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April 18, 2016

**VIA ELECTRONIC FILING**

Ms. Gail L. Mount  
Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4325

**RE: Duke Energy Carolinas, LLC's Application for Certificate of Public  
Convenience and Necessity  
Docket No. E-7, Sub 1101**

Dear Ms. Mount:

Enclosed for filing in the above-referenced docket is the Direct Testimony of James S. Northrup on behalf and in support of Duke Energy Carolinas, LLC's ("DEC") Application for a Certificate of Public Convenience and Necessity to construct a 6 megawatt solar facility on a 116-acre parcel of land owned by DEC at the intersection of NC Highway 801 and Old U.S. 70 near the town of Barber in Rowan County, North Carolina.

Please contact me if you have any questions.

Sincerely,



Brian L. Franklin

Enclosures

OFFICIAL COPY

Apr 18 2016

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1101

In the Matter of	)	
Application of Duke Energy Carolinas, LLC	)	<b>DIRECT TESTIMONY OF</b>
For A Certificate of Public Convenience and	)	<b>JAMES S. NORTHRUP FOR</b>
Necessity to Construct a 6 MW Solar	)	<b>DUKE ENERGY CAROLINAS, LLC</b>
Facility in Rowan County, North Carolina	)	
	)	

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1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is James S. Northrup and my business address is 400 South Tryon  
3 Street, Charlotte, North Carolina 28202.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed as Director, Wholesale and Renewables Analytics by Duke  
6 Energy Business Services LLC. Duke Energy Business Services LLC is a  
7 service company affiliate of Duke Energy Progress, LLC (“Duke Energy  
8 Carolinas,” “DEC”, or “Company”). Duke Energy Carolinas is a wholly  
9 owned subsidiary of Duke Energy Corporation (“Duke Energy”).

10 **Q. WHAT ARE YOUR RESPONSIBILITIES AS DIRECTOR,**  
11 **WHOLESALE AND RENEWABLES ANALYTICS?**

12 A. As Director, Wholesale & Renewables Analytics, I am responsible for  
13 developing specific strategies for Duke Energy’s regulated utilities, including  
14 commercial support for Requests For Proposals (“RFPs”) for renewable and  
15 supply side resources and major project/initiative business case analysis.

16 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL**  
17 **BACKGROUND.**

18 A. I am a registered professional engineer in the state of North Carolina, having  
19 received a Bachelor of Science in Civil Engineering from North Carolina  
20 State University and a Master’s Degree in Business Administration from  
21 Queens University. I began my career at Duke Power Company in 1979 and  
22 have held a variety of responsibilities across Duke Energy in the areas of  
23 electric system distribution engineering, customer marketing, Demand-Side

1 Management Program design and implementation, generation business  
2 planning, generation expansion planning, energy risk management, and  
3 Integrated Resource Planning. After coordinating the development of  
4 Demand-Side Customer Programs, I joined the Generation System Planning  
5 Group in 1994 and coordinated the development of the Integrated Resource  
6 Plan (“IRP”) filings for state regulatory agencies. I was promoted to  
7 Manager, Generation Business Support in the Power Generation Group in  
8 2000 to lead the business case development and asset strategy for fossil/hydro  
9 generation. In 2003, I was promoted to Director, System and Power Planning  
10 Group to guide major investments for generation assets and develop  
11 expansion plans to maintain system reliability. In 2006, I was promoted to  
12 Director, Regulated Economic Analysis where I worked in Integrated  
13 Resource Planning, new generation investments, and maintaining system  
14 reliability. In July 2012, I was promoted to my current position as Director,  
15 Wholesale and Renewables Analytics.

16 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NORTH**  
17 **CAROLINA UTILITIES COMMISSION?**

18 A. No, but I have submitted testimony in other dockets, most recently in E-2, Sub  
19 1063, where this Commission granted Duke Energy Progress, LLC (“DEP”) a  
20 Certificate of Public Convenience and Necessity to construct a 12.8 megawatt  
21 (“MW) solar facility at Marine Corps Base Camp Lejeune in Onslow County,  
22 North Carolina.

