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June 6, 2008

**FILED**

**JUN 06 2008**

Clerk's Office  
N.C. Utilities Commission

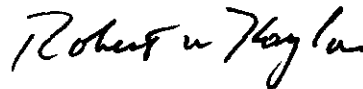
Ms. Renné C. Vance, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4325

RE: Docket No. E-7, Sub 856

Dear Ms. Vance:

Enclosed for filing are the original and thirty (30) copies of Duke Energy Carolinas, LLC's Application in the above-referenced docket.

Sincerely,



Robert W. Kaylor

Enclosures

cc: Parties of Record

(22)  
Ab  
7 Comm.  
Brennink  
Kirby  
Watson  
Hansen  
Hosson  
Lita  
Edison  
Jones  
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**FILED**

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

JUN 06 2008

DOCKET NO. E-7, SUB 856

Clerk's Office  
N.C. Utilities Commission

Application of Duke Energy Carolinas, LLC )  
for Approval of a Solar Photovoltaic )  
Distributed Generation Program )  
and for Approval of Proposed Method of )  
Recovery of Associated Costs )

**APPLICATION**

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**INTRODUCTION**

Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company") hereby applies, pursuant to Sections 62-110.1 and 62-133.8 of the North Carolina General Statutes ("N.C. Gen. Stat."), and Rules R1-5, R8-61(b), and R8-67 of the Rules and Regulations of the North Carolina Utilities Commission ("NCUC" or the "Commission"), for approval of a solar photovoltaic ("PV") distributed generation<sup>1</sup> program (the "Program"). The Company also requests affirmation from the Commission that it may recover all reasonable costs incurred to develop and implement the Program through the Renewable Energy and Energy Efficiency Portfolio Standard ("REPS") compliance cost recovery mechanism provided for in Session Law 2007-397 ("Senate Bill 3") and the Commission's implementation rules.

As more fully explained below, the Company intends to invest, over a two-year period, approximately \$100 million<sup>2</sup> to install new solar PV electricity generation

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<sup>1</sup> Distributed generation is the production of energy, typically on a small scale, close to where electricity is used.

<sup>2</sup> As explained in the Application, the Company anticipates that the Program will qualify for certain tax credits and accelerated tax depreciation benefits. Such tax benefits will reduce the ultimate cost of the Program. The Company plans to implement the Program in a manner that maximizes any applicable state and federal tax benefits.

facilities with a total generating capacity of approximately 20 megawatts ("MW").<sup>3</sup> The facilities will be dispersed throughout the Company's North Carolina service territory and will be installed on the rooftops of businesses and homes of Duke Energy Carolinas' customers, or as ground-mounted facilities located on property owned by the Company or its customers. The Company will seek customers who own large warehouses, commercial and industrial establishments, office buildings, single family homes, multi-family structures (such as apartment or condominium buildings), subdivisions, and schools to participate in the Program. Through the Program, the Company will evaluate the impact of distributed generation of a significant scale on the Company's electric system, explore the nature of solar distributed generation offerings desired by customers, fill knowledge gaps to enable successful, wide-scale deployment of solar PV distributed generation technologies, and promote the commercialization of the solar market in North Carolina through utility ownership.

The Company is committed to supporting the development of solar PV technology into a flourishing and self-sustaining industry that can complement more conventional technologies to supply the electricity needs of the Company's customers. The Program will allow Duke Energy Carolinas, through the use of solar PV generated electricity, and without its emission of any pollutants, to serve more of its load and to offset the use of other generation resources and potential power purchases.

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<sup>3</sup> Solar PV facilities generate direct current ("DC") power, which is the current and historical industry standard. Such power must be converted to alternating current ("AC") power for use in the Company's distribution or transmission system. The total generating capacity of the Program will depend on various factors including the cost of necessary components. Nevertheless, the size of the Program is significant. In comparison, there are 60 customer installed solar generation facilities in the Company's territory with a total installed capacity of approximately 300 kilowatts. All costs and sizing of solar PV facilities described in this application are based on DC power.

The Program is consistent with the public policy of this State. In 2007, the North Carolina General Assembly enacted Senate Bill 3, a comprehensive energy legislation that, among other things, establishes REPS requirements for North Carolina electric utilities. N.C. Gen. Stat. § 62-133.8. As the preamble to Senate Bill 3 states, the REPS requirements are to “promote the development of renewable energy and energy efficiency in the State. . . .” In enacting that law, the General Assembly made clear that it is the policy of the State to (1) diversify the resources used to reliably meet the energy needs of consumers, (2) provide greater energy security through the use of indigenous energy resources available within the State, (3) encourage private investment in renewable energy, and (4) improve air quality and provide other benefits to energy consumers and citizens of the State. As explained in this Application, the Program supports these goals of the REPS requirements.

