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March 1, 2011

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Clerk's Office  
N.C. Utilities Commission

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 Reply Comments in the above referenced docket.

We are filing 14 copies of the Public Version and 17 copies of the Confidential version.

Sincerely,

*Robert W. Kaylor*

Robert W. Kaylor

Encls.

cc: Parties of Record

*Clerk-PS  
A6  
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Bennink  
Watson  
Vacant  
Hoover  
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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION MAR 01 2011

DOCKET NO. E-100, SUB 128

Clerk's Office  
N.C. Utilities Commission

In the Matter of  
Investigation of Integrated Resource  
Planning in North Carolina – 2010

)  
) DUKE ENERGY CAROLINAS, LLC'S  
) REPLY COMMENTS  
)

Pursuant to North Carolina Utilities Commission ("Commission") Rule R8-60 and the North Carolina Utilities Commission's *Order Granting Motion for Extension of Time* issued in this docket on February 24, 2011, Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company"), hereby responds to the Initial Comments of the North Carolina Public Staff ("Public Staff"), the North Carolina Waste Awareness and Reduction Network, Inc. ("NC WARN") and Southern Alliance for Clean Energy ("SACE").

Duke Energy Carolinas sets forth its response below:

RESPONSE TO INITIAL COMMENTS OF PUBLIC STAFF

1. In general, Public Staff finds Duke Energy Carolinas' 2010 IRP filing to be reasonable for planning purposes. However, the Public Staff makes certain recommendations for specific actions and explanation from Duke Energy Carolinas regarding aspects of its 2010 Integrated Resource Plan ("IRP").

2. Public Staff recommends 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 Comments at 11. Duke Energy Carolinas acknowledges 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. 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.

3. Public Staff further states 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 argues that prudent planning requires that such studies be conducted on a regular basis. Public Staff Comments at 12-13. Public Staff recommends that the Company be required to conduct such studies as soon as practicable and incorporate the results into their IRP planning process and filings. *Id.* at 13. Duke Energy Carolinas does not dispute 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 maintains 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 such, the Company does not believe that a comprehensive study is required at this time. However, if the Commission believes a comprehensive reserve margin study is necessary, Duke Energy Carolinas 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.

4. The Public Staff also encourages each investor-owned utility ("IOU") and electric membership co-operative ("EMC") to investigate, develop, and implement all

available cost-effective demand side management (“DSM”)<sup>1</sup> and energy efficiency (“EE”) programs. Public Staff Comments at 14. Public Staff asserts 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. Id. at 14. Therefore, the Public Staff recommends 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. Id. at 14.

5. Duke Energy Carolinas agrees with the Public Staff’s assessment regarding older market potential studies and believes 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. 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 Duke Energy Carolinas to have its updated market potential study ready for incorporation into its 2011 IRP. Duke intends to begin the process of designing and requesting bids for this study in early April 2011. Should the Commission agree with Public Staff’s assessment regarding an updated market potential study, the Company respectfully requests that such a study be required for submission with the next biennial IRP, which will be filed on September 1, 2012.

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<sup>1</sup> For purposes of this document, all references to DSM programs are intended to only refer to programs traditionally referred to as demand response programs.

6. 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<sup>2</sup> generated by the DSMore model, the Public Staff observed a calculation of avoided production (energy) costs, which seemed relatively high for a DSM program. Public Staff Comments at 15. 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 that elimination of the avoided energy cost benefits from the cost effectiveness results would not change the overall cost effectiveness of any of the programs. Id. at 15-16.

7. 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 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. Public Staff Comments at 15. Public Staff correctly notes that the Company has since corrected the calculation methodology within DSMore to prevent future model runs from performing this incorrect double-counting calculation. Public Staff also indicates that, based on further discussions with Integral Analytics, LLC, the developer of the DSMore software, it believes that the double-counting of the avoided capacity cost benefits was limited to

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<sup>2</sup> The application for approval of this program is currently pending before the Commission in Docket No. E-7, Sub 953.

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. *Id.* at 15-16. Further, Public Staff states that it did not believe that any EE program evaluations were impacted by this error, and that the Company's IRP did not need to be adjusted because of this issue. *Id.* at 16. However, the Public Staff does 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.

8. Duke Energy Carolinas has confirmed that the double counting of avoided capacity cost benefits for its DSM programs occurred during the period of May 2007 to February 2011. As the Public Staff notes in its comments, only DSM programs were impacted so any values related to EE programs were not impacted. Also, 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 megawatt-hour ("MWh") values. Only dollar amounts related to cost-based avoided production included in certain benefit/cost analyses for DSM programs were impacted. The resulting impact of the double counting was that the subject DSM programs were shown to be more cost-effective than they otherwise should have been. In any future filings, Duke Energy Carolinas will remove

any double counting of benefits from all calculations of benefit/cost ratios for DSM programs.

9. In response to the above-referenced issues, Duke Energy Carolinas will compile a listing of all dockets filed with the Commission since January 1, 2007 that included any information, input data, or output results from the DSMore model and will correct (1) any documents that contained incorrect avoided capacity costs benefits and (2) any documents that contained incorrect cost effectiveness test evaluations resulting from the DSMore double counting issue. However, due to the significant number of documents that must be reviewed to determine which may have been impacted, the Company proposes to submit such information within 60 days from the date of this filing. Duke Energy Carolinas submit that this additional time is necessary to complete this request in order to properly identify all pertinent documents, correct any necessary miscalculations and supplement the relevant filings as necessary.

#### RESPONSE TO INITIAL COMMENTS OF NC WARN

10. In its filing, NC WARN presents the same argument, albeit in different terms, as in its testimony from Dr. John O. Blackburn filed in the 2009 IRP proceeding, Docket No. E-100, Sub 124, its comments filed in the 2008 proceeding, Docket No. E-100, Sub 118, as well as its comments filed in the 2007 IRP proceeding, Docket No. E-100, Sub 114, and in the 2006 IRP proceeding, Docket No. E-100, Sub 109. The Commission has approved Duke Energy Carolinas' 2009, 2008, 2007 and 2006 IRPs over NC WARN's objections in its August 10, 2010 *Order Approving Integrated Resource Plans and REPS Compliance Plans*, and in its September 19, 2008 and July 9, 2007 *Orders Approving Integrated Resource Plans*; respectively.



11. NC WARN's reworded repetition of the same flawed logic, assumptions, and conclusions that formed the basis for its comments filed in the 2006, 2007, 2008, and 2009 IRP proceedings is equally inaccurate and unpersuasive today as it was in the prior proceedings. Although most of their claims have been refuted several times within testimony and comments in the previous IRP proceedings, several of the more noteworthy flaws are worth pointing out.

12. NC WARN's arguments are primarily based on a pessimistic view of load growth in the Company's service territory, its application of two outdated planning concepts, and several fundamental errors. NC WARN devotes four pages of comments to an argument that Duke Energy Carolinas already has excessive amounts of baseload capacity. NC WARN states that, "[w]hen all of its baseload plants are in operation (12,679 MW) they provide more electricity than is needed for 87% of the hours in a year; ...." NC WARN Comments at 6. NC WARN's 87% calculation results from determining the point where the 2010 Duke Energy Carolinas load duration curve, presented on pages 54 and 57 of the 2010 IRP, meets the 12,679 MW level.

13. NC WARN's calculations and conclusion regarding Duke Energy Carolinas' alleged lack of need for baseload capacity are plainly wrong. First, NC WARN grossly miscalculates the Company's actual baseload capacity available to serve its customers. NC WARN's calculation includes the full Cliffside Unit 6 capacity (825 MW), which was not available in 2010, and also included the entire capacity of Catawba Nuclear Station, of which Duke Energy Carolinas only owns 19.26%. Because the load duration curve in the 2010 IRP excludes that portion of the Catawba Owner's load for which Duke has no obligation to serve, the capacity calculation must also exclude the

1,109 MW portion of Catawba that is not retained by Duke. Correcting these two errors would remove 1,934 MWs, reducing the 12,679 MW figure used by NC WARN to 10,745 MW. Instead of 87%, the corrected crossing point should result in a figure closer to 60%.

