BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 790

In the Matter of Application of Duke Power Company LLC d/b/a Duke Energy Carolinas, LLC for Approval for an Electric Generation Certificate of Public Convenience and Necessity to Construct Two 800 MW State of the Art Coal Units for Cliffside Project	Direct Testimony of Janice D. Hager for Duke Energy Carolinas

Q. PLEASE STATE YOUR NAME, ADDRESS AND POSITION WITH DUKE ENERGY CAROLINAS.

A. My name is Janice D. Hager. My business address is 526 South Church Street, Charlotte, North Carolina. I am Vice President, Rates and Regulatory Affairs for Duke Power Company LLC, d/b/a Duke Energy Carolinas, LLC ("Duke Energy Carolinas").

Q. PLEASE STATE BRIEFLY YOUR EDUCATION, PROFESSIONAL EXPERIENCE AND AFFILIATIONS.

A. I am a civil engineer, having received a Bachelor of Science in Engineering from the University of North Carolina at Charlotte. I began my career at Duke Power, now Duke Energy Carolinas, in 1981 and have had a variety of responsibilities across the Company in the areas of piping analyses, nuclear station modifications, new generation licensing, Integrated Resource Planning and Demand Side Management. I joined the Rate Department in 1996 and my initial responsibilities included implementation of Duke Power's Open Access Transmission Tariff. I was promoted to Manager, Rate Design, and in 1999, to Manager, Rate Design and Analysis, with responsibility for the Rate Design, Revenue

Analysis and Load Research groups. In 2003, I was promoted to the position of Vice President of Rates and Regulatory Affairs for Duke Power. I am a registered Professional Engineer in North Carolina and South Carolina, a member of Edison Electric Institute's Rate Committee, and past chair of the Southeastern Electric Exchange Rates and Regulation Section.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to describe the need for the proposed construction of two new 800 MW (1600 MW total) supercritical pulverized-coal units and related transmission facilities at the Company's existing coal-fired Cliffside Steam Station. I will refer to these new additions as the "Cliffside Project." In addition, my testimony will address how Duke Energy Carolinas' most recent Annual Plan supports the development of the Cliffside Project as required by North Carolina Utilities Commission Rule R8-61(b).

Q. WHY DID DUKE ENERGY CAROLINAS FILE THIS APPLICATION WITH THE COMMISSION?

A. Duke Energy Carolinas' most recent Annual Plan identifies a need of approximately 3,400 MW by 2011. Our resource planning analysis has affirmed that baseload capacity additions will be required to meet customer needs beginning in 2011. Our last coal and nuclear baseload plants came on line in 1975 (Belews Creek Steam Station) and 1986 (Catawba Nuclear Station). The addition of two 800 MW supercritical pulverized coal units, as part of the overall portfolio additions of 2,234 MW of new nuclear capacity, 600 MW of intermediate combined cycle generation and 3,000 MW of peaking generation, was determined to be the best option to meet the generation needs of our customers cost-effectively and allow Duke Energy Carolinas to maintain the flexibility needed to ensure system reliability.

Q. WHEN WAS DUKE ENERGY CAROLINAS' MOST RECENT ANNUAL PLAN FILED IN NORTH CAROLINA?

A. Duke Energy Carolinas filed its Annual Plan with the Commission on November 1, 2005, in Docket No. E-100, Sub 103. A copy of the 2005 Duke Energy Carolinas Annual Plan is attached to my testimony as Hager Exhibit 1.

Q. WHAT WERE THE KEY ISSUES IDENTIFIED IN THE 2005 DUKE ENERGY CAROLINAS ANNUAL PLAN?

A. Making decisions to ensure the availability of low-cost, reliable capacity and energy for customers is challenging in light of many uncertainties, such as volatile commodity prices, uncertain load growth, potential changes in environmental regulations and the lead times associated with baseload generation. These uncertainties require that Duke Energy Carolinas maintain flexible resource portfolio strategies and, as set forth in the Annual Plan, we are taking the necessary steps to address these challenges and continue to meet customer needs in a reliable and cost-effective manner.