Additionally, although not stated within the preamble of Senate Bill 3, energy security is promoted through investments in distributed generation because distributed energy could offer solutions to some of the nation’s pressing energy and electric power problems, including power quality issues, tighter emissions standards, and transmission bottlenecks.<sup>4</sup>

North Carolina’s tax policy also supports solar PV distributed generation facilities. The State’s tax laws provide a 35% investment tax credit (with some limitations on the level of credits available on any given project). This investment tax credit is more generous than tax credits or other incentives that are available for solar PV installation in almost every other state in the nation.

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<sup>4</sup> See U.S. Department of Energy, Distributed Energy program, <http://www.eere.energy.gov/de/>

A utility-owned solar PV distributed generation program of this size will enable the Company to develop competency as an owner of solar renewable assets, leverage volume purchases, build relationships with PV developers, manufacturers, and installers, and gain invaluable experience with the installation and operation of multiple types of solar distributed generation facilities.

Through the Program, the Company will be able to determine how distributed generation in general, and solar PV distributed generation facilities in particular, can impact its grid and the reliability of its electric service. The Company also will meet the demands of customers who have shown an interest in the benefits of solar distributed generation through the Program.

Most of the solar PV facilities in the Program would be interconnected with the Company's distribution system. Some of the ground-mounted and large warehouse solar PV facilities, however, may connect to the transmission system depending on proximity and voltage levels. Regardless, energy generated by the facilities would contribute to meeting the needs of all of Duke Energy Carolinas' customers.

The Company proposes to compensate business and home owners for the use of their land or roofs as solar PV generation sites. The Company will retain all Renewable Energy Certificates ("RECs") that are created as a result of the Program. By partnering with the Company to develop and deploy the Program, customers would play an active role in promoting environmentally-friendly energy generation.

Because the Program requires installation of facilities for the generation of electricity to be directly used for furnishing public utility service, Duke Energy Carolinas must obtain a certificate that public convenience and necessity requires such installations.

As explained more fully in this Application, the public convenience and necessity supports installation of the proposed solar PV distributed generation facilities. Further, the public interest is served by the Commission granting a blanket certificate for all facilities installed under the Program rather than individual certificates for each facility.

To allow Duke Energy Carolinas to implement the Program, therefore, the Company requests that the NCUC issue an Order:

- (1) approving the Program by granting Duke Energy Carolinas a blanket CPCN and approving the proposed tariff (included as Attachment A) to implement the Program;
- (2) affirming that the Company may recover its costs associated with the Program through the proposed REPS cost recovery mechanism provided for in N.C. Gen. Stat. § 62-133.8(h) and Commission Rule R8-67(e); and
- (3) finding that Duke Energy Carolinas' implementation of the Program is prudent and consistent with the promotion of adequate and reliable utility service to the citizens of North Carolina and the policies expressed in N.C. Gen. Stat. § 62-2.

In support of this Application, Duke Energy Carolinas respectfully shows the Commission the following:

#### **GENERAL INFORMATION**

1. The correct name and post office address of the Company are Duke Energy Carolinas, LLC, Post Office Box 1006, Charlotte, North Carolina 28201-1006.

2. The names and addresses of the attorneys of Duke Energy Carolinas who are authorized to receive notices and communications with respect to this Application are:

Kodwo Ghartey-Tagoe, VP-Legal, State Regulation  
Lara S. Nichols, Associate General Counsel  
Brian L. Franklin, Senior Counsel  
Duke Energy Corporation  
P. O. Box 1006/EC03T  
Charlotte, North Carolina 28201-1006

Robert W. Kaylor  
Law Offices of Robert W. Kaylor, P.A.  
225 Hillsborough Street  
Hillsborough Place, Suite 480  
Raleigh, North Carolina 27603

3. Duke Energy Carolinas is engaged in the generation, transmission, distribution, and sale of electricity at retail in the central and western portions of North Carolina and the western portion of South Carolina. It also sells electricity at wholesale to many municipal, cooperative and investor-owned electric utilities. The Company is authorized to transact business in the State of North Carolina and is a public utility under the laws of the State of North Carolina. Accordingly, its operations in the State of North Carolina are subject to the jurisdiction of the Commission.

