LAW OFFICE OF ROBERT W. KAYLOR, P.A. OF FICIAL COPY 3700 GLENWOOD AVENUE, SUITE 330 RALEIGH, NORTH CAROLINA 27612 (919) 828-5250 FACSIMILE (910) 828-5240

FILED JUN 06 2011 N.C. Utilities Commission

June 6, 2011

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

RE: Docket No. E-100, Sub 128

Dear Ms. Vance:

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

Sincerely,

Rohart W. Kaylon

Robert W. Kaylor

Encls.

cc: Parties of Record

OU Dist. P. Zamet

STATE OF NORTH CAROLINA UTILITIES COMMISSION RALEIGH



DOCKET NO. E-100, SUB 128

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

) In the Matter of **DUKE ENERGY CAROLINAS, LLC'S**) Investigation of Integrated Resource) **PROPOSED ORDER APPROVING** Planning in North Carolina – 2010 **INTEGRATED RESOURCE PLANS**) AND RENEWABLE ENERGY AND) **ENERGY EFFICIENCY PORTFOLIO**) STANDARDS COMPLIANCE PLANS))

- HEARD: Commission Hearing Room, Dobbs Building 430 North Salisbury Street, Raleigh, North Carolina January 24, 2011
- BEFORE: Commissioner William T. Culpeper, III, presiding, and Chairman Edward S. Finley and Commissioners Lucy Allen, Susan Raben, Bryan Beatty, and Lorenzo L. Joyner

APPEARANCES:

For Carolina Power & Light Company, d/b/a Progress Energy Carolinas, Inc.:

Len S. Anthony General Counsel Kendall C. Bowman Associate General Counsel Progress Energy Carolinas, Inc. 410 Fayetteville Street Raleigh, North Carolina 27602

For Duke Energy Carolinas, LLC:

Charles A. Castle Senior Counsel Duke Energy Corporation P.O. Box 1006-EC03T Charlotte, North Carolina 28202-1006

Robert W. Kaylor

Law Office of Robert W. Kaylor, P.A. 3700 Glenwood Avenue, Suite 330 Raleigh, North Carolina 27612

For Virginia Electric and Power Company d/b/a Dominion North Carolina Power:

Horace P. Payne, Jr. Senior Counsel Dominion Resources Services, Inc. Law Department 120 Tredegar St. Richmond, VA 23219

Robert W. Kaylor Law Office of Robert W. Kaylor, P.A. 3700 Glenwood Avenue, Suite 330 Raleigh, North Carolina 27612

For the North Carolina Waste Awareness and Reduction Network:

John D. Runkle P.O. Box 3793 Chapel Hill, North Carolina 27515

For the Southern Alliance for Clean Energy:

Gudrun Thompson Southern Environmental Law Center 200 West Franklin St, Suite 330 Chapel Hill, NC 27516

For the Using and Consuming Public:

Leonard G. Green Assistant Attorney General North Carolina Department of Justice Post Office Box 629 Raleigh, North Carolina 27602-0629

Lucy E. Edmondson Staff Attorney, Public Staff Bob Gillam Staff Attorney, Public Staff North Carolina Utilities Commission 4326 Mail Service Center Raleigh, North Carolina 27699-4326 BY THE COMMISSION: G.S. 62-110.1(c) requires the North Carolina Utilities Commission (Commission) to "develop, publicize, and keep current an analysis of the longrange needs" for electricity in this State. The Commission's analysis should include the following: (1) its estimate of the probable future growth of the use of electricity; (2) the probable needed generating reserves; (3) the extent, size, mix, and general location of generating plants; and (4) arrangements for pooling power to the extent not regulated by the Federal Energy Regulatory Commission (FERC). G.S. 62-110.1 further requires the Commission to consider this analysis in acting upon any petition for construction. In addition, G.S. 62-110.1 requires the Commission to submit annually to the Governor and to the appropriate committees of the General Assembly the following: (1) a report of the Commission's analysis and plan; (2) the progress to date in carrying out such plan; and (3) the program of the Commission for the ensuing year in connection with such plan. G.S. 62-15(d) requires the Public Staff to assist the Commission in its analysis and plan.

G.S. 62-2(a)(3a) declares it a policy of the State to "assure that resources necessary to meet future growth through the provision of adequate, reliable utility service include use of the entire spectrum of demand-side options, including but not limited to conservation, load management and efficiency programs, as additional sources of energy supply and/or energy demand reductions." G.S. 62-2(a)(10) further provides that it is the policy of the State to promote the development of renewable energy and energy efficiency through the implementation of a Renewable Energy and Energy Efficiency Portfolio Standard (REPS) that will (1) diversify the resources used to reliably meet the energy needs of North Carolina's consumers; (2) provide greater energy security through the use of indigenous energy resources available within North Carolina; (3) encourage private investment in renewable energy and energy efficiency (EE); and (4) provide improved air quality and other benefits to the citizens of North Carolina. To that end, G.S. 62-133.9(c) requires that each electric power supplier to which G.S. 62-110.1 applies shall include an assessment of demand-side management (DSM) and energy efficiency (EE) in it resource plans submitted to the Commission for approval.

To meet the requirements of G.S. 62-110.1 and G.S. 62-2(a)(3a), the Commission conducts an annual investigation into the electric utilities' integrated resource planning (IRP). IRP is intended to identify those electric resource options that can be obtained at least cost to the ratepayers consistent with adequate, reliable electric service. IRP considers conservation, load management, and other supply-side options in the selection of resource options. Commission Rule R8-60 requires that each of the electric utilities furnish the Commission with a biennial report in even-numbered years that contains the specific information set out in subsection (c) of that Rule. In odd-numbered years, each of the electric utilities must file an annual report updating its most recently filed biennial report. Further, Commission Rule R8-67(b) requires any electric power supplier subject to Rule R8-60 to file a REPS compliance plan as part of its IRP report. Within 150 days after the filing of each utility's biennial report, and within 60 days after the filing of each electric utility's annual report, the Public Staff or any other intervenor may file its own plan or an evaluation of, or comments on, the electric utilities' IRP reports. Furthermore, the Public Staff or any other intervenor may identify any issue that it believes should be the subject of an evidentiary hearing.

2010 INTEGRATED RESOURCE PLAN FILINGS

Biennial reports on the 2010 integrated resource plans (2010 biennial reports) have been filed by Carolina Power & Light Company d/b/a Progress Energy Carolinas, Inc. (PEC), Duke Energy Carolinas, LLC (Duke), Virginia Electric and Power Company d/b/a Dominion North Carolina Power (DNCP) (collectively, the electric utilities), and by the North Carolina Electric Membership Corporation (NCEMC) and the four independent electric membership corporations (EMCs), i.e., Piedmont EMC (Piedmont), Rutherford EMC (Rutherford), EnergyUnited EMC (EnergyUnited), and Haywood EMC (Haywood). In addition, REPS compliance plans were filed by PEC, Duke, DNCP, GreenCo Solutions, Inc. (GreenCo), Halifax EMC (Halifax), and EnergyUnited.

In addition to the Public Staff, the following parties have intervened in the 2010 proceeding: the Carolina Utility Customers Association (CUCA); the North Carolina Waste Awareness and Reduction Network (NC WARN); Southern Alliance for Clean Energy (SACE); the Carolina Industrial Group for Fair Utility Rates I, II, III (CIGFUR); GreenCo; the North Carolina Sustainable Energy Association (NCSEA); Nucor Steel-Hertford; and the Public Works Commission of the City of Fayetteville. The intervention of the Attorney General is recognized pursuant to G.S. 62-20.

On December 3, 2010, the Commission issued an Order Scheduling Public Hearing. That Order set the public hearing in Docket No. E-100, Sub 128 for January 24, 2011. The public hearing was held as scheduled with 26 public witnesses in attendance. The public witnesses spoke in support of much greater emphasis on energy efficiency and conservation, and additional development of renewable resources, particularly solar and wind. Several witnesses provided testimony in opposition to the expansion of nuclear and coal generation.

On December 13, 2010, SACE requested an evidentiary hearing. On December 17, 2010, NC WARN filed a pleading in support of the request for an evidentiary hearing. On December 28, 2010, PEC filed a motion and response to SACE and NC WARN's request.

On January 13, 2011, the Public Staff filed a motion for an extension of time until February 10, 2011 for the Public Staff and other intervenors to file alternative IRP annual reports, evaluations of, or comments on the 2010 IRPs. On January 19, 2011, the Commission issued an Order Granting Motion for Extension of Time.

On Feburary 9, DNCP filed a revised Integrated Resource Plan. On February 10, 2011, Public Staff, NC WARN and SACE filed its respective initial comments on the biennial reports. NC WARN and SACE each individually requested an evidentiary hearing. On February 23, 2011, Duke Energy Carolinas filed a motion for an extension of time to file reply comments. On February 24, the Commission issued an Order Allowing Extension of Time to File Reply Comments.

On March 1, 2011, Duke Energy Carolinas, PEC, DNCP and Blue Ridge EMC filed reply comments.

