Summary of Testimony of Chairman Edward S. Finley
North Carolina Utilities Commission
Before the Committee on Energy and Commerce
Subcommittee on Energy and Power
United States House of Representatives

Benefits of and Challenges to Energy Access in the 21st Century: Electricity

February 27, 2014

Chairman Whitfield, Ranking Member Rush and members of the Subcommittee, the following is a one page summary of my testimony, along with my complete pre-filed testimony.

North Carolina's energy future is one that supports an "all of the above" strategy which attempts to balance expenditures for environmental protection with affordable, reliable electric service. North Carolina has suffered, like many states, during the economic downturn beginning in 2008 and recovery has been slow. During this period of recovery, North Carolina has experienced a changing fuel mix for its electric supply. This change is in part due to abundance of natural gas, but also due in large measure to federal environmental policies. North Carolina is concerned about the cost of compliance with the new suite of proposed environmental regulations in the areas of air, water and waste, which will affect North Carolina's public utilities in providing reliable and affordable electricity for our citizens.

For more than a decade, North Carolina has been working toward the important goals of environmental regulation with the passage of the Clean Smokestacks Act in 2002 and the passage of the North Carolina Renewable Energy and Efficiency Portfolio Standard in 2007. As a result of these actions, as well as many others, North Carolina's generation fleet has already been updated to meet the increasing environmental standards. Further, the State has seen increases in alternative sources of energy in the form of demand-side management, energy efficiency and renewable energy. These efforts by North Carolina have come at a significant cost. For example, North Carolina's ratepayers have invested over $2.5 billion in state of the art emissions controls for sulfur dioxide (SO_2) and oxides of nitrogen (NO_x).

North Carolina has appropriately balanced these environmental goals and its associated benefits with the costs to the consumers and the economy of North Carolina through the five general rate cases that have been decided since 2009. Adding potential unwarranted additional costs on our ratepayers will threaten reliability and the health, safety and welfare of our citizens. North Carolina is hopeful that future federal environmental regulations will take North Carolina's past actions into account when determining compliance with the evolving standards.

Written Testimony of Chairman Edward S. Finley, Jr.
North Carolina Utilities Commission

Before the
Committee on Energy and Commerce
Subcommittee on Energy and Power
United States House of Representatives

Hearing on
Benefits of and Challenges to Energy Access in the 21st Century: Electricity

February 27, 2014

Chairman Whitfield, Ranking Member Rush, and members of the Subcommittee, thank you for the opportunity to share with you my thoughts on the importance of affordable and reliable electricity for North Carolina.

My name is Edward Finley and I have served on and as Chairman of the North Carolina Utilities Commission since 2007. In fulfilling its important regulatory responsibilities the Commission has attempted to anticipate and allow recovery of costs incurred by electric utilities in the State for environmental regulatory compliance while maintaining a diversity among supply and demand side options and while endeavoring to maintain electric rates as low as reasonably possible. North Carolina has three, major, regulated investor-owned electric utility companies (IOUs): Duke Energy Progress, Inc. (DEP), Duke Energy Carolinas, LLC (DEC) and Virginia Electric and Power Company d/b/a Dominion North Carolina Power (Dominion). These IOUs are vertically integrated and

are not subject to retail competition. With the exception of Dominion, with only 170,000 customers in northeastern North Carolina, the IOUs are not participants in an RTO or ISO, and rates are established and service quality assured through comprehensive rate base/rate of return regulation. DEP and DEC together supply approximately 96% of the utility-generated energy consumed in the state. About 18% of the IOUs' North Carolina electric sales are made into the wholesale market, consisting primarily of electric membership corporations and municipally-owned electric systems. The cooperative and municipal systems own limited electric production facilities.

The IRP Process

The North Carolina Utilities Commission analyzes the probable growth in the use of electricity and the long-range need for future generating capacity in the State.[1] Each regulated utility files information for the Commission to consider as part of this rigorous Least Cost Integrated Resources Planning process (IRP process). This IRP process is an overall planning strategy that integrates demand-side and supply-side resource planning into one comprehensive procedure that weighs the costs and benefits of all reasonably available options in order to identify those options that are most cost effective for ratepayers consistent with the obligation to meet anticipated future demand and to provide adequate, reliable service. In recent years these IRP proceedings have included intervention and participation by environmental intervenors, in addition to the IOUs and consumer advocates, who have advocated greater reliance on renewables, demand response and energy efficiency.

[1] G.S. 62-110.1(c).

North Carolina Demographics

According to the Energy Information Administration (EIA), North Carolina currently has a population of 9.8 million and a civilian labor force of 4.7 million, ranking tenth in the nation for both. However, North Carolina ranks 39th in per capita personal income, with residents making per capita only $37,049 per year. North Carolina has experienced substantial declines in recent decades in the furniture and tobacco industries, and financial hardship in the many rural areas of the state is pervasive. Fortunately, the current unemployment rate in North Carolina has dropped to 6.9%. However, economic recovery is fragile, and throughout most of 2013, the unemployment rate was higher. For example, in July 2013, North Carolina's unemployment rate was 8.9%, the third highest unemployment rate in the nation.[2] The economic recovery has been uneven, with large rural areas still experiencing substantial financial hardship. The percentage of North Carolinians living below the poverty level in the DEC and DEP service area is 16%.[3] The percentage of customers living below poverty level in the area served by Dominion is 18.19%, and the 2012 percentage for the 26 North Carolina cooperatives is 18.6%.

These statistics are significant when considering the impact of electricity costs driven by federal environmental regulation on North Carolina's economy, public health, and standard of living. See Exhibit Number 1 for additional demographic statistics.

[2] Bureau of Labor Statistics (Dec. 2013).

[3] U.S. Census Bureau (2007-2011 American Community Survey)

As an economic regulator, the Commission's primary concern with meeting the more stringent federal and state environmental requirements is to balance the important need for compliance with the cost of compliance and its impact on rates. North Carolina competes actively in business and industrial recruitment. One of the first questions potential business prospects ask is the price, reliability and safety of electric service in the State. North Carolina's electric rates compare favorably with those in the Southeast and throughout the nation even though it has made substantial progress in reducing harmful environment emissions.

Balancing Costs of Environmental Regulations and Consumers' Ability to Pay

Since December of 2009, after a long period without general rate case activity, North Carolina's ratepayers have experienced five general rate cases, three filed by DEC and one each from DEP and Dominion. These requests have been driven largely by the recent construction of power plants, required in large measure by a need to comply with more stringent environmental regulations. The Commission received testimony and correspondence from hundreds of consumers in these cases resisting the requests due to the difficulty in paying higher electric rates while the effects of the economic recession has strained budgets. See examples of such testimony attached as Exhibit Number 2.

In addition, the Commission received public testimony asking the Commission to disallow requests for rate increases driven by the addition of fossil fuel generating

plants. In the most recent three of the DEC and DEP cases the Commission has required the investor-owned utility to provide for low-income and job development relief ranging from $10 million to $20 million.

Even with this low-income assistance, the North Carolina Attorney General and other intervenors, acting on behalf of North Carolina ratepayers, have argued that the resulting rates were still too high for many North Carolinians. The North Carolina Attorney General has appealed four recent rate decisions, all of which are currently pending in the North Carolina Supreme Court. In addition, in 2012 the Commission approved a combination of Duke Energy and Progress Energy at the parent company level and imposed as a condition that the combined company provide $20 million in low-income and job development assistance. The Commission also imposed a condition of imposing a requirement of approximately $480 million in North Carolina fuel costs savings for ratepayers.

North Carolina's Changing Fuel Mix

The U.S. energy landscape and the fuel mix for producing electricity has been in a state of flux over the past five years, and North Carolina is no exception. The primary trend has been the replacement of coal-fired generation with natural gas. Natural gas-fired generation produces approximately 50% of the GHG of coal-fired generation. In 2007, for DEP, DEC and Dominion, coal was responsible for 49%, 51% and 35% of electricity

production[4] respectively, nuclear generation was responsible for 39%, 45% and 29%, and oil and natural gas was responsible for 5%, 1% and 8%. In 2012, for DEP, DEC and Dominion, coal was responsible for 34%, 33% and 21% of electricity production respectively, nuclear generation was responsible for 38%, 49% and 33%, and oil and natural gas was responsible for 18%, 6% and 18%. See also DEC's 2010 Capacity and Energy Mix attached as Exhibits 3 & 4. North Carolina's IOUs, with the Commission's oversight through the IRP and CPCN processes, have properly maintained diversity within the utilities' fuel mix, stating that such diversity allows for affordable and reliable electricity. However, even with the growing dependence on natural gas, in 2012 approximately one-third of the energy sold in NC was produced by coal plants and an even greater percentage came from nuclear units.[5] EIA states that North Carolina ranked fifth in the nation in net electricity generation from nuclear power in 2011. These nuclear units are some of the most reliable in the nation, and, of course, produce no GHG in the generation process. North Carolina's plants most directly affected by federal environmental policy, coal plants and nuclear plants without cooling towers, are currently providing approximately 70% to 80% of the energy sold, making North Carolinians susceptible to high rate increases for environmental compliance. See Exhibit 6.

[4] These numbers represent the energy produced as opposed to the amount of installed capacity.

[5] DEC is incurring development costs toward obtaining a combined construction and operating license from the NRC for additional units at its Lee Power Station in South Carolina. Dominion is too for its North Anna Nuclear station in Virginia.

North Carolina's Environmental Legislation

And NCUC Orders Improving Emissions Quality

Over the past decade, North Carolina has taken significant actions to respond to federal environmental policy. These actions have been outlined in Appendix A of a joint letter[6] dated December 19, 2013, to Ms. Janet McCabe of the United States Environmental Protection Agency (EPA), which is attached hereto as Exhibit 6, regarding the implementation of Section 111(d) of the Clean Air Act. I will not repeat them verbatim in my testimony. However, I will summarize actions taken by the state that have already resulted in a substantial improvement in the state's air quality and a substantial investment by its ratepayers to date and for years to come.

First, in 2002, in anticipation of federal environmental requirements, the North Carolina General Assembly enacted The Clean Smokestacks Act (CSA),[7] which called for significant reductions of sulfur dioxide (SO_2) and oxides of nitrogen (NO_x) emissions from coal-fired facilities in the state and also resulted in significant reductions in mercury emissions. See Exhibits 7 & 8. These improvements were made at a time when utility earnings were such that the improvements could be financed from revenue headroom without raising short-term rates. As a result of CSA compliance and other environmental control measures, rate paying customers in North Carolina have invested over $2.5 billion in state of the art emissions controls for NO_x and SO_2 at the seven largest coal-

[6] The joint signatories were the NC Department of Environment and Resources, the North Carolina Utilities Commission and the North Carolina Utilities Commission – Public Staff.

[7] Session Law 2002-4.

fired facilities in the state over the last decade, and continue to pay tens of millions of dollars in annual expenses to operate and maintain these emissions control systems.

Second, in March 2007, the Utilities Commission granted DEC a certificate of public convenience and necessity to construct an 800 MW supercritical pulverized coal-fired generating facility (Cliffside 6) as part of its Cliffside Modernization Project. Since it began commercial operation in December 2012, Cliffside 6 has demonstrated that it is the most efficient coal-fired plant on the DEC system with an efficient baseloaded heat rate ranging from approximately 8,700 Btu/kWh to 9,200 Btu/kWh. The certificate was conditioned on the following: (1) the retirement of old, less efficient, uncontrolled Cliffside Units 1 through 4, which totaled 198 MW; (2) a commitment by DEC to invest 1% of its annual retail electric revenues in energy efficiency (EE) and demand-side management (DSM) programs; and (3) a commitment by DEC to retire other older, inefficient, uncontrolled coal-fired generating units, in addition to Cliffside Units 1 through 4, on a MW-for-MW basis, considering the effect on reliability, for actual load reductions realized from new energy efficiency and demand-side programs up to the MW level added by the new supercritical pulverized coal facility. In the air permit issued by the North Carolina Department of Environment and Natural Resources Division of Air Quality (DAQ) for Cliffside Unit 6, DAQ required DEC to: (1) implement a Greenhouse Gas Reduction Plan and to retire 800 MW of additional old, inefficient coal capacity without regard to achieving a commensurate level of MW savings from new EE and DSM programs; (2) accommodate to the extent practicable the installation and operations of future carbon control technology at Cliffside Unit 6; and (3) take additional

actions as necessary to make Cliffside Unit 6 carbon neutral by 2018. The addition of Cliffside 6 and the retirement of the older plants and other required measures will substantially reduce harmful emissions, including GHG. Cliffside 6 came on line on time and under the budgeted cost of $1.8 billion. DEC has added natural gas-fired generation at its Buck and Dan River sites.[8] These measures taken by DEC have resulted in an overall reduction of NO_x emissions of 80% from 1997 to 2009 and an overall proposed reduction of SO_2 of 75% from 2000 to 2013.