Q. PLEASE DESCRIBE THE ANNUAL PLANNING PROCESS AT DUKE ENERGY CAROLINAS.

A. Duke Energy Carolinas annually develops a resource plan for meeting customers' energy needs considering a combination of existing short-term purchase power contracts and existing and new generation and customer demand-side options. Duke Energy Carolinas' Annual Plan is developed with the objective of meeting customers' need for a highly reliable energy supply at the lowest reasonable cost. The 2005 Annual Plan incorporates a target planning reserve margin of 17%, which Duke Energy Carolinas' experience has shown to be sufficient based on the prevailing expectations of reasonable lead times for the development of new generation, siting of transmission facilities and procurement of purchased capacity.

The plan is filed with this Commission and the Public Service Commission of South Carolina on an annual basis.

The annual planning process begins with a 15-year load forecast. The forecast includes projections of summer and winter peak demands, as well as energy use. We gather information for Duke Energy Carolinas' existing resources, including Duke-owned generation, purchased power agreements and demand-side resources. The information includes items such as capacity rating, heat rate, fuel costs and emission allowance costs. Data is gathered on the costs of additional resource options to meet customer needs. Such data includes lead times for construction, capacity costs, fixed and variable operating and maintenance costs and emissions costs for generation, as well as the costs of demand-side options. Quantitative analyses are conducted to identify combinations of options that will meet customer energy needs (plus reserve margin) while minimizing the costs to customers. These analyses enable the Company to identify potential portfolios that can be tested under base assumptions, and for sensitivities and scenarios around those base assumptions. The quantitative analysis is discussed in more detail in the testimony of Duke Energy Carolinas' witness Mark Griffith, Vice President of Global Energy Advisors, who provided analytical support for the 2005 Annual Plan.

Duke Energy Carolinas' management uses the quantitative results, along with qualitative considerations, to develop an action plan for ensuring that the Company will meet near-term and long-term load obligations while maintaining future flexibility to adjust to changing operating circumstances. The decision to seek a CPCN and air permit for two 800 MW coal units at the Cliffside plant was one component of the action plan resulting from the 2005 IRP process.

Q. DOES THE ANNUAL PLAN SHOW THE NEED FOR ADDITIONAL GENERATION

RESOURCES?

A. Yes. Duke's Annual Plan shows an average annual growth in summer peak demand of 1.8 percent (about 300-400 MW), winter peak demand growth of 0.8 percent, and the average territorial energy growth rate of 1.7 percent. As shown on page 25 of Hager Exhibit 1, annual resource additions required to maintain a planning reserve margin target of 17% are identified as follows:

Year	2006	2007	2008	2009	2010	2011	2012
Forecast Peak (MW)	17,376	17,918	18,236	18,343	18,635	19,689	20,026
Generating Capability	19,252	19,260	19,122	18,897	18,816	18,518	18,518
Purchase Contracts	745	740	740	740	737	319	316
Demand-side Resources	766	776	792	821	808	794	780
Resource Additions Needed	--	330	680	1,010	1,440	3,400	3,810

This additional capacity is needed to serve the growing electric needs of our customer base, including approximately 40,000 to 60,000 new customers added to the Duke Energy Carolinas system each year, and to replace certain existing purchased power agreements that expire during the planning horizon. Furthermore, the need for resource additions also reflects the impact of the potential retirement of some of Duke Energy Carolinas' older, small combustion turbine units during the planning horizon.

Q. WHAT OPTIONS DID DUKE ENERGY CAROLINAS CONSIDER FOR MEETING THE NEEDS IDENTIFIED IN THE ANNUAL PLAN?

A. The Company evaluated both demand-side and supply-side options. Supply-side resources include both Duke-owned generation and purchased power options.

Q. WHAT ECONOMIC TEST IS APPLIED IN THE PLANNING PROCESS?

A. The quantitative analysis seeks to minimize the net present value of revenue requirements over the 15-year planning horizon. This method ensures minimization of total cost to customers, whether incurred through expenses or additional capital. A fixed charge rate is applied to the capital costs to develop a levelized cost, which is consistent with how customers are typically charged for capital expenditures.

Q. HOW IS RISK FACTORED INTO THE PLAN?

A. Using initial screening results, Duke Energy Carolinas developed resource portfolios that were tested under base assumptions. Each resource portfolio option studied in the Annual Plan was subjected to sensitivities, such as changes in fuel costs, changing load growth and the development of a climate change policy. Although the form of a future climate change policy approach, if any, is uncertain, Duke Energy Carolinas used a carbon tax surrogate as a sensitivity to test the impacts of potential future greenhouse gas regulation. By examining the outcome of both the base case and the sensitivities analyses, the Company is able to develop a plan of action that seeks to ensure that resources will be available at the appropriate time to best serve the customer. This method ensures minimization of total cost to customers, whether incurred through expenses or additional capital.