14. Second, the 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. The inaccuracy of this methodology is clearly illustrated through a simple examination of Duke Energy Carolinas' actual generation records for 2010. As a group, Duke Energy Carolinas' fourteen units that operate as baseload capacity for the system were in reserve shutdown (available, but shut down or idle) for 4,512 hours out of a total of 122,640 hours (14 x 8760) during the year. That represents 3.68% of the hours over an entire year when those baseload units were available, but not generating electricity for Duke Energy Carolinas' customers. When the actual data is compared to the NC WARN's 87% miscalculation, as well as its patently false statement that "[f]or most of the year, the plants are either shut down and idle or spinning (still operating but not connected to the grid)," it is clear that NC WARN does not understand the facts that underpin the Company's resource planning and utilizes flawed methodology to criticize the Company's resource plan. These flawed conclusions presented by NC WARN are exactly why modern planning tools have replaced the use of load duration curves in determining an optimal capacity mix for resource planning purposes.

15. NC WARN also continues to make the assertion that the projected costs of new nuclear resources "have risen exponentially to the point they simply cannot be considered in the least cost mix." NC WARN Comments at 7. The Company's analysis

of its own proprietary and the publicly available information indicates otherwise. Duke Energy Carolinas' most recent projection of the overnight cost of building two twin AP1000 units at the proposed Lee Nuclear Station site in Cherokee County, SC, is eleven billion dollars (\$11 billion), in 2010 dollars, exclusive of financing costs and exclusive of the impacts of inflation. This estimate was developed for Duke Energy Carolinas by Westinghouse Electric Company, LLC, and its consortium partner Shaw, Stone and Webster, Inc. (collectively "WEC/SN"). WEC/SN Engineering, Procurement & Construction ("EPC") consortium is the EPC contractor for the two other AP1000 projects in the United States, Southern Company's Vogtle Nuclear Plant ("Vogtle") and South Carolina Electric & Gas's ("SCE&G") V.C. Summer Nuclear Plant ("Summer"), and is similarly involved in the construction of the AP1000 units in China. There are currently four AP1000 units under construction in China and both Vogtle and Summer are ahead of Duke Energy Carolinas' Lee Nuclear Station in both licensing and construction. Duke Energy Carolinas has been following all of this activity closely and early experience suggests that the construction work is going well as the AP1000 projects remain within schedule and budget and are moving forward as expected. On October 21, 2010, SCE&G, at an allowable ex-parte briefing, provided an update to the Public Service Commission of South Carolina ("PSCSC") on the construction of the Summer Nuclear Plant. At that update, Steve Byrne, SCE&G Chief Generation Officer, told the Commission that the Summer project was moving forward as expected and that SCE&G just completed negotiations with WEC/SN to move additional costs from the target category to the firm/fixed category. According to Mr. Byrne, approximately two-thirds of the V.C. Summer plant cost is now in the firm/fixed category. Additionally, Mr.

Byrne also explained that due to lower escalation rates, the new project cost projections were reduced by approximately \$1 billion to \$9.6 billion versus the initial estimate of \$10.6 billion. The transcript of the SCE&G briefing is available on the PSCSC's website at the following web address: [http://www.psc.sc.gov/exparte/epb-2010-10-21/epb-2010-10-21\\_Transcript\\_Presentation\\_Materials.pdf](http://www.psc.sc.gov/exparte/epb-2010-10-21/epb-2010-10-21_Transcript_Presentation_Materials.pdf). Additionally, SCE&G's most recently filed quarterly report, filed on February 14, 2011 in Docket No. 2008-196-E pursuant to PSCSC Order No. 2009-104(A), indicates that it is on track to complete the two units at Summer on its scheduled completion dates within the original construction cost forecast.

16. Additionally, the new nuclear licensing process, involving the U.S. Nuclear Regulatory Commission's issuance of the combined construction and operating license ("COL") for the Vogtle, Summer and Lee Nuclear Station projects, will also help with the cost certainty on new nuclear projects. By the time the Lee Nuclear Station project is ready to start construction, the NRC will have reached its decision regarding the approval of the AP1000 design, and engineering and design for the AP1000 will be close to 100% complete, thereby bringing greater certainty to construction plans.

17. The Company recognizes that the cost estimates used in our planning models are very important, and as such Duke Energy Carolinas continues to monitor all available projects and industry data to ensure that our estimates are in line with recent experience and based on the best available information at that time. Duke Energy Carolinas believes that all recent experience in China and at the two plants in the Southeast, as well as the recent trend in industry data of lower escalation rates, supports the current level of its cost estimates used for resource planning purposes. Additionally, it is important to note that Duke Energy Carolinas models various project risks

specifically relating to increases in capital cost and incorporates such analysis into the IRP through the +20%/-10% Nuclear Capital Cost Sensitivity used in our IRP analysis.

18. Further, NC WARN's statements that Wall Street is not funding new nuclear construction are similarly misplaced. As an example, below is a summary chart illustrating the equity and debt issuances by SCANA, the holding company for SCE&G, and SCE&G since SCE&G applied for its COL for Summer.

Date	Type	Amount	Wall Street firm(s)
1/20/2011	First mortgage bonds	\$250 million	BB&T Capital Markets; Credit Suisse Securities (USA) LLC; Merrill Lynch, Pierce, Fenner & Smith Incorporated; TD Securities (USA) LLC; J.P. Morgan Securities LLC; Mizuho Securities USA Inc.; U.S. Bancorp Investments, Inc.
5/10/2010	Equity offering	7,150,000 shares	Wells Fargo Securities, LLC; Morgan Stanley & Co., Incorporated; UBS Securities LLC; BB&T Capital Markets; Credit Suisse Securities (USA) LLC; Stephens Inc.
12/2/2009	First mortgage bonds	\$150 million	Credit Suisse Securities (USA) LLC; UBS Securities LLC; BB&T Capital Markets
3/10/2009	First mortgage bonds	\$175 million	BNY Capital Markets, Inc.; Mizuho Securities USA Inc.
9/25/2008	First mortgage bonds	\$300 million	Banc of America Securities LLC; Credit Suisse Securities (USA) LLC; Wells Fargo Securities, LLC
6/17/2008	First mortgage bonds	\$110 million	Wells Fargo Securities, LLC

Typically there are many uses of the funds generated by corporate financing activities. For example, this quote from SCE&G's prospectus indicates three categories of costs which the funds will be used. "We expect to apply the net proceeds from the sale of this offering of our Bonds, together with certain other funds, to retire our First Mortgage Bonds, 6.70% Series due February 1, 2011, to repay short-term debt primarily incurred as a result of our construction program, to finance capital expenditures (including costs to construct new nuclear units at the V.C. Summer Nuclear Station) and

for general corporate purposes.” Clearly, investors and Wall Street firms are actively participating in the financing of the Summer Units 2 & 3 and any assertions to the contrary are misinformed.

19. NC WARN then goes on to compare its estimation of the forward cost curves for nuclear against its projections for renewable resources and concludes that “it is questionable whether Duke Energy will be able to receive a certificate for a nuclear facility as it faces a high hurdle in showing the nuclear plants compare favorably to energy efficiency, renewable energy and combined heat and power.” NC WARN Comments at 9. This conclusion arises from NC WARN’s assertion that “cost of solar energy and other renewable energy sources is expected to continue to decrease while projected costs of nuclear power plants have risen steadily for the past decade and are expected to increase even more over time.” NC WARN Comments at 8. Duke Energy Carolinas disputes NC WARN’s allegations as to the costs of both renewable and nuclear resources.