On April 14, 2011, the Commission issued an Order Denying Request for Evidentiary Hearing. On April 29, 2011, NC WARN filed a motion for reconsideration of the Commission's Order to allow parties to file proposed orders and/or briefs on the 2010 IRPs. On May 5, 2011, the Commission issued an Order Allowing Parties to File Proposed Orders And/Or Briefs.

On May 2, 2011, Duke Energy Carolinas filed a supplemental filing in response to the comments of the Public Staff relating to its DSM programs.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

1. Duke Energy Carolinas' 2010 IRP is in compliance with the filing requirements of Commission Rule R8-60.

2. The peak and energy forecasts included within Duke Energy Carolinas' 2010 IRPs are reasonable, appropriate and comply with R8-60.

3. Duke Energy Carolinas, in compliance with Rule R8-60, conducted reasonable and appropriate forecasts and assessments of supply-side and demand-side resources to meet the projected load and capacity needs over the planning horizons of the 2010 IRP.

4. Duke Energy Carolinas, in compliance with Rule R8-60, performed reasonable and appropriate assessments of cost effective energy efficiency and demand side management programs.

5. Duke Energy Carolinas' target reserve margins within its 2010 IRP are reasonable and appropriate.

6. Duke Energy Carolinas' 2010 REPS compliance plan is in compliance with the Commission's Rules, is reasonable, and is approved as filed.

7. Duke Energy Carolinas' 2010 IRP is reasonable, prudent and approved as filed.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT 1

The evidence supporting this finding of fact appears in Duke Energy Carolinas' 2010 IRP, the reply comments of Duke Energy Carolinas, the comments of Public Staff, and the general requirements of Commission Rules R8-60.

Duke Energy Carolinas has, in its 2010 IRP, responded to all applicable subsections of Rule R8-60(c). The Public Staff also reviewed Duke Energy Carolinas' 2010 IRP and agreed that Duke Energy Carolinas complied with the applicable Commission rules in its filings.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT 2

The evidence supporting this finding of fact appears in Duke Energy Carolinas' 2010 IRP, the reply comments of Duke Energy Carolinas, the comments of Public Staff and NC WARN, and the general requirements of Commission Rules R8-60.

Duke Energy Carolinas used accepted econometric and end-use analytical models to forecast its peak and energy needs in both the 2010 IRPs. As with any forecasting methodology, there is a degree of uncertainty associated with these models that rely, in part, on assumptions that certain historical trends or relationships will continue in the future. For both the 2010 IRPs, the Public Staff reviewed Duke Energy Carolinas' peak and energy forecasts and found them to be reasonable.

The 2010 energy and peak forecasts of Duke Energy Carolinas reflected higher growth rates relative to its annual forecast from 2009. In Duke Energy Carolinas' 2010 forecast, it estimated its summer peak to increase at an average annual growth rate of 1.7% (after impacts of EE programs are incorporated), and its winter peak to increase at an average annual growth rate of 1.6%. Duke Energy Carolinas also projected that its average annual territorial energy growth rate to be 1.8%. The Public Staff's analysis of Duke Energy Carolinas' peak load and energy sales forecasting accuracy showed that the predictions in Duke Energy Carolinas' 2005 IRP were reasonably accurate, taking into account the significant reductions in the Company's customers in 2009 and 2010.

Based on its assessment, the Public Staff found that Duke Energy Carolinas' load forecast supporting its 2010 IRP was reasonable for planning. Public Staff also found that the economic, weather and demographic assumptions that underlie Duke Energy Carolinas' peak and energy forecasts are reasonable. The following table summarizes Duke Energy Carolinas' growth rates for its 2010 system peak and energy sales forecasts:

	Summer	Winter	Energy	Annual MW
	Peak	Peak	Sales	Growth
Duke Energy Carolinas	1.7%	1.6%	1.8%	332

2010-2029 Growth Rates (After New Energy Efficiency and DSM)

In its comments on Duke Energy Carolinas' 2010 IRP, NC WARN stated that its review of past IRPs showed that both utilities have consistently lowered most of their successive projections of increased electricity demand. In comparing its 2005 and 2010 IRPs, Duke Energy's forecasts for peak demand in 2015 decreased by 20.4%. NC WARN further argued that Duke Energy had experienced nearly flat growth in electricity demand for several years, growing by 0.7% annually from 1994-2009. NC WARN also noted that, in its 2009 rate case in Docket E-7, Sub 909, Duke Energy adjusted earlier projections to reflect the impact its rate hike would have on customer usage with its revised estimates projecting a slightly negative trend in retail sales over the next five years. NC WARN emphasized that these projections from Duke Energy Carolinas' 2009 rate case were made in early 2009, before the worst impacts of the current economic recession, and that it was likely that because of the current economic situation,

consumers will remain cautious and growth in sales will remain flat or decrease, especially as any new purchases of appliances, homes, lighting, HVAC systems and turbines will be considerably more energy efficient than current stock.

Duke Energy Carolinas responded that NC WARN's allegations were incorrect and based upon flawed assumptions. The Company noted that all customer energy efficiency activities are captured in the load forecast since that represents metered consumption and the actions of customers in determining how much energy to consume. Duke Energy Carolinas explained that all of the activities and customer decision-making processes associated with energy consumption highlighted by NC WARN are reflected in the historical data and thus represented in the forecasting models used to prepare the Company's load forecast. Duke Energy Carolinas asserted that although recent economic events have primarily impacted the industrial sector, it was an overstatement by NC WARN to allege that load growth has been flat for the past several years. The Company specifically noted that industrial load growth increased 7% from 2009 to 2010, and that, excluding the industrial sector, retail load growth has been 1.5% per year for the period 2004 to 2009. Duke Energy Carolinas further emphasized that the recent declines relating to kWh sales are clearly related to the housing market bust in 2007-2008 and resulting recessionary impacts on the national and regional economies, and that it was unreasonable to assume that its service territory would continue to experience such a reduction in growth over the entire planning horizon for this IRP. Duke Energy Carolinas believes its load growth projections incorporated into the 2010 IRP are reasonable for planning purposes.

The Commission thus concludes that the 2010 energy and peak load forecasts of Duke Energy Carolinas are reasonable and appropriate. Duke Energy Carolinas' forecasting methodology is well accepted in the industry and it has proven over time to be accurate.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT 3

The evidence supporting this finding of fact appears in Duke Energy Carolinas' 2010 IRP, the reply comments of Duke Energy Carolinas, the comments of Public Staff, SACE and NC WARN, and the general requirements of Commission Rule R8-60.

Duke Energy Carolinas' 2010 IRP is the product of a resource planning process that provides Duke Energy Carolinas with a framework access, analyze and implement a costeffective approach to meet customers' growing energy needs reliably. In addition to assessing qualitative factors, Duke Energy Carolinas conducts a quantitative assessment using a simulation model. A variety of sensitivities and scenarios were tested against a base set of inputs for various resource mixes, allowing Duke Energy Carolinas to better understand how potentially different future operating environments, such as fuel commodity price changes, environmental emission mandates, and structural regulatory requirements can affect resource choices, and, ultimately, the cost of electricity to customers. The results of Duke Energy Carolinas' quantitative analyses in the 2010 IRP revealed that a combination of additional baseload, intermediate and peaking generation, renewable resources, EE, and DSM programs are required over the next twenty years to meet Duke Energy Carolinas' customer demand reliably and costeffectively in a carbon-constrained future.

As Duke Energy Carolinas has received certificates of public convenience and necessity from the Commission for the new pulverized coal unit at Cliffside Steam Station (Cliffside Unit $(6)^{1}$ and the new natural gas combined cycle facilities at the Buck and Dan River Steam Stations², it has incorporated those facilities into the base generation portfolio. In addition, Duke Energy Carolinas included DSM/EE consistent with its energy efficiency plan approved in the Commission's Order Approving Agreement and Joint Stipulation of Settlement Subject to Certain Commission-Required Modifications and Decisions on Contested Issues, dated February 9, 2010, in Docket No. E-7, Sub 831 (SAW Order) and renewable resources required to meet Duke Energy Carolinas' ongoing annual compliance obligations under the North Carolina REPS. Duke Energy Carolinas' analysis demonstrated that approximately 200 MWs of nuclear up-rates were cost effective in the 2010 IRP and specific projects are being developed to be implemented in the 2011-2019 timeframe. Duke Energy Carolinas also plans to retire Lee Steam Station from coal fired generation and convert the units to natural gas generation in 2015. The Company has also assumed for planning purposes that all coal-fired generation where it is not economical to install flue gas desulfurization facilities (SO2 scrubbers), which constitutes approximately 1667 MWs of the current fleet (including the Lee Steam Station), will be retired by 2015.

