyd concluded that, given the circumstances, DEP's request to waive Commission Rules R8-17(a)(1) and (2) is reasonable.

Finally, regarding the request for approval of the customer service agreement, Public Staff witness Floyd testified that the agreement appropriately addresses the service obligations of both the Company and the customer that are unique to electric service to the NPS radio equipment and recommended approval of the agreement.

Based on the Application and exhibits and the testimony of Public Staff witness Floyd, the Commission concludes that due to the unique nature of the Mt. Sterling Microgrid Project, a waiver of Commission Rules R8-8(a) and R8-17(a)(1) and (2) is appropriate and should be approved. Further, given that the customer service agreement addresses the service obligations of DEP and the customer that are unique to the Mt. Sterling Microgrid Project, the Commission concludes that approval of the agreement is appropriate.

#### EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 10

Based on the filed Application and exhibits, the testimony of Company witness Landy, the affidavits of Public Staff witnesses Floyd and Boswell, the letter of support from the NCSEA, and the fact that no party opposed the proposed project, the Commission concludes that the granting of a CPCN for the solar generation-related components of the Mt. Sterling Microgrid Project is in the public interest and is required by the public convenience and necessity, subject to the enumerated conditions set forth below. The Commission further finds good cause to grant DEP a waiver of the metering requirements of Commission Rule R8-8(a) and the standard voltage requirements of Commission Rule R8-17, and to approve DEP's proposed customer service agreement with NPS.

IT IS, THEREFORE, ORDERED, as follows:

1. That a certificate of public convenience and necessity shall be, and is hereby, issued to Duke Energy Progress, LLC, for the construction of an approximately 10-kW solar PV electric generation facility and associated equipment (excluding battery storage) for the Mt. Sterling Microgrid Project;

2. That Appendix A attached hereto shall constitute the certificate of public convenience and necessity issued for the Mt. Sterling Microgrid Project;

3. That DEP shall construct and operate the Mt. Sterling Microgrid Project in strict accordance with all applicable laws and regulations, including the provisions of all permits issued by the North Carolina Department of Environmental Quality;

4. That once final approval from the NPS is received regarding pole disposal activities for the Mt. Sterling Microgrid Project and if such decision by the NPS results in a significant change in the cost estimate, DEP shall perform a re-evaluation of the net costs and benefits of the Mt. Sterling Microgrid Project prior to undertaking construction;

5. That DEP shall file with the Commission in this docket a progress report and any revisions in the cost estimates for the Mt. Sterling Microgrid Project on an annual basis, with the first report due no later than six months from the date of issuance of this Order;

6. That for ratemaking purposes, the issuance of this Order and CPCN does not constitute approval of the final costs associated therewith, and that the approval and grant is without prejudice to the right of any party to take issue with the treatment of the final costs for ratemaking purposes in a future proceeding;

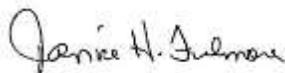
7. That due to the unique characteristics of the Mt. Sterling Microgrid Project, the Commission grants DEP a waiver of the metering requirements of Commission Rule R8-8(a) and the standard voltage requirements of Commission Rule R8-17; and

8. That DEP's proposed customer service agreement (Application for Supply of Electricity Form), included as Exhibit 5 to the Application, is approved.

ISSUED BY ORDER OF THE COMMISSION.

This the 6<sup>th</sup> day of April, 2017.

NORTH CAROLINA UTILITIES COMMISSION



Janice H. Fulmore, Deputy Clerk

**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

DOCKET NO. E-2, SUB 1127

Duke Energy Progress, LLC  
410 South Wilmington Street  
Raleigh, North Carolina 27601

is hereby issued this

**CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY  
PURSUANT TO G.S. 62-110.1**

for construction of an approximately 10-kW direct current solar photovoltaic electric generation facility and associated equipment for the Mt. Sterling Microgrid Project

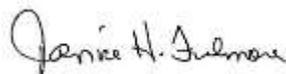
located  
on National Park Service property in the Great Smoky Mountains on Mount Sterling,  
Haywood County, North Carolina

This certificate is subject to the following conditions: (a) Duke Energy Progress, LLC, (DEP) shall construct and operate the Mt. Sterling Microgrid Project in strict accordance with all applicable laws and regulations, including the provisions of all permits issued by the North Carolina Department of Environmental Quality; (b) DEP will obtain approval of the Commission before selling, transferring, or assigning the certificate and/or generating facility; (c) the Commission grants DEP a waiver of the metering requirements of Commission Rule R8-8(a) and the standard voltage requirements of Commission Rule R8-17; (d) this certificate is subject to Commission Rule R8-61 and all orders, rules, regulations and conditions as are now or may hereafter be lawfully made by the Commission.

ISSUED BY ORDER OF THE COMMISSION.

This the 6<sup>th</sup> day of April, 2017.

NORTH CAROLINA UTILITIES COMMISSION



Janice H. Fulmore, Deputy Clerk