BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2010-3-E

In the Matter of Annual Review of Base Rates for Fuel Costs for Duke Energy Carolinas, LLC	)))))	**DIRECT TESTIMONY OF JOHN W. PITESA FOR DUKE ENERGY CAROLINAS, LLC**

PUBLIC VERSION

Q. PLEASE STATE YOUR NAME, ADDRESS, AND POSITION.

A. My name is John William ("Bill") Pitesa. My business address is 526 South Church Street, Charlotte, North Carolina. I am Senior Vice President, Nuclear Operations for Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company").

Q. WHAT ARE YOUR PRESENT RESPONSIBILITIES AT DUKE ENERGY CAROLINAS?

A. As Senior Vice President of Nuclear Operations, I am responsible for providing direct oversight for the day-to-day safe and reliable operation of Oconee Nuclear Station in Seneca, South Carolina. I am also responsible for the major projects groups and the fleet centers of excellence group.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I graduated from Auburn University with a bachelor of science degree in electrical engineering and am a registered professional engineer in North Carolina. I have served on nuclear plant review teams in the United States, Korea, France, South Africa, and Ukraine in support of the International Atomic Energy Agency ("IAEA") and the World Association of Nuclear Operators ("WANO"). I joined the Company in 1980 as an engineer at McGuire Nuclear Station. I was named senior reactor operator in 1986 and later served as a nuclear fuel handling supervisor and operations staff lead. In 1992, I served two years as a loaned employee for the Institute of Nuclear Power Operators ("INPO"). I returned to McGuire Nuclear Station in 1995 as an independent oversight manager and later moved to the

corporate office as the nuclear operating experience manager. In 2000, I moved to Catawba Nuclear Station as an engineering supervisor. After a series of promotions, including operations training manager, I was named as the station's operations manager in 2004 and station manager of Catawba Nuclear Station in 2005. I was named Vice President of nuclear support in 2009 with responsibility for corporate nuclear engineering, major projects, licensing and regulatory support, fleet outage management, and other plant support functions. I was named to my current position in January 2010.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to discuss the performance of Duke Energy Carolinas' nuclear generation fleet during the June 2009 through May 2010 review period (the "review period") and describe changes forthcoming in the June 2010 through September 2011 billing period (the "billing period").

Q. YOUR TESTIMONY INCLUDES 3 EXHIBITS. WERE THESE EXHIBITS PREPARED BY YOU OR AT YOUR DIRECTION AND UNDER YOUR SUPERVISION?

A. Yes. These exhibits were prepared at my direction and under my supervision.

Q. PLEASE PROVIDE A DESCRIPTION OF THE EXHIBITS.

A. The exhibits and descriptions are as follows:

Pitesa Exhibit 1 - Calculation of the nuclear capacity factor for the review period pursuant to S.C. Code Ann. § 58-27-865

Pitesa Exhibit 2 - Nuclear outage data for the review period

Pitesa Exhibit 3 - Nuclear outage data for the billing period

Q. PLEASE DESCRIBE DUKE ENERGY CAROLINAS' NUCLEAR GENERATION PORTFOLIO.

A. Duke Energy Carolinas' nuclear generation portfolio consists of approximately 5,200 megawatts ("MWs") of generating capacity, made up as follows:

Oconee Nuclear Station - 2,538 MWs

McGuire Nuclear Station - 2,200 MWs

Catawba Nuclear Station - 435 MWs (Duke Energy Carolinas' 19.2% ownership of the Catawba Nuclear Plant)

Q. PLEASE PROVIDE A GENERAL DESCRIPTION OF DUKE ENERGY CAROLINAS' NUCLEAR GENERATION ASSETS.

A. Duke Energy Carolinas' nuclear fleet consists of three generating stations with seven generation units. Oconee Nuclear Station, located in Oconee County, South Carolina, began commercial operation in 1973 and was the first nuclear station designed, built, and operated by Duke Energy Carolinas. It has the distinction of being the second nuclear station in the country to have its license renewed by the Nuclear Regulatory Commission ("NRC"). The operating licenses for Oconee 1, 2, and 3, originally issued for 40 years, were renewed for an additional 20 years until 2033, 2033, and 2034, respectively. McGuire Nuclear Station, located in Mecklenburg County, North Carolina, began commercial operation in 1981. Duke Energy Carolinas jointly owns the Catawba Nuclear Station, located on Lake Wylie in York County, South Carolina, with North Carolina Municipal Power Agency Number One, North Carolina Electric Membership Corporation, and Piedmont

Municipal Power Agency. Catawba began commercial operation in 1985. In 2003, the NRC renewed the licenses for McGuire and Catawba, extending operations until 2041 (McGuire 1) and 2043 (McGuire 2, Catawba 1 and 2). The Company's nuclear fleet supplied approximately half of the power used by its customers during the review period.