Duke Energy Carolinas projects to have definite capacity needs in 2017 and beyond due to annual load growth demonstrated in its load forecasts, existing unit capacity adjustments, unit retirements, existing DSM program reductions, and expirations of existing power purchase agreements. Duke Energy Carolinas' selected portfolio of supply and demand side resources to meet its system needs over the 20 year planning period consists of 1,780 MW³ of new natural gas simple cycle capacity, 1,300 of new combined cycle capacity, 2,234 MW of new nuclear capacity, 1,267 MW of Demand-Side Management, 633 MW of Energy Efficiency, and 520 MW of renewable resources. Due to qualitative issues, such as the importance of fuel diversity, the Company's environmental profile, varying stages of technical deployment for different resources and regional economic development considerations, Duke Energy Carolinas has developed this diverse strategy to meet customers' energy needs reliably and economically while maintaining flexibility pertaining to its long-term resource decisions.

As previously approved by the Commission in Docket No. E-7, Sub 819⁴, Duke Energy Carolinas has conducted project development work to evaluate the addition of the proposed William States Lee, III Nuclear Station in Cherokee County, South Carolina. Duke Energy Carolinas' analysis of new nuclear capacity contained in the 2010 IRP focused on the impact of various uncertainties and incorporated certain sensitivities to test the benefits of the different portfolios under consideration, such as load variations, nuclear capital costs, the impact of greenhouse gas legislation, fuel prices, and the availability of options such as federal loan guarantees that can help reduce the costs to customers for this carbon-free and other greenhouse gas emission-free base load resource. The quantitative and qualitative analysis continues to demonstrate the potential benefits of new nuclear capacity in the 2020 timeframe in a carbon-

¹ Order Granting Certificate of Public Convenience and Necessity with Conditions, Docket No. E-7, Sub 790, dated March 21, 2007.

² See Order Issuing Certificates of Public Convenience and Necessity, Docket No. E-7, Subs 791 and 832, dated June 5, 2008.

³ The ultimate sizes of any generating unit may change somewhat depending on the vendor selected.

⁴ Order Approving Decision to Incur Project Development Costs, Docket No. E-7, Sub 819, dated June 11, 2008.

constrained future. Duke Energy Carolinas will continue to pursue a Combined Operating License from the Nuclear Regulatory Commission for the Lee Nuclear Station.

With respect to Duke Energy Carolinas' forecast and assessment of supply-side and demand-side resources within its 2010 IRP, the Public Staff commented that Duke Energy Carolinas provided information describing its analysis and evaluating resource options as required by Rule R8-60. Public Staff commented that Duke Energy Carolinas used accepted production cost simulation models to assist in the development and evaluation of its resource options in a manner consistent with least cost planning. Public Staff also commented that based on its investigation, the projected operating and capital costs used in Duke Energy Carolinas' production models and the evaluation of resource options were conducted in a reasonable manner for purposes of the IRP proceeding.

Public Staff noted that Duke Energy Carolinas considered scenarios that assumed the impact of enactment of greenhouse gas legislation imposing limits on carbon emissions, but did not include a low or no carbon scenario in its development of the proposed expansion plans within its 2010 IRP. Duke Energy Carolinas' responses to Public Staff data requests indicated that an assumption of no or low carbon limitations/costs results in the model selecting coal generation facilities. Based on Duke Energy Carolinas' policy decisions and perception that additional coal generation would be untenable, the Company decided not to include this type of scenario. Public Staff explained that assumptions about future carbon legislation, however, do affect the choice between natural gas-fired combined cycle and nuclear generating plants and that due the current likely deferral of carbon legislation, the Public Staff believed that Duke Energy Carolinas should undertake additional consideration of this issue in future IRPs.

With respect to its DSM and EE forecasts, Public Staff noted that for the first four years of the 2010 IRP, Duke Energy Carolinas has included fewer DSM/EE resources than it did in its 2009 IRP. However, Public Staff explained that after 2014, the Company's projections are greater. Further, by 2030, Duke Energy Carolinas forecasts 633 MWs from its currently approved/implemented DSM resources, up from the 483 MWs forecast in the 2009 IRP. Public Staff also noted that the Company's projections of EE savings through 2013 are less than they were in the 2009 IRP, and during on discussions regarding the lowered projections Duke Energy Carolinas has indicated that its 2010 IRP takes a more conservative approach to the forecast of DSM and EE impacts. However, Public Staff also explained that Duke Energy Carolinas has indicated that in the later years of its approved energy efficiency plan, as set forth in the SAW Order, it intends to enhance its EE savings estimates through the implementation of additional programs. Public Staff also noted that Duke Energy Carolinas had evaluated renewable energy resources, and that the Company's evaluation and review of such resources was reflected in its REPS compliance plan.

NC WARN criticized Duke Energy Carolinas' generation expansion plans, commenting that Duke Energy Carolinas already has excess baseload capacity based on its comparison of the Company's load duration curve to the total capacity of all of its baseload plants. NC WARN also asserted that the projected costs of new nuclear generating capacity has risen exponentially to the point they simply cannot be considered in the least cost mix and that the IRP did not contain sufficient justification for the costs and risks to ratepayers, taxpayers and the State. NC WARN asserted that alternative energy resources compared favorably to new nuclear generation based upon its estimates for the capital costs of nuclear to the costs of renewable resources and energy efficiency, which it asserted were declining. NC WARN, relying upon a market potential study conducted by the American Council for an Energy Efficiency Economy (ACEEE), stated that annual electricity savings of 1.2 - 1.6% is achievable over the next decade in North Carolina. NC WARN asserted that Duke Energy Carolinas was only incorporating a minimum amount of EE achievements into its 2010 IRP that were tied to its REPS compliance targets and that were utility-sponsored programs, thereby ignoring non-utility energy efficiency programs, activities and savings.

SACE initially stated that Duke Energy Carolinas failed to comply with the minimum filing requirements by failing to describe the capacity and energy, number of customers and other information for each program over the 15 year period of the 2010 IRP. SACE also asserted that Duke Energy Carolinas should have prioritized its "High DSM" case over its base DSM case because it costs less, carries lower risk and would result in lower electricity rates than the Company's selected portfolios that include the base DSM case assumptions. SACE explained that its calculations revealed that Duke Energy Carolinas' High DSM portfolios were lower cost than all of its base DSM portfolios and also exposed the Company's customers to less risk due to the reduced exposure to fuel and CO2 price volatility and capital cost increases and the fact that it lends itself to a regional approach to DSM participation.

SACE also stated that Duke Energy Carolinas failed to provide a plan to reduce greenhouse gas emissions and also did not demonstrate that the continued operation of its scrubbed coal units remained economical. As to Duke Energy Carolinas' plans for new nuclear capacity, SACE asserted that the Company's projected schedule for commercial operation was not realistic and that its assumptions for the capital cost for new nuclear was too low due to uncertainties around construction of the Westinghouse AP1000 and the history of cost overruns in nuclear construction, including Duke Energy Carolinas' McGuire and Catawba Nuclear Stations in the 1980s. SACE also criticized the Company for failing to consider renewable energy resources beyond the minimum amount of capacity and energy necessary to meet its REPS requirements over the planning period.

Duke Energy Carolinas replied to NC WARN's comments by re-iterating that NC WARN's comments reflected the same arguments and logic of its criticisms of the Company's last 5 IRPs. Duke Energy Carolinas stated that NC WARN's use of load duration curves as a planning methodology has long been recognized as inaccurate and inadequate for determining optimal capacity mix for a generation system and that its analysis of the Company's base load capacity on that basis was entirely incorrect and included flawed assumptions about the inclusion of Cliffside Unit 6 and the full capacity from Catawba Nuclear Station, of which Duke Energy Carolinas only owns 19%. Duke Energy Carolinas also asserted that its capital cost estimate for new nuclear capacity was reasonable, as it was provided by the engineering, procurement and construction contractor for the 4 AP1000 units under construction in the Southeast and consistent with publicly available information relating to the updated estimate for the Units 2 and 3 of the V.C. Summer Nuclear Plant in Jenkinsville, South Carolina. Duke Energy Carolinas also assist the Company in providing cost certainty as the AP1000 design review and certification will likely be complete before the Company begins construction. The Company noted that it included

sensitivities around capital costs to incorporate possible changes in cost from its base case assumptions.

Duke Energy Carolinas disputed NC WARN's assertions that the costs of renewable resources were universally decreasing, based on Energy Information Administration data updated in 2011. The Company also reiterated that certain renewable resources, like wind and solar, remained premium cost, were only available on an intermittent basis and needed to be forced into its portfolio mix due to the REPS requirements. Duke Energy Carolinas also stated that energy efficiency and supply side resources could not functionally be compared on a cost per kilowatt-hour basis due to the fact that they have fundamentally different characteristics.

Duke Energy Carolinas noted that its projections for DSM and EE are not tied in any way to its REPS requirements and the relevant limitations regarding the use of EE savings for compliance. The Company explained that the potential cited by NC WARN from the ACEEE study was not realistic due to certain flaws in the methodology utilized by the study itself, including the fact that the ACEEE study was simply a survey or meta-analysis of past, out-ofdate studies, and cited an Electric Power Research Institute (EPRI) study from January 2009 that identified an achieveable potential for the South Census Region of approximately 11.1% from 2010 through 2030, or approximately 0.6% annually. The Company reiterated its commitment to implementing all cost-effective energy efficiency programs and to achieving the energy efficiency savings commensurate with its High Case projections in its 2010 IRP through implementation of its approved modified save-a-watt energy efficiency plan.