20. First, NC WARN’s assertion that the cost of renewable energy has consistently decreased flies in the face of the very report NC WARN relies upon for its assertions. The Energy Information Administration’s Annual Energy Outlook, AEO2011, referenced in paragraph 17 of NC WARN’s comments, shows that although it estimates that the overnight cost for solar photovoltaic installations have decreased between 2010 and 2011, the estimated overnight costs of most types of renewable energy has actually increased (see geothermal, MSW – landfill gas, conventional hydropower, wind, and off-shore wind), and general “biomass” has remained relatively unchanged. NC WARN’s argument also completely ignores the fact that certain renewable resources

(wind and solar) remain premium cost resources that are generally only available to provide energy on an intermittent basis. Other resources, such as woody biomass and landfill gas resources, can provide intermediate or baseload power but are limited by fuel supply. For that reason, renewable resources are not yet, and will likely never be, functional substitutes for baseload operating plants.

21. Thus, to date, the renewable capacity and energy required to support the Company's compliance with the obligations of the North Carolinas Renewable Energy and Energy Efficiency Portfolio Standard ("REPS") must be "forced" into the plan despite the fact that such resource options are not least cost to customers. If, or when, these resources become more competitive with traditional generation, Duke Energy Carolinas' optimization processes and planning models will recognize and select these resources without having to "force" them into the selected resource mix, and renewable energy resource amounts that are beyond those required by REPS will be added to the portfolio. Until this occurs, however, Duke Energy Carolinas cannot forcibly inject more of these premium cost resources into its resource planning and still maintain a reasonable resource portfolio that is least reasonable cost to the Company's customers. The Company's 2010 IRP demonstrates the need for additional nuclear, renewables and energy efficiency and demand response resources; there is a role for each to play in our future resource portfolio. Duke Energy Carolinas believes that its selected plan identifies and justifies the reasonable and prudent expectations for each resource type to play to meet customer needs over the planning horizon.

22. Consistent with its assertions addressed above, NC WARN makes another critical methodology error by concluding that if the right assumptions bring the cost of a

kilowatt-hour (“kWh”) of energy efficiency or renewable energy down to the price of a coal or nuclear kWh, replacement is economically justified. See NC WARN Comments at 10. As with other instances within NC WARN’s Comments, this conclusion fails to consider certain vital factors. To be equivalent, a replacement kWh must have the same characteristics as the kWh it is replacing. When a customer flips a light switch at night, a coal-generated kWh cannot be directly replaced by a solar generated kWh, no matter what the price. That does not mean there is no place for energy efficiency or renewable energy in the resource mix. It just means these resources are not equivalent and require modern planning tools to determine cost and appropriate interaction within the mix. These tools are capable of considering construction and long-range operating costs as well as the broad range of operational parameters in determining a resource mix that is optimal. This process cannot be considered in an oversimplified manner, as NC WARN’s analysis attempts to do.

23. NC WARN further alleges that Duke Energy Carolinas only incorporated into its IRP “the minimal amount of energy efficiency required under the REPS, rather than what was practical.” NC WARN Comments at 11. NC WARN’s assessment of the “practical” level of energy efficiency is tied to the contents of a presentation by the American Council for an Energy Efficient Economy (“ACEEE”) delivered to the North Carolina Energy Policy Council (“EPC”) on April 29, 2010. NC WARN Comments at 10. The study cited by NC WARN claims that an annual electricity savings of 1.2 to 1.6% is achievable over the next decade.

24. First and foremost, Duke Energy Carolinas projections relating to energy efficiency savings are not tied in any way to its REPS obligations. At present, the



Company is statutorily limited to meeting up to 25% of its general REPS obligations under N.C. Gen. Stat. § 62-133.8(b)(2)c through energy efficiency savings<sup>3</sup> and the Company's portfolio of programs are projected to achieve significantly more than 25% of the Company general REPS requirements on an annual basis through the term of its 2010 REPS Compliance Plan. Under its REPS Compliance Plan, Duke Energy Carolinas intends to utilize energy efficiency to the fullest extent possible, accounting for 25% of the compliance requirement beginning in 2012, but this is not a limiting factor on the amount of EE the Company will be actively promoting. The Company's modified save-a-watt model, approved in the Commission's *Order Approving Agreement and Joint Stipulation of Settlement Subject to Certain Commission-Required Modifications and Decisions on Contested Issues* issued February 9, 2010 in Docket No. E-7, Sub 831, incentivizes it to attempt to achieve all cost-effective EE over the course of the pilot in order to achieve its stated savings targets.

25. Second, during the same meeting in which ACEEE presented its potential study to the EPC, Duke Energy Carolinas and Progress Energy Carolinas made a joint presentation which identified specific significant deficiencies in the ACEEE study. These deficiencies include:

- A lack of any adjustment for large customer statutory opt-out of utility energy efficiency and demand side management programs, as permitted under N.C. Gen. Stat. § 62-133.9;
- A lack of any adjustment for naturally occurring, customer-driven energy efficiency captured in the Company's load forecasts;

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<sup>3</sup> In 2021, this limitation on the use of energy efficiency savings to meet annual REPS requirements increases to 40%.

- Assumptions of unreasonably high participation rates that are not reflective of the current data for the utilities;
- The presentation's reliance on market potential studies completed before the passage of the Energy Independence and Security Act of 2007; which
- A lack of any discussion of equipment life (also referred to as Rate of Turnover); and
- The inclusion of below efficiency standard impacts are already captured in our load forecasts, thereby double-counting potential savings impacts.

26. For the above reasons, Duke Energy Carolinas does not project an annual electricity savings of 1.2 to 1.6% is achievable. A study from January 2009 conducted by the Electric Power Research Institute ("EPRI") for the period 2010 to 2030 incorporated the projected impacts of the EISA.<sup>4</sup> For the South Census region, the EPRI study found a maximum achievable potential of 11.1% by the year 2030 and a 13.4% economic potential by the year 2030. Appendix C of the EPRI Study, which includes the South Census Region results, is attached hereto as Exhibit 1. This result implies that a more reasonable annual savings recommendation would be something approaching 0.6% per year, not 1.5% to 2.0%. This result is also more consistent with the results of the market potential study commissioned by Duke Energy Carolinas in 2007, which indicated an economic potential for energy efficiency for NC of 19% over the next twenty years and a market potential of 1.6% over the next five years. The Company remains committed 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. However,

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<sup>4</sup> *Assessment of Achievable Potential from Energy Efficiency and Demand Response Programs in the U.S.: (2010–2030)*. EPRI, Palo Alto, CA: 2009. 1016987.

any savings achievements will ultimately be determined by customer participation, and as such, Duke Energy Carolinas must plan its resource needs around the energy efficiency savings it can reasonably expect to achieve through its projected customer participation.

27. NC WARN finally returns to its standard argument regarding Duke Energy Carolinas' load forecasts, alleging that such forecasts are overstated, that the Company's growth has actually been "nearly flat" for the past five (5) years and that the Company's load forecast fails to capture non-utility related EE savings. NC WARN Comments at 13. These allegations, like the others contained within NC WARN's comments, are incorrect and based upon flawed assumptions.

28. 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. 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. Similarly, it is an overstatement that load growth has been flat for the past several years. Recent economic events have primarily impacted the industrial sector. However, industrial load growth increased 7% from 2009 to 2010. In addition, excluding the industrial sector, retail load growth has been 1.5% per year for the period 2004 to 2009. It is incorrect to claim that recent slow growth in total sales should imply that it will continue into the future.

29. 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. It is, however, unreasonable to assume that our service territory will 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 and this view is shared by the Public Staff in its Comments. See Public Staff Comments at 7.

#### RESPONSE TO INITIAL COMMENTS OF SACE

30. SACE criticizes Duke Energy Carolinas' 2010 IRP for the following primary reasons: (1) the Company's "High DSM" sensitivity portfolios are allegedly lower cost and lower risk to Duke Energy Carolinas' customers; (2) the Company allegedly failed to adequately consider EE and DSM resources in its evaluation of resource options; (3) the Company allegedly overstates the need for new generation over the planning period; (4) the Company allegedly does not incorporate realistic assumptions about new nuclear generation; (5) the Company allegedly does not provide a realistic plan to reduce greenhouse gas emissions, nor does it demonstrate that continued operation of its scrubbed coal generations assets remains economical; and (6) the Company allegedly hasn't modeled renewable resources beyond minimum compliance with the requirements of REPS. SACE Comments at 1. The Company strongly disagrees with SACE's assertions on the above points and will address each in order below.