DEP operates eighteen coal-fired units at seven electric generating plants in NC. DEP is in the process of retiring three coal units at its Lee and Sutton facilities and constructing new state of the art efficient natural gas combined cycle units at those sites. DEP also plans to retire its remaining uncontrolled plants in North Carolina by 2015. DEP will retire eleven coal units at the Lee, Sutton, Weatherspoon and Cape Fear sites, and DEP will replace approximately 1500 MWs of unscrubbed coal with 1500 MWs of state of the art gas fired generation.

DEP had three coal-fired units of 400 MW at its Lee site in Wayne County with no desulfurization device. To comply with CSA, DEP would have been required to scrub the 400 MW. DEP applied for a CPCN for 950 MW of combined cycle gas capacity at the Lee (Wayne County) site to comply with CSA without retrofit. In its CPCN Order the

[8] At the end of 2013, the Commission began an investigation of the electric and natural gas interdependencies in Docket No. M-100, Sub 135 to make sure increased reliance on natural gas-fueled power plants receive adequate supplies of natural gas from the pipelines at times of high demand on the pipelines. On February 18, 2014, the Commission issued an order scheduling a technical conference to discuss, among other things, whether the state's electric and gas utilities have adequately planned for the potential of a gas pipeline disruption.

Commission required DEP to submit a plan to retire 550 MW (950-400) of coal-fired capacity and submit a plan for replacing the retired capacity. DEP submitted a plan showing conversion of 600 MW coal-fired Sutton (Wilmington) plant to natural gas. DEP subsequently filed a CPCN to that effect. DEP's plan also showed retiring five units at Cape Fear (Chatham) and Weatherspoon (Robeson) with total capacity of 500 MW. Their capacity would be replaced with 550 MW of gas-fired generation at Lee and avoided compliance with anticipated environmental requirements and conversion of ash ponds to dry storage or new ash ponds.

As a result of this combination of measures, DEC and DEP have retired over 2,800 MW (summer capacity) of older fossil fuel generating resources since 2011, including over 2,400 MW of coal generation. By the end of 2015, an additional 900 MW of coal-fired generating resources will be retired, bringing the total to almost 3,800 by the two utilities. At that time, all remaining utility-owned coal generating facilities will have NO_x and SO_2 emissions controls in place. In addition to these retirements, DEC and DEP recently completed or have planned over 265 MW of uprates at its nuclear facilities. At its remaining electric generating facilities, DEC and DEP have taken measures to improve the heat rate or made other changes to improve the efficient operations of those facilities. This effort is a continual process to ensure both reliability and cost-effectiveness. Heat rate reductions reduce GHG emissions.

Recent General Rate Case Activity

As a result of these actions, as well as other compliance measures, DEC filed its first of three general rate cases in 2009. DEC stated that from 2006 to 2008, DEC had placed into service approximately $2.8 billion in gross electric plant, and projected that the increase in gross plant would grow to $4.8 billion by September 30, 2009, when coupled with construction work in progress (CWIP). These investments included the purchase of an additional ownership in the Catawba Nuclear Station, the addition of flue gas desulfurization equipment in the Allen Steam Station; CWIP related to the Cliffside Modernization Project, investments in transmission and distribution system and its existing generation fleet related to significant upgrades, refurbishment, reliability, environmental and other regulatory compliance, and relicensing, as well as $1 billion associated with CSA costs that have been recovered through amortization. DEC requested an increase of 12.6%, and the Commission approved a cumulative increase of approximately 8% spread over three years to lessen the impact of the increase on consumers.

In 2011, DEC filed its second rate general case. This request was driven by the $4.8 billion of capital invested in the “bricks and mortar” projects of the Company, including the Company’s modernization program that consisted of retiring, replacing and upgrading generation plants and transmission and distribution systems. DEC stated that the modernization program was necessary to continue safely providing reliable and environmentally compliant electricity at reasonable costs and that the case was a

continuation of the modernization of the 2009 general rate case. The $4.8 billion in capital investment included major projects, such as: the Cliffside Unit 5 Scrubber ($565 million); Cliffside Unit 6 (financing costs associated with $641 million additional investment); Tornado/High Energy Line Break work at Oconee Nuclear Station ($135 million); Buck Combined Cycle Project ($700 million); Bridgewater Powerhouse Replacement Project ($180 million); transmission and distribution (approximately $1 billion); and nuclear fuel ($207 million). DEC requested an increase of approximately 15.2%, and the Commission approved an increase of 7.21%.

In 2013, DEC filed its third general rate case that DEC filed to recoup the $3.8 billion in capital investment since the 2011 general rate case used to further implement its modernization project of retiring, replacing and upgrading generation plants and transmission and distribution systems. The $3.8 billion investment included: the Company's new Unit 6 at Cliffside Steam Station ($863 million); the Dan River Combined Cycle generating facility ($673 million)(a 620 MW natural gas facility); the Tornado/High Energy Line Break work at Oconee Nuclear Station ($448 million); and uprates at McGuire Nuclear Station ($203 million), which included a series of projects that add carbon-free nuclear generating capability to the Company's fleet. DEC requested an increase of approximately 9.7%, and the Commission approved a cumulative increase of 5.1% spread over three years, with a 4.5% increase in year one, no increase in year two, and a 0.6% increase in year three. The purpose of the deferral of the full authorized increase was to mitigate the impact of the increase on consumers.

In 2012, DEP also filed its first general rate case in 25 years. DEP's rate case was driven by capital investments of approximately $2.3 billion for the Company's modernization program, which consisted of replacing, upgrading and retiring generation plants and transmission and distribution systems. As noted above, the major projects included: early plant retirements and gross plant additions such as in-service costs for two new natural-gas fueled facilities, as well as CWIP for a third natural gas-fired plant under construction ($257 million); and increased expenses related to nuclear operations ($33 million). The Company stated that the modernization was needed to comply with environmental requirements of federal and state regulations and laws, including CSA. DEP requested an increase of approximately 11%, and the Commission approved a cumulative increase of 5.5% spread over two years, with a 4.6% increase in year one and a 0.9% increase in year two. As with DEC, the deferral was to lessen the impact of the increase on consumers.

The last North Carolina IOU, Dominion, also filed a general rate case in 2012. The request was driven in part by two new generation facilities, the 590 MW Bear Garden Power Station, which is a facility powered by natural gas and using combined cycle technology, and the 585 MW Virginia City Hybrid Energy Center, which is a facility powered by clean coal technology supplemented by renewable biomass. Dominion requested an increase of approximately 19.11%, and the Commission approved an increase of 6.82%.

Each of these cases was resolved through rate orders that substantially reduced the increases the Companies requested so as to comply with legislative and court-imposed mandates that rates be set as low as possible without impairing constitutional rights of investors that property confiscation be avoided.

Renewable Energy Portfolio and DSM/EE Activity

In additional to the investments in fossil fuel and nuclear-fired plants, North Carolina has invested in diversifying its generation portfolio by encouraging the expansion of alternative energy sources like renewable energy resources, demand-side management and energy efficiency. In 2007, the General Assembly enacted the North Carolina Renewable Energy and Energy Efficiency Portfolio Standard (also referred to as Senate Bill 3)[9] which, among other things, established a Renewable Energy and Energy Efficiency Portfolio Standard (REPS), the first renewable energy portfolio standard in the Southeast. Under the REPS, all electric power suppliers in North Carolina must meet an increasing amount of their retail customers' energy needs by a combination of renewable energy resources (such as solar, wind, hydropower, geothermal and biomass) and reduced energy consumption. The general REPS requirement increases from 3% of the prior year's retail sales in 2012 to 10% by 2018, then to 12.5% by 2021 (for electric public utilities). The REPS also contains carve outs for specific energy sources, including a carve-out for solar energy. The legislation authorizes utility cost recovery for costs incurred to acquire renewable generation or to acquire Renewable Energy Credits (RECs), plus the costs and incentives for DSM and EE through annual

[9] Session Law 2007-397.

riders. However, mindful of the impact on customers' rates, caps exist on the levels of costs allowed for recovery through these riders. Additionally, the North Carolina Legislature has approved a 35% renewable energy tax credit to promote renewable energy development.

The Duke Energy, Progress Energy merger approved in 2012 permitted a Joint Dispatch Agreement between the two systems that results in coordinated dispatch of all of the production plants in the Carolinas, reducing fuel costs as well as emissions and future increases in consumers' rates. In its order approving the merger and a subsequent order following an investigation into post-merger activities, the Commission has required guaranteed fuel savings to North Carolina ratepayers of approximately $480 million.

The investor-owned utilities in the state indicated in their 2013 Integrated Resource Plans that their demand-side management (DSM) and energy efficiency (EE) programs will assist in reliable and affordable electricity. DEC indicates that DSM and EE programs, combined with the use of renewable energy resources, are expected to meet approximately one-third of its projected growth in demand over the next 15 years, equivalent to over 2,400 MW of electric demand, or the output of three large natural gas-generation facilities or three new coal-fired units like Cliffside 6. Using aggressive marketing and increased adoption of energy efficiency measures reduces DEC's annual forecast demand growth from 1.9% to 1.5%. DEP indicates that DSM and EE programs, combined with the use of renewable energy resources, are expected to meet

approximately 20% of its projected growth in demand over the next 15 years, equivalent to over 1,000 MW of electric demand, or the output of a large coal or gas baseload generation facility. Using aggressive marketing and increased adoption of energy efficiency measures reduces DEP's annual forecast demand growth from 1.7% to 1.4%. Dominion, which has a small service area in northeastern North Carolina, forecasts that its DSM programs will result in a total system-wide capacity reduction of 544 MW.

Under the Commission's oversight, North Carolina has established an independent non-profit organization entitled Advanced Energy to investigate and implement new technologies for distributed generation, load management, conservation and energy efficiency. In addition to creating means for sustainable energy-efficient economic development for North Carolina ratepayers, it offers program design and implementation, consulting, training and research to provide market-based energy-related solutions in the areas of applied building science, motors and drives testing, and industrial process technologies. Under Advanced Energy is North Carolina's Green Power program (NC GreenPower), receiving voluntary contributions on consumers' utility bills and otherwise to subsidize renewable and GHG reduction measures. Commission issued rate orders and combination approval orders have provided funding of $2 million to NC GreenPower.

North Carolina's Energy Challenges

This strategy that North Carolina and its IOUs have invested in is a true "all of the above" strategy in an attempt to balance expenditures for environmental protection with affordable, reliable electric service. Michael Levi, in his book The Power Surge, succinctly encapsulates North Carolina's strategy, which is one that embraces "advances in old and new energy sources alike to realize economic, security and environmental gains, by … unleashing development across a range of energy sources …" Michael Levi, The Power Surge, p. 205 (Oxford United Press, 2013). North Carolina has and is investing in both advances in fossil fuels and alternative energy sources at the same time. Michael Levi goes on to state "[p]artisans on both sides of the battle over the future of American energy are often convinced that the only route to victory for their side is through defeat for the other, a phenomenon exacerbated by the time-tested tendency to use energy issues as proxies for bigger ideological fights." Id. The author goes on to state that there is reason behind this thinking by past actions of both sides. However, to move the country forward, there needs to be a re-building of trust. He states that the start of this can be accomplished by small deals that benefit both sides. An example of building trust and moving forward on both fronts at once is looking at environmental compliance issues and making sure that federal environmental rules and regulations do not promote alternative energy sources at the expense of and defeat of fossil fuels. Otherwise, the costs to reliability and affordability will be too great.

Clearly, North Carolina ratepayers have already invested significant costs in updating North Carolina's generation fleet to meet increasing environmental standards in the least cost manner to provide reliable electricity. However, the EPA has indicated more regulation on fossil fuels is forthcoming.

Pending and/or potential environmental regulation can be broken down into air regulation, water regulation and waste regulation. The air regulations are the new source performance standards for new power plants and new source performance standards for existing power plants, the mercury and air toxic standards (MATS), and the cross state air pollution rule (CSAPR). Water regulations include Section 316(b) of the Clean Water Act and the steam effluent limitations guidelines (ELG), and the waste regulation involves the potential regulation of coal combustion residuals or coal ash. While these regulations serve important environmental goals, one must ask if the benefits outweigh the costs and are the standards achievable. First, the potential costs for DEC and DEP to comply with these regulations between 2014 and 2016 are anticipated to be $520 million for air, $150 million for water and $330 million for waste. More importantly for North Carolina is the feasibility of meeting the requirements of carbon capture and sequestration. North Carolina is one of the sixteen states that lack geological formations that could serve as the basis for potential carbon dioxide (CO_2) reservoirs.