23 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

1 A. The purpose of my testimony in this proceeding is to support DEC's CPCN to  
2 construct a 6 MW solar facility located at the intersection of NC Highway 801  
3 and Old U.S. 70 near the town of Barber in Rowan County, North Carolina.

4 **Q. WERE YOU INVOLVED IN PREPARING DEC'S APPLICATION IN**  
5 **THIS DOCKET?**

6 A. Yes.

7 **Q. TO YOUR KNOWLEDGE, HAS DEC FILED AND PROVIDED ALL**  
8 **INFORMATION, BEGUN PUBLIC NOTICE REQUIRED BY THIS**  
9 **COMMISSION, AND OBTAINED ALL FEDERAL AND STATE**  
10 **LICENSES, PERMITS, AND EXEMPTIONS REQUIRED FOR**  
11 **CONSTRUCTION AND OPERATION OF THIS PROPOSED**  
12 **GENERATION FACILITY?**

13 A. Yes.

14 **Q. WHY IS DEC REQUESTING THIS COMMISSION TO GRANT THE**  
15 **CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY?**

16 A. As detailed in the CPCN application, upon approval from the Commission,  
17 the DEC-owned and operated Woodleaf Solar Facility ("Facility") will be  
18 constructed as a solar photovoltaic ("PV") electric generation facility located  
19 at the intersection of NC Highway 801 and Old U.S. 70 near the town of  
20 Barber in Rowan County, North Carolina, and will be situated on an  
21 approximately 116-acre parcel of land owned by DEC.

22 Duke Energy Carolinas has a significant long-term need for  
23 Renewable Energy Credits ("RECs") to comply with the requirements of

1 North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard  
2 ("REPS"). Pursuant to N.C. Gen. Stat. § 133.8, DEC, as an electric supplier,  
3 is required to comply with the overall REPS requirement of RECs equivalent  
4 to 6% in 2015, 10% in 2018, and 12.5% in 2021 and thereafter.

5 To meet its long-term, overall REPS obligation of 12.5% of North  
6 Carolina retail sales in 2021 (and continuing annually thereafter), DEC must  
7 procure approximately an additional 670,000 RECs in 2019, with that amount  
8 growing to three million RECs by 2020. DEC's current and projected future  
9 compliance position already accounts for utilization of cost-effective energy  
10 efficiency savings and out-of-state RECs to meet portions of that future  
11 compliance need.

12 The DEC 2015 Integrated Resource Plan specifies that the Company  
13 fully expects solar resources to contribute to DEC's REPS compliance efforts  
14 beyond the solar set-aside minimum threshold for REPS. Through DEC's  
15 compliance procurement efforts to date, it will be able to meet its long-term  
16 solar set-aside requirements. Solar resources, however, are cost-competitive  
17 with other DEC renewable resources in the general requirements category,  
18 and DEC continues to procure solar RECs to meet its long-term overall  
19 obligation due to that relative cost-effectiveness. The Facility represents a  
20 unique opportunity for DEC to procure these cost effective RECs for purposes  
21 of complying with REPS beginning in the 2016-2017 timeframe.

22 The total installed cost of the Facility compares favorably with the  
23 projects selected from the February 2014 DEC-DEP joint RFP, including

1           DEP's Commission-approved Warsaw, Fayetteville, Elm City, and Camp  
2           Lejeune solar facilities. The Facility also incorporates an advanced single axis  
3           tracking system enabling increased solar production throughout the daylight  
4           hours, thereby providing more renewable energy than conventional fixed axis  
5           solar technology.

6                     Ultimately, the Facility advances the implementation of utility scale  
7           solar projects (e.g., greater than 5 MWs) in DEC's service territory by  
8           providing the benefits of economies of scale solar energy projects to our  
9           customers.

10   **Q.    DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

11   A.    Yes.