#### **PROGRAM DESIGN**

4. The Program involves installation of multiple solar PV generating facilities with a combined total capacity of approximately 20 MW to be located in the Company's North Carolina service territory. Duke Energy Carolinas will own all the facilities under the Program. Between 80-90% of the Program's installed capacity will consist of large scale installations such as ground-mounted facilities and rooftop

installations on large commercial or industrial buildings, with individual facilities in this category ranging from 500kW to 3MW. Up to 10% of the Program's installed capacity will be medium scale rooftop facilities with individual facilities in this category ranging in size from 15kW to 500 kW. Structures that would fit into this medium category include schools, office buildings, and multi-family structures. Commercial or industrial structures that are not suitable for large scale installations due to size or other factors may also be in this medium category. Small scale facilities on residential rooftops, ranging from 1.5 to 5 kW in capacity, will comprise the remainder of the Program and up to 10% of the Program's total capacity. Attachment A is a form of the tariff ("Solar Photovoltaic Distributed Generation Program (NC)") setting forth the terms and conditions that the Company intends to offer to customers with businesses, homes, and other property that may be suitable for the installation of a solar PV facility.

5. The Company will contract with solar PV component manufacturers to supply the necessary number of solar PV facilities to support the Program. The Company will seek to purchase materials and services from North Carolina providers – to the extent that they are cost competitive in relation to other options – so as to promote economic development in the state and thereby fulfill one of the public policies underlying enactment of Senate Bill 3. It also will employ competitive solicitation when reasonable.

#### **TECHNICAL ASPECTS OF THE PROGRAM**

6. Each solar PV facility will consist of the following basic components which are necessary to produce electricity (See Attachment B for a simplified diagram of a solar PV facility):



- PV Modules – PV modules consist of photovoltaic cells arranged and packaged to produce the desired voltage and current appropriate for an inverter. The modules are typically connected in series in a “string” to achieve the desired voltage. Two or more “strings” are then connected in parallel to form an “array,” which provides the desired voltage and current to the inverter.
- Inverter – The inverter takes the direct current (“DC”) and voltage produced by the array and converts it to alternating current (“AC”) power suitable for interconnection to the distribution grid.
- AC and DC disconnects – These are devices that provide a means of isolating the DC or AC power from the components of the system in order to conduct maintenance or repair.
- Interconnection Equipment – This is equipment such as circuit breakers, fuses, protective relays, transformers, and switches used to connect the PV system to the electric grid and automatically disconnect the PV system from the electric grid in the event of an outage on the electric grid.
- Racking or mounting equipment and electrical conduit are used as necessary to securely hold, align, and protect the PV modules, inverters, disconnects, and interconnection wiring.

7. The Company plans to connect the solar PV facilities directly to the power grid at the distribution or transmission level. Each facility is expected to have a useful life of approximately 20-25 years. The Program, however, is the first of its kind in North

Carolina where a major utility will use solar PV distributed generation to produce levels of energy significant enough to be used to adequately and reliably serve the Company's customers. The Company anticipates increasing its reliance on these types of facilities to serve its customers over time. The Company will be ready to begin installation of solar PV facilities within six months after its Application is approved.<sup>5</sup>

### **COMPLIANCE WITH REPS REQUIREMENTS**

8. As previously stated, under Senate Bill 3, each electric public utility in the State must comply with a REPS requirement according to the following schedule:

<u>Calendar Year</u>	<u>REPS Requirement</u>
<u>2012</u>	<u>3% of 2011 N.C. retail sales</u>
<u>2015</u>	<u>6% of 2014 N.C. retail sales</u>
<u>2018</u>	<u>10% of 2017 N.C. retail sales</u>
<u>2021 and thereafter</u>	<u>12.5% of 2020 N.C. retail sales</u>

N.C. Gen. Stat. § 62-133.8 (b)(1). An electric public utility may meet the REPS requirements by generating electric power at a "new renewable energy facility." N.C. Gen. Stat. § 62-133.8 (b)(2). Beginning with the year 2010, Senate Bill 3 further requires that each electric public utility satisfy its REPS requirement in part with a combination of new solar electric facilities and new metered solar thermal energy facilities that use one or more of certain specified applications, including solar hot water and solar absorption cooling. N.C. Gen. Stat. § 62-133.8(d) (the "Solar Carve Out"). The Solar Carve out requires compliance according to the following schedule:

<u>Calendar Year</u>	<u>Requirement for Solar Energy Resources</u>
<u>2010</u>	<u>0.02% of N.C. retail sales</u>

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<sup>5</sup> The Program is distinguishable from a net metering arrangement between a utility and a customer for various reasons. For example, generation equipment used in net metering arrangements are owned and controlled by the customer for his or her own benefit; but the solar PV installations under the Program will be owned and controlled by the Company and used to serve all customers.