Q. PLEASE DISCUSS THE RESULTS OF THE ANALYSIS.

A. The quantitative analysis demonstrates that a combination of significant additional peaking, intermediate, and baseload generation and demand-side management (DSM) programs are needed over the next fifteen years. New coal and nuclear capacity additions, complemented by natural gas combustion turbine and combined-cycle units, are attractive supply-side options under a variety of sensitivities and scenarios. In fact, in nearly all of the sensitivities and scenarios tested, including the climate change policy assumption, the portfolio plan with

1,600 MW of new coal capacity and 2,234 MW of new nuclear capacity outperformed all other plans under consideration.

Q. PLEASE DESCRIBE THE COMPANY'S EXISTING DSM PROGRAMS.

A. In general, demand side management (DSM) programs fall into two primary categories: demand response (interruptible or time-of-use) and energy efficiency. DSM programs can vary greatly in their dispatch characteristics, size and duration of load response, certainty of load response and frequency of customer participation. Duke Energy Carolinas' current demand response programs include load control curtailment programs, interruptible power service, standby generator control, and residential service controlled water heating. The load control curtailment programs include residential air conditioning direct load control with approximately 190,000 customers and residential water heating direct load control with approximately 35,000 customers. The interruptible programs include approximately 150 commercial and industrial customers with interruptible power service and 150 commercial and industrial customers with standby generator control. These interruptible programs reduce summer 2006 capacity needs by an expected 766 MW. Duke Energy Carolinas' time-of-use rates are structured such that customers can reduce their energy bills by shifting load from on-peak hours to off-peak hours, helping Duke Energy Carolinas to avoid the need for new generation. While participation on Duke Energy Carolinas' residential time-of-use rates is small, industrial and large commercial customers on North Carolina time-of-use rates represent almost 70% of total MWH sales to non-residential North Carolina customers. The impact of time-of-use rates is incorporated into the load forecast.

Q. PLEASE DESCRIBE DUKE ENERGY CAROLINAS' EXISTING ENERGY EFFICIENCY PROGRAMS.

A. Duke Energy Carolinas' energy efficiency programs include residential Energy Star, which promotes the development of homes that are significantly more energy-efficient than standard homes; an existing residential housing program, which provides loans to encourage increased energy efficiency in existing residential structures; and a special needs energy products loan program, which provides loans to low-income customers to encourage increased energy efficiency in existing residential structures. The impact of these efficiency programs is incorporated into the load forecast.

Q. WHAT DSM PROGRAMS WERE CONSIDERED IN THE PLANNING PROCESS?

A. Duke Energy Carolinas considered the following potential demand-response programs in the planning process: direct load control, interruptible service, standby generation and energy efficiency programs. Additional direct load control could be designed to target residential or commercial class customers. Potential load sources that could be directly controlled include water heating, air conditioning and swimming pool pumps. Interruptible service could be designed to target large commercial or industrial customers, and standby generation could be designed to target any size commercial or industrial customer. Duke Energy Carolinas considered bundles of energy efficiency programs by customer class at increasing costs.

Q. WHAT WERE THE RESULTS OF THE ANALYSIS OF DEMAND-SIDE MANAGEMENT OPTIONS?

A. The analysis revealed the potential for additional cost-effective demand-response resources. Based on this analysis, the 2005 Duke Energy Carolinas Annual Plan includes an additional 100 MW of expected demand response program capability by 2009.

The analysis of energy efficiency resources did not result in the identification of additional cost-effective energy efficiency resources. The analysis of energy efficiency programs included costs associated with energy efficiency including program administrative

costs, participating customer payments, and lost revenues. The analysis revealed that implementation of the programs considered would result in cross-subsidization between participating customers and non-participating customers. In other words, participating customers would enjoy lower energy bills but non-participating customers would be bearing the costs associated with the program without sufficient offsetting benefits.

Q. COULD ADDITIONAL DSM RESOURCES COST-EFFECTIVELY SATISFY THE BASELOAD REQUIREMENTS IDENTIFIED BY DUKE IN ITS' ANNUAL PLAN?