According to the authors of A Critical Review of the Benefits and Costs of EPA Regulations on the U.S. Economy, the annualized compliance costs per year for North

Carolina to comply with the Utility MACT, Boiler MACT and CCR EPA rules is $854.5 million. Nam D. Pham, Ph.D and Daniel J. Ikenson, A Critical Review of the Benefits and Costs of EPA Regulations on the U.S. Economy November 2012, at 22. Further, "[t]he North American Electric Reliability Corporation estimated that Utility MACT could force the early retirement of 15 gigawatts (GW) of generating capacity" in the nation. Id. at 16.

> The effects of these dynamics on employment and wages are crucial cost considerations systematically neglected by the EPA. Given the Agency's focus on improved morbidity and mortality rates as transmitter of the benefits of its regulations, the EPA should consider the adverse impact of unemployment and reduced wages on those health outcomes as costs.

Id.

While each state is situated differently and faces its own unique set of issues, North Carolina has been forward-thinking in its efforts to comply with all federal air quality regulations and to improve the air quality of its citizens. These efforts have both avoided and significantly reduced NO_x, SO_2 and CO_2 emissions from fossil fuel electric generating units. These efforts came at a significant investment cost, which ratepayers will continue to bear over the coming decades. To reiterate, over the past five years North Carolina has experienced five general rate cases, which increased rates in part to implement these environmental goals. These actions taken by North Carolina have thus far appropriately and rationally balanced the environmental goals and the costs associated with them. To add additional costs on North Carolina ratepayers for compliance with proposed and future environmental regulations will be a heavy burden on North Carolina ratepayers and should be undertaken with great care and

forethought. Adding potential unwarranted additional costs on the ratepayers will threaten reliability and the health, safety and welfare of North Carolina's citizens.

With interests of North Carolina ratepayers in mind, North Carolina would hope future federal requirements would recognize the steps North Carolina has taken in the past, would not impose requirements that fail to give North Carolina proper credit for what it has accomplished, e.g. imposition of one size fits all requirements, would avoid stranded costs, and recognize that diversity of production resources and demand resources should be facilitated.

NC Demographics

- Total population- **9M**
- Average Income- **$46k**
- Unemployment Rate- **9%**
- Percentage of population below the poverty level- **16%**
- Foreclosure rate- **13%**
- Total housing units- **4,286,863**
  - **69%** single unit housing
  - **32%** renters
  - **14%** mobile homes
  - **15%** vacancy rate
  - **19%** built after 2000 (0-13yrs old))
  - **53%** built 2000-1970 (13-30 yrs old)
  - **28%** built after 1970 (30+ yrs old)
  - **$153k** median owner occupied home value

Source: U.S. Census Bureau, 2007-2011 American Community Survey

Move Rates

South Region	Percentage	Move Rate
Owner-occupied housing	69%	5%
Renter-occupied housing	30%	31%

*State from South Region

Solar Customer Demographics

	Count	Homeowner Age	Length of Residence	# of Occupants	Age of Home	Home Value	Home SQFT
2012- Solar Customer Profile	295	52.74	10.77	3.03	29.73	$278,300	2,395
2013- Solar Customer Profile	996	54.60	9.82	3.23	23.07	$415,448	2,370

2012 only includes DEC customers
Source- Customer Insight Team

Finley, Exhibit 1

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-7, SUB 989

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Application of Duke Energy Carolinas, LLC for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina	)))))	ORDER ON REMAND

BY THE COMMISSION: On June 1, 2011, pursuant to Commission Rule R1-17(a), Duke Energy Carolinas, LLC (Duke Energy Carolinas, DEC, or the Company),[10] filed notice of its intent to file an application for a general rate adjustment. On July 1, 2011, DEC filed its Application for Adjustment of Rates and Charges Applicable to Electric Service in North Carolina (Application) along with a Rate Case Information Report using Form E-1 (Form E-1), and the direct testimony and exhibits of numerous supporting witnesses. Supplemental, intervenor, and rebuttal testimony was filed in this Docket, all as set out in the Commission's January 27, 2012, Order Granting General Rate Increase (Rate Order), and public and evidentiary hearings on the Application were held by the Commission, also as set out in the Rate Order.

The North Carolina Attorney General appealed the Rate Order. On April 12, 2013, the North Carolina Supreme Court Reversed and Remanded. State ex rel. Utils. Comm'n v. Attorney Gen. Roy Cooper, ___ N.C. ___, 739 S.E.2d 541, 546-47 (2013) (Cooper).

Based upon consideration of (i) the Cooper decision, (ii) the comments and proposed findings and conclusions submitted by the parties after the Cooper decision, and (iii) the pleadings, testimony, and exhibits received into evidence at the hearings, the Stipulation[11], and the record as a whole, the Commission makes the following findings to supplement the January 27, 2012, Order in this docket:

SUPPLEMENTAL FINDINGS

The Commission Conducted Hearings Across the DEC Service Area to Receive Customer Testimony

1. The Commission received extensive testimony from public witnesses illustrating the difficult economic conditions facing many customers, and detailing the impact the projected 15% rate increase would have upon customers. The Commission held six hearings throughout the Company's North Carolina service territory to receive public testimony. Of the 1.8 million Duke Energy Carolinas retail customers in North

[10] Duke Energy Carolinas is a wholly owned subsidiary of Duke Energy Corporation (Duke Energy).

[11] On November 28, 2011, Duke Energy Carolinas and the Public Staff, representing the using and consuming public, entered into a stipulation resolving all issues between them.

Carolina, 236 public witnesses testified at the hearings, many of whom testified that the rate increase was not affordable to many customers, including the elderly, persons on fixed incomes, persons with disabilities, the unemployed and underemployed, and the poor. A sampling of public witness testimony is summarized below. Notably, however, some customers also expressed the view that the Company should be required to discontinue its fossil fuel and nuclear generation in favor of energy efficiency and renewables, even if reliance on renewables is more expensive. (See, e.g., Charlotte Tr., p. 20.)

2. At the public hearing in Charlotte, June Blotnik testified that for Duke to seek a higher rate of return for investors was "a slap in the face to … the 95,350 unemployed people in our region." (Id. at 68.) Ms. Blotnik further testified that "Charlotte is one of the top ten foreclosure hot spots in the country. In neighboring Union County, the sheriff's office is serving 400 foreclosure notices a month. In 2007, they served less than that during the whole year. Last year they served 5,300 homes foreclosure notices." (Id.)

3. Rogelio Reyes from Charlotte testified, "In this time of recession, this increase will affect our daily lives even more. There are many people who are unemployed and need help rather than an electric bill increase." (Id. at 37.)

4. Steve English, a chiropractic physician from Charlotte, testified that he has "a lot of patients that are unemployed or underemployed that ask me on a monthly basis, sometimes a weekly basis, if they can borrow a few bucks so they can pay their light bill." (Id. at 31.)

5. Yvonne McFetters, a minister from Charlotte, testified, "At this time, our community is reeling from bank bailouts, a crippling economy, long-term unemployment, home foreclosures, lack of health care benefits, high gas prices, school closings, library cutbacks, college students' tuitions and fee increases, seniors on a fixed income and children moving back with their parents because they can't afford to live on their own." (Id. at 57.) She further testified, "In these difficult times, increasing our power bills will stretch many customers to the breaking point like Mr. Reyes and Ms. Hernandez. The breaking point will cause struggling businesses an additional hardship and cost North Carolina businesses and jobs." (Id. at 58.)

6. Robbie Akhere, representing Citizens Charlotte Coalition, testified,

> Our senior citizens are struggling on fixed income. There have been no increases in Social Security in the last three years, yet Duke Power wants us to pay a 17 percent rate.
>
> I don't know how many of you are familiar with a place called Crisis Assistance. But it's really become an outpost for Duke Power. Many women and children wait in line beginning at 4:30 in the morning. These doors do not open until 8:00. This morning in the rain, we witnessed again – in the winter I've witnessed it. Ninety percent of them are there to get their Duke lights paid.

(Id. at 100-101.)

7. At the Durham hearing, Bobi Gallagher testified that seniors and those living on fixed incomes worry about being "cut off because of high bills . . . ." (Durham Tr., p. 27.) Cindy Soehner, a Duke Energy Carolinas customer who owns a family farm in Chapel Hill, also testified at the public hearing in Durham. (Id. at 79-80.) Ms. Soehner testified,

> As a family farm, we are having difficulty paying our expenses and we see that our customers, American families, are also having difficulty paying their expenses. If the electric company raised their rates at this point, it would be like punching all of us when we're already going down.

(Id. at 80.)

8. Harry Phillips from Chapel Hill testified, "I ask you to keep in your hearts these sobering numbers as you mull Duke's latest request. Presently we (North Carolina) rank 44th in the nation in un - - unemployed workers at 10.4 percent. We rank 40th in percentage of people living at or below the poverty line; 21.9 percent of children in North Carolina are classified as impoverished; and 11.6 percent of our seniors live in poverty." (Id. at 78.)

9. Bob Harold testified at the Franklin hearing that he manages a furniture factory in Robbinsville employing 420 full-time associates, the largest employer in the county. He testified, "We spend $1.2 million a year electricity for Duke now. I feel like the rate increase is too exorbitant. It will put us in a very non-competitive situation. It will increase our electricity bill per year $180,000." (Franklin Tr., p. 16.)

10. Mr. Harold further testified, "There's not any other industry in Robbinsville. The next closest employer in the county is the Nashville (sic) Park Service, and that's seasonal. It will be very devastating to that area if this facility closed. And this rate increase possibly, possibly, could cause that plant to close down." (Id. at 17.)

11. Ronnie Beale, a Macon County Commissioner, testified that

> last year Macon County received from the low income assistance fund, $487,000. That assisted 1700 families in Macon County. That was fiscal year 2010/2011. In 2011/2012, we're scheduled to receive hopefully $46,000. That will assist 200 families in Macon County. The biggest check we got during that time was $72,000 out of the 487. It lasted four and a half hours.
>
> As a county we don't know what we're going to do. We have a very large low-income elderly population. You hear the unemployment rate is 10%. Those of us in the construction industry can tell you the actual rate is much higher. Construction still lags in Macon County. Macon County has depended on the construction business for a long, long time.

(Id. at 19.)

12. Hazle Finley of Franklin, a volunteer with Second Mile Ministries at Holly Springs Baptist Church, testified that she is aware that "the federal funding has been cut

in one area 90% for heating assistance this fall. Our donations, I know, are down, and this has been for two years; and due to the economy mainly." (Id. at 33.)

Ms. Finley also testified that the clients at Second Mile Ministry are

> mainly elderly people who are on fixed incomes, unemployed, people who have exhausted their unemployment benefits and are no longer receiving them, as well as those who never qualified. As Commissioner Beale stated, there are many in this county that were working in the building industry, and they have never received any unemployment compensation. So it's a very humiliating thing for them to have to go around to churches asking for assistance to pay their electric bill, rent, get food, things to keep their families going during this time.
>
> Many of them, he alluded to the fact, have sold all of their equipment, including vehicles, heavy duty construction equipment, because they're doing nothing because they have no other income. If you go into the pawn shops, they are full of the tools that the men use for their trades. There just is no work here.

(Id. at 33-34.)

13. Susan Leveille, a customer from Dillsboro, testified at the Franklin hearing, "People are struggling everywhere, and in places where people have always worked hard to make ends meet, the struggle is even more difficult." (Id. at 38.)

14. At the High Point hearing, Donna Lisenby testified that "North Carolinians are struggling in this difficult economy. They're struggling to make ends meet everyday." (High Point Tr., p. 25.)

15. Will Shuford of Greensboro also testified at the public hearing in High Point. (Id. at 66-68.) Mr. Shuford testified that "the single greatest problem this economy is facing right now is to extend high levels of unemployment." (Id. at 67.) He concluded that "as long as we have high levels of unemployment that we're seeing right now, I think that we shouldn't even be discussing a rate increase." (Id. at 68.) Nathan Roberto of Greensboro, also testified at the public hearing in High Point, stating that to ask for a rate increase of the magnitude requested "during the great recession, during economic crisis … is outrageous." (Id. at 68-69.)

16. Ernest Lankford of Danbury testified, "The economy is in the worst that I have ever seen in my lifetime, and unemployment is at an all-time high. I am retired living on a fixed income. Many of my neighbors are out of work and can't hardly put food on the table for their families. They request -- the request for food from food banks are up to more than 50%. People are hurting. It is not the time for the energy rate increase." (Id. at 73.)

17. Mike Inscore, the Mayor of Wilkesboro, testified that the Wilkes County

> unemployment rate as of August of this year was 12.1 percent, as compared to North Carolina 10.5. Our per capita (sic) income is 10% lower than the state average. The state average is $34,800 and in Wilkes

> County it's $31,300. We have a population below the poverty level of 20.6 percent. We have 13.2 percent of households receiving food stamps. We have citizens in general that are not only feeling the hardship of the effects of this economy, but also they are feeling the despair and, quite honestly, the sense of helplessness. It's very hard for me to hold a public hearing and look out over the faces of those in our audience without understanding the plight that they find themselves in.