31. As an initial matter, SACE also alleges that Duke Energy Carolinas has failed to provide "a 15 year forecast of DSM resources," as required pursuant to Commission Rule R8-60(c)(1). The specific filing requirements of Rule R8-60 relating to the content of a utility's forecast as to demand side resources are set forth in Rule R8-60(i)(1) and require the following information: **"The tabulation shall also indicate the projected effects of demand response and energy efficiency programs and activities**

**on the forecasted annual energy and peak loads on an annual basis for a 15-year period, and these effects also may be reported as an equivalent generation capacity impact.”** (emphasis supplied). Tables 4.1 and 4.2 of its 2010 IRP, located on pages 69 and 70, enumerate the projected energy and peak demand impacts of its portfolio of energy efficiency and demand side management programs. As such, the Company is in compliance with the forecasting requirements of the Rule and SACE’s assertion is incorrect.

32. As to the substantive aspects of Duke Energy Carolinas’ IRP, SACE initially criticizes the Company’s portfolio analysis for not prioritizing its High DSM case in all of its portfolios. SACE alleges that the “High DSM Case,” when applied to all of the Company’s potential portfolios, is lower cost to customer, lower risk to customers, and will result in lower rates to customers than Duke Energy Carolinas’ “Optimal Plan,” which is its selected portfolio of 2 Nuclear Units (2021/2023) and incorporates the Company’s “Base Case”. See SACE Comments at 3-7. SACE also included confidential Attachment 1 to demonstrate the comparison of certain “High DSM Case” portfolios to the “Optimal Plan” portfolio on a net present value basis. It is notable that SACE did not include the cost comparison information “High DSM Case” as applied to the 2 Nuclear Units (2021/2023) timeframe in Attachment 1. Very simply, SACE’s comparison of the Company’s “High DSM” sensitivity cases to its “Base Case” portfolios is misleading and presents an “apples to oranges” comparison. Further, SACE’s analysis disingenuously fails to acknowledge that the Company’s 2 Nuclear Units (2021/2023) timeframe is the most cost-effective portfolio under the High DSM sensitivity.

33. Initially, it is unreasonable to compare the Company's model portfolios that incorporate Base Case impacts for EE and DSM with those portfolios that incorporate High DSM impacts. SACE's analysis is fundamentally flawed in that its analysis compares model portfolios with different load profiles and is useless for the purpose of making any meaningful comparisons for resource planning purposes. This rings true for comparisons of Clean Energy portfolios, High Fuel Cost portfolios, and any other sensitivity portfolios to Base Case portfolios. The basic fact underlying this assertion is that each of the 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 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.

34. Further, SACE conveniently fails to address that when Duke Energy Carolinas' model portfolios are properly compared to each other, such that each portfolio includes the "High DSM" sensitivity impacts, the portfolio with 2 Nuclear Units (2021/2023) is the least cost to customers on a net present value basis. SACE's Attachment 1 to its Comments includes all of the other evaluated portfolios with the High DSM sensitivity except the 2 Nuclear Units (2021/2023). However, one need only look to Table A2 of the 2010 IRP to discover that the 2 Nuclear Units (2021/2023) is \$1.6 billion lower in cost on a net present value basis than the Natural Gas portfolio under the High DSM sensitivity. Applying that information to the chart set forth in Attachment 1, which includes the Natural Gas portfolio, clearly demonstrates the cost-effectiveness of 2

Nuclear Units (2021/2023) portfolio as compared to the other portfolios under the High DSM sensitivity. In fact, under the High DSM sensitivity, the 2 Nuclear Units (2021/2023) is [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] billion lower in cost than the 1 Nuclear Unit (2027) portfolio, which is the next most cost effective portfolio under that sensitivity. Therefore, even under SACE's misleading analysis, one can still objectively understand that the selected portfolio within Duke Energy Carolinas' 2010 IRP supports the development of a clean, reliable and cost-effective resource plan to meet its customer's need over the planning horizon.

35. As to SACE's assertion that the Company should have included its High DSM as the base EE/DSM impacts for its model portfolios, the Company submits that doing so would be imprudent and unreasonable for planning purposes. The peak and energy reductions associated with the High DSM sensitivity are certainly the Company's goal through its implementation of its portfolio of EE and DSM programs. The High DSM sensitivity 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. Actual implementation of these programs will be based on customer behavior, cost-effectiveness, and regulatory approval. Additionally, actual achievement of the High DSM sensitivity impacts is significantly dependent upon customer adoption and behavior. For the purpose of the IRP, it would not be appropriate to assume achievement of this level of energy and capacity impacts for the simple reason that program participation is ultimately dictated by the customers of Duke Energy Carolinas, not the Company itself. The Company is committed to offering its customers cost effective programs by offering them incentives to encourage their program

participation in EE and DSM programs. However, level of incentive required to drive participation varies between classes and types of customers, so if Duke were to assume the High DSM case, the amount of incentive required to drive participation for all customers may result in the implementation of non cost-effective programs. As such, the High DSM case is not reasonable 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.

36. SACE next asserts that Duke Energy Carolinas has failed to adequately consider energy efficiency as a resource option in its IRP. SACE focuses its criticism of the Company based on its comparison to what it deems a “leading utility” can achieve and alleges that Duke Energy Carolinas continues to underestimate its energy efficiency potential in its IRP. SACE Comments at 8. SACE also blames the industrial opt-out provision of N.C. Gen. Stat. § 62-133.9(f) for lost energy efficiency savings opportunities and criticizes Duke Energy Carolinas for failing to perform a new market potential study for its IRP. SACE Comments at 11.

37. Like NC WARN, SACE relies upon ACEEE data to support its market potential assessment and 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. As noted above, 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’s comments previously identified specific deficiencies and flaws in ACEEE’s analysis that do not require repetition here. Also, 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. As stated previously, Duke Energy Carolinas is aggressively pursuing cost effective energy programs, but we 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 is striving to achieve its High DSM case, 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 EE/DSM achievements represents a more reasonable and prudent input to the resource portfolio.

38. As to SACE's comments on industrial opt-out, Duke Energy Carolinas is committed 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 the Company is providing its customers the ability to opt in and out of its programs subject to certain limitations, 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") pilot, Duke Energy Carolinas is developing new energy efficiency programs to incentivize customers to opt in and participate in the Company's portfolio of programs.

As noted above in response to the comments of Public Staff, Duke Energy Carolinas recognizes 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.

39. SACE, like Public Staff, also questions the Company's planning reserve margin. See SACE Comments at 15-16. The Company addressed the Public Staff's comments earlier in its reply, but it is important to note 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 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. 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.

40. SACE also questions the Company's methodology of planning reserves for its DSM resources. See SACE Comments at 17. This criticism is misplaced and presumes that all of its 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. All of these programs require either communication with the customer, customer acceptance at the time of peak, or the reliance on aging

infrastructure. Technical issues such as communication failures or customers not able to cut their full load can result in less demand reduction than anticipated. Therefore, reserves are necessary to backstand to ensure the Company has adequate resources to meet customer needs and these resources are necessary for prudent planning.

41. SACE's criticism of the impact of Duke Energy Carolinas' wholesale operations on its need for new generation is similarly misplaced. The "new" wholesale load of Central Electric Co-Operative ("Central") is a historically-served wholesale customer located within the Company's balancing authority area that has chosen to resign with Duke Energy Carolinas to meet its energy and capacity needs. Central, and Duke Energy Carolinas' other wholesale customers, have helped pay for portions of the Company's current generating system that benefits all of its customers and should not be fully responsible for new capacity added to the system over time.