A. Not in my opinion. While Duke Energy Carolinas supports the use of economic demand-side management in its portfolio of resources, I do not believe there are sufficient cost-effective demand-side resources available to offset the need for the Cliffside Project.

Q. WILL THE DEVELOPMENT OF THE CLIFFSIDE PROJECT IMPACT DUKE ENERGY CAROLINAS' STRATEGY FOR PURSUING ADDITIONAL DSM RESOURCES IN THE FUTURE?

A. Absolutely not. Duke Energy Carolinas is developing a DSM plan that will take into consideration a number of efforts, including the work of the national Energy Efficiency Action Plan initiative co-chaired by our CEO Jim Rogers. As a result of the Cinergy merger, we see the potential to incorporate the former Cinergy experience with DSM as a best practice into Duke Energy Carolinas' approach in North Carolina. The former Cinergy utilities have had success in Ohio and Kentucky working through collaborative processes with interested stakeholders to develop new DSM approaches. In addition, as part of the Commission's pending IRP proceeding, (*In re: Investigation of Integrated Resource Planning in North Carolina – 2005* Docket No. E-100, Sub 103), Duke Energy Carolinas supported the creation of a collaborative working group on DSM, which has now been established by the Commission's April 3, 2006 order in the IRP docket. In addition, in

compliance with the Commission's Order approving the Cinergy merger, Duke Energy is investing $2,000,000 in conservation and energy efficiency programs as approved by the Commission. The new programs include distribution of energy efficiency kits and videos to residential customers and on-line, phone, and on-site energy efficiency audits for commercial and industrial customers.

Q. PLEASE DISCUSS HOW SUPPLY-SIDE OPTIONS WERE CONSIDERED IN THE 2005 ANNUAL PLAN.

A. Duke Energy Carolinas identified potential supply-side resources and completed an economic screening process to determine the most cost-effective technologies. Supply-side options were categorized by the type of technology: conventional technologies, or those in common use; demonstrated technologies, or those with limited acceptance and not in widespread use; and emerging technologies, or those in the developmental stage that have not been used in the electric utility industry. Each of these technologies must pass a cost screen, a commercial availability screen, and a technical feasibility screen to be considered for further evaluation. The following supply-side technologies were evaluated in the Annual Plan:

Conventional Technologies:

- 564 MW Combustion Turbine
- 585 MW Combined Cycle
- 400 MW Supercritical Coal
- 600 MW Supercritical Coal
- 800 MW Supercritical Coal
- 1,200 MW Supercritical Coal
- 1,600 MW Supercritical Coal
- 400 MW Circulating Fluidized Bed Coal, Atmospheric
- 1,050 MW Pumped Storage
- 75 MW Wind Power

Demonstrated Technologies:

- 2,234 MW Nuclear
- 20 MW Lead Acid Battery
- 18 MW Advanced Battery
- 350 MW Compressed Air Energy Storage
- 600 MW Integrated Gasification Combined Cycle
- 1 MW Molten Carbonate Fuel Cell

Emerging Technologies:

- 5 MW Solar Photovoltaic

The following technologies were determined to be commercially available, cost-effective and technically feasible for use in the Carolinas and were selected for quantitative analysis:

- 564 MW Combustion Turbine
- 585 MW Combined Cycle
- 400 MW Supercritical Coal
- 600 MW Supercritical Coal
- 800 MW Supercritical Coal
- 1,200 MW Supercritical Coal
- 1,600 MW Supercritical Coal
- 600 MW IGCC
- 2,234 MW Nuclear

Q. DID DUKE ENERGY CAROLINAS CONSIDER RENEWABLE ENERGY IN THIS PROCESS?

A. Yes, Duke Energy Carolinas included existing renewable generation under contract in the analysis. In addition, the supply-side screening curves included renewable technologies, such as wind and solar photovoltaic. Duke Energy Carolinas also evaluated fuel cell and battery technologies. These resources did not pass the screening curve analysis and, therefore, were not included in the resource portfolio options. Duke Energy Carolinas' most recent Request for Proposals, or "RFP," for peaking and intermediate capacity was open for renewable energy bids, but there was no response from renewable energy providers.

However, Duke Energy Carolinas continues to evaluate opportunities to incorporate new renewable energy generation into its supply portfolio.