(Id. at 82-83.)

18. Jenny Barker of High Point testified,

> Another face I want to share with you is a man who has worked very hard, 30 years in that same company. When that company closed, he had nothing. He started over in his life. And he worked for a company -- he was making $65,000 with that company that company closed. In November of 2009, he lost his job. His benefits run out next month. That is my husband.
>
> There is a person – this is breast cancer awareness month. There is a person that is struggling with two bouts of breast cancer and had to stop treatment because she could not afford the Cobra payments, and she cannot afford the deductible. She lost three jobs because she had cancer. Her benefits run out in February. She is struggling with the fact that she has been fighting the bank for almost two years to save her home. She cannot pay the medical bills, even $5 a month, because of unemployment. She pays for gas and food and that is all she can afford. And that is me, folks.

(Id. at 104-105.)

19. Carissa Joines of Winston-Salem testified,

> Eleven percent of people in Winston-Salem are at or below the poverty level. These are people that $20 will make a massive difference. You can ask Duke to look at my account right now and there would be a cutoff of this because I have to choose month to month if I'm going to pay water or electricity, so I rotate them back and forth. And that's just something that commonly occurs in my house to have that. That's not because there's -- of unemployment. It's because of underemployment. Your 40, 50 hours a week for work, and I'm still at the poverty level. So does this hurts me personally, affects my tax base. I'm not -- I know that I cannot afford $20 extra a month. There's nothing else for me to cut.

(Id. at 93.)

20. Lloyd Cuthbertson, the mayor pro tem of Marion appeared at the Marion hearing on behalf of both the City of Marion and the McDowell County school system. He testified,

> Based on recent North Carolina Employment Security Commission data, McDowell County has an unemployment rate of 12.8%, which is 2.4%

> higher than the state rate of 10.4%. According to US Census data, 16.6% of the citizens of Marion are 65 years of age or older. That's compared to 12.9% for North Carolina and 12.9 for the United States. Even more telling is that medium household income of $28,665 for city residents is $6,930 below the county average, $15,080 below the medium average household income for North Carolina, and $21,556 below the national medium income. Per capita data income for residents of Marion is $17,126, which is $1,647 below the county average, $7,421 below the state average, and $9,915 below the national average. Also 22.4% of the residents of city residents live below the poverty line compared with 17.8% in McDowell County.

(Marion Tr., p. 27.) He further testified, "For Marion and McDowell County, the recession is not over." (Id. at 26-28.)

21. Similarly, Bob Boyette, the City Manager of Marion testified, "The City of Marion simply cannot absorb such rate increases, nor can our households, businesses, industries or non-profit organizations." (Id. at 37.)

22. Suzanne Johnson of Nebo in McDowell County testified, "Today in a project that I am doing for the county, I learned that over 50% of K-12 public school students receive free lunches. That means they are below the poverty level. An increase like this on these families is going to be devastating. Don't make them choose between heating and eating." (Id. at 58.)

23. Elizabeth Lawly of Marion testified, "I ask the Utilities Commission to consider the jobless rate in McDowell County. And people on fixed incomes -- my husband and I have a great friend, and you know how she heats her house in the winter time? With one kerosene heater, and she lives in one room with a kerosene heater." (Id. at 60.)

24. Carol Shaver of Rutherfordton testified, "The current unemployment rate in Rutherford County is 14.8% while the overall current unemployment rate for our state is 10.4%. Our state unemployment rate is 1.3% point higher than the national average… Children and families are living in campers beside their parent's home." (Id. at 46-47.)

25. Ms. Shaver further testified, "There are people who are trying to decrease the amount of spending where they can decrease it so that they can provide food, clothing and water, just the basic needs. Please do not allow a rate increase for Duke Energy at this time." (Id. at 49-50.)

26. At the public hearing in Raleigh, Miriam Thompson testified in opposition to the requested rate increase, stating "The residential ratepayers and most of the businesses in this state are still in the worst economy we have seen since the great depression." (Tr. Vol. 1, p. 23.)

27. Gene Nichol of Chapel Hill, the director of the UNC Poverty Center testified,

> North Carolina has been, for three years, in an economic depression. Last year a record 17.5 percent of us lived in poverty, the most in raw

> numbers, 1.6 billion, in our state's long history. The highest on a percentage basis in many decades. Our poverty rate is worse for our children, one in four living in stark poverty. Almost 40 percent of our children are colored. Over a third of North Carolinians live below or just above the federal poverty line characterized by the federal government as poor or near poor, making less than $31,000 a year for a family of four. At least 20 percent of us at present are under-employed. Our median income last year fell by over 12 percent. We saw the sharpest decline in healthcare coverage in the nation.
>
> We learned last week that we have the sixth highest rate of what is euphemistically called "food hardship" in the country. Over 2.2 million Tarheels last year had a difficult time putting food on the table. Almost 900,000 of us have been added to the food stamp rolls since the recession began. 900,000 that's more than live in the City of Charlotte. And there is no end to this in sight.

(Id. at 46-47.)

28. Phil Carson of Bryson City, a Swain County Commissioner, traveled from Bryson City and testified at the Raleigh hearing. He testified that Swain County has

> unemployment skyrocketing to 12 percent. We have 17 percent of our families are in poverty. Half of the households in Swain heat with electric heat. Most households, their spouses have to work two jobs to make ends meet. And there's approximately seven to eight hundred homes that heat with wood, because they can't afford to heat with electricity.
>
> And, again, I just feel like that the rate increase that was requested at this time, if our country were not in a recession anyway and our economics were good, might not be a bad time. But at this time, it's just not the time.
>
> And I appreciate the Commission's concern and appreciate what you do keeping our rates low so that we can afford them and afford to feed our families as well."

(Id. at 59-60.)

Summary of Findings on Rate of Return Evidence from Evidentiary Hearing

29. The Company in its Application requested approval for its rates to be set using a rate of return on equity of 11.5%, which was adjusted to 11.25% by Company witness Hevert in his rebuttal testimony. Public Staff witness Johnson recommended a rate of return on equity of 9.25%. CUCA witness O'Donnell recommended a 9.5% rate of return on equity. The Stipulation entered into between the Company and the Public Staff prior to the evidentiary hearing provides for a rate of return on equity of 10.5%.

30. Company witness Hevert testified in support of the Company's original request as stated in the Application. In his direct testimony, he recommended a rate of return on equity of 11.5%, which was slightly above the midpoint of his recommended range of 11% to 11.75%. (Tr. Vol. 3, p. 254.) Based on the updated data and analyses

contained in his rebuttal testimony, he decreased his rate of return on equity range to 10.75% to 11.5%, and revised his recommended rate of return on equity to 11.25%. (Id. at 254-55.)

31. Mr. Hevert testified that the rate of return on equity, or cost of equity, is the return that investors require in order to be compensated for the risks associated with owning common equity. (Id. at 255.) Unlike the cost of debt, the cost of equity is neither contractual nor observable, and must be estimated based on market data. (Id.) Mr. Hevert relied on both the Discounted Cash Flow (DCF) and the Capital Asset Pricing Model (CAPM) to estimate the cost of equity, although he placed greater weight upon the results of the DCF approach. (Id.) He explained that since both financial models produce a range of quantitative results, the question becomes where the Company's cost of equity lies within that range. (Id.) To inform that decision, Mr. Hevert considered both capital market and company-specific risks in determining the Company's return on equity. (Id. at 255-56.) In his direct testimony, Mr. Hevert concluded that those factors suggested a rate of return on equity slightly above the midpoint of his range. (Id. at 256.)

PLACE: Dobbs Building, Raleigh, North Carolina

DATE: November 28, 2011

DOCKET NO.: E-7, Sub 989

TIME IN SESSION: 1:00 P.M. TO 3:37 P.M.

BEFORE: Chairman Edward S. Finley, Jr.
Commissioner Bryan E. Beatty
Commissioner William T. Culpepper, III
Commissioner ToNola D. Brown-Bland
Commissioner Susan W. Rabon
Commissioner Lucy T. Allen

IN THE MATTER OF:

Duke Energy Carolinas, LLC's
Application for a Rate Increase

VOLUME 1

A P P E A R A N C E S :

FOR DUKE ENERGY CAROLINAS, LLC:

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Kendrick Fentress, Esq.
Associate General Counsel
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Charlotte, North Carolina 28202

of us to take a close look at public utilities. I'd love to see them be owned by the public.

Thank you.

CHAIRMAN FINLEY: Thank you, Ms. O'Rourke. Hold on just a minute. Are there questions?

MR. KAYLOR: No questions.

CHAIRMAN FINLEY: Questions from any party?

(NO RESPONSE.)

CHAIRMAN FINLEY: Okay. Thank you, Ms. O'Rourke.

(WITNESS EXCUSED.)

MS. FORCE: I'm going to call three more witnesses so that you'll be prepared. One is Monserratt Alvarez. The next is Gene Nichol. And the third is Bob Rodriguez. So, Mr. Alvarez.

UNKNOWN SPEAKER: Monserratt left.

MS. FORCE: Thank you. Okay. Then that would be Gene Nichol.

(WHEREUPON, GENE NICHOL WAS CALLED AS A WITNESS, DULY SWORN, AND TESTIFIED AS FOLLOWS:)

DIRECT EXAMINATION BY MS. FORCE:

Q. If you'd state your name--

A. My name is Gene Nichol, G-E-N-E N-I-C-H-O-L. I

live at 104 Pine Lane in Chapel Hill, and I'm a Duke customer.

MR. KAYLOR: Mr. Chair, could I inquire as to whether or not--

THE WITNESS: No.

MR. KAYLOR: --you have testified before. Did you testify at the Durham public hearing?

THE WITNESS: No, I did not.

CHAIRMAN FINLEY: He did not. This is the first time.

MR. KAYLOR: Okay. Excuse me.

THE WITNESS: You know, perhaps I should have, but--

A. Mr. Chairman, I'm the Director of the UNC Poverty Center. As I said, my name's Gene Nichol. I'm a Chapel Hill resident and a Duke customer. North Carolina General Statutes Section 62.2 empowers, in fact, it requires the Utilities Commission to regulate utilities in the public interest. In its blinkered tunnel vision, Duke Energy makes this task quite a formidable one.

North Carolina has been, for three years, in an economic depression. Last year a record 17.5 percent of us lived in poverty, the most in

raw numbers, 1.6 billion, in our state's long history. The highest on a percentage basis in many decades. Our poverty rate is worse for our children, one in four living in stark poverty. Almost 40 percent of our children are colored. Over a third of North Carolinians live below or just above the federal poverty line characterized by the federal government as poor or near poor, making less than $31,000 a year for a family of four. At least 20 percent of us at present are under-employed. Our median income last year fell by over 12 percent. We saw the sharpest decline in healthcare coverage in the nation.

We learned last week that we have the sixth highest rate of what is euphemistically called "food hardship" in the country. Over 2.2 million Tarheels last year had a difficult time putting food on the table. Almost 900,000 of us have been added to the food stamp rolls since the recession began. 900,000, that's more than live in the City of Charlotte. And there is no end to this in sight.

Against this backdrop, amazingly, Duke Energy asked initially for a residential rate hike

of 18.6 percent. A company, making over a billion dollars a year in profit, says to its customers, draft in monopoly, we understand that you face greater changes in poverty and hunger and loss of healthcare and unemployment and wages than at any time since 1930, but by God, we want our 18 percent. We have our plans. We've got our--our expectations.

The good news is, thanks to a dramatic push back from enraged citizens that apparently is not going to happen. Under intense pressure, but continuing to play games with people's lives, Duke said that the magic number was, first, 18.6 percent, then, apparently 12 percent, then, reportedly, 7.2 percent. We are frantic, in other words, to charge whatever it is we can politically get away with. We will make the numbers show whatever is demanded.

This slalom, this charade is a brutal rejection, a frank mockery, of the public interest the Commission is charged to assure. Duke's twists and turns, its contradictions and hypocrisies, its strategic advances and retreats reveal an undisguised disdain for the ratepayers

interests and continuing economic exigency.

Duke has shown itself literally unworthy of belief. Any case it now offers for a rate increase should, therefore, be rejected out of hand. Taking money from the too thin pockets of struggling North Carolinians is not a game, even though Duke Power is trying to make it one right before our eyes.

Thank you, Mr. Chairman.

CHAIRMAN FINLEY: Thank you, Professor Nichol. Let's see if there are questions.

MR. KAYLOR: No questions.

CHAIRMAN FINLEY: Very well. Thank you for coming.

(WITNESS EXCUSED.)