42. SACE further criticizes Duke Energy Carolinas for allegedly failing to have a realistic plan to reduce greenhouse gas ("GHG") emissions over the planning horizon and for failing to evaluate the economics of the continued operation of its coal generating facilities with environmental controls already installed. SACE Comments at 18. The Company again disputes this contention. Duke Energy Carolinas' IRP has been designed and modeled to provide affordable, reliable and clean resources to meet future customer needs in a carbon-constrained environment. From the time the Company began to incorporate potential GHG regulation into its resource planning process in 2006, Duke Energy Carolinas has assumed a cap-and-trade program would be enacted. Even now, with the change in leadership in Congress, many believe that GHG constraints in the form of regulation from the EPA are likely to be implemented. Under this assumption,

the Company has sought to develop a cost-effective portfolio of resources that meets customer energy needs while complying with the assumed GHG regulation. Our results consistently demonstrate that this is best achieved 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. As the proposed emissions cap declines over time, the price of GHG allowances will likely increase. As the prices of GHG allowances increase, additional end-use energy efficiency, nuclear, natural gas, and renewable generation will likely be more cost-effective and, over time, will lead the Company to replace coal-fired generation resources as those resources near or reach the end of its economic lives.

43. Coal-fired generation resources, particularly those with environmental controls, will continue to be an important part of the portfolio through at least 2030, over a range of potential GHG allowance prices. To the extent such resources become less economic to operate as part of the Company's portfolio in the future, Duke Energy Carolinas will make all necessary adjustments to ensure that its generation system is being planned, constructed and operated at the least reasonable cost to its customers. The Company's current coal fleet includes some of the most economic units on the system as evidenced by the high capacity factor projections in the 2010 IRP. As Cliffside Unit 6 comes online, the efficiency of Duke Energy Carolinas' coal fleet will improve even more, as the older, less efficient units move even further up the dispatch stack and will ultimately be retired by 2015. Duke Energy Carolinas will continue to evaluate new GHG regulations as they develop and analyze their ultimate impact on its current generating system. At the present time, the Company 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.

44. SACE, like NC WARN, also questions Duke Energy Carolinas assumptions regarding the cost and schedule for construction of a new nuclear generating facility. See SACE Comments at 22-26. SACE points to the history of the initial nuclear build-up in the United States and certain isolated examples of current projects developing different technologies to assert that the Company's estimates are inaccurate. SACE Comments at 25. As articulated above in response to NC WARN's comments, Duke Energy Carolinas believes 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.

45. With respect to the schedule, it is important to include a full description of the construction window as well as the window for start-up and fuel load. The Lee Nuclear Station schedule currently shows deployment to the site for construction in summer of 2014 for two years of initial site construction activities. At the end of construction is a six month window for fuel load and initial start-up testing. When defining the construction window from site deployment to commercial operation, the Lee Nuclear schedule represents an overall construction schedule duration approaching seven years for Unit 1. Duke Energy Carolinas believes this is a very realistic schedule given:

- The AP1000 design and engineering will be substantially completed before construction starts;

- A stable Nuclear Regulatory Commission (“NRC”) licensing platform avoids introduction of new requirements;
- The AP1000 design includes a simplified nuclear island design with passive safety features;
- Advanced modular construction techniques are currently being proven during construction of AP1000 reactors in China, and additional construction technique evaluation for the AP1000 in the United States will occur before the construction of Lee Nuclear Station begins;
- Extensive use of proven Pressurized Water Reactor (“PWR”) technologies; and
- The significant level of planning in coordination with the WEC/SN consortium that has gone into developing the current schedule.

46. A key consideration in Duke Energy Carolinas’ selection of the AP1000 design was its simple passive design features and extensive use of proven PWR technologies. The passive design and use of proven technologies are strong mitigants to the asserted risks. The Company’s approach is consistent with recently issued guidance from the Institute for Nuclear Power Operations (“INPO”), which states that “[m]odular design and construction, done correctly, can significantly reduce both overall construction cost and time. The decision to use modular construction techniques should be made at the very beginning of a project and factored into the overall design and constructability reviews. The use of modular construction can generally reduce the overall weight of steel by 20 to 40 percent.”<sup>5</sup> Additionally, despite SACE’s speculative

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<sup>5</sup> INPO 11-001, February 2011, INPO/Utility Benchmarking Current Domestic Modular Construction Facilities.

remarks to the contrary, supply chain capacity has continued to expand while demand has reduced since the economic downturn of 2008.

47. Further, the NRC has recently affirmed the design certification schedule for the AP1000, which will lead to its certification of the AP1000 design, in its current revised design, in September 2011. The AP1000 reference Combined Construction and Operating License (“COL”) for Vogtle is expected to be issued within months of the NRC certification of the AP1000 revised design. Duke Energy Carolinas continues to diligently monitor lead times for critical plant equipment, licensing activities and construction operations at all AP1000 design facilities both in the U.S. and abroad to stay current on the best available relevant information relating to the future construction of Lee Nuclear Station. Based on its internal analysis and relevant industry information, Duke Energy Carolinas firmly believes that its current schedule for the proposed construction of Lee Nuclear Station is reasonable and prudent.

48. As to SACE’s assertions regarding the cost of new nuclear plant development and construction, Duke Energy Carolinas has already addressed certain aspects of such criticisms in its comments set forth above in response to NC WARN. It is telling that the examples referenced by SACE are all from several decades ago, or representative of experiences in Europe with a technology vendor that neither the Company, nor any other U.S. utility, has selected for development and construction here in the United States. Also, in the historical context, cost overruns described by SACE in its Table 5 to its comments cover the period of nuclear plant construction starts from 1966 – 1977, which SACE concedes provided learning experience to guide future projects. However, the licensing, development and construction nuclear world of today is

one of stark contrast to the world of the initial nuclear build cycle of the 1970s. The table set forth below demonstrates the sharp differences between the nuclear world of today and that world of decades past, illustrating that the past nuclear construction experience has limited predictive ability.

	1966-1977 Methodology	Current Methodology
Licensing	<ul style="list-style-type: none"> <li>Two-step Process - (i) Construction Permit, (ii) Operating License</li> <li>Changing Requirements – (i) Issues raised repeatedly, (ii) Uncertain NRC oversight and documentation</li> </ul>	<ul style="list-style-type: none"> <li>Single-Step Process – (i) Combined Operating License (COL) with ITAAC</li> <li>Known Requirements – (i) Certified design - issues raised once, (ii) Established inspection criteria (ITAAC) and documentation</li> </ul>
Plant Design	<ul style="list-style-type: none"> <li>New Technology – (i) Scale-up issues from smaller military and research reactors, (ii) Issues translating fossil-steam plant experience to nuclear</li> <li>Customized Designs – different A/Es</li> <li>Design Completion – (i) JIT design, (ii) Field routed, (iii) Inadequate physical modeling</li> <li>Constructability and operating experience not incorporated</li> </ul>	<ul style="list-style-type: none"> <li>Proven Technology – (i) Based on utility requirements (significant operating experience), (ii) Review of design, margins and test criteria</li> <li>Standardized Design – one design team</li> <li>Design Completion – (i) Completed prior to construction, (ii) Fully engineered, (iii) 3D modeling</li> <li>Designs incorporate constructability and operating experience</li> </ul>
Supply Chain	<ul style="list-style-type: none"> <li>New supply chain without pre-qualifications</li> <li>Component costs determined post-design</li> <li>Quality issues with equipment/components</li> </ul>	<ul style="list-style-type: none"> <li>Standard equipment/components</li> <li>Letters of intent for key equipment</li> <li>Oversight of suppliers by Owners and Contractors</li> </ul>
Quality Assurance	<ul style="list-style-type: none"> <li>Customized compliance procedures</li> <li>Inspect vs. build-in quality control</li> </ul>	<ul style="list-style-type: none"> <li>Standardized compliance procedures</li> <li>Quality built-in vs. inspection driven</li> </ul>
Owner / Operator	<ul style="list-style-type: none"> <li>Inexperienced Operators – (i) New technology w/many owners, (ii) Fossil plant experience</li> </ul>	<ul style="list-style-type: none"> <li>Experienced Operators – (i) Proven technology w/industry consolidation, (ii) Extensive nuclear experience</li> </ul>
Project Risk and Contract Management	<ul style="list-style-type: none"> <li>Cost-Plus Contracting – (i) Necessitated by lack of prior industry experience with complex projects, (ii) Owner not integrated with EPC contractor</li> <li>Lack of Risk Management Concepts - (i) No formal risk management process (reactive), (ii) Lack of Owner integration with EPC contractor</li> <li>Planning &amp; Scheduling – (i) EPC scope not well defined and schedule not</li> </ul>	<ul style="list-style-type: none"> <li>Fixed / Target Contracting – (i) Extensive nuclear complex project experience, (ii) Owner oversight of EPC contractor and subs</li> <li>Proactive Risk Management – (i) Formal, proactive risk management processes, (ii) Owner engaged with planning/design/procurement &amp; schedule development</li> <li>Advanced Planning &amp; Scheduling – (i) Well defined scope and schedule with</li> </ul>