<u>2012</u>	<u>0.07% of N.C. retail sales</u>
<u>2015</u>	<u>0.14% of N.C. retail sales</u>
<u>2018</u>	<u>0.20% of N.C. retail sales</u>

Similarly, the REPS includes carve outs for swine and poultry waste resources. N.C. Gen. Stat. § 62-133.8(e) and (f).

9. Duke Energy Carolinas is an electric public utility under Senate Bill 3 and, accordingly, is subject to the REPS requirements. The solar PV facilities the Company proposes to install under the Program are “renewable energy facilities” under the statute and therefore may be used to comply with the REPS requirements. Thus, the Program will enable Duke Energy Carolinas to partially fulfill its REPS obligations under Senate Bill 3. The Company intends to include the Program in its REPS compliance plan when such plan is filed with the Commission annually pursuant to Commission Rule R8-67. The Company also will register such facilities as required by Commission Rule R8-66.

#### **PROGRAM RATIONALE AND BENEFITS**

10. The Program will enable the Company to diversify its generation resources, encourage private investment in renewable energy through the Company’s purchases of the materials needed to install solar PV generation facilities, and improve air quality for the citizens of this State inasmuch as the Company will generate electric energy without emitting any pollutants. The distributed generation nature of the Program also would increase the efficiency of energy distribution to customers by eliminating line losses that occur as the energy travels and is transformed through the energy delivery system. Additionally, Duke Energy Carolinas envisions the Program as an integral part of its present and future renewable generation portfolio.

11. The Program is expected to facilitate the deployment of a solar PV distributed generation network on a scale significant enough to promote commercialization and public interest in distributed solar generation within the Company's service territory. It also will focus on issues that directly benefit North Carolina and the Company's electrical system. Further, it will focus on filling knowledge gaps to enable successful, wide-scale deployment of solar PV distributed generation technologies, and support efforts to address the integration of distributed solar generation into the grid to maximize its value to customers.

12. The Company submits that utility ownership will bolster the evolution of North Carolina's nascent solar market in a manner that is most beneficial to all customers. The Program is expected to attract potential suppliers of solar PV generation components to establish their businesses in this State. Furthermore, the Company's volume purchases will allow it to develop business relationships with low-cost component manufacturers. The Company also believes the Program is of sufficient scale to enable it to benefit from economies of scale in the pricing of components and costs of installation. The scale of the Program also is sufficient to facilitate the research, development and demonstration ("RD&D") of distributed generation in general, and solar PV distributed generation in particular, on its electrical system.<sup>6</sup> It also will allow Duke Energy Carolinas to optimize the installation process for solar PV facilities, address various issues related to customer-sited distributed generation in its service territory, and

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<sup>6</sup> The Company has started discussions with solar component manufacturers and suppliers but not yet signed any binding agreements related to this Program.

gauge customer interest in distributed generation in general, and solar PV distributed generation in particular.

13. A limited number of utilities in other states and countries have employed solar PV distributed generation to provide electric service to customers for years. The Company, however, is unaware of any utility that has implemented solar PV distributed generation in North Carolina. Therefore, installing solar PV generation on the wide scale contemplated by the Program could lead to unique benefits to the Company's service territory.<sup>7</sup> Additionally, deployment of solar PV facilities at various points in the Company's vast transmission and distribution systems will allow the Company to gain operational knowledge concerning the effects of solar PV distributed generation. Such knowledge will enhance the Company's power distribution proficiency.

14. The Company expects utility ownership of solar PV distributed generation resources to positively influence commercial deployment of solar distributed generation in North Carolina by promoting faster, larger, and coordinated installations as opposed to sporadic installations by individual owners. Duke Energy Carolinas has learned from its experience with renewable energy through both its recent request for proposals ("RFP") process and its observations of other utilities that have had a longer history of dealing with Renewable Energy Portfolio Standards. As a result, the Company believes that stakeholders are best served if the Company can build its competencies to own renewable

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<sup>7</sup> Although lessons learned from other jurisdictions and countries may inform implementation of distributed solar PV generation in the Company's territory, they are by no means dispositive of the nature or resolution of issues likely to be associated with implementation of distributed solar PV generation in the Company's territory. For example, solar PV performance is dependent on factors that vary by geography, such as temperature, humidity, latitude, and the degree of direct solar insolation ("DSI") and total solar insolation ("TSI"). As such, solar PV distributed generation installations in the Company's territory may perform differently than installations in other regions of the United States or other countries.

assets so that, going forward, the Company can have the option to build and own these assets or alternatively to sign third-party purchase power agreements (“PPAs”).