CHAIRMAN FINLEY: Call your next witness, please.

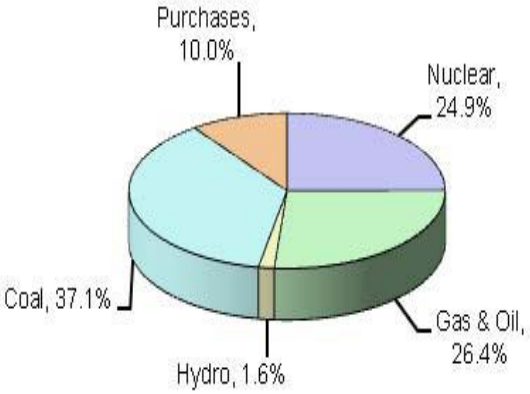
MS. FORCE: Bob Rodriguez.

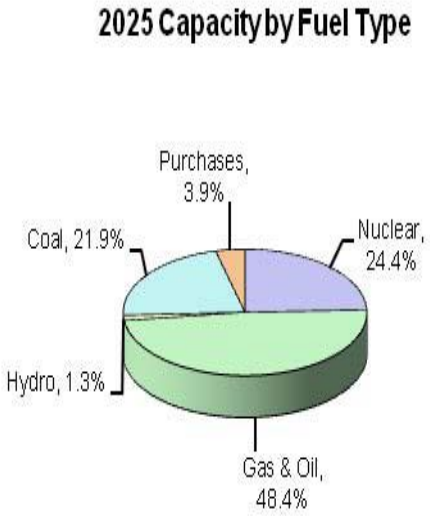
MR. KAYLOR: Mr. Chairman, I object. I believe he testified in Durham.

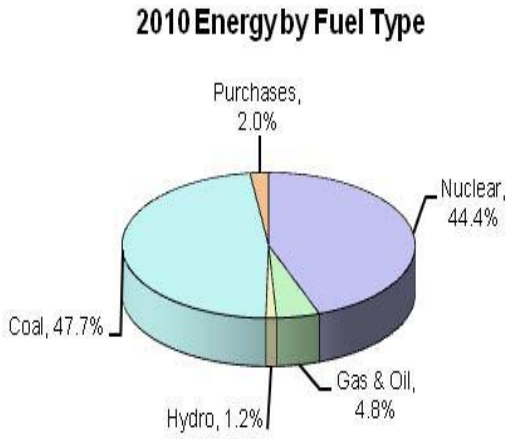
CHAIRMAN FINLEY: I don't think he did.

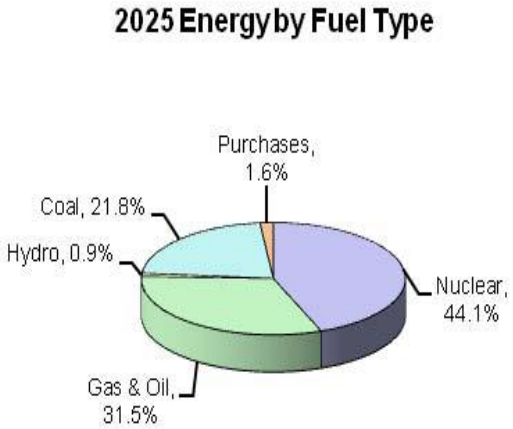
MR. RODRIGUEZ: It must have been my twin, but, no--no, sir. I did not testify at the hearing.

Progress Energy Capacity and Energy mix



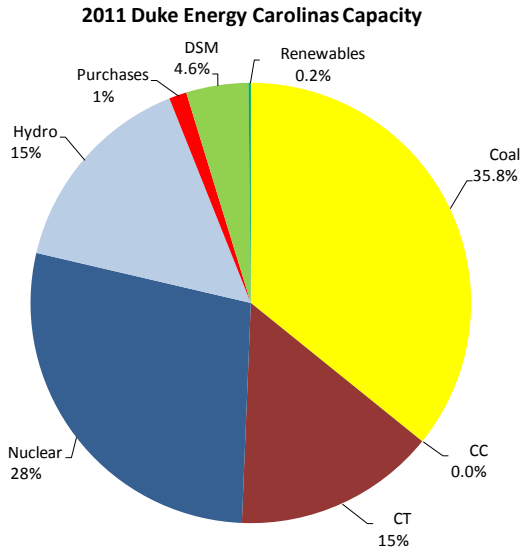


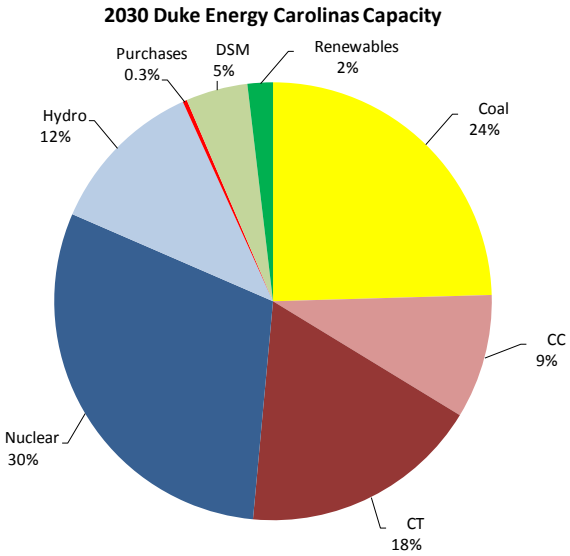


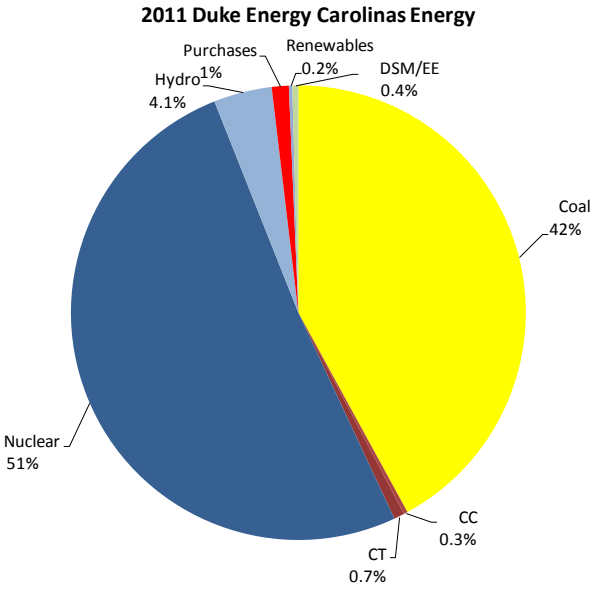


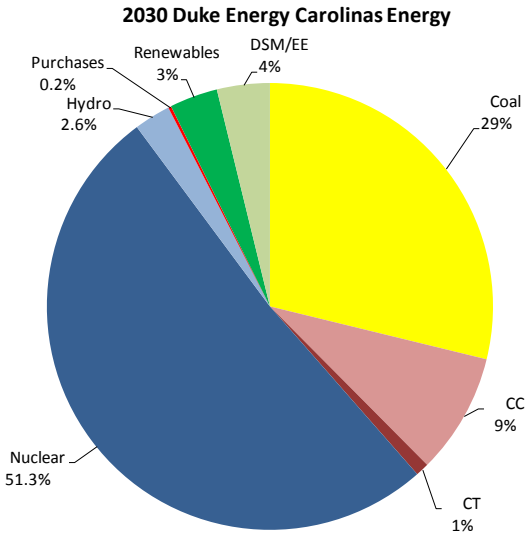
Source: Progress Energy 2010 IRP filing with NCUC on September 1, 2010.

Duke Energy Capacity and Energy mix



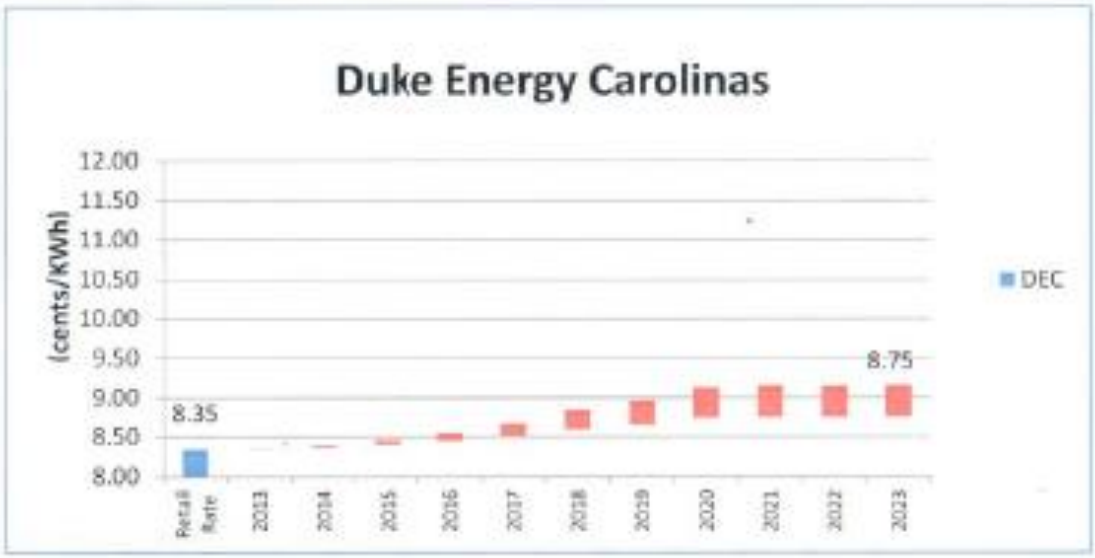


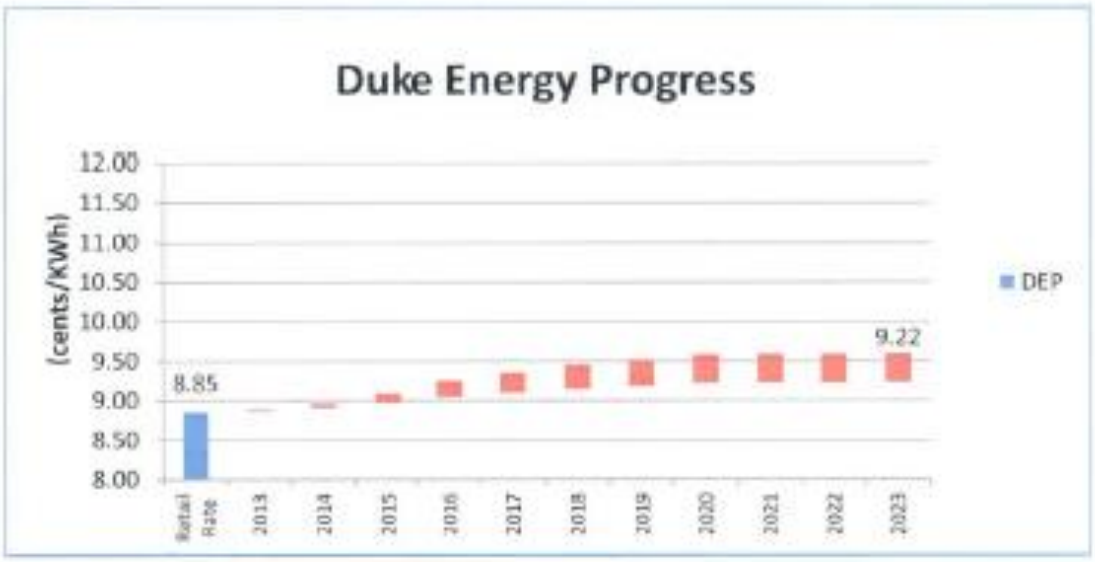




Source: Duke Energy 2010 IRP filing with NCUC on September 1, 2010.

Environmental Compliance Costs
Average Rate Impact by Jurisdiction





Assumptions

1. Environmental Planning Case from the 2012: 12&0 that includes:
   - Final MATS rule
   - Proposed 316(b), Steam Effluent Guidelines, Coal Combustion Rule, NAAQS
2. Rate Impact calculated using 2012 KWh sales
3. Revenue requirement on environmental capital calculated using a 15% return for each jurisdiction
4. Environmental impacts are calculated using Incremental O&M costs and cumulative capital costs
5. Data excludes costs related to new resources
6. Includes pond closures costs which could be included in existing rates depending on jurisdiction
7. Base retail rate source is EEI Typical Bill rates for 12 months ending January 1, 2013
8. Assumes no changes to 2013 retail rate other than the environmental impacts

December 19, 2013

Ms. Janet McCabe
Acting Assistant Administrator, Office of Air and Radiation
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N. W.
Mail Code: 6101A
Washington, DC 20460

Dear Ms. McCabe:

We are writing on behalf of our three agencies (North Carolina Department of Environment and Natural Resources, North Carolina Utilities Commission and North Carolina Utilities Commission Public Staff) to provide input to the U.S. Environmental Protection Agency (EPA) as you develop proposed guidelines to regulate greenhouse gas (GHG) emissions from existing electric power plants. Your staff participated in a listening session with the North Carolina regulatory agencies on November 7, 2013. We appreciate the opportunity the listening session provided us to express issues and concerns we have as EPA begins the regulatory process. Further, your staff invited North Carolina to submit written comments addressing the four main questions EPA has posed to States in order to assist in the development of the proposed guidelines. Thank you for the opportunity to provide written comments that may help shape this process. While our comments below address practical concerns and your specific questions regarding the development of proposed guidelines, they should be read with the knowledge that we continue to have overarching concerns regarding EPA's legal authority.

