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Clerk's Office
N.C Utilities Commission

June 6, 2011

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

RE: Docket No. E-100, Sub 128

Dear Ms. Vance:

Please find enclosed for filing in the above-referenced dockets the original, 30 copies and a diskette of Progress Energy Carolinas, Inc.'s Proposed Order.

Sincerely,

Len S. Anthony
General Counsel
Progress Energy Carolinas, Inc.

LSA:mhm

Enclosure

STAREG1595

Full Dist.

Dist-P. Barnes

Progress Energy Service Company, LLC
P.O. Box 1551
Raleigh, NC 27602

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-100, SUB 128

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of

Investigation of Integrated Resource	)	PROGRESS ENERGY
Planning in NC - 2010	)	CAROLINAS, INC.'S
Docket No. E-100, Sub 128	)	PROPOSED ORDER

HEARD: Commission Hearing Room, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina January 24, 2011

BEFORE: Commissioner William T. Culpepper, III, presiding, Chairman Edward S. Finley, Jr. and Commissioners Lorinzo L. Joyner, Bryan E. Beatty, Susan Warren Rabon, ToNola D. Brown-Bland and Lucy T. Allen

APPEARANCES:

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

Len S. Anthony, General Counsel – Progress Energy Carolinas, Inc., 410 South Wilmington Street, Post Office Box 1551, PEB 17A4, Raleigh, North Carolina 27602

For Duke Energy Carolinas, LLC (Duke):

Charles Castle, Associate General Counsel, Duke Energy Corporation, 526 South Church Street, Post Office Box 1066-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 (*Dominion*):

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 (NC WARN):

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

For the Southern Alliance for Clean Energy (SACE):

Gudrun Thompson, 601 W. Rosemary Street, Suite 220, Chapel Hill, North Carolina 27516

For the North Carolina Electric Membership Corporation (NCEMC):

Robert Schwentker and Richard Feathers, 3400 Sumner Boulevard, Raleigh, North Carolina 27616

For the North Carolina Sustainable Energy Association (NCSEA):

Kurt Olson, P.O. Box 6465, Raleigh, North Carolina 27628

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

Robert S. 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 long-range 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. To that end, to require energy planning and fixing of rates in a manner to result in the least cost mix of generation and demand-reduction measures which is

achievable, including consideration of appropriate rewards to utilities for efficiency and conservation which decrease utility bills....

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 investor-owned utilities and the North Carolina Electric Membership Corporation (hereinafter, collectively, the utilities) furnish the Commission with a biennial report in even-numbered years that contains the specific information set out in 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 Renewable Energy and Energy Efficiency Portfolio Standard (REPS) compliance plan as part of its IRP report. Within 150 days after the filing of each electric 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 addition that it believes should be the subject of an evidentiary hearing.

The 2010 biennial IRPs and REPS Compliance Plans were filed in September 2010 in this proceeding 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 (Dominion); North Carolina Electric Membership Corporation; Haywood Electric Membership Corporation (EMC); Blue Ridge EMC; Piedmont EMC; Rutherford EMC; EnergyUnited EMC; and GreenCo Solutions. Halifax EMC requested and received an extension of time until November 2010 to file its REPS Compliance Plan.

The following parties have been granted intervenor status in this proceeding by Commission Order: the Carolina Industrial Groups for Fair Utility Rates I, II and III (CIGFUR I, II and III); the North Carolina Sustainable Energy Association (NCSEA); the Public Works Commission of the City of Fayetteville (FPWC); Nucor Steel-Hertford (Nucor); the North Carolina Waste Awareness and Reduction Network, Inc. (NC WARN); Southern Alliance for Clean Energy (SACE); and Carolina Utility Customers Association, Inc. (CUCA).

Attorney General Roy Cooper has given notice of his intervention in these proceedings on behalf of the using and consuming public pursuant to G.S. 62-20. Additionally, the Public Staff is a party participating in these proceedings pursuant to G.S. 62-15(d) and Commission Rule R1-19(e).

On December 3, 2010 the Commission issued its Order Scheduling Public Hearing which scheduled a hearing on January 24, 2011 solely for the purpose of taking non-expert public witness testimony with respect to the 2010 IRPs and REPS Compliance Plans.