Q. PLEASE DESCRIBE HOW PURCHASED POWER WAS CONSIDERED IN THE PLANNING PROCESS.

A. The Annual Plan defines the least-cost, risk-adjusted generation mix over a variety of potential operating environments. The supply-side options included in the plan are based on a Duke-owned generation option. After the type (peaking, etc.) and timing of the resource addition is identified in the annual planning process, the Company can then consider the best option for obtaining that resource – whether through a purchased power arrangement or a Duke-owned resource. The Duke-owned resource could be obtained from constructing a new generation unit or acquiring an existing generation unit.

Q. DID DUKE ENERGY CAROLINAS CONSIDER AN RFP TO MEET THE 2011 BASELOAD CAPACITY NEED?

A. No. Duke Energy Carolinas is not soliciting purchased power bids for baseload capacity. Duke Energy Carolinas has used the competitive wholesale market to supply peaking needs and currently has an RFP outstanding for peaking and intermediate capacity. Duke Energy Carolinas views baseload capacity as fundamentally different, however, from peaking and intermediate capacity. Currently, there are two key issues with using the wholesale market for baseload capacity. First, generation outside the control area could be subject to interruption due to transmission issues more so than generation within the control area. Second, supplier default could jeopardize the ability to provide reliable service. A Duke Energy Carolinas-owned baseload option is the most reliable means for Duke Energy Carolinas to meet its service obligations in a cost-effective and reliable manner.

Q. WHAT IS THE STATUS OF DUKE ENERGY CAROLINAS' EVALUATION OF NEW NUCLEAR GENERATION?

A. We have announced plans to seek a Combined Construction and Operating License (COL) from the Nuclear Regulatory Commission for a two unit nuclear station to be sited in Cherokee County, South Carolina, and are continuing to take the necessary steps to preserve the option to add new nuclear generation in the 2016 timeframe.

Q. DUKE ENERGY CAROLINAS RECENTLY ANNOUNCED THAT IT HAS ENTERED INTO WHOLESALE CONTRACTS WITH THREE ELECTRIC MEMBERSHIP COOPERATIVES (EMCs), AND HAS ENTERED INTO AN AGREEMENT TO PURCHASE THE ROCKINGHAM COUNTY COMBUSTION TURBINE FACILITY FROM DYNEGY. HOW DO THESE DEVELOPMENTS AFFECT THE PLANS FOR THE CLIFFSIDE PROJECT?

A. These announcements do not change the plans for the Cliffside Project. The 2005 Annual Plan included the addition of the wholesale sales to Piedmont EMC, Rutherford EMC and Blue Ridge EMC that was announced on May 18, 2006. The Rockingham County facility is an 825 MW combustion turbine peaking facility. The addition of the Rockingham facility to the Duke Energy Carolinas' generation portfolio addresses some of the peaking capacity needs identified in the 2005 Annual Plan, but does not affect the baseload needs that the Cliffside Project will address.

Q. THE ANALYSIS DUKE ENERGY CAROLINAS CONDUCTED AS PART OF ITS 2005 ANNUAL PLAN IS BASED ON MANY ASSUMPTIONS. WHAT IF DUKE ENERGY IS WRONG ABOUT SOME OF THESE ASSUMPTIONS?

A. While we have made every attempt to make accurate projections, only time will tell whether the assumptions we have made will be accurate. Load growth, fuel costs, retirement of

existing generation, or new environmental regulations are just a few of the factors that could vary from our base assumptions. The purpose of analyzing portfolios under a wide range of sensitivities and scenarios is to determine the impact of variations in key assumptions from the base case. Decisions must be made, however, in the face of uncertainties, and, given the long lead times associated with baseload generation, we believe the best course of action to be to move forward with obtaining the CPCN and air permit to allow construction of two 800 MW units at the Cliffside site. If we delay this action to wait for more information, the option to have baseload capacity on line by 2011 will be gone. Duke Energy Carolinas will monitor the factors that influence the need for and timing of the Cliffside Project and provide an update on the status of the need for the units in each Annual Plan filing.

Q. IS THE CLIFFSIDE PROJECT NEEDED AND IS IT CONSISTENT WITH DUKE ENERGY CAROLINAS' ANNUAL PLAN?

A. Yes. For all the reasons stated previously, I believe that Duke Energy Carolinas' comprehensive planning process has identified the need for significant baseload capacity additions and that those near-term needs can best be met by the Cliffside Project. I believe that Duke Energy's application is in the public convenience and necessity, and I ask that the Commission approve it.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.