As we will discuss further, North Carolina has undertaken various initiatives and invested significant resources that have limited greenhouse gas emissions from the utility sector. The Clean Smokestacks Act (Session Law 2002-4) is one of the primary pieces of legislation adopted by the North Carolina General Assembly that limited emissions from North Carolina's coal power plants. A significant part of the legislation entailed the cost recovery feature for the installation of emission controls for sulfur dioxide and nitrogen oxides. Rate paying customers in North Carolina have invested over $2.5 billion in these controls over the last decade, and continue to pay tens of millions in annual expenses to operate and maintain these emissions control systems. In light of this significant investment, our agencies believe that the proposed guidelines should not reduce the remaining useful life of these coal fired power plants that are already equipped with state-of-the-art emission controls. This will allow a return on this public investment and ensure these well controlled coal-fired power plants are part of a balanced "all-of-the-above" energy plan in North Carolina. EPA's guidelines must not disrupt balanced state energy policies or effectively penalize a state for voluntarily taking actions that provided meaningful emission reductions ahead of any EPA action.

Further, our agencies believe that it is possible to balance our environmental needs with the delivery of reliable, cost-effective electricity and the proposed guidelines should allow states the flexibility to achieve these goals. Maintaining fuel diversity is a long-standing policy goal of the State and practice of North Carolina electric generators and is important for both economic and national security purposes. The guidelines should allow flexibility to continue promoting fuel diversity, which in turn promotes grid reliability. Ensuring the reliability of our electric grid is critical and the electric generating facilities in North Carolina play an important role in the reliability of the regional electric grid.

Selection of the most economically reasonable means of compliance is critical. It is no secret that the economic recovery across the United States is fragile and many ratepayers struggle to pay their monthly bills, including their utility bills. Guidelines that impose significant capital investment or other compliance costs will put significant upward pressure on utility rates for all customers since utilities are legally authorized to recover such costs from their customers. We strongly encourage EPA to be exceedingly mindful of the financial impact the proposed guidelines will have on the customers that will ultimately bear the cost of compliance.

Additionally, EPA should critically evaluate the current state of commercially practical and available technologies for mitigating or reducing CO2 emissions from existing electric generating plants. While some experimental technologies for CO2 removal may exist, these technologies are not currently cost effective or available on a commercially viable scale. While carbon capture and sequestration is cited by EPA as a viable option for CO2 removal, North Carolina does not believe carbon capture and sequestration has been adequately demonstrated. The EPA must recognize the limited geological deposits that could be used for carbon capture and sequestration. North Carolina is one of sixteen states that lack geological formations that could serve as the basis for potential CO2 storage reservoirs. In light of this critical limitation, EPA must not mandate the implementation of CO2 capture and storage for existing electric generating plants.

Finally, the approach ultimately adopted by EPA should be legally defensible and capable of withstanding the inevitable litigation that will ensue. Developing the plan to meet the requirements of Section 111(d) will require an investment of significant resources by all of our agencies and the regulated community. We want the ultimate product to be an effective plan that provides regulatory certainty without protracted litigation. North Carolina believes that the plain language of Section 111(d) requires the best system of emission reduction be based on measures that are achievable at a given emission unit (i.e., within the fence line). North Carolina strongly urges the EPA to follow the statute and provide a guideline based on the plain language of the Clean Air Act.

The joint responses of the North Carolina Department of Environment and Natural Resources, North Carolina Utilities Commission and North Carolina Utilities Commission Public Staff to the questions posed in your document entitled, "Considerations in the Design of a Program to Reduce Carbon Pollution from Existing Power Plants" are attached in Appendix A to this letter.

Thank you again for the opportunity to provide input to this important regulatory process. We look forward to working with EPA during the development and implementation of the Section 111(d) guidelines. We trust that our comments will be considered as EPA develops the proposed guidelines.

Sincerely,

John E. Skvarla, III
Secretary,
NC Department of Environment
And Natural Resources

Edward S. Finley, Jr.
Chairman
North Carolina Utilities
Commission

Christopher J. Ayers
Executive Director
NCUC Public Staff

Appendix A

1. **What is North Carolina's experience with programs that reduce CO2 emissions in the electric power sector?**

We preface the inclusion of the following discussion by underscoring our belief that the best system of emission reduction must be defined within the fence line of a given subject emission source. However, North Carolina does believe that states have the flexibility to consider measures outside the fence line as part of a compliance strategy under Section 111(d).

North Carolina has been an early mover on air quality and energy issues that directly or tangentially aid in greenhouse gas emission reductions, as evidenced by the following actions taken over the past decade:

- In 2002, the North Carolina General Assembly enacted *The Clean Smokestacks Act* (S.L. 2002-4), which called for significant reductions of sulfur dioxide (SO2) and oxides of nitrogen (NOx) emissions from coal-fired facilities in the State and also resulted in significant reductions in mercury emissions. As a result of Clean Smokestacks compliance and other environmental control measures, rate paying customers in North Carolina have invested over $2.5 billion in state of the art emissions controls for NOx and SO2 at the 7 largest coal-fired facilities in the State over the last decade, and continue to pay tens of millions in annual expenses to operate and maintain these emissions control systems. In 2005, as amended in 2009, the North Carolina *Utilities Commission in Docket* No. E-100, Sub 183, adopted policies to allow for net-metering from distributed generation facilities, including residential solar. The Commission defined net-metering as "A billing arrangement whereby a customer that owns and operates an electric generating facility is billed according to the difference over a billing period between the amount of energy the customer consumes and the amount of energy the customer generates."

- In March 2007, the Utilities Commission granted Duke Energy Carolinas (DEC) a certificate of public convenience and necessity to construct an 800 MW supercritical pulverized coal-fired generating facility (Cliffside 6) as part of its Cliffside Modernization Project. Since it began commercial operation in December 2012, Cliffside 6 has demonstrated that it is the most efficient coal-fired plant on the DEC system with a baseloaded heat rate ranging from approximately 8,700 Btu/kWh to 9,200 Btu/kWh.[1] The certificate was conditioned on the following: (1) the retirement of existing Cliffside Units 1 through 4, which totaled 198 MW; (2) a commitment by DEC to invest 1% of its annual retail electric revenues in energy efficiency (EE) and demand-side management (DSM) programs; and (3) a commitment by

[1] By reference, the baseloaded heat rates of DEC's other coal-fired facilities, which are already among the most efficient in the United States, are 5%-10% higher than for Cliffside 6. According to a January 22, 2009, report by Sargent & Lundy LLC entitled "Coal-Fired Power Plant Heat Rate Reductions," the average heat rate among U.S. coal-fired power plants is approximately 10,400 Btu/kWh, or 13% to 20% higher than for Cliffside 6.

DEC to retire other coal-fired generating units, in addition to Cliffside Units 1 through 4, on a MW-for-MW basis, considering the effect on reliability, for actual load reductions realized from new energy efficiency and demand-side programs up to the MW level added by the new supercritical pulverized coal facility. In the air permit issued by DAQ for Cliffside Unit 6, DAQ required DEC to: (1) implement a Greenhouse Gas Reduction Plan and to retire 800 MW of additional coal capacity without regard to achieving a commensurate level of MW savings from new EE and DSM programs; (2) accommodate to the extent practicable the installation and operations of future carbon control technology at Cliffside Unit 6; and (3) take additional actions as necessary to make Cliffside Unit 6 carbon neutral by 2018.

- In 2007, the General Assembly enacted the *North Carolina Renewable Energy and Energy Efficiency Portfolio Standard* (S.L. 2007-397, also referred to as Senate Bill 3) which, among other things, established a Renewable Energy and Energy Efficiency Portfolio Standard (REPS), the first renewable energy portfolio standard in the Southeast. Under the REPS, all electric power suppliers in North Carolina must meet an increasing amount of their retail customers' energy needs by a combination of renewable energy resources (such as solar, wind, hydropower, geothermal and biomass) and reduced energy consumption. The general REPS requirement increases from 3% of prior year's retail sales in 2012 to 10% by 2018, then to 12.5% by 2021 (for electric public utilities). The REPS also contains carve outs for specific energy sources, including a carve-out for solar energy. The Commission utilizes the North Carolina Renewable Energy Tracking System (NC-RETS) for tracking and reporting both Renewable Energy Certificates (RECs) and Energy Efficiency Certificates (EECs) used for REPS compliance. NC-RETS is very similar to other renewable tracking systems used in other states. All electric power suppliers complied with their 2012 general REPS requirement, and based on recently filed REPS Compliance Plans for 2013, 2014, and 2015, each supplier should have no difficulty meeting its general REPS obligation in each year. The 2013 North Carolina Utilities Commission Annual Report Regarding Renewable Energy and Energy Efficiency Portfolio Standard in North Carolina is available at the following link: http://www.ncuc.net/reports/repsreport2013.pdf

- In addition to the REPS, Senate Bill 3 also enacted G.S. 62-133.9, which directs each electric power supplier in the State to "implement demand-side management and energy efficiency measures and use supply-side resources to establish the least cost mix of demand reduction and generation measures that meet the electricity needs of its customers." Significant energy and capacity reductions have already been achieved by electric power suppliers in the State through these DSM and EE programs, and the savings have been validated through rigorous evaluation, measurement, and verification (EM&V) protocols. Additional information on the DSM and EE programs is available in the Commission's September 2013 Report on the Proceedings for Electric Power Suppliers Involving Energy Efficiency and Demand Side Management Programs, Cost Recovery, and Incentives, which is available at the following link: http://www.ncuc.net/reports/EE-DSM%20Report.pdf.

- Looking forward, the investor owned utilities in the State indicated in their 2013 Integrated Resource Plans that their DSM and EE programs will result in the following additional changes:
    - Duke Energy Carolinas (DEC) indicates that DSM and EE programs, combined with the use of renewable energy resources, are expected to meet approximately 1/3 of its projected growth in demand over the next 15 years, equivalent to over 2,400 MW of electric demand, or the output of three large natural gas-generation facilities or three new coal-fired units like Cliffside 6. Using aggressive marketing and increased adoption of energy efficiency measures reduces DEC's annual forecast demand growth from 1.9% to 1.5%.
    - Duke Energy Progress (DEP) indicates that DSM and EE programs, combined with the use of renewable energy resources, are expected to meet approximately 20% of its projected growth in demand over the next 15 years, equivalent to over 1,000 MW of electric demand, or the output of a large coal or gas baseload generation facility. Using aggressive marketing and increased adoption of energy efficiency measures reduces DEP's annual forecast demand growth from 1.7% to 1.4%.
    - Dominion North Carolina Power (DNCP), which has a small service area in northeastern North Carolina, forecasts that its DSM programs will result in a total system-wide capacity reduction of 544 MW.

- As a further measure towards promoting renewable energy development in the State, the General Assembly expanded its Renewable Energy Production Tax Credit in 2007, 2009, and 2010 to include geothermal equipment, combined heat and power systems, and extended the expiration date to December 31, 2015. North Carolina has a long history of promoting renewable energy through tax credits. Prior to 1999, credits were available for a myriad of renewable activities, including the purchase of solar equipment and solar installations. S.L. 1999-342 (House Bill 1472) simplified this process creating a renewable energy tax credit. The tax credits state that when a taxpayer has constructed, purchased, or leased renewable energy property and places it in service in the State during the taxable year, the taxpayer is allowed a credit equal to thirty-five percent (35%) of the cost of the property. The tax credit has placed an important role in spurring the development and construction of renewable energy projects in North Carolina.

- In 2009, the General Assembly enacted S.L. 2009-390, which made the following findings:

    (6) The retirement of coal-fired generating units and installation of generating units that use natural gas as the primary fuel will reduce emissions of carbon dioxide (CO2) and mercury (Hg) significantly more than would the installation of sulfur dioxide (SO2) emissions controls on the coal-fired generating units.

(7) The retirement of coal-fired generating units that are owned and operated by Progress Energy and located in eastern North Carolina and the installation of generating units that use natural gas as their primary fuel to replace them will reduce emissions of oxides of nitrogen (NOx), sulfur dioxide (SO2), carbon dioxide (CO2), and mercury (Hg) more than would the installation of sulfur dioxide (SO2) emissions controls on the older coal-fired generating units.