With respect to the comments from SACE, Duke Energy Carolinas initially noted that it had provided forecasts of the projected energy and peak demand impacts of its portfolio of energy efficiency and demand side management programs in the 2010 IRP in compliance with R8-60. Duke Energy Carolinas noted that SACE's comparisons of the Company's portfolios under certain sensitivities against the Company's portfolios under its base plan were "apples to oranges" comparisons and were meaningless in the resource planning context. This is due to the fact that each of the Company's model portfolios includes the same load and the production simulation model will dispatch the model to meet that load with the selected resource mix. When sensitivities are applied to a certain aspect of the model portfolios, such as to EE and DSM impacts, fuel costs or load variations, it must be applied to each model portfolio with the same load profile so that the selected aspect of each portfolio will be impacted similarly and the production simulation model will run each portfolio under the same constraints. Duke Energy Carolinas pointed out that when the portfolios are appropriately compared to each other under the "High DSM" sensitivity preferred by SACE, the Company's portfolio with 2 Nuclear Units (2021/2023) is the least cost portfolio.

The Company further asserted that the High DSM case was only included as a sensitivity because it assumes that the Company achieves 100% of the economic potential identified in its market potential study through customer participation in the Company's EE and DSM programs. Duke Energy Carolinas submits that it is not reasonable to assume this level of impacts for planning purposes since the likelihood of achieving those impacts is unknown, both with respect to the predictability of the actual impacts that will be achieved and the costs necessary to achieve those impacts.

Duke Energy Carolinas also contested SACE's comments that it has failed to provide a plan to reduce greenhouse gas emissions. Duke Energy Carolinas asserted that its 2010 IRP has been designed and modeled to provide affordable, reliable and clean resources to meet future customer needs in a carbon-constrained environment, for which the Company has been planning since 2006. Under this assumption, Duke Energy Carolinas emphasized that it has sought to develop a cost-effective portfolio of resources that meets customer energy needs while complying with the assumed GHG regulation through a balanced portfolio that includes nuclear, coal, gas, hydro and renewable energy generation, end-use energy efficiency, and the purchase of GHG emission allowances. At the present time, Duke Energy Carolinas believes the selected portfolio within the 2010 IRP, which includes a combination of new nuclear, natural gas, and renewable resources, as well as additional energy efficiency and the retirement of all coal generating units without environmental controls, represents the best plan to meet its customers energy needs in the most clean, affordable and reliable way possible over the planning horizon.

With respect to SACE's comments regarding Duke Energy Carolinas' assumptions on the cost and schedule for new nuclear construction, the Company, relying on its previous response to NC WARN's comments on this issue and stated that its current estimates for the schedule and cost of the proposed Lee Nuclear Station are reasonable and based upon the best information available at this time from the appropriate industry sources. The Company further stated that the 2010 IRP is based on the best cost information available, and considering a 20% higher capital cost sensitivity, it is reasonable and prudent for Duke Energy Carolinas to continue to pursue Lee Nuclear as a future resource for its customers in the 2020 timeframe. Duke Energy Carolinas also stated that a series of factors contribute to its confidence in its projected schedule, including completed AP1000 design and engineering prior to construction, the stable NRC licensing platform, modular construction techniques and planning in coordination with the Westinghouse and Shaw Nuclear consortium to develop the current schedule.

The Commission concludes that Duke Energy Carolinas has conducted reasonable and appropriate forecasts and assessments of supply-side and demand-side resources to meet its projected load and capacity needs over the planning horizons of the 2010 IRP. The Commission recognizes that the current planning environment is evolving and dynamic and Duke Energy Carolinas' plans reflect a diverse portfolio of future supply and demand-side options and a reasonable plan to cost-effectively meet customer needs under a number of different circumstances. Duke Energy Carolinas has comprehensively evaluated supply-side and demand-side resource options, with due consideration to pending federal environmental legislation and regulation regarding greenhouse gas emissions, to meet long-term system requirements in a carbon-constrained energy future at the least cost to its customers.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT 4

The evidence supporting this finding of fact appears in Duke Energy Carolinas' 2010 IRP, the comments of Public Staff and SACE, and the general requirements of Commission Rule R8-60.

In the 2010 IRP, Duke Energy Carolinas identified seven demand response programs and seven energy efficiency initiatives or programs in its current demand-side portfolio. The current DSM measures are: (1) Power Manager (residential air conditioning load control), (2) interruptible service (Rider IS), (3) standby generator service (Rider SG), (4) time-of-use rates for residential service, (5) optional time-of-use rates for general and industrial service, (6) hourly pricing rates for incremental load, and (7) PowerShare (non-residential curtailable program). The EE programs are: (1) Residential Energy Star rates, (2) Residential Energy Assessments, (3) Smart\$aver for Residential Customers, (4) Low Income Services, (5) Energy Efficiency Program for Schools, (6) Non-Residential Energy Efficiency Assessments, and (7) Smart\$aver for Non-Residential Customers. Duke Energy Carolinas intends to continue its demand response and energy efficiency programs through the term of its save-a-watt portfolio pilot and beyond.

Duke Energy Carolinas also included three proposed DSM or EE programs in the 2010 IRP, namely the Home Energy Comparison Report program, the Residential Retrofit program and an additional option to its PowerShare DSM program, called PowerShare CallOption.⁵ The Company also indicated that it was considering three new potential programs, specifically (1) Tune and Seal Program, which would allow the Company to partner with HVAC dealers and pay incentives to partially offset the cost of air conditioner and heat pump tune ups and duct sealing; (2) Direct Install Low Income Program, which would targets low income neighborhoods providing high impact direct install measures (CFLs, pipe water heater wrap, low flow aerators and showerheads, HVAC filters and air infiltration sealing) and energy efficiency education; and (3) Appliance Recycling Program, which would incentivize households to turn in old inefficient refrigerators and freezers. Duke Energy Carolinas did not list any programs that were rejected from consideration or general consumer education programs in the 2010 IRP.

Duke Energy Carolinas states in its 2010 IRP that it has made a strong commitment to EE and DSM and that its save-a-watt approach fundamentally changes both the way these programs are perceived and the role of the Company in achieving results. The Company asserts that its save-a-watt pilot recognizes EE and DSM as a reliable, valuable resource that is an option in the portfolio available to meet customers' growing need for electricity along with coal, nuclear, natural gas, and renewable energy. Duke Energy Carolinas indicates that its EE and DSM plan will be updated annually based on the performance of programs, market conditions, economics, consumer demand, and avoided costs. The Duke Energy Carolinas' approved EE plan has been designed to comply with the requirement set forth in the Commission's Order Granting Certificate of Public Convenience and Necessity with Conditions, Docket No. E-7, Sub 790 (March 21, 2007), to spend at least 1% of annual retail revenue requirement from the sale of electricity on future conservation and demand response programs each year, subject to appropriate regulatory treatment. The approved settlement will increase the Company's potential EE impacts significantly over the coming years, as used in the analysis for this IRP. The Company notes that pursuing EE and DSM initiatives will not meet all of its growing demands for electricity and that it still envisions the need to secure additional nuclear and gas generation as well as cost-effective renewable generation.

⁵ The Residential Retrofit program has been approved by the Commission in Docket No. E-7, Sub 952 (January 25, 2011) and PowerShare CallOption has also been approved by the Commission in Docket No. E-7, Sub 953 (March 31, 2011). Duke Energy Carolinas voluntarily withdrew its application for approval of the Home Energy Comparison Report pilot with the intent to re-file the application for full program approval in 2011.