Q. WHAT ARE THE COMPANY'S OBJECTIVES IN THE OPERATION OF ITS NUCLEAR GENERATION ASSETS?

A. The primary objective of Duke Energy Carolinas' nuclear generation department is to provide safe, reliable, and cost-effective electricity to the Company's Carolinas customers. The Company achieves this objective through its focus in a number of key areas. Operations personnel and other station employees are well-trained and execute their responsibilities to the highest standards, in accordance with detailed procedures. The Company maintains station equipment and systems reliably, and ensures timely implementation of work plans and projects that enhance the performance of systems, equipment, and personnel. Station refueling and maintenance outages are conducted through the execution of well-planned, quality work activities, which effectively ready the plant for operation until the next planned outage.

Q. PLEASE DISCUSS THE PERFORMANCE OF THE COMPANY'S NUCLEAR GENERATING SYSTEM DURING THE REVIEW PERIOD, JUNE 2009 THROUGH MAY 2010.

A. According to statistical data provided by the Electric Power Research Institute, Catawba Nuclear Station was the third most thermally efficient nuclear power plant

in the United States in 2009. Catawba Unit 2 had the fourth lowest heat rate in the country, and Catawba Unit 1 came in fifth with heat rates of 9,528 British thermal units ("BTU") per kilowatt hours ("kWh") and 9,561 BTU per kWh, respectively. The Company's 2009 nuclear system average capacity factor was 94.34%, which was the second highest capacity factor in Company history. In addition, Oconee and McGuire Nuclear Stations set capacity factor records of 93.97% and 98.67%, respectively. McGuire Unit 2 ended a 505 day breaker-to-breaker run when it began its refueling outage in September 2009. This accomplishment followed a 476 day breaker-to-breaker run that led up to the March 2008 refueling outage. As a result, McGuire Unit 2 has operated over three years without any unplanned interruptions.

Overall, the Company's nuclear plants operated extremely well during the review period. Pitesa Exhibit 1 sets forth the achieved nuclear capacity factor for the review period based on the criteria set forth in Section 58-27-865 of the 1976 Code of Laws of South Carolina ("S.C. Code Ann."). The statute states in pertinent part:

> There shall be a rebuttable presumption that an electrical utility made every reasonable effort to minimize cost associated with the operation of its nuclear generation facility or system, as applicable, if the utility achieved a net capacity factor of ninety-two and one-half percent or higher during the period under review. The calculation of the net capacity factor shall exclude reasonable outage time....

As shown on Pitesa Exhibit 1, Duke Energy Carolinas achieved a net nuclear capacity factor, excluding reasonable outage time, of 102.78% for the review period. This capacity factor is well above the 92.5% set forth in S.C. Code § 58-27-865.

Q. PLEASE DISCUSS OUTAGES OCCURING AT THE COMPANY'S NUCLEAR FACILITIES DURING THE REVIEW PERIOD, JUNE 2009 THROUGH MAY 2010.

A. In general, refueling requirements, maintenance requirements, prudent maintenance practices, and NRC operating requirements impact the availability of the Company's nuclear system. The Company's nuclear performance in operating its nuclear fleet has improved dramatically through the years. In particular, shorter refueling outages and improved forced outage rates have contributed to increasing the capacity factors achieved by the Company's nuclear fleet to consistently above 90% in recent years. Duke Energy Carolinas continues to be a leader in nuclear performance. The Company, however, is not alone in its excellence. The nuclear industry as a whole has been making great strides in improving operating performance. In an effort to continue this trend, in 2009, the Company's nuclear organization announced the formation of a new Centers of Excellence ("COE") group that will focus on continuing to improve fleet performance in operations, maintenance, work management, training, human performance/personal safety, and radiation protection/chemistry. The efforts of the Outage Improvement Team, created in 2008, to maximize outage predictability for the fleet by placing additional focus on pre-outage planning and milestone adherence without compromising safety or reliability will continue within the COE work management group.

In general, if an unanticipated issue that has the potential to become an online reliability issue is discovered while a unit is offline for a scheduled outage, the outage is usually extended to take the time to perform necessary maintenance or repairs prior to returning the unit to service. Duke Energy Carolinas' scheduling philosophy is to plan for the best possible outcome rather than to build contingency days into the outage plan. When an extension is necessary, however, the Company

believes that such extensions during non-peak periods result in longer continuous run times and fewer forced outages, thereby reducing fuel costs in the long run. In the event that a unit is forced offline, every effort is made to safely return the unit to service as quickly as possible.