15. The Company expects the Program to be eligible for certain State and Federal tax benefits that will collectively reduce the Program’s overall costs substantially. One tax benefit comes from the North Carolina renewable energy investment tax credit of 35% on the amount of the investment. (N.C. Gen. Stat. § 105-129.16A). A second tax benefit comes from the Federal five-year accelerated tax depreciation benefit. (Internal Revenue Code Sec. 168(e)(3)(B)(vi)(I), as amended by the Energy Tax Incentives Act of 2005 (P.L. 109-58)). Both of these benefits are currently available to the Company.<sup>8</sup> In short, substantial tax benefits are already available to the Company today, and future developments related to the Federal investment tax credit could result in additional support for investments in solar resources by utility companies.

16. The scale of the Program allows for multiple types of installations in multiple locations. Such an approach will enable the Company to thoroughly assess the solar opportunities in North Carolina to determine the most cost-effective and best-performing options for future deployments. There currently are several competing technologies in the PV module market, ranging from Crystalline Silicon (with sub-categories of Mono-Crystalline Silicon and Poly-Crystalline Silicon), Concentrating Photovoltaic, Amorphous Silicon Thin Film (with sub-categories of single, dual, or triple junction), Cadmium Telluride Thin Film, and Copper Indium Gallium DiSelenide Thin film. Each technology has distinct advantages and disadvantages. By selectively

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<sup>8</sup> A potential future additional tax benefit is a federal investment tax credit of 30%. This benefit is available to non-utilities and is due to decrease from 30% to 10% at the end of 2008 unless extended by Congress.

deploying diverse module technologies, the Company can obtain comparative cost, performance, and reliability data which will be used to drive out the true cost (\$/MWh) for each technology in Duke Energy Carolinas' North Carolina service territory. This data will enable the Company to select the least cost option for future deployment of solar PV systems.

17. Different localities have diverse requirements for the commissioning and installation of solar PV systems (e.g., engineering drawings, permits, inspections, etc.). Through deployment of a substantial number of solar PV distributed generation systems in the Company's North Carolina service territory, the Company expects to identify, collect, and analyze the similarities and differences in local requirements, which the Company hopes will yield benefits including, but not limited to, the following:

- Development of standardized requirements for PV system installation;
- Reduced administrative burden for utilities and installers;
- Lower installed costs as installation efficiencies are gained; and
- Education and familiarization with solar PV facility installation for local inspection authorities.

18. The Program also is designed to promote the public policies of North Carolina. Specifically, the Program is consistent with the General Assembly's stated policy of the State:

To promote the development of renewable energy and energy efficiency through the implementation of a Renewable Energy and Energy Efficiency Portfolio Standard (REPS) that will do all of the following:

- a. Diversify the resources used to reliably meet the energy needs of consumers in the State.
- b. Provide greater energy security through the use of indigenous energy resources available within the State.
- c. Encourage private investment in renewable energy and energy efficiency.
- d. Provide improved air quality and other benefits to energy consumers and citizens of the State.

N.C.G.S. § 62-2(a)(10). Additionally, the program is consistent with the public policy of the State in that it capitalizes on the availability of the North Carolina investment tax credit, which is one of the most generous investment tax credits offered by any state nationally. Because of the dispersal of generation to locations close to the end-user, distributed generation could promote energy security by offering solutions to some of the nation's energy and electric power problems, including power quality issues, tighter emissions standards, and transmission bottlenecks.

#### **PROGRAM COSTS AND COSTS RECOVERY**

19. As previously stated, the Company intends to invest approximately \$100 million over the next two years to implement the Program. Such investment constitutes the capital costs of installation of the solar PV facilities. Operations and maintenance ("O&M") costs will be recurring over time and are not included in the \$100 million investment. O&M expenses, which are expected to be between \$700,000 and \$1,300,000 per year, include compensation to customers for rooftop and/or ground leases, and staffing costs. Any tax credits and accelerated depreciation benefits will offset Program costs for the benefit of customers. Further, the Company intends to take all reasonable steps to ensure that the costs incurred in connection with the Program are reasonable and for the provision of adequate, reliable and cost-effective electricity to its customers.