The bill established a procedure, effective through January 1, 2011, to streamline the certification and cost recovery process for the retirement of older coal-fired power plants and their replacement with new natural gas generation. S.L. 2009-390 also establishes a procedure under which the cost of purchasing or constructing a "carbon offset facility" (a facility purchased or constructed between July 1, 2009, and July 1, 2014, that uses solar, solar thermal, wind, hydropower, geothermal, or ocean current or wave energy to generate electricity or equivalent BTUs that will replace electric generation so as to reduce GHG emissions from existing fossil generation) can be recovered by the utility through the retention of fuel cost savings until the cost of the facility can be recovered through the utility's base rates established in a general rate case. This authority has not been used to date.

As a result of this combination of measures, DEC and DEP have retired over 2,800 MW (summer capacity) of older fossil fuel generating resources since 2011, including over 2,400 MW of coal generation. By the end of 2015, an additional 900 MW of coal-fired generating resources will be retired, bringing the total to almost 3,800 by the two utilities. At that time, all remaining utility-owned coal generating facilities will have NOx and SO2 emissions controls in place. The attached **Table 1** provides additional details on these retirements. In addition to these retirements, DEC and DEP recently completed or have planned over 265 MW of uprates at its nuclear facilities, as summarized in attached **Table 2.** At its remaining electric generating facilities, DEC and DEP have taken measures to improve the heat rate or made other changes to improve the efficient operations of those facilities. This effort is a continual process to ensure both reliability and cost-effectiveness.

Another result of these existing policies has been significant growth in the renewable energy sector in North Carolina. Despite having a solar resource that is less than that of many states (See http://www.nrel.gov/gis/solar.html) and ranking 28th out of the United States by area, North Carolina currently in 2012 was ranked 5th in the nation in installed solar capacity and ranked 2nd in installations in the second quarter of 2013. The Utilities Commission, as of September, 2013, currently had registered 629 renewable energy projects. Of those 269 are solar photovoltaic projects. Additionally, the North Carolina Department of Revenue reports that in the 2012 fiscal year 1,494 taxpayers utilized the renewable property tax credit accounting for nearly $28 million.

In conclusion, while each State is situated differently and faces its own unique set of issues, North Carolina has been very forward-thinking in its efforts to comply with all federal air quality regulations and to improve the air quality of its citizens. These efforts both avoided and significantly

reduced NOx, SO2 and CO2 emissions from fossil fuel electric generating units. These efforts came at a significant investment cost, which ratepayers will continue to bear over the coming decades. It is appropriate and fair for the state to consider these actions in defining a compliance strategy under Section 111(d).

a. **What actions are states, utilities and power plants taking today that reduce CO2 emissions from the electric power system? How might these be relevant under section 111(d)?**

The above listed programs have resulted in the retirement of several coal burning electric generating facilities as well as an increase in the generation of renewable energy and the implementation of energy efficiency and demand side management programs. It is our belief that the best system of emission reduction must be defined within the fence line of a given subject emission source. However, North Carolina does believe that states have the flexibility to consider measures outside the fence line as part of a compliance strategy under Section 111(d).

b. **What systems do states and power plants have in place to measure and verify CO2 emissions and reductions?**

Several federal and state emissions reporting programs are currently in place to provide continuous measurement and verification of CO2 emission rates and reductions at electric generating units. North Carolina air quality rules, which are aligned with federal rules for the acid rain program, nitrogen oxides emission trading program, and the Clean Air Interstate Rule, provide compliance assurance monitoring for nitrogen oxides and sulfur dioxide. CO2 measurements data are used as diluents to convert pollutant concentrations into mass rates and mass per heat input. Facilities directly report CO2 emissions data to the EPA Clean Air Markets Division and the EPA Greenhouse Gas Reporting Rule. This robust database can be utilized to verify CO2 reductions at a particular electric generating unit.

c. **How do state programs and measures affect electricity generation and emissions at a regional level? How are interstate effects accounted for when measuring the progress of a state program? For example, are the multi-state effects of state renewable portfolio standards, end-use energy efficiency resource standards, emissions performance standards, and emissions budget trading programs currently accounted for by the state, and if so, how?**

Renewable Energy Certificates created at an electric generating facility that is outside of the State are only eligible to account for up to 25% of the REPS; however, if the electricity is created out-of-state but is dispatched within the State, that generation will be counted as in-state. As North Carolina is the only state in its region to have adopted a REPS, it receives no supplemental benefits from the REPS of any neighboring state.

2. **How should EPA set the performance standard for state plans?**

North Carolina believes that the most legally defensible interpretation of the definitions and language in Section 111(d) is to evaluate the supply side energy efficiency improvements, or "heat rate improvements" that can be achieved at a given affected unit. It is unclear how states can set standards of performance for any existing source by looking at activities that are outside the boundaries of the source. Additionally, the idea of fuel switching or co-firing a lower-carbon fuel was suggested as an action to be considered in setting the best system of emission reduction. North Carolina believes this action would result in redefining the source, which is not allowable under Section 111(d).

a. **Which approaches to reducing CO2 emissions from power plants should be included in the evaluation of the "best system of emission reduction" that is used to determine the performance level(s) that state plans must achieve? Should the reduction requirement be source- or system-based?**

North Carolina believes the reduction should be source-based due to the plain language of Section 111(d) as well as legal precedent that precludes EPA and states from designing a standard that relies on reductions made outside of the emissions unit. Any flexibility in compliance with a standard based on a specific emission unit resides with the States, which have the primary responsibility for implementation of this program.

Carbon Capture and sequestration has not been adequately demonstrated. Many environmental groups have asserted that carbon capture and sequestration is a demonstrated technology for existing sources. In considering this assertion, it is necessary to evaluate the characteristics that exist at the Kemper County Energy Facility in Mississippi that might allow this project to be viable. These same characteristics do not exist in many states, including North Carolina.

b. **How does the amount of flexibility that states are given to include different types of programs in their state plans relate to the "best system of emission reduction" that is used to set the performance bar for state plans? For example, if state standards to improve end-use energy efficiency were included in state plans, should EPA consider potential improvements in end-use energy efficiency in setting the performance target for states?**

North Carolina believes that EPA's guidelines and the performance standards established by the states must be based on what is achievable at the emission source. States may use their limited flexibility in achieving compliance with those standards.

c. **What should be the form and specificity of the performance level(s) in EPA guidelines? (Rate-based or mass-based? Separate levels for each subcategory of sources, or one level for the covered sources in the state? A uniform national level, or different levels by state/region based on an established evaluation process?)**

Since no add-on control technology exists for existing power plants to reduce GHGs, EPA should not establish a single target or standard, and certainly not a uniform national level. North Carolina prefers that the guidelines establish an evaluation process that provides procedures states can follow in defining the performance standard for a given affected source. The states can then do a unit-by-unit evaluation to define a unit specific performance standard. The existing fleet of sources is extremely varied and the heat rate improvements available at any given unit are unique. For this reason, sub-categorization is essential on both a fuel type and boiler design basis. If states have the flexibility to set unit specific performance standards, the relevant factors can be considered in that process. Under this approach, a state could elect to establish a rate-based approach or an equivalent mass-based approach.

d. When can emission reductions from existing power plants be achieved, considering different reduction strategies?

North Carolina believes that the development of the state plan should determine the compliance schedule and should allow for a staggered approach taking into account all relevant factors as the various improvements are undertaken at the affected units across the state.

e. How should a state, in applying a standard of performance to any particular source, consider a facility's "remaining useful life" and other factors?

Most states, including North Carolina, have experience with evaluating remaining useful life since other programs, such as Best Available Retrofit Technology require such an evaluation. In general, states are in the best position to evaluate these factors, and the Clean Air Act leaves such authority to the states.

3. What requirements should state plans meet, and what flexibility should be provided to states in developing their plans?

Section 111(d) requires states to establish performance standards for the existing sources, so the plans should include both the performance standards and the compliance schedule.

a. What level of flexibility should be provided to states in meeting the required level of performance for affected EGUs contained in the emission guidelines?

States should have the flexibility to design their 111(d) plans as afforded to the states under the Clean Air Act. While North Carolina believes the performance standard must be established based on what is achievable at any given emission unit (i.e., inside the fence line), the states do have the flexibility to determine whether to use measures achieved outside the fence line to achieve compliance.

b. Can a state plan include requirements that apply to entities other than the affected EGUs? For example, must states place all of the responsibility to meet the emission performance requirements on the owners or operators of affected EGUs, or do states have flexibility to take on some (or all) of the responsibility to achieve the required level of emissions performance themselves or assign it to others (e.g., to require an increase in the use of renewable energy or require end-use efficiency improvements, which will result in emissions reductions from affected EGUs?)

North Carolina believes Section 111(d) plans apply to certain facilities in particular source categories. In this case, fossil fuel fired EGUs will be regulated under these guidelines. Thus, it would make sense that those EGUs have an obligation to demonstrate compliance with the performance standards. North Carolina does not believe it has the flexibility to shift the compliance responsibility or assign it to others. Situations where the EGU is responsible for compliance, but having a part of their compliance plan dependent upon the actions of others under which they have no control, creates an impractical situation for both the regulated entity and the regulator.

c. What components should a state plan have, and what should be the criteria for approvability?

The plan should establish performance standards based on the best system of emission reduction. Reasonable compliance dates should also be established. Upon establishing these components, the plan should be approvable. The guidelines are intended to provide procedures that guide the states as states establish performance standards, and as such, states can deviate from the guidelines if appropriate for a given situation.

d. Can a state plan include programs that rely on a different mix of emissions reduction methods than assumed in EPA's analysis of the "best system of emission reduction" that is used to set the performance standard for state plans?

The statute appears to allow some flexibility for the states as the plans are developed.

e. What should be the process for demonstrating that a state plan will achieve a level of emissions performance comparable to the level of performance in the EPA emission guidelines?

Under Section 111(d), EPA can only establish a unit-specific guideline that describes what control technologies have been demonstrated. Once EPA provides that guideline, section 111(d) allows states to develop unit specific emission standards after considering many factors, including the cost, physical constraints on installing controls, and the remaining useful life of the emission units. As such, the states have flexibility to develop standards of performance for existing units that vary from the guidelines. It is unclear why comparability

to the guideline is suggested, since by design, the actual state plan is intended to allow for consideration of other factors.

f. **What enforceability, measurement, and verification issues might arise, depending on the types of state measures and programs that states include in their plans? For example, what issues are raised by actions that have indirect effects on EGU emissions, such as end-use energy efficiency resource standards, renewable portfolio standards, financial assistance programs to encourage end-use energy efficiency, building energy codes, etc.)?**

A number of states, including North Carolina, do not believe Section 111(d) authorizes the inclusion of operations outside the fence line for purposes of defining best systems of emission reduction. In the theoretical instance where a state chooses to go beyond the fence line to show compliance with an existing source standard, this will introduce several complicating factors. The electricity grid network comprises of many power companies that generate and supply electricity in a given region, and includes activities in multiple states (sometimes partial states). Due to the nature of this complex network of power plants and power lines which operate on the principles of supply and demand at least cost, the amount of electricity displaced in a state due to control measures taken outside of power plants boundaries (e.g., energy efficiency, renewable energy, energy conservation techniques) becomes a challenging and complicated science. Although EPA has developed energy models to quantify the electricity displaced and emissions reduced by such measures, it is unclear how a state would be able to take credit for its own actions in a state plan.

Measurement verification can vary greatly depending on what type program is being implemented. States should be given flexibility to design and implement such a program that integrates all relevant factors and statutory requirements.

g. **Do different CO2 reduction methods under different state plan approaches necessitate different timelines for achievement of emission reductions?**

It is very likely that different types of approaches will require different compliance timelines.

h. **What issues arise from the fact that operation and planning of the electricity system is often regional, but CAA section 111(d) calls for state plans? How should interstate issues be addressed, where actions in one state may affect EGU emissions in another state? For example, where actions have interstate impacts, which state would receive credit for the emission reduction in its state plan? Could EPA provide for coordinated submittal of state plans that demonstrate performance on a regional basis?**

This question implies a standard based on operations that exist outside the fence line. Section 111(d) only provides for the emission reductions that are realized when controlling a specific emissions source and no more.

4. What can EPA do to facilitate state plan development and implementation?

The most helpful action EPA could take would be to allow more time for the development and adoption of the plan. States need at least 18 months, though 24 months would be ideal. This would allow 6-9 months for plan design, then 15-18 months for rule adoption to support the plan. Most states have rule processes that take approximately one year, and many states like North Carolina also have a legislative review as well.

a. What types and amount of guidance and implementation support should be provided to states?