On December 13, 2011 SACE filed a request for evidentiary hearing. On December 17, 2010 NC WARN filed a pleading in support of SACE's request. On December 28, 2010 PEC filed a response to SACE's and NC WARN's request for an evidentiary hearing and moved that the Commission defer ruling until SACE and NC WARN had identified the issues in controversy.

On January 13, 2011 the Public Staff moved that the deadline for filing comments on the biennial reports be extended until February 20, 2011. The Commission granted the motion on January 19, 2011.

The matter came on for a non-expert public witness testimony hearing on January 24, 2011. Twenty public witnesses testified before the Commission.

On February 9, 2011 Dominion filed a revised IRP.

On February 10, 2011 SACE and the Public Staff filed initial comments on the 2010 IRPs and REPS Compliance Plans. On February 11, 2011 NC WARN filed its comments.

On February 23, 2011 Duke moved that the deadline for filing reply comments be extended until March 1, 2011. The Commission granted the motion on February 24, 2011. Reply comments were filed on March 1, 2011 by PEC, Dominion, Duke, and Blue Ridge EMC. On March 10, 2011 the Public Staff clarified two items in its February 10, 2011 comments. On May 2, 2011 Duke filed a supplemental response to the Public Staff's initial 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 that order, to the limited extent of allowing parties to file proposed orders or briefs before the Commission issues its final order in this proceeding. On May 5, 2011 the Commission issued an Order allowing parties to file proposed orders or briefs.

The following parties submitted briefs and/or proposed orders: PEC; Duke, Dominion; the intervenors; the Public Staff; and the Attorney General.

Based on the foregoing, the information contained in the utilities' reports, the testimony and exhibits introduced at the public hearing, and the Commission's record of these proceedings, the Commission now makes the following:

FINDINGS OF FACT

1. PEC is a duly organized corporation existing under the laws of the State of North Carolina and is engaged in the business of developing, generating, transmitting, distributing and selling electric power to the public in North and South Carolina, and is subject to the jurisdiction of the North Carolina Utilities Commission as a public utility. PEC is lawfully before this Commission based upon the filing of its 2010 Biennial IRP pursuant to G. S. 62-110.1 and Commission Rule R8-60.

2. G. S. 62-110.1 and Commission Rule R8-60 require North Carolina's electric power suppliers to submit biennial IRPs during even-numbered years and annual updates during odd-numbered years.

3. PEC's energy and load forecasts are reasonable and appropriate for use in PEC's 2010 Biennial IRP.

4. PEC's efforts and plans to offer DSM and EE measures and programs are appropriate.

5. PEC's renewable and energy efficiency portfolio compliance plans are reasonable and appropriate.

6. PEC's 2010 Biennial IRP is reasonable and should be approved.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 1 AND 2

These findings of fact are essentially informational, jurisdictional, and procedural in nature and are not controversial.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 3

The evidence for this finding can be found in PEC's 2010 Biennial IRP, the Comments of the Public Staff, and PEC's Reply Comments.

As explained in PEC's September 13, 2010 IRP, PEC's forecasting processes have utilized econometric and statistical methods since the mid-70s. During this time, enhancements have been made to the methodology as data and software have become more available and accessible. Enhancements have also been undertaken over time to meet the changing data needs of internal and external customers.

The System Peak Load Forecast is developed from the System Energy Forecast using a load factor approach. This load forecast method couples the two forecasts directly, assuring consistency of assumptions and data. Class peak loads are developed from the class energy using individual class load factors. Peak loads for the residential, commercial, and industrial classes are then adjusted for

projected load management impacts. The individual loads for the retail classes, wholesale customers, North Carolina Eastern Municipal Power Agency, and PEC use is then totaled and adjusted for losses between generation and the customer meter to determine System Peak Load. PEC's demand forecast represents a compound annual growth rate of 1.8% for retail peak demand across the forecast period, which is almost equal to its customer growth rate of 1.7%. Adjusting the forecast to reflect the impact of PEC's demand-side management (DSM) programs, PEC's retail demand growth rate drops to 1.1%.

The rate of growth in PEC's 2010 forecast is comparable to forecasts filed with this Commission in recent IRP proceedings, and PEC explained that it used the same methods, tools and models it has employed in recent years to develop load and energy forecasts presented to this Commission in prior IRP proceedings.