Table 4.1 of Duke Energy Carolinas' 2010 IRP provides its base case projected load impacts of the EE and DSM through 2030. These were included in the Company's base case IRP analysis. The forecasted energy efficiency savings through 2012 are consistent with Duke Energy Carolinas' North Carolina Settlement Energy Efficiency Plan for 2009 through 2012. Duke Energy Carolinas assumes total efficiency savings will continue to grow on an annual basis through 2021, however the components of future programs are uncertain at this time and will be informed by the experience gained under the current plan. The projected load impacts from the DSM programs are based upon the continuing as well as the new demand response programs. The projected load impacts are set forth in the table below:

Conservation and Demand Side Management Programs								
	Conse	rvation		Demand R	esponse Peal	(MW		Total
				Sumr	ner Peak MW	•		Summer Peak
	MWh	MW	IS	SG	PowerShare	PowerManager	Total	MW Impacts
2010	120,000	15	218	75	192		785	800
2011	330,000	42	218	75	347	321	961	1003
2012	660,000	81	218	75	494	380	1168	1249
2013	1,140,000	141	218	75	548	414	1255	1396
2014	1,620,000	201	218	75	548	426	1267	1468
2015	2,110,000	259	218	75	548	426	1267	1526
2016	2,590,000	317	218	75	548	426	1267	1584
2017	3,070,000	396	218	75	548	426	1267	1663
2018	3,550,000	457	218	75	548	426	1267	1724
2019	4,030,000	496	218	75	548	426	1267	1763
2020	4,520,000	553	218	75	548	426	1267	1820
2021	5,000,000	633	218	75		426	1267	1900
2022	5,000,000	633	218	75	548	426	1267	1900
2023	5,000,000	633	218	75	548	426	1267	1900
2024	5,000,000	633	218	75	548	426	1267	1900
2025	5,000,000	633	218	75	548	426	1267	1900
2026	5,000,000	633	218	75	548	426	1267	1900
2027	5,000,000	633	218	75	548	426	1267	1900
2028	5,000,000	633	218	75	548	426	1267	1900
2029	5,000,000	633	218	75	548	426	1267	1900
2030	5,000,000	633	218	75	548	426	1267	1900

Duke Energy Carolinas' 2010 IRP also provides a high case scenario which uses the full target impacts of the save-a-watt bundle of programs for the first five years and then increases the load impacts at 1% of retail sales every year after that until the load impacts reach the economic potential identified by Duke Energy Carolinas' 2007 market potential study.

Public Staff indicated that its review of the DSM/EE portions of the 2010 IRPs revealed that there is little difference from those filed in 2009. With respect to Duke Energy Carolinas' 2010 IRP, as discussed above, the Public Staff noted that the Company forecasted fewer DSM/EE resources (in terms of MWs and MWhs) over the planning horizon. Public Staff stated that Duke Energy Carolinas' 2010 list of existing DSM/EE programs is consistent with its 2009

IRP. Public Staff explained that the Company did not activate any of its DSM programs during the summer peak day for 2010 but reported uses of its Power Manager and Power Share DSM programs during the early summer of 2010. Public Staff stated that Duke Energy Carolinas continues to investigate the feasibility of using its DSM resources for fuel savings. Public Staff further noted that the energy and capacity savings projections represented in Tables 4.1 and 4.2 of Duke Energy Carolinas' 2010 IRP were derived from the DSMore model projections that the Company used to evaluate the potential of its portfolio of DSM and EE programs.

The Public Staff also explained that in its review of Duke Energy Carolinas DSM and EE programs, specifically the cost effectiveness test results of the Company's proposed Power Share Call Option program generated by the DSMore model, the Public Staff observed a calculation of avoided production (energy) costs, which seemed relatively high for a DSM program. The cost effectiveness of the Power Share Call Option and Duke Energy Carolinas' other Power Share and Power Manager programs, approved in Docket No. E-7, Sub 831, is largely based on avoided capacity costs, and as such, the Public Staff noted that the elimination of the avoided energy cost benefits from the cost effectiveness test results would still result inprograms that are cost-effective.

Through the discovery process in this docket, Duke Energy Carolinas explained to the Public Staff that the high level of avoided production cost benefits improperly included an additional amount of avoided capacity cost benefits, which were embedded in the inputs used to calculate the avoided production cost benefits. As Public Staff describes in its comments, this DSMore calculation methodology error resulted in a "double-counting" of the avoided capacity cost benefits in Duke Energy Carolinas cost-effectiveness evaluations for its Power Share Call Option DSM program and its other DSM programs. Public Staff also noted that the Company has since corrected its use of DSMore for demand response programs to to prevent future model runs from performing this incorrect double-counting calculation. Public Staff indicated that, based on further discussions with Integral Analytics, LLC, the developer of the DSMore software, it believed that the double-counting of the avoided capacity cost benefits was limited to the overstatements of dollar savings from avoided production cost benefits in the cost effectiveness tests, and did not affect the assumptions of the kilowatt capacity savings from DSM programs represented in Duke Energy Carolinas' 2010 IRP. Further, Public Staff stated that it did not believe that any EE program evaluations were impacted by this error, and that the Company's 2010 IRP did not need to be adjusted because of this issue. However, the Public Staff did believe that any erroneous cost effectiveness test results filed with the Commission in connection with previous DSM program applications should be corrected and refiled in the appropriate dockets, along with an identification from Duke Energy Carolinas of the period during which the double-counting occurred and an explanation of effect of the issue on any data filed with the Commission.

Public Staff also stated that Duke did not include a specific discussion of its consumer education efforts beyond those associated with the individual DSM/EE programs. Public Staff represented that Duke Energy Carolinas agreed to address any activity or initiative that encourages or educates consumers about EE outside of a specific program in its reply comments. The Public Staff encouraged each investor-owned utility to investigate, develop, and implement all available cost-effective DSM and EE programs. Public Staff also asserted that due to changes being proposed to building codes and appliance standards, as well as federal legislation regarding lighting, and the likely impact of these changes on markets for products that consume electricity, older market potential studies for DSM and EE may become unreliable. Therefore, the Public Staff recommended that any IOU or EMC relying on a DSM/EE market potential study older than 2 years update its study or perform a new study and file it with its next IRP.

SACE commented that Duke Energy Carolinas has failed to adequately consider energy efficiency as a resource option in its IRP. SACE focused its criticism of the Company based on its comparison to what it deems a "leading utility" can achieve and alleged that Duke Energy Carolinas continues to underestimate its energy efficiency potential in its 2010 IRP. SACE also criticized the industrial opt-out provision of N.C. Gen. Stat. § 62-133.9(f) for lost energy efficiency savings opportunities and criticized Duke Energy Carolinas for failing to perform a new market potential study to support its DSM and EE impacts within the 2010 IRP. SACE further stated that Duke Energy Carolinas was improperly considering EE as a resource by treating it as a load adjustment.

In its reply comments, Duke Energy Carolinas confirmed that the double counting of avoided capacity cost benefits for its DSM programs occurred during the period of May 2007 to February 2011. The Company confirmed Public Staff's statement that only DSM programs were impacted so any values related to EE programs were not impacted. Duke Energy Carolinas also clarified that, specifically relating to Tables 4.1 and 4.2 of the IRP, which show the respective base case and high case projected load impacts of the Company's EE and DSM portfolio of programs over the planning period, this double counting did not impact the Company's EE and DSM forecasts as they contain only MW and MWh values. Only dollar amounts related to cost-based avoided production included in certain benefit/cost analyses for DSM programs were impacted thereby making the subject DSM programs appear to be more cost-effective than they otherwise should have been. Duke Energy Carolinas committed to remove any double counting of benefits from all calculations of benefit/cost ratios for DSM programs and filed the appropriate corrections to all filed documents containing such benefit/cost ratios in this docket on May 2, 2011. Duke Energy Carolinas further filed the same information in the appropriate related dockets on June 3, 2011.

Duke Energy Carolinas further agreed with the Public Staff's assessment regarding older market potential studies and indicated that an updated or new DSM/EE market potential study is a worthwhile investment of time and money. As Company Witness Richard Stevie, Ph.D, stated during the evidentiary hearing on the IRPs conducted in Docket Nos. E-100, Sub 118 and E-100, Sub 124, market potential studies should generally be updated every 5 years. Duke Energy Carolinas intends to have a new market potential study completed prior to the filing of its IRP in 2012. Duke Energy Carolinas stated, however, due to the length of time to properly plan, submit for bid, evaluate and complete such a study, it will not be possible for the Company to have its updated market potential study ready for incorporation into its 2011 IRP. Duke Energy Carolinas has begun the process of designing and requesting bids for this study in early April 2011. As such, Duke Energy Carolinas requested that such a study be required for submission with the next biennial IRP, which will be filed on September 1, 2012.

In response to SACE's comments, Duke Energy Carolinas criticized SACE's reliance upon the same ACEEE data used by NC WARN to support its market potential assessment. Duke Energy Carolinas asserted that SACE's reliance upon ACEEE data to support its market potential assessment was flawed for the same reasons identified in its reply comments as to NC WARN's statements regarding the ACEEE study, particularly relating to the ACEEE study's failure to incorporate the impacts of the opt-out provisions in North Carolina and the failure to utilize the results of any potential studies conducted after the passage of the Energy Independence and Security Act of 2007. For these reasons, the Company elaborated that the ACEEE study overlooks other current, region-specific information that informs reasonable expectations with respect to the realistic market potential for energy efficiency in Duke Energy Carolinas' service territory. Duke Energy Carolinas also noted that the 2009 EPRI study estimated the economic potential for the Southern region to be 4.4% over 10 years, not the 7.2% to 13.6% cited by SACE in reliance upon ACEEE's analysis. The Company further emphasized that, due to the lower than average electric rates and monthly bills that Duke Energy Carolinas' customer enjoy, some energy efficiency programs that work well in other markets may not be as attractive to customers or even cost effective. Duke Energy Carolinas asserted that it is aggressively pursuing cost effective energy programs, but cannot reasonably assume and plan for achievement of full economic potential at this time. The ultimate driver of energy efficiency savings achievement is customer participation and choice. The Company commented that it will continue to strive to achieve its "High DSM" impacts, which exceeds the estimated energy efficiency market potential developed by EPRI, but cannot assume it is going to happen without a track record of real results. For purposes of the 2010 IRP, the Company's base case for DSM/EE achievements represents a more reasonable and prudent input to the resource portfolio.