	<p>integrated, (ii) Unsophisticated scheduling and planning tools</p> <ul style="list-style-type: none"> <li>— Cost Controls – Inability to properly deal with scope/schedule changes, limited progress/cost tracking tools</li> <li>— Construction Processes – (i) Stick-built “in the hole”, (ii) Manual documentation and data management, (iii) Rigging limitations, (iv) Complex I&amp;C systems and cabling, (v) Manual surveying and layout, (vi) Limited welding techniques</li> <li>— Startup &amp; Commissioning – (i) Lack of operational experience, (ii) Poorly-defined protocols and requirements, (iii) JIT test procedures, (iv) Limited test acceptance criteria (TAC)</li> </ul>	<p>constructability reviews, (ii) Sophisticated scheduling tools</p> <ul style="list-style-type: none"> <li>— Cost Controls – (i) Milestone payments linked to measurable progress (not expenditures), (ii) Sophisticated progress/cost tracking</li> <li>— Construction Processes – (i) Module-built “out of the hole”, (ii) Automated data and documentation, (iii) Large crane capabilities, (iv) Digital and fiber-optic I&amp;C systems, (v) GPS/laser surveying and layout, (vi) Automatic and narrow-gap welding common</li> <li>— Startup &amp; Commissioning – Extensive operational experience, (ii) Well-defined protocols/requirements described in COLA and ITAAC, (iii) Test procedures developed in-advance, (iv) Established TAC</li> </ul>
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49. Duke Energy Carolinas certainly recognizes that cost increases may occur in the construction of any new generation facility. SACE points out an internal July 2010 email from Jim Turner, a former executive at Duke Energy Corporation, providing his opinion that the Company should assume and plan for significant cost over-runs in any new nuclear construction project. Mr. Turner’s email is not reflective of the position of Duke Energy Carolinas or its leadership with respect to estimated capital costs for Lee Nuclear Station, nor is it consistent with the actual publicly available cost information from other AP1000 projects in the U.S. and abroad. As previously addressed in the Company’s response to NC WARN’s initial comments, the EPC contractor for both AP1000 projects in the Southeast and the AP1000 projects in China developed the Company’s cost estimate for Lee Nuclear Station. There is no better cost estimate information available with respect to the construction of such generation facilities. There is a potential for cost over-runs with any type of construction project and ultimately, the treatment of and liability for any costs deviating from or beyond an initial estimate will be defined by the specific terms and conditions of the agreement between the utility and

its EPC contractor, once it is negotiated and executed. In the context of the IRP, the possibility of cost increases for the Lee Nuclear Station has been considered by incorporating sensitivity with a 20% higher nuclear capital cost. The 2010 IRP indicates that 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.

50. SACE finally states that Duke Energy Carolinas should consider additional renewable resources beyond those required to meet the Company's annual REPS obligations. The Company responded above to a similar contention from NC WARN and will rely on its response above to address SACE's criticism on this issue.

#### CONCLUSION

In conclusion, Duke Energy Carolinas submits that its 2010 Integrated Resource Plan and REPS Compliance Plan meet the requirements of all applicable statutes and Commission Rules and should be approved. No evidentiary hearing is required or necessary in this proceeding based on the issues raised by the intervenors. Last year, the Commission conducted a full evidentiary hearing on the utilities' full 2008 and 2009 IRPs and REPS Compliance Plans, and another hearing on primarily the same issues the intervenors raised with respect to those prior IRPs is unnecessary. The Company also finds that SACE's proposal for a technical workshop to be unnecessary at this time given the opportunity that the parties have had to review and comment upon the IOU's IRPs. Duke Energy Carolinas submits that as no parties have filed comments contesting the reasonableness or prudence of its 2010 REPS Compliance Plan, it should be approved as filed by the Commission without additional review or consideration.

Respectfully submitted, this the 1st day of March 2011.

DUKE ENERGY CAROLINAS, LLC



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# C

## APPENDIX: SOUTH CENSUS REGION RESULTS

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The South is the largest region in terms of electricity use. In 2008, total electricity use is estimated as 1,683 TWh. Figure C-1 shows the breakdown by sector. The largest sector is residential with 40% of the total. The commercial sector accounts for 36% and the industrial sector for 26%.

By 2030, total use is expected to be 2,336 TWh, a 34% increase over 2008, implying a growth rate of 1.5% per year. The commercial sector grows the fastest during the forecast period at a rate of 2.1%, while the residential sector grows at 1.5% per year and the industrial sector grows at 0.7% per year.

Total achievable potential in 2030 for electricity savings through energy-efficiency programs ranges from 189 to 259 TWh, which equates to 8-11% of total load in that year as shown in Figure C-2. Figure C-3 shows the realistic achievable potential savings by sector. In terms of the share of total load that can be saved by 2030, the commercial sector is the largest and the residential and industrial sectors are roughly equal. In the short term, the residential sector has the greatest opportunity.

Figure C-4 presents the residential baseline and achievable potential forecasts by end use. In the baseline forecast, the fastest growing end uses are electronics and other. Air conditioning increases by almost 50%, while lighting declines as a result of the EISA legislation. Energy efficiency savings in this sector will come from actions across several end uses: home electronics, air conditioning, water heating and lighting.

Figure C-5 presents the commercial-sector baseline and achievable potential forecasts by end use. Baseline growth is driven largely by growth in office equipment and "other" uses. Achievable energy-efficiency savings are dominated by opportunities in lighting, office equipment and cooling, which together account for 78 TWh savings in 2030.

The industrial sector grows at a steady pace and has considerable opportunity for energy-efficiency savings in the machine drive end use. Savings are 26 TWh in 2030, 65% of the industrial-sector realistic achievable potential. Figure C-6 presents the industrial-sector baseline and achievable potential forecasts by end use.

To put the end-use and sector-level savings potential in perspective, Figure C-7 presents the top 10 end uses in the South's realistic achievable potential. As expected, residential and commercial cooling represent more opportunity than in the other regions. Finally, Figure C-8 presents the potential for summer peak demand savings from demand response. For the Northeast, the achievable range is 7-9% in 2030, which is consistent with the results for the U.S. as a whole.