Capital costs for the Program are expected to be spent over the two-year period following approval of the Program. The Company anticipates that approximately 40% of the capital (\$40 million) will be spent in the first year after Program approval, and the remaining 60% (\$60 million) will be spent in the second year.

20. The Company acknowledges that the installed cost of solar PV generation is typically higher than that of more conventional generation resources. Pursuant to the “Solar Carve Out” in Senate Bill 3, however, utilities must meet a portion of their REPS requirements through the use of solar energy resources such as solar PV facilities. Senate Bill 3 also makes special provision for the recovery of costs incurred by utilities in meeting their REPS obligations. (*See* N.C.G.S. § 62-133.8(h)).

21. The Company proposes to recover the Program’s costs through the proposed REPS cost recovery mechanism provided for in N.C. Gen. Stat. § 62-133.8(h) and Commission Rule R8-67(e). Under that mechanism, an amount equivalent to the avoided cost of conventional generation displaced by the Program is to be recovered through base rates and the incremental costs of compliance with the REPS are recovered through an annual rider.<sup>9</sup> Because the Program directly responds to the North Carolina General Assembly’s mandate to promote the development of renewable energy, and enables RD&D in distributed generation in the Company’s service territory, the Company requests that the Commission affirm that Duke Energy Carolinas’ proposed method of cost recovery is appropriate.

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<sup>9</sup> The Company estimates that over its life the Program will increase the monthly bill of a residential customer using 1000 kWh of electricity a month by no more than 25 cents.

**REQUEST FOR BLANKET CERTIFICATE  
OF PUBLIC CONVENIENCE AND NECESSITY**

22. Section 62-110.1 of the North Carolina General Statutes provides that no public utility may begin the construction of any electric generating facility without first obtaining from the Commission a certificate ("CPCN") that the public convenience and necessity requires, or will require, such construction. N.C. Gen. Stat. § 62-110.1 (a). As a regulated utility, Duke Energy Carolinas is obligated to take prudent steps to ensure that its customers' electricity needs are met both now and in the future. The Program will assist the Company in fulfilling this obligation. Further, it will enable the Company to meet its obligations under the REPS provisions of Senate Bill 3. Accordingly, public convenience and necessity requires the Company to construct the proposed solar PV generating facilities under the Program.

23. To expedite installation of the proposed generation facilities pursuant to the Program, Duke Energy Carolinas requests approval of a "blanket" CPCN to install up to approximately 20 MW of solar distributed generation, collectively, pursuant to the Program. *See Order Approving Experimental Program and Issuing Certificate of Public Convenience and Necessity*, (Docket No. E-7, Sub 692) (July 25, 2001) (Order approving Duke Energy Carolinas' request for "Approval of On Site Generation Service Program, Application for a Blanket Certificate of Public Convenience and Necessity, and a Request for Waiver of Rule R8-61"); *Order Approving Experimental Rider and Issuing Certificate of Public Convenience and Necessity*, (Docket No. E-2, Sub 720) (July 7, 1998) (Order approving Application For a Blanket Certificate of Public Convenience and Necessity and Request For Wavier of Rule R8-61 of Progress Energy). Because the

precise location of the facilities cannot be specified at this time, approval of a “blanket” CPCN eliminates the necessity for the Company to seek individual certificates prior to the installation of each solar PV facility.

24. Recently revised Commission Rule R8-61(b) sets forth the filing requirements associated with an application for a CPCN. Both N.C. Gen. Stat. § 62 110.1 and Rule R8-61(b) contemplate that a utility seeking to construct a new generating facility would do so pursuant to an overall system resource plan. As a result, the utility must explain, among other things, (1) why a new generation facility is needed; (2) what size and type of facility is required; (3) the anticipated construction schedule for such facility; (4) the projected costs of the facility; (5) risk factors related to the construction and operation of the facility; and (6) the impact on the utility’s resource plan.

25. With respect to the need for the solar PV facilities and the Program’s impact on the Company’s resource plan, Duke Energy Carolinas’ 2007 Annual Plan incorporates a 20-year load forecast, near-term purchase power contracts, existing generation, energy efficiency resources (including both conservation and demand-response programs), new resource additions, and a target planning reserve margin of 17%. The integrated resource planning (“IRP”) process for the 2007 Annual Plan demonstrates that a combination of renewable resources, energy efficiency and demand-side management programs, and additional baseload, intermediate, and peaking generation are required over the next twenty years to reliably meet customer demand. Duke Energy Carolinas’ 2007 forecast shows average annual growth in summer peak demand of 1.6 percent, winter peak demand growth of 1.4 percent, and the average

territorial energy growth rate of 1.4 percent. Accordingly, the 2007 Annual Plan identifies the need for an additional 10,680 MW of new resources to meet customers' energy needs by 2027, and 990 MW by 2010.

