

**Sample Application for Certificate of Public Convenience and  
Necessity from NC Solar Center**

February 9, 2007

Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Services Center  
Raleigh, NC 27699-4325

To Whom It May Concern:

This filing is an application for a certificate of public convenience and necessity according to Rule R1-37. This application is for a photovoltaic system less than 10kW and therefore is exempt from the procedural requirements of R1-37(c) and includes the original and ten copies of the application. A copy of this application has also been provided to Progress Energy Corporation.

Sincerely,

Shawn Fitzpatrick

CC: Reese Dillard, Progress Energy Corporation

STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH

DOCKET NO. (Docket Number)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Application of ( )  
(Company Name) ( )  
for a Certificate of Public Convenience and ) VERIFICATION  
Necessity for (facility) ( )

I, (Name), (title), of (Company), verify that the contents of the application for a Certificate of Public Convenience and Necessity by (Company Name) filed in this docket are true to the best of my knowledge. I am duly authorized to act on behalf of (Company Name.)

(Signature of applicant)  
(Name)

Sworn to and subscribed before me,  
This is the \_\_\_\_\_ day of \_\_\_\_\_, 2007.

(Signature of Notary)  
Notary Public

My Commission expires:\_\_\_\_\_

## **Application for Certificate of Public Necessity and Convenience**

### **1. Full Name, Business Address, and Business Telephone Number of Applicant**

NC Solar Center  
North Carolina State University  
Campus Box 7401  
Raleigh, NC 27695-7401  
Attn: Shawn Fitzpatrick  
Phone: 919-515-7141

### **2. Individual**

### **3. Nature of the generating facility including the type and source of its power or fuel**

The generating facility consists of two 3-kW solar photovoltaic arrays and one 1kW wind turbine. The source of its power is solar and wind.

### **4. Address or location of generating facility set forth in terms of local highways, streets, river, streams, or other generally known landmarks together with a map such as a county road map with the location indicated on the map.**

NC Solar Center, NCSU Solar House  
1101 Gorman St  
Raleigh, NC 27606

### **5. Owner of site, if the owner is not the applicant, and the owner's interest in the site or relation to application**

Owner is Applicant

### **6. A description of the buildings, structures and equipment comprising the generating facility and the manner of their operation**

One PV system is located on the NCSU Solar House. It has battery backup to provide emergency power when the grid goes down. The wind turbine is connected to this battery bank also. The second PV system is located on the Alternative Fuels Garage at the NC Solar Center and is direct grid tie with no batteries.

### **7. The projected maximum dependable capacity of facility in megawatts**

Photovoltaic modules are rated for the DC power output at Standard Testing Conditions (STC). STC are defined as solar radiation of 1000 W/m<sup>2</sup> and module temperature of 25 degrees Celsius. To estimate peak AC power of a PV system, corrections are made for

system losses including DC to AC power conversion losses, array mismatch losses, wiring losses, and manufacturer power specification tolerances. The assumption is made that the AC power rating of the array is 79% of the DC power rating. Therefore, the maximum power capacity of the two PV systems at the NCSU Solar House is 4.74 kW (0.00474 MW). The maximum DC capacity of the wind turbine is 1.0 kW. Based on manufacturer specifications on the inverter DC to AC conversion efficiency and estimating wiring losses, the AC maximum power rating for the system will be about 85% of the DC rating of the turbine, or 0.85 kW (0.00085 MW). Since both wind and solar are intermittent energy sources, the maximum dependable capacity is 0 MW.

**8. The projected cost of the facility**

The projected cost is \$67,500.

**9. The projected date on which the facility will come on line:**

The facility is currently online.

**10. The applicant's general plan for sale of the electricity to be generated, including the utility to which the applicant plans to sell the electricity, any provisions for wheeling of the electricity, arrangements for firm, non-firm or emergency generation, the service life of the project, and the projected annual sales in kilowatt hours.**

The applicant plans to sell the electricity to Progress Energy Corporation, under the Cogeneration and Small Power Producer Schedule and will receive additional premiums for the energy delivered to the grid from the NC GreenPower Program. The projected lifetime of the equipment is twenty years and there are plans to make upgrades and modifications as needed to keep equipment up-to-date. The projected annual sales in kWh is 6500 kWh.

**11. A complete list of all federal and state licenses, permits and exemptions required for construction and operation of the generating facility and a statement of whether each has been obtained or applied for. A copy of those that have been obtained should be filed with the application; a copy of those that have not been obtained at the time of the application should be filed with the Commission as soon as they are obtained.**

The applicant has filed for self-certification as a Qualifying Facility under the Federal Energy Regulatory Commission. The FERC case number is QF04-164-000.