As to SACE's comments on industrial opt-out, Duke Energy Carolinas restated its commitment to supporting the opt-out provisions included in the settlement agreements approved in North and South Carolina relating to its modified save-a-watt energy efficiency plan. Although Duke Energy Carolinas is providing its customers the ability to opt in and out of its programs subject to certain limitations, the Company stated that it continues to develop and actively promote cost effective programs to all customers in hopes of increasing participation in its program regardless if they have opted out in the past. Also, in Docket No. E-7, Sub 938, Duke Energy Carolinas sought and was granted waivers of certain provisions of Commission Rule R8-69 to enable greater flexibility for its customers to opt in and out of both EE and DSM programs. As evidenced by the recently-approved Smart Energy Now ("SEN") pilot⁶, Duke Energy Carolinas is developing new and innovative energy efficiency programs to incentivize customers to opt in and participate in the Company's portfolio of programs.

In response to SACE's comments regarding a market potential study, Duke Energy Carolinas again recognized that its most recent market potential study is dated and that there could be significant benefits in updating its study. Duke Energy Carolinas anticipates having the results of its updated market potential study for incorporating in the next biennial IRP filing in September 2012.

The Commission concludes that Duke Energy Carolinas has conducted reasonable assessments of cost effective demand-side management and energy efficiency resources and has

⁶ See Docket No. E-7, 961, Order Approving Pilot Program (February 14, 2011).

undertaken appropriate plans to implement its approved demand-side resources and to identify new cost effective demand-side resources as future portfolio options. The Commission further finds that the Public Staff's recommendation regarding updating market potential studies for DSM and EE is reasonable and appropriate under the circumstances. As such, Duke Energy Carolinas shall update its 2007 market potential study or perform a new market potential study prior to the filing of its 2012 IRP, and will incorporate the findings and results of that updated or new market potential study into the 2012 IRP.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT 5

The evidence supporting this finding of fact appears in Duke Energy Carolinas' 2010 IRP, the reply comments of Duke Energy Carolinas, and the comments of Public Staff and SACE.

Reserve margins in Duke Energy Carolinas' 2010 IRP filings are comparable to those in previous filings. In its 2010 IRP, for the planning period 2010 to 2025, Duke Energy Carolinas' projects a range of summer reserve margins of 16% to 26%. Duke Energy Carolinas continually reviews its generating system capability, level of potential DSM activations, schedule maintenance, environmental retrofit equipment and environmental compliance requirements, purchased power availability, and transmission capability to assess its capability to reliably meet customer demand. In its 2010 IRP, Duke Energy Carolinas also identified certain risks that must be to be considered with respect to meeting its reserve margin target. These risks include: (1) increasing age of existing units on the system; (2) the inclusion of a significant amount of renewables (which are generally less reliable than traditional supply-side resources) in the plans due to the enactment of a REPS in North Carolina: (3) uncertainty regarding the impacts associated with significant increases in the energy efficiency and DSM programs and the actual results that will be achieved; (4) longer lead times for building baseload capacity such as coal and nuclear; (5) increasing environmental pressures that may cause additional unit derates and/or unit retirements; and (6) increases in derates of units due to extreme hot weather and drought conditions.

Based on its review of the 2010 IRP, Public Staff recommended that Duke Energy Carolinas be required to file with its reply comments, as required by R8-60(i)(3), the specific explanation for each year in which its projected reserve margins exceeds plus or minus 3% of its target. Public Staff further stated that it has been a number of years since Duke Energy Carolinas has conducted a comprehensive study to determine the appropriate reserve and capacity margin values to be used for the planning and operating of their respective systems, and argued that prudent planning requires that such studies be conducted on a regular basis. Public Staff recommended that the Company be required to conduct such studies as soon as practicable and incorporate the results into their IRP planning process and filings.

SACE further asserted that Duke Energy Carolinas' adoption of a high target reserve margin has led it to overstate its need for new capacity. SACE also commented that Duke Energy Carolinas did not need to plan reserves for its DSM programs, as it contended that such programs should be treated as load adjustments. In its reply comments, Duke Energy Carolinas acknowledged that its system reserve margin is projected to exceed its target reserve margin of 17% by more than 3% over the course of the planning period in the years 2012, 2013, 2014, 2021, 2023, and 2024. The Company stated these projected increases in reserve margin are driven by the recessionary impacts to load and timing of additions of necessary system generating capacity. Specifically, the additions of Cliffside Unit 6 (825 megawatts ("MW")) and the Buck combined cycle facility (620 MW) contribute to the increased reserve margin in 2012, and the addition of the Dan River combined cycle facility (620 MW) further increases the reserve margin above the 17% target in 2013 and 2014. However, by 2015, due to the assumed retirement of over 1,600 MW of coal fired capacity and 370 MW of combustion turbine capacity, the reserve margin moves back to within 3% of the Company's target. In 2021, Lee Nuclear unit 1 (1,117 MW) increases the reserve margin to over 20%. The second Lee Nuclear unit (1,117 MW) in 2023 also increases the reserve margin over 20% in 2023 and 2024. By 2025, the reserve margin is projected to move back within the target range due to continued load growth.

Duke Energy Carolinas also did not dispute Public Staff's assertions that it has not recently conducted a formal comprehensive reserve margin study as it has relied primarily upon historical experience to establish its target reserve margin for planning purposes. A 17% target planning reserve margin level has resulted in adequate reserve amounts in the past; has been deemed reasonable by the Commission in the context of prior IRPs filed by the Company most recently in its *Order Approving Integrated Resource Plans and REPS Compliance Plans* issued in Docket No. E-100, Sub 124; and the Company currently deems such level of reserves to be sufficient to cover the foreseeable risk increases resulting from an aging generation system and resource mix with greater amounts of energy efficiency, conservation, demand management, and renewable resources. Duke Energy Carolinas maintained that with historical reserves dropping to less than 2% of the peak load within the last five years, a 17% target reserve margin is appropriate. As part of discovery in this proceeding, Duke Energy Carolinas produced a limited analysis to the Public Staff regarding the hypothetical reduction of its target reserve margin to 14%. Under such circumstances, based on the Company's modeling, the only impact on the 2010 IRP would be the one year delay of the projected need for peaking capacity in 2019.

As such, the Company asserted that a comprehensive study is not required at this time. However, Duke Energy Carolinas did note that, if the Commission believes a comprehensive reserve margin study is necessary, it would respectfully request that the Commission order the study be conducted for purposes of the Company's next biennial IRP filing in 2012 due to the fact that the 2011 IRP work will likely be substantially complete prior to an order on the 2010 IRP. In addition, given the proposed merger between the holding companies of Duke Energy Carolinas and Progress Energy Carolinas, it makes sense to consider the impact of the merger on the individual and joint reserve margin requirements of the two companies. The proposed merger will still be pending approval before various regulatory agencies at the time of the 2011 IRP filing, and the relevant State and Federal regulatory approvals of the proposed joint dispatch arrangement between the operating companies will directly impact resource planning for both companies.

With respect to SACE's comments, Duke Energy Carolinas noted that the Commission has deemed Duke Energy Carolinas' target reserve margins as reasonable for planning in each of

the Company's IRPs over the last ten (10) years. Duke Energy Carolinas emphasized that it has a well-diversified portfolio of assets that has been designed with sufficient reserves to support hours of unanticipated forced outages, drought conditions, and extreme weather. Duke Energy Carolinas also stated that SACE's criticism of its planning of reserves for DSM resources was misplaced because it presumes that all of the Company's DSM programs are load reduction programs. Duke Energy Carolinas has a number of DSM programs that should not and cannot be regarded as load reduction mechanisms. These include Standby Generation ("SG"), Interruptible Service ("IS"), and AC Load Control. Duke Energy Carolinas detailed that all of these programs require either communication with the customer, customer acceptance at the time of peak, or the reliance on aging infrastructure and that technical issues, such as communication failures or customers not able to cut their full load, can result in less demand reduction than anticipated. Therefore, the Company asserted that reserves are necessary to backstand such demand-side resources to ensure the Company has adequate resources to meet customer needs and these resources are necessary for prudent planning.

The Commission concludes that the target reserve margins set by Duke Energy Carolinas in its 2010 IRP are reasonable and prudent for planning purposes. The Commission does, however, find that Public Staff's recommendation that Duke Energy Carolinas conduct a comprehensive reserve margin study to be reasonable under the circumstances. The Commission also agrees with Duke Energy Carolinas that such a study need not be performed until the next biennial IRP filed by the Company due to the pending merger and the fact that there is not sufficient time for the Company to conduct such a study and incorporate the results into its 2011 IRP filing. For this reason, the Commission finds that Duke Energy Carolinas shall conduct a reserve margin study as soon as practicable and incorporate the results of that study into its next biennial IRP in 2012.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT 6

The evidence supporting this finding of fact appears in Duke Energy Carolinas' 2010 REPS Compliance Plan, the comments of Public Staff and the general requirements of Rule R8-67.