26. As shown in the Company's 2007 Annual Plan, Duke Energy Carolinas currently has no Company-owned solar PV generation facilities among its generation resources. Implementation of the Program, therefore, would allow the Company to diversify its resources used to reliably meet the energy needs of its customers. Additionally, the Program will allow the Company to partially fulfill its obligations under the REPS imposed by Senate Bill 3. The size and type of the facilities are described in paragraphs 4, 6, 7, and 16 above. As also explained above, all installations will be made within two years after approval of the Program, at a projected total cost of approximately \$100 million, less any tax benefits received by the Company. The risk factors associated with the construction and operation of the solar PV facilities include the sufficiency of sunlight for generation and the acquisition of sufficient rooftops and other locations for installation of the facilities.

27. In sum, the public convenience and necessity supports the installation of the solar PV facilities under the Program and issuance of a blanket CPCN is in the public interest. The Program will allow the Company to meet the increasing electric load that it must serve and enable the Company to partially meet its obligations under the REPS, all in furtherance of North Carolina's public policy.

#### **REQUEST FOR WAIVER**

28. Commission Rule R8-61(b) also requires the Company to include its most recent biennial and annual reports and testimony specifically indicating the extent to

which the proposed construction conforms to the Company's most recent biennial and annual reports. It also requires certain other information. The Company's most recent annual report is filed in Docket No. E-100, Sub 114 and the Company respectfully requests that the Commission take judicial notice of such filing. Additionally, the Company requests that the Commission waive the remaining requirements of the rule given the size of the individual generating facilities at issue in this Application and the potential number of facilities to be installed, and the mandate of the Solar Carve Out of the REPS requirements. To the extent that the Commission believes that testimony is necessary to support this Application, the Company requests that the Commission issue a Scheduling Order requiring Duke Energy Carolinas to submit testimony within six weeks of the filing of this Application.

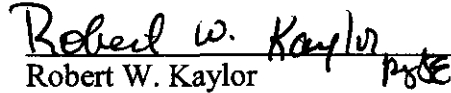
### **CONCLUSION**

29. In summary, the Company's Program is designed to serve the public interest. It will enable the Company to meet its REPS requirements and to diversify its generation resource mix as well as that of the State in general. It also will encourage economic development, private investment in renewable energy, and improve the air quality, among other benefits.

WHEREFORE Duke Energy Carolinas respectfully requests that the Commission (1) approve the Program by granting Duke Energy Carolinas a blanket CPCN and approving the proposed tariff to implement the Program; (2) affirm that the Company may recover its costs associated with the Program through the proposed REPS cost recovery mechanism provided for in N.C. Gen. Stat. § 62-133.8(h) and Commission Rule R8-67(e); and (3) find that Duke Energy Carolinas' implementation of the Program is

prudent and consistent with the promotion of adequate and reliable utility service to the citizens of North Carolina and the policies expressed in N.C. Gen. Stat. § 62-2.

Respectfully submitted this 6th day of June, 2008.

  
Robert W. Kaylor  
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Telephone: (704) 382-9960 or (980) 373-4465  
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ATTORNEYS FOR DUKE ENERGY CAROLINAS, LLC

## ATTACHMENT A

Duke Energy Carolinas, LLC

North Carolina Original (Proposed) Leaf No. 150

### SOLAR PHOTOVOLTAIC DISTRIBUTED GENERATION PROGRAM (NC)

#### AVAILABILITY (North Carolina Only)

This program is available on a limited and voluntary basis, at the Company's option, to customers in owner-occupied individually metered single-family residences, or owners of other property, suitable for the installation of a solar photovoltaic (PV) system.