Appendix: South Census Region Results

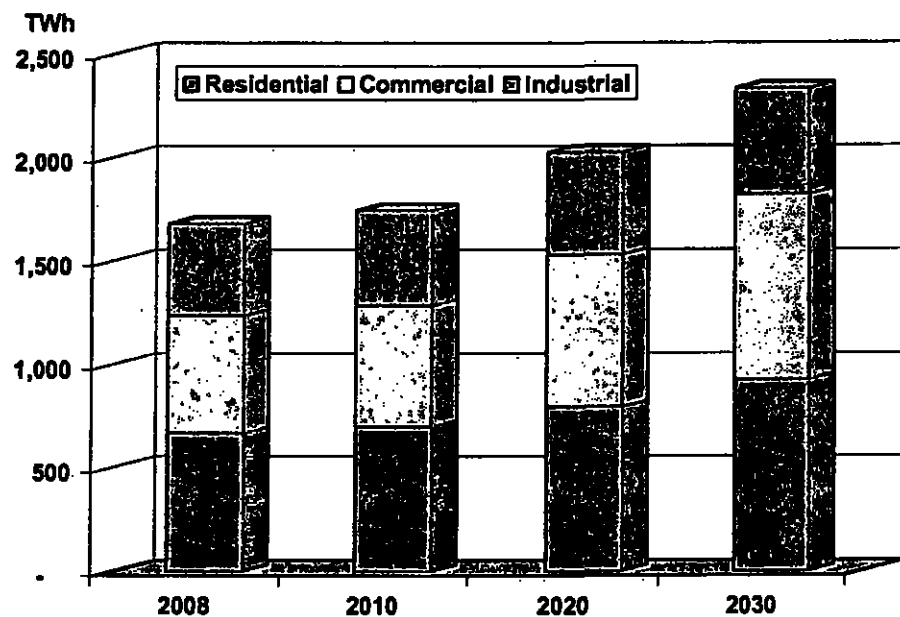


Figure C-1  
Electricity Forecast by Sector – South Region

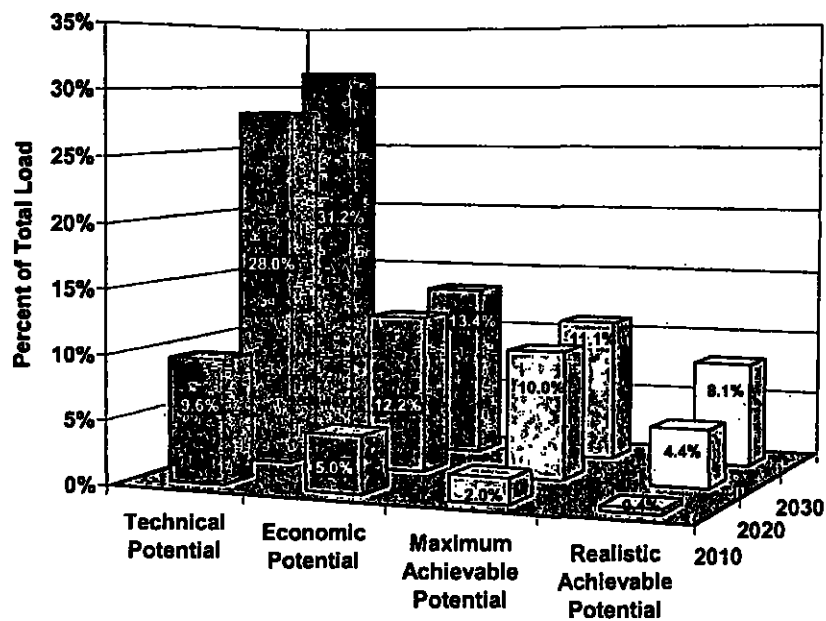


Figure C-2  
Energy Efficiency Potential – South Region

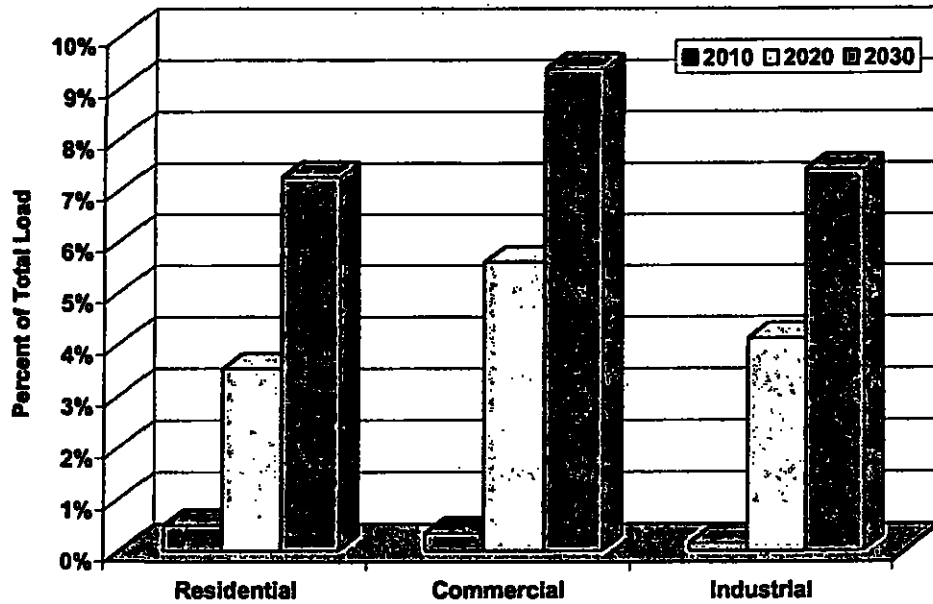


Figure C-3  
Realistic Achievable Potential by Sector – South Region

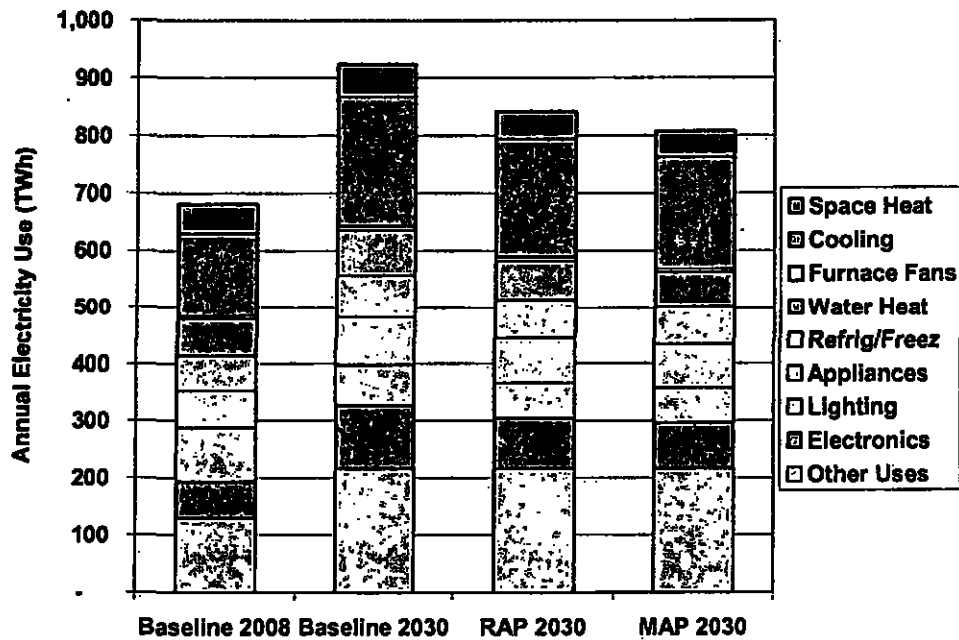


Figure C-4  
Residential Baseline and Achievable Potentials by End Use – South

Appendix: South Census Region Results

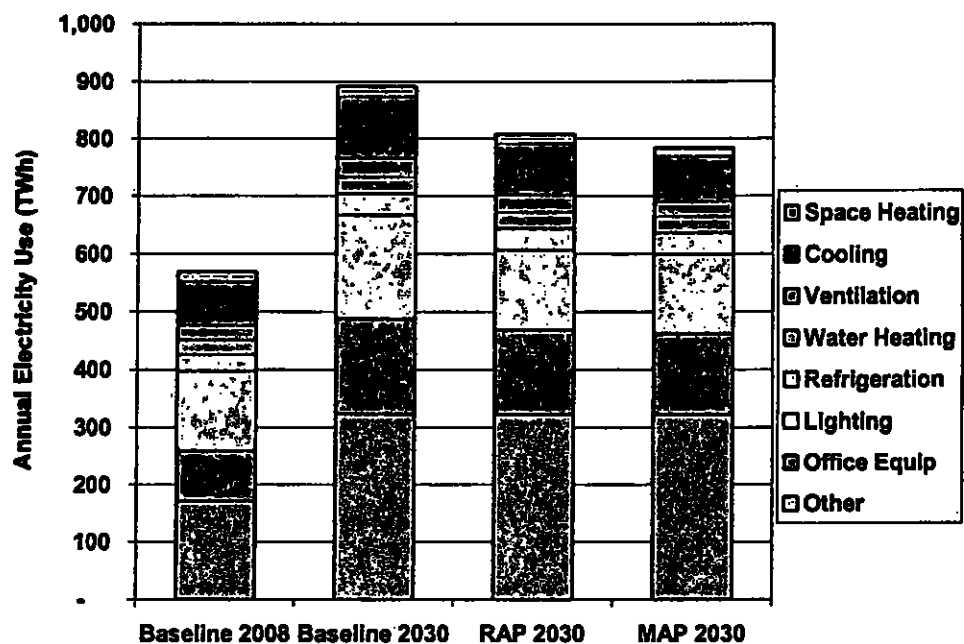


Figure C-5  
Commercial Sector Baseline and Achievable Potentials by End Use – South