North Carolina does not believe Section 111(d) authorizes the inclusion of operations outside the fence line. In the theoretical instance where a state chooses to go beyond the fence line to show compliance with an existing source standard tools may be needed to help with quantification of some compliance measures such as end-use efficiency initiatives.

b. Are there benefits for coordination among neighboring states in the development and submittal of state plans? Should EPA facilitate the coordination of multi-state plan submittals?

North Carolina does not believe it is necessary for EPA to facilitate coordination of multi-state plan submittals. The states have experience working on plans together, such as regional haze and multi-state nonattainment area plans.

c. Would certain types of measures that might be included in state plans increase the need for coordination among states?

A variety of measures could require coordination among states depending on the nature of the state plans and how the measures will be used to determine compliance with the performance standards.

d. Are there model rules that EPA could develop that would assist states, and what would those rules cover?

North Carolina does not believe that development of model rules is necessary, since states are all in very different situations, and there will likely be a diverse set of state plans developed.

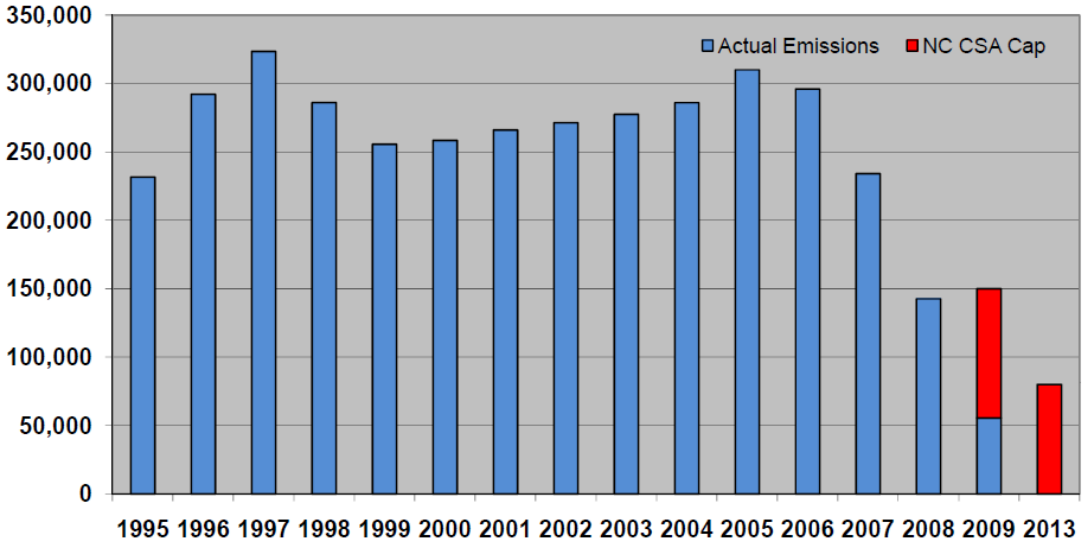
Table 1

Utility	Unit & Plant Name	Location	Summer Capacity (MW)	Fuel Type	Retirement Date
DEP	Cape Fear 1	Moncure, NC	11	Steam Turbine	3/31/2011
DEP	Cape Fear 2	Moncure, NC	7	Steam Turbine	3/31/2011
DEC	Buck 3	Salisbury, N.C.	75	Coal	5/15/2011
DEC	Buck 4	Salisbury, N.C.	38	Coal	5/15/2011
DEP	Weatherspoon 1	Lumberton, NC	48	Coal	9/30/2011
DEP	Weatherspoon 2	Lumberton, NC	48	Coal	9/30/2011
DEP	Weatherspoon 3	Lumberton, NC	74	Coal	9/30/2011
DEC	Cliffside 1	Cliffside, N.C.	38	Coal	10/1/2011
DEC	Cliffside 2	Cliffside, N.C.	38	Coal	10/1/2011
DEC	Cliffside 3	Cliffside, N.C.	61	Coal	10/1/2011
DEC	Cliffside 4	Cliffside, N.C.	61	Coal	10/1/2011
DEC	Dan River 1	Eden, N.C.	67	Coal	4/1/2012
DEC	Dan River 2	Eden, N.C.	67	Coal	4/1/2012
DEC	Dan River 3	Eden, N.C.	142	Coal	4/1/2012
DEP	Lee 1	Goldsboro, NC	74	Coal	9/15/2012
DEP	Lee 2	Goldsboro, NC	68	Coal	9/15/2012
DEP	Lee 3	Goldsboro, NC	240	Coal	9/15/2012
DEP	Cape Fear 5	Moncure, NC	144	Coal	10/1/2012
DEP	Cape Fear 6	Moncure, NC	172	Coal	10/1/2012
DEP	Cape Fear 2B	Moncure, NC	11	Combustion Turbine	10/1/2012
DEP	Lee 1	Goldsboro, NC	12	Combustion Turbine	10/1/2012
DEP	Lee 2	Goldsboro, NC	21	Combustion Turbine	10/1/2012
DEP	Lee 3	Goldsboro, NC	21	Combustion Turbine	10/1/2012
DEP	Lee 4	Goldsboro, NC	21	Combustion Turbine	10/1/2012
DEP	Morehead 1	Morehead City, NC	12	Combustion Turbine	10/1/2012
DEP	Robinson 1	Hartsville, NC	177	Coal	10/1/2012
DEC	Buzzard Roost 6C	Chappels, S.C.	22	Combustion Turbine	10/1/2012
DEC	Buzzard Roost 7C	Chappels, S.C.	22	Combustion Turbine	10/1/2012
DEC	Buzzard Roost 8C	Chappels, S.C.	22	Combustion Turbine	10/1/2012
DEC	Buzzard Roost 9C	Chappels, S.C.	22	Combustion Turbine	10/1/2012
DEC	Buzzard Roost 10C	Chappels, S.C.	18	Combustion Turbine	10/1/2012
DEC	Buzzard Roost 11C	Chappels, S.C.	18	Combustion Turbine	10/1/2012
DEC	Buzzard Roost 12C	Chappels, S.C.	18	Combustion Turbine	10/1/2012
DEC	Buzzard Roost 13C	Chappels, S.C.	18	Combustion Turbine	10/1/2012
DEC	Buzzard Roost 14C	Chappels, S.C.	18	Combustion Turbine	10/1/2012
DEC	Buzzard Roost 15C	Chappels, S.C.	18	Combustion Turbine	10/1/2012
DEC	Riverbend 8C	Mt. Holly, N.C.	0	Combustion Turbine	10/1/2012
DEC	Riverbend 9C	Mt. Holly, N.C.	22	Combustion Turbine	10/1/2012
DEC	Riverbend 10C	Mt. Holly, N.C.	22	Combustion Turbine	10/1/2012
DEC	Riverbend 11C	Mt. Holly, N.C.	20	Combustion Turbine	10/1/2012
DEC	Buck 7C	Spencer, N.C.	25	Combustion Turbine	10/1/2012
DEC	Buck 8C	Spencer, N.C.	25	Combustion Turbine	10/1/2012
DEC	Buck 9C	Spencer, N.C.	12	Combustion Turbine	10/1/2012
DEC	Dan River 4C	Eden, N.C.	0	Combustion Turbine	10/1/2012
DEC	Dan River 5C	Eden, N.C.	24	Combustion Turbine	10/1/2012
DEC	Dan River 6C	Eden, N.C.	24	Combustion Turbine	10/1/2012
DEP	Cape Fear 1A	Moncure, NC	11	Combustion Turbine	3/31/2013
DEP	Cape Fear 1B	Moncure, NC	12	Combustion Turbine	3/31/2013
DEP	Cape Fear 2A	Moncure, NC	12	Combustion Turbine	3/31/2013
DEP	Robinson 1	Hartsville, NC	11	Combustion Turbine	3/31/2013
DEC	Riverbend 4	Mt. Holly, N.C.	94	Coal	4/1/2013
DEC	Riverbend 5	Mt. Holly, N.C.	94	Coal	4/1/2013
DEC	Riverbend 6	Mt. Holly, N.C.	133	Coal	4/1/2013
DEC	Riverbend 7	Mt. Holly, N.C.	133	Coal	4/1/2013
DEC	Buck 5	Spencer, N.C.	128	Coal	4/1/2013
DEC	Buck 6	Spencer, N.C.	128	Coal	4/1/2013
DEP	Sutton 1	Wilmington, NC	97	Coal	12/1/2013 (proj.)
DEP	Sutton 2	Wilmington, NC	90	Coal	12/1/2013 (proj.)
DEP	Sutton 3	Wilmington, NC	366	Coal	12/1/2013 (proj.)
DEC	Lee 3	Pelzer, S.C.	170	Coal	1/1/2015 (proj.)
DEC	Lee 1	Pelzer, S.C.	100	Coal	4/15/2015 (proj.)
DEC	Lee 2	Pelzer, S.C.	100	Coal	4/15/2015 (proj.)
		Total	**3797 MW**		

Table 2

Utility	Unit & Plant Name	Location	Increase in Summer Capacity (MW)	Fuel Type	Date
DEP	Harris 1	New Hill, NC	8	Nuclear	2010
DEP	Harris 1	New Hill, NC	26	Nuclear	2012
DEC	McGuire 1	Huntersville, NC	29	Nuclear	2013
DEC	McGuire 2	Huntersville, NC	29	Nuclear	2013
DEC	McGuire 2	Huntersville, NC	32.5	Nuclear	2013
DEP	Robninson 2	Hartsville, SC	5	Nuclear	2013
DEP	Harris 1	New Hill, NC	4	Nuclear	2013
DEC	Catawba 1	York, SC	20	Nuclear	2014
DEC	McGuire 1	Huntersville, NC	32.5	Nuclear	2015
DEP	Brunswick 2	Southport, NC	10	Nuclear	2015
DEP	Robninson 2	Hartsville, SC	10	Nuclear	2015
DEP	Harris 1	New Hill, NC	14	Nuclear	2015
DEC	Oconee 1	Seneca, SC	15	Nuclear	2017
DEC	Oconee 2	Seneca, SC	15	Nuclear	2017
DEC	Oconee 3	Seneca, SC	15	Nuclear	2017
		Total	**265 MW**		

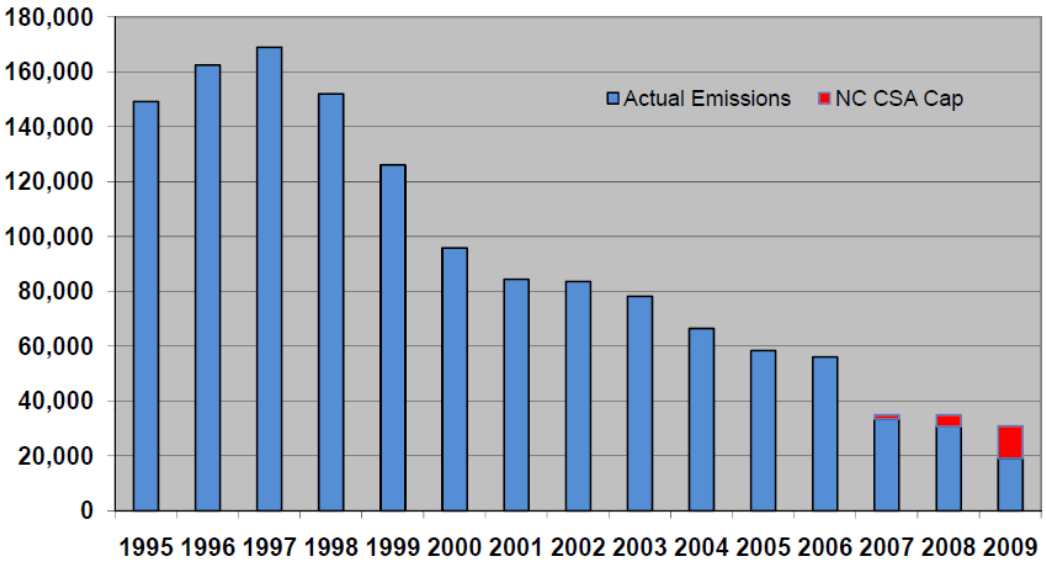
Duke Energy Carolinas Coal-Fired Plants
Annual Sulfur Dioxide Emissions (tons)



75 % Reduction from 2000 to 2013 attributed to scrubbers installed to meet NC Clean Air Legislation.

Source: Duke Energy 2010 IRP filing with NCUC on September 1, 2010.

Duke Energy Carolinas Coal-Fired Plants
Annual Nitrogen Oxides Emissions (tons)



Overall reduction of 80% from 1997 to 2009 attributed to controls to meet Federal Requirements and NC Clean Air Legislation.

Source: Duke Energy 2010 IRP filing with NCUC on September 1, 2010.