There were five refueling and maintenance outages during the review period. The McGuire Unit 2 fall refueling and maintenance outage was completed in just over 35 days. There was a 1 ½ day extension to the outage primarily due to emergent equipment issues. The Oconee Unit 1 fall refueling and maintenance outage, completed in just over 55 days, was extended by 13 days as a result of damage to four fuel assemblies during the replacement of reactor vessel internals. At least one of the fuel assemblies was misaligned when the plenum structure was replaced, resulting in mechanical distortion of the assembly from the heavy weight of the structure. The damaged assembly contacted and damaged three other nearby assemblies. There was no breach of the fuel pins or release of fission products to the environment as a result of this damage. The event was screened as significant by the Institute of Nuclear Power Operations ("INPO"). The cause of the event was determined to be inadequate procedural guidance for fuel alignment during core reload. These processes and procedures have been revised to ensure adequate gaps are maintained between fuel assemblies during reassembly of reactor vessel internals going forward. Lessons learned from this event have been shared with the industry through INPO.

A conservative decision was made to begin the Catawba Unit 1 refueling and maintenance outage two weeks earlier in November than originally scheduled due to

increased leakage from the 1A reactor coolant pump #2 seal. Although the leakage was within maximum allowable limits, the increasing trend was conservatively reacted to by entering the refueling outage early. The early shutdown challenged the organization, as many supplemental resources were not immediately available to support the outage. McGuire and Oconee shared resources to the maximum extent feasible, helping to minimize the adverse impact of the early shutdown. Major work performed during the outage included an upgrade of the process control system to distributed digital controls, a first-of-a-kind modification in the United States. Due to the 1A reactor coolant pump #2 seal high leakage issue, a conservative decision was made to replace all three of the seals in all four of the reactor coolant pumps. The outage was completed on schedule in just over 38 days.

The McGuire Unit 1 spring refueling and maintenance outage was completed in 37.5 days. Major work performed within the outage window included an upgrade of the process control system to digital distributed controls, replacement of the 1B and 1C low pressure turbine last stage blades, and required inspections of the reactor vessel. The outage duration includes an extension of approximately 2.5 days due to a combination of equipment failures and outage execution issues.

The Oconee Unit 2 spring refueling and maintenance outage was completed in 35 days. Major work performed within the outage window included replacement of the electrical generator rotor, preventative maintenance on the 2A low pressure turbine, and Alloy 600 related activities. The outage duration includes an extension of just over 5 days due to an emergent replacement of 2A1 reactor coolant pump

seals due to leakage. Pitesa Exhibit 2 shows the dates of, and explanations for, all outages of a week or more in duration experienced during the review period.

Q. PLEASE DISCUSS THE PLANNED OUTAGE SCHEDULE FOR THE JUNE 2010 THROUGH SEPTEMBER 2011 BILLING PERIOD.

A. Pitesa Exhibit 3 shows the dates of and explanations for forecast outages of a week or more in duration. *****BEGIN CONFIDENTIAL*****

[redacted]

*****END CONFIDENTIAL*****

Q. DOES THAT CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes, it does.

DUKE ENERGY CAROLINAS
SOUTH CAROLINA FUEL CLAUSE
2010 ANNUAL FUEL HEARING
NUCLEAR PLANT PERFORMANCE
CAPACITY FACTOR 6/09 - 5/10

1	Nuclear System Actual Net Generation During Review Period		57,377,397	MWH
2	Total Number of Hours During Review Period		8,760	
3	Nuclear System MDC During Review Period		6,996	MW
4	Reasonable Nuclear System Reductions		5,457,688	MWH
5	Nuclear System Capacity Factor	$\left[\frac{L1}{\{(L2 * L3) - L4\}}\right] * 100$	102.78	%

PITESA EXHIBIT 1

DUKE ENERGY CAROLINAS
SOUTH CAROLINA FUEL CLAUSE
2010 ANNUAL FUEL HEARING
NUCLEAR PLANT PERFORMANCE

Nuclear Outages Lasting One Week Or More - Review Period

Unit	Date of Outage	Explanation of Outage
McGuire 2	09/05/09-10/10/09	Scheduled Refueling and Equipment Refurbishment - EOC 19; includes a less than 2 day extension due to 2A diesel generator unsteady output and 2CF-159 feedwater valve leak
Oconee 1	10/10/09-12/04/09	Scheduled Refueling - EOC 25; includes a 13 day delay due to damaged fuel assemblies
Catawba 1	11/06/09-11/21/09	Scheduled - 1A Reactor Coolant Pump Seal Malfunction
Catawba 1	11/21/09-12/15/09	Scheduled Refueling - EOC 18
McGuire 1	03/13/10-04/19/10	Scheduled Refueling - EOC 20; includes a less that 4 day delay due to emergent issues
Oconee 3	04/18/10-04/26/10	3F2 Feedwater Heater Tube Leak
Oconee 2	04/25/10-05/30/10	Scheduled Refueling - EOC 24

PITESA EXHIBIT 2

DUKE ENERGY CAROLINAS
SOUTH CAROLINA FUEL CLAUSE
2010 ANNUAL FUEL HEARING
NUCLEAR PLANT PERFORMANCE

Nuclear Outages Lasting One Week Or More - Billing Period

Unit	Date of Outage	Explanation of Outage

REDACTED

REDACTED
PITESA EXHIBIT 3