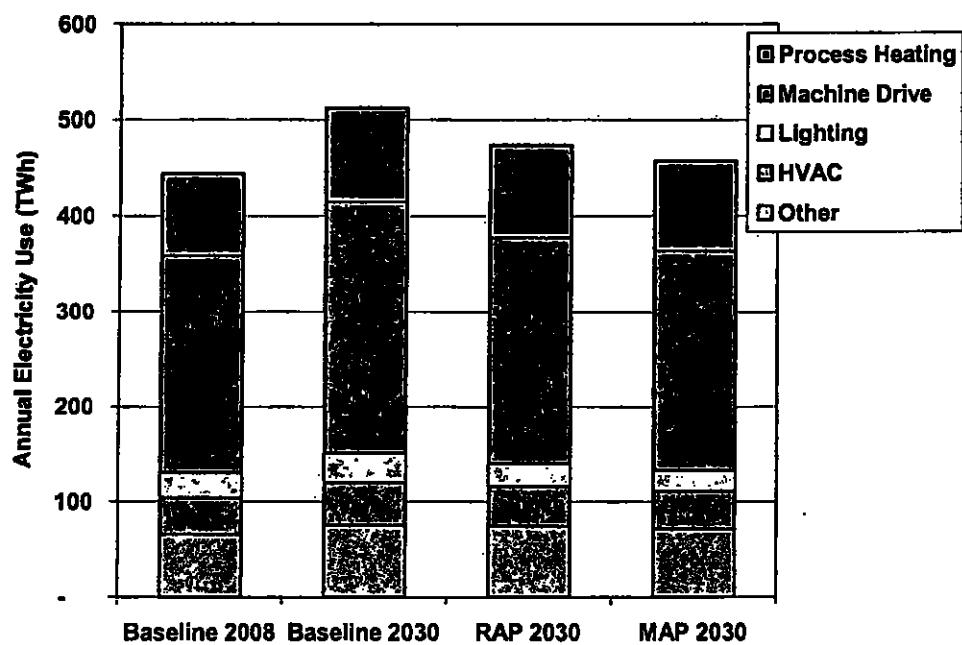


Figure C-6  
Industrial Sector Baseline and Achievable Potentials by End Use – South

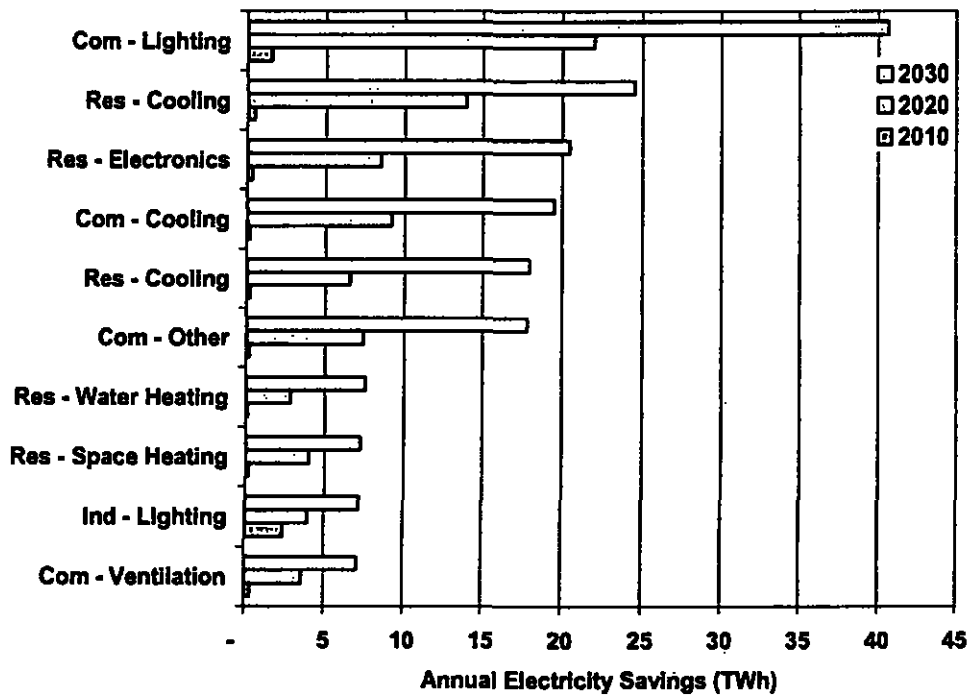


Figure C-7  
Realistic Achievable Potential, Top 10 End Uses – South

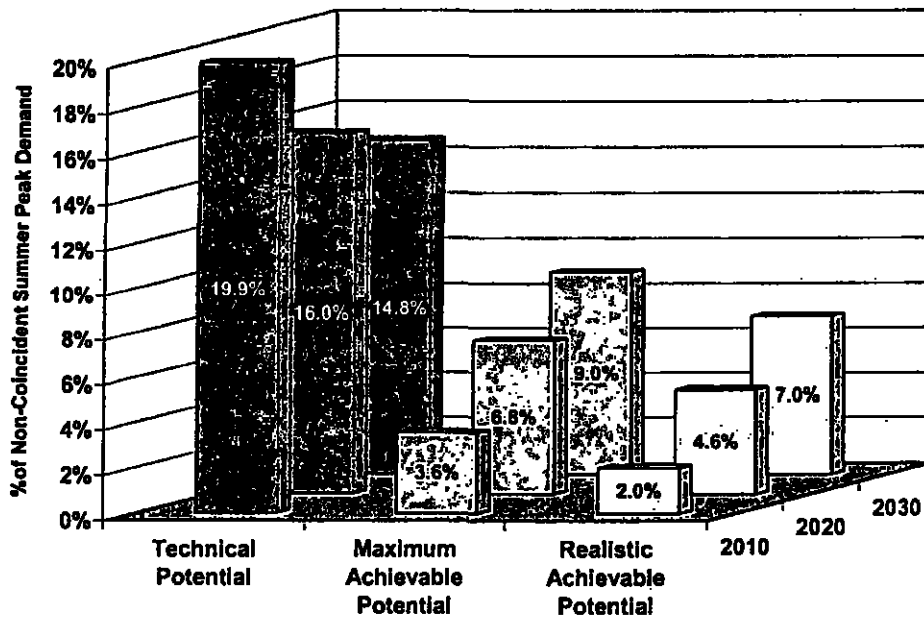


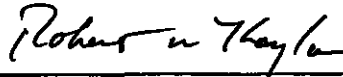
Figure C-8  
Demand Response Potential – South



CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Carolinas, LLC's Reply Comments in Docket No. E-7, 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 1<sup>st</sup> day of March, 2011.



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