Duke Energy Carolinas' 2010 REPS Compliance plan sets forth the Company's strategy to build its portfolio of renewable resources to meet the requirements of G.S. 62-133.8 over the three year planning period. Duke Energy Carolinas' compliance strategy is based on a combination of resource options: (1) renewable energy resources owned and/or operated by Duke Energy Carolinas; (2) purchased power agreements (PPAs) from renewable power generation facilities; (3) purchases of unbundled renewable energy certificates (REC or RECs); and (4) the utilization of cost-effective EE, subject to the statutory limitations of G.S. 62-133.8(b)(2)c. Duke Energy Carolinas has focused on maintaining a disciplined diversity of Company-owned and third party suppliers resources to minimize costs to customers while also building specific competencies relating to development and operation of renewable resources like solar, wind and "brownfield" biomass.

As part of its portfolio of resources, Duke Energy Carolinas will provide services, including delivery of renewable energy resources, to wholesale customers who request its

assistance in meeting the REPS requirements. These wholesale customers—including EMCs, municipalities, and other wholesale customers —may rely on Duke Energy Carolinas to provide this renewable energy delivery service in accordance with G.S. 62-133.8(c)(2)e. Currently, Duke Energy Carolinas plans to supply all of the renewable energy resources for Rutherford Electric Membership Corporation, Blue Ridge Electric Membership Corporation, City of Dallas, Forest City, City of Concord, Town of Highlands, and City of Kings Mountain.

Duke Energy Carolinas' REPS compliance requirements over the subject planning periods of the 2010 REPS Compliance Plans are the 2010, 2011 and 2012 solar resource requirements, as well as the 2012 swine waste, poultry waste and general resource requirements. Duke Energy Carolinas projected its specific REPS requirements for these resources as follows:

Compliance Year	Previous Year DEC Retail Sales (MWh)	Previous Year Wholesale Customers' Retail Sales (MWh)	Retail Sales (MWh)	Solar Set- Aside (MWh)	Swine Set- Aside (MWh)	Poultry Set- Aside (MWh)	REPS Requirement (%)	REPS Compliance Obligation (MWh)
2010	53,405,373*	3,608,452*	57,013,825*	11,434	-	-	0.02%	11,402
2011	53,661,493	3,672,118	57,333,611	11,403	-	-	0.02%	11,403
2012	54,510,205	3,719,801	58,230,006	40,134	40,134	78,001	3.00%	1,720,008

PROJECTED REPS REQUIREMENTS

*Based on 2009 Retail Sales; for compliance years 2011 and 2012, Compliance Obligation is based on prior year forecasted retail sales.

With respect to its solar resource requirements, pursuant to N.C. Gen. Stat. § 62-133.8(d), Duke Energy Carolinas must use solar energy resources equal to a minimum of two hundredths of one percent (0.02%) of the total electric power in kilowatt hours sold to retail customers in North Carolina, or an equivalent amount of energy, in both 2010 and 2011. This requirement for solar energy resources increases to seven hundredths of one percent (0.07%) in 2012. Based on actual retail sales in 2009, the Solar Set-Aside is approximately 11,402 MWhs in 2010. Based on forecasted retail sales, the Solar Set-Aside is approximately 11,403 MWhs and 40,134 MWhs in 2011 and 2012, respectively.

Duke Energy Carolinas has adhered to the same renewable energy strategy in planning to meet the solar set-aside requirements for 2010, 2011 and 2012 as it did in its 2009 REPS compliance plan. Specifically, Duke Energy Carolinas plans to meet its solar set-aside requirements through a combination of the purchases and generation of RECs and/or energy from (1) a long-term purchased power agreement with SunEdison; (2) Company-owned solar photovoltaic distributed generation program; (3) solar thermal installations in North Carolina; and (4) out-of-state solar facilities. Duke Energy Carolinas stated in its 2010 REPS Compliance Plan that it is confident that it will meet the solar resource requirements for 2010, 2011 and 2012.

As to the swine waste set-aside requirements, pursuant to N.C. Gen. Stat. § 62-133.8(e), for calendar year 2012, at least seven hundredths of one percent (0.07%) of total retail electric

power sold in aggregate by utilities in North Carolina must be supplied by energy derived from swine waste. As Duke Energy Carolinas' share⁷ of the State's total electric power in kilowatt hours sold to retail electric customers is approximately forty-six percent (46%), the Company's swine set-aside requirement is estimated to be 40,114 MWhs in 2012. The Company does not have a swine set-aside requirement obligation in 2010 or in 2011.

Duke Energy Carolinas plans to meet the swine set-aside requirement in the planning period through a combination of PPAs and/or unbundled REC purchases. Duke Energy Carolinas' primary strategy for compliance is to jointly procure swine waste-to-energy resources with Progress Energy Carolinas, Inc., Dominion North Carolina Power, North Carolina Electric Membership Corporation, North Carolina Eastern Municipal Power Agency, and North Carolina Municipal Power Agency Number 1 (Electric Power Suppliers). As required by the Commission's May 7, 2009 Order on Duke Energy Carolinas, LLC's Motion for Clarification, this joint business arrangement received prior approval from the Commission. Following the Commission's issuance of its Order on Withdrawal of Joint Motion, Issuance of Joint Request for Proposals, and Allocation of Aggregate Set-Aside Requirements, Docket No. E-100, Sub 113 (February 12, 2010) (RFP Approval Order), Duke Energy Carolinas and the other Electric Power Suppliers have undertaken a coordinated effort to procure renewable energy and renewable energy certificate proposals from swine waste-to-energy developers in North Carolina. The Electric Power Suppliers filed an update in August 2010 in Docket No. E-100, Sub 113, pursuant to the RFP Approval Order, to provide the Commission with a specific update and overview of the execution of the joint swine RFP to date. The specific activities that have occurred to date, pursuant to the Commission's approval of the joint swine RFP, are as follows:

- Issued an RFP soliciting energy and/or REC proposals from swine waste-to-energy facilities. The RFP was posted locally, as well as nationally, including the websites of the Electric Power Suppliers, and on the websites of the National Renewable Energy Laboratory and the Electric Power Research Institute;
- Conducted economic analyses of proposals and solicited additional information, as needed, to better understand the proposals;
- Engaged a third-party consultant to conduct technical analyses of proposals and rank proposals based on relative economic and technical viability;
- Generated short-list of cost-effective proposals;
- Notified these developers of initiation of negotiations relating to power and REC purchase agreements with the individual Electric Power Suppliers; and

⁷ In its Order on Pro Rata Allocation of Aggregate Swine and Poultry Waste Set Aside Requirements and Motion for Clarification in Docket No. E-100, Sub 113 (March 31, 2010), the Commission approved the electric power suppliers' proposed pro-rata allocation of the statewide aggregate swine and poultry waste set-aside requirements, such that the aggregate requirements will be allocated among the electric power suppliers based on the ratio of each electric power supplier's prior year retail sales to the total statewide retail sales.

• Commenced negotiations with the short-listed developers in August 2010.

Based on its analysis of the short-listed proposals, Duke Energy Carolinas believed that compliance with the 2012 swine waste set-aside requirement was possible, as the identified proposals appeared to be capable of delivering sufficient RECs to meet the 2012 requirements of all of the Power Suppliers. However, the Company felt that it was too early to conclude that the 2012 targets would be met, simply because many uncertainties remain that will be addressed in negotiations and subsequent project development. Duke Energy Carolinas listed a number of challenges relating to compliance with the swine waste set-aside requirement, but articulated that it was continuing to pursue its adopted strategies to meet the swine set-aside requirement and would make all reasonable efforts to comply with the 2012 requirement.

As to the poultry waste aside requirements for 2012, pursuant to N.C. Gen. Stat. § 62-133.8(f), at least 170,000 MWhs of the total electric power sold to retail electric customers in the State shall be supplied, or contracted for supply in each year, by poultry waste combined with wood shavings, straw, rice hulls, or other bedding material. As Duke Energy Carolinas' retail sales share of the State's total retail kWh sales is approximately forty-six percent (46%), the Company's poultry set-aside requirement in 2012 is approximately 78,001 MWhs. The Company does not have a poultry set-aside requirement in 2010 or in 2011.

Duke Energy Carolinas stated that it plans to meet the poultry set-aside requirement through a combination of bundled purchased power agreements and/or by purchasing unbundled RECs. Duke Energy Carolinas identified specific reasonable efforts undertaken to meet the poultry waste set-aside requirement, including continuing to meet with potential suppliers; reviewing proposals from third-party developers offering PPA or REC-only opportunities that qualify for the poultry waste set-aside requirement; identifying, contacting, and encouraging animal waste-to-energy developers in other states to develop projects in North Carolina; and initiating negotiation with all known, qualified suppliers of resources that qualify for the poultry waste set-aside requirement.