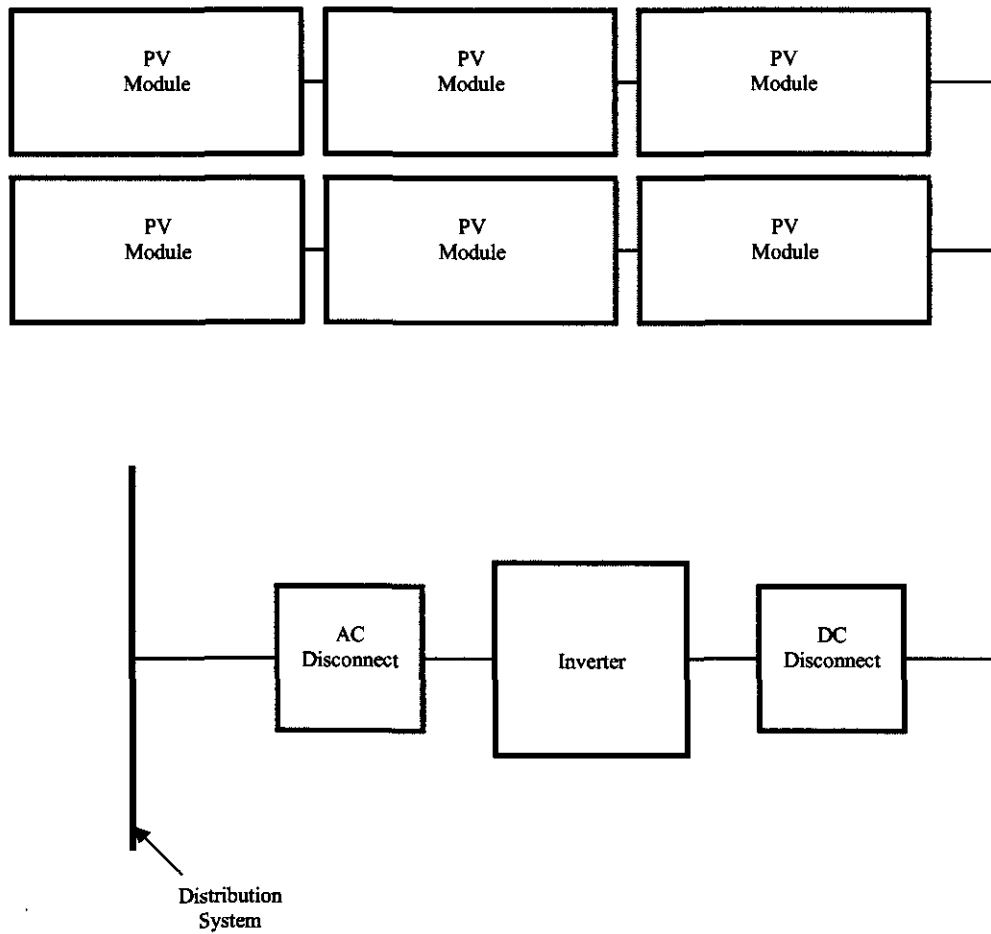
#### GENERAL PROVISIONS

- The Company will install a PV system on the owner's property, under a separate lease agreement with the owner.
- The maximum number of customers served under this program will be the number required to achieve 20,000 kW (DC) of installed PV capacity, of which up to 10% will be installed on single-family residences and the remainder will be installed on nonresidential establishments or other property.
- The maximum installed capacity of the PV system will be 5 kW for residences and 3000 kW for nonresidential establishments or other property.
- The Company reserves the right to limit the number of customers served under this program on the same retail distribution circuit.

#### CONTRACT

The terms of the agreement will be set forth in the lease agreement with the customer.

## ATTACHMENT B



### Notes:

1. The number of modules will vary depending on the desired system output.
2. The AC and/or DC disconnect may be integral to the inverter in some instances.
3. The number of inverters will vary depending on the desired system output.
4. In some instances a transformer may be required between the AC disconnect and the distribution system to provide the proper voltage for interconnection.



VERIFICATION

STATE OF NORTH CAROLINA            )  
COUNTY OF MECKLENBURG         )

JAMES A. MORROW, being first duly sworn, deposes and says: That he is a Strategic Planning Manager, Duke Energy Corporation; that he has read the foregoing Application and knows the contents thereof, and that the same is true of his own knowledge.

  
James A. Morrow

Sworn to and subscribed before me

This 5th day of June, 2008.

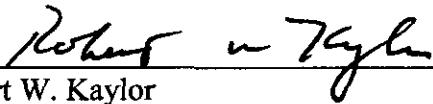
  
Notary Public

My Commission expires: 01/26/2012

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Carolinas, LLC's Application in Docket No. E-7, Sub 856, has been served by electronic mail (e-mail), hand delivery or by depositing a copy in the United States Mail, first class postage prepaid, properly addressed to parties of record.

This the 6<sup>th</sup> day of June, 2008.

  
\_\_\_\_\_  
Robert W. Kaylor  
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Raleigh NC 27603  
(919) 828-5250  
NC State Bar No. 6237