Duke Energy Carolinas stated that it had not reached agreement with any particular supplier of resources that meet the poultry set-aside requirement due to several factors, including but not limited to:

- The relatively high price of RECs that meet the poultry waste set-aside requirement and wide variance in price reflects the immaturity of the market in North Carolina; thus determination of a prudent poultry REC cost is challenging;
- The poultry waste-to-energy industry is in its infancy in North Carolina and proven developers and operators of poultry waste-to-energy projects are few;
- Structuring large, twenty-year PPAs prudently, such that they do not put the Company at risk of exceeding the fixed cost caps specified in N.C. Gen. Stat. § 62-133.8(h), is a time-consuming and challenging endeavor for all parties;

- Changes in law (*i.e.*, Senate Bill 886) or changes in interpretation of law stand to alter the landscape of renewable resources that would qualify toward the poultry waste set-aside requirement. The Company emphasized that full evaluation of the costs and risk of all known suppliers of RECs that could be used to satisfy the poultry waste set-aside is prudent and in the best interests of customers; and
- Emerging regulatory challenges with respect to emissions from biomass facilities is a clear and present risk for most of the developers with whom Duke Energy Carolinas is negotiating; structuring a long-term contract to mitigate such risk is both prudent and challenging.

Taking all of the factors set forth above into account, Duke Energy Carolinas stated that it would continue to make all reasonable efforts to meet the poultry waste set-aside requirement in 2012.

As to the general REPS requirements, pursuant to N.C. Gen. Stat. § 62-133.8(b)(1), in 2012, Duke Energy Carolinas must generate or procure renewable energy or energy efficiency resources equal to three percent (3%) of its 2011 estimated retail sales, or approximately 1,720,008 MWhs. This requirement, net of the solar, swine waste, and poultry waste set-aside requirements, is 1,561,739 MWhs. Duke Energy Carolinas has a general REPS requirement in 2012, but does not have a general REPS requirement in 2010 or in 2011.

Duke Energy Carolinas plans to meet a material portion of the general REPS requirement through energy efficiency savings. Duke Energy Carolinas projects that, in concert with its customers, it will achieve more energy efficiency savings than can be utilized under REPS for the foreseeable future. Thus, the Company plans to utilize energy efficiency to the fullest extent possible, accounting for 25 percent of the compliance requirement beginning in 2012.⁸ The Company introduced its energy efficiency programs in mid-2009 and will bank energy efficiency savings achievements in the 2009-2011 period. Duke Energy currently plans to utilize its banked energy efficiency savings in 2012 and thereafter.

Duke Energy Carolinas further plans to meet its general REPS requirement, for its retail and wholesale customers, in 2012 through purchases of energy and/or RECs from qualifying hydroelectric power facilities and a combination of biomass resources, including landfill gas, combined heat and power from direct firing of wood and agricultural fuels, power from direct firing or co-firing of wood and agricultural fuels, power from direct firing or gasification of refuse-derived fuel or municipal solid waste, power from gas produced in anaerobic digestion of organic waste, and power from gas produced in wastewater treatment. The Company also intends to self-supply a portion of the biomass portfolio through the co-firing and/or re-powering of existing coal units with renewable fuel. Duke Energy Carolinas further stated that it had found out-of-state wind RECs to be cost-effective when compared to in-state general REPS requirement resources. As such, the Company has entered into agreements to procure out-of-state wind RECs up to the 25 percent out-of-state limitation. The Company will utilize these RECs for compliance in the planning period and/or bank them for use in future period. At present, the

⁸ See N.C. Gen. Stat. § 62-133.8(b)(2)c.

Company has contracted for and banked resources sufficient to meet the General Requirement in 2012.

The Company also explained that, pursuant to Session Law 2009-451, Duke Energy Carolinas and the University of North Carolina at Chapel Hill entered into an agreement in September 2009 to develop a pilot coastal wind demonstration project of up to three turbines in the Pamlico Sound. Under that agreement, the Company conducted in-depth analysis, engineering, and permitting studies that helped define and revise the scope and cost estimate of the demonstration project. In August 2010, Duke Energy Carolinas concluded that the significantly increased cost estimates associated with such a small-scale demonstration project outweighed the benefits its customers would receive, and the Company exercised its right to terminate the contract. Despite the termination of this pilot project, Duke Energy Carolinas stated that it learned a great deal about the permitting and engineering process for water-based wind turbines and has committed to fund further research into the long term viability of offshore wind in the ocean where greater development potential exists.

Duke Energy Carolinas submitted in its 2010 REPS Compliance Plan, its projections of customer accounts by class and its current avoided cost rates. Such projections are as follows:

NUMBER OF CUSTOMER ACCOUNTS

ye	ar 2010*.	2011	2012
Residential Accts	1,740,219	1,754,143	1,771,508
Commercial Accts	238,628	240,895	243,141
Industrial Accts	5,802	5,784	5,768

ANNUALIZED CAPACITY AND ENERGY RATES (CENTS PER KWH)

	2010	2011 (Projected) (F	2012 Projected)
Variable Rate	6.40¢		6.40¢
5 Year	6.39¢ _	6.39¢	6.39¢
10 Year	6.42¢	6.42¢	6.42¢
15 Year	6.56¢	6.56¢	6.56¢

Duke Energy Carolinas also project its REPS compliance cost caps over the 2010 REPS compliance planning period to be as follows:

PROJECTED ANNUAL COST CAPS

year.	2010	2011	2012
Projected Annual Cost Caps	\$32,334,475	\$32,478,330	\$32,756,206
Total projected compliance costs	\$11,938,130	\$23,751,567	\$49,224,106
Total incremental costs	\$6,196,090	\$7,548,127	\$25,082,056

Based on its review of Duke Energy Carolinas' REPS compliance plan, the Public Staff believed that the Company could meet the general and solar REPS requirements for itself and the electric power suppliers for which it is providing REPS compliance services for the time period covered by the 2010 REPS compliance plan. Public Staff further noted that Duke Energy Carolinas may have difficulty meeting the swine waste and poultry waste set-aside requirements, but that the Company was actively pursuing energy and RECs to meet these requirements for 2012. No other parties filed any comments regarding Duke Energy Carolinas' 2010 REPS compliance plan.

The Commission concludes that Duke Energy Carolinas' 2010 REPS Compliance Plan complies with the requirements of Rule R8-67(b), is reasonable for the purposes of this proceeding and is approved as filed.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT 7

The evidence supporting this finding of fact appears in Duke Energy Carolinas' 2010 IRP and REPS Compliance Plan, the comments of Public Staff, NC WARN and SACE, and the reply comments of Duke Energy Carolinas filed in this proceeding, and the general requirements of Commission Rules R8-60 and R8-67.

Based on the foregoing, the Commission's review of Duke Energy Carolinas' 2010 IRP and REPS Compliance Plan, all comments filed in this consolidated docket, and the entire record of this proceeding, the Commission concludes that Duke Energy Carolinas' 2010 IRP and REPS Compliance Plan comply with the requirements of G.S. 62-110.1, G.S. 62-2(a)(3a) and Rules R8-60 and R8-67, are reasonable for the purposes of this proceeding and are approved as filed. The Commission further concludes that Duke Energy Carolinas has responded to all subsections of Rule R8-60(c) and Rule R8-67(b) as required and that Duke Energy Carolinas has developed a reasonable resource plan to reliably meet future needs at least cost to its customers and a reasonable REPS compliance plan to meet the relevant requirements under Senate Bill 3.

IT IS, THEREFORE, ORDERED as follows:

1. That this Order shall be adopted as a part of the Commission's current analysis and plan for the expansion of facilities to meet future requirements for electricity for North Carolina pursuant to G.S. 110.1(c);

2. That Duke Energy Carolinas shall, as soon as practicable, complete an update to its 2007 DSM/EE market potential study, or a new market potential study, and incorporate the results of that study into its next biennial IRP filing in 2012;

3. That Duke Energy Carolinas shall conduct a reserve margin study as soon as practicable and no later than necessary to incorporate the results of that study into its next biennial IRP filing in 2012;

4. That the 2010 Integrated Resource Plan filed by Duke Energy Carolinas hereby are approved; and

5. That the 2010 REPS Compliance Plans filed by Duke Energy Carolinas hereby are approved.

ISSUED BY ORDER OF THE COMMISSION.

This the _____ day of _____, 2011.

NORTH CAROLINA UTILITIES COMMISSION

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Carolinas, LLC's Proposed Order in Docket No. E-100, Sub 128, has been served by electronic mail (e-mail), hand delivery or by depositing a copy in the United States Mail, first class postage prepaid, properly addressed to parties of record.

This the 6th day of June, 2011.

Robert a Thayla

Robert W. Kaylor Law Office of Robert W. Kaylor, P.A. 3700 Glenwood Avenue, Suite 330 Raleigh NC 27612 (919) 828-5250 NC State Bar No. 6237