In its Comments, the Public Staff agreed with PEC's load and energy forecasts. The Public Staff found that "..... the economic, weather, and demographic assumptions that underlie PEC's peak and energy forecasts are reasonable and that PEC has employed accepted statistical and econometric practices. In conclusion, the Public Staff believes that PEC's peak load and energy sales forecasts are reasonable for planning purposes."[1] The Public Staff's conclusions regarding PEC's load and energy forecasts are consistent with Public

[1] Comments of the Public Staff filed in Docket No. E-100, Sub 128 on February 10, 2011; see page 6.

Staff and Commission findings in past IRP proceedings. For instance, in its Order[2] regarding the utilities' 2006 IRP filings, the Commission concluded: "The peak and energy forecasts appear reasonable for planning purposes." Similarly, in its Order[3] regarding the utilities' 2007 IRP filings and its Order[4] regarding the utilities' 2008-2009 IRP filings, the Commission stated: "Based on the foregoing, the Commission concludes that the energy and peak load forecasts of PEC and Duke are reasonable and appropriate. Their forecasting methodology is well accepted in the industry and has been proven over time to be reasonably accurate."

In its Comments, NC WARN claims PEC's demand growth forecast is overstated. In support of its position, NC WARN references the fact that PEC's retail sales only grew 0.3% annually from 2000 to 2009 (see page 7 of PEC's 2010 IRP). PEC responded to NC WARN's allegation by explaining that NC WARN has taken this data out of context. PEC's industrial retail sales declined by almost 30% from 2000, (when industrial accounted for about 36% of total retail sales) to 2009. Over the same period however, PEC's residential and commercial sales increased by 20%, or about 2.1% per year. In the forward looking years, PEC essentially has smaller growth in the industrial sector, about 0.8% per year. The

[2] July 9, 2007 Order Approving Integrated Resource Plans in Docket No. E-100, Sub 109; see page 4.
[3] September 19, 2008 Order Approving Integrated Resource Plans in Docket No. E-100, Sub 114; see page 14.
[4] August 10, 2010 Order Approving Integrated Resource Plans in Docket Nos. E-100, Sub 118 and E-100, Sub 124; see page 14.

growth in PEC's residential and commercial sectors amounts to about a 1.6% growth rate, which is consistent with PEC's historical growth rates.

PEC further explained that in 2008, at the request of NC WARN, the Commission conducted a hearing to evaluate the utilities' forecasting processes. In that proceeding, the Public Staff thoroughly evaluated the utilities' forecasting methodologies and forecasts results. In that proceeding, as in this proceeding, the Public Staff concluded that the assumptions that underlie PEC's peak and energy forecasts are reasonable; that PEC has employed accepted statistical and econometric practices used in forecasting; and that PEC's peak load and energy sales forecasts are reasonable for planning purposes. The Commission then found, after a full evidentiary proceeding, that the utilities' forecasting methodologies and results were reasonable and should be approved.

NC WARN's focus appears to be its opposition to new baseload generating units, in particular nuclear power plants, and its desire that all existing coal plants be retired. No utility to this proceeding is seeking approval for construction of a new nuclear generating unit in this proceeding. Before PEC, or any utility, can build a nuclear plant it must obtain explicit approval from the Commission. A proceeding in which the Commission is considering such a request for approval to build a new nuclear plant would be the proper forum to address the need for such a plant and the alternatives.

The Commission finds that PEC's energy and load forecasts are reasonable and appropriate for the purposes of developing PEC's 2010 IRP. PEC has developed its forecasts using the same tools and methodologies that were found to be reasonable and accurate in recent IRP proceedings. The Public Staff, after having thoroughly reviewed PEC's forecasts, supports their use and accuracy. The Commission notes that the Public Staff examined the accuracy of PEC's peak load forecast over the past five years and found an error rate of less than 5%. The NC WARN comments offer no substantive evidence for its positions and recommendations. North Carolina's utilities are charged with ensuring their systems can reliably meet the electricity needs of their customers. To simply assume customers will use less electricity during the forecast period than that reflected in PEC's resource plan or to include unsupported and unreasonable DSM/EE energy savings would jeopardize PEC's ability to reliably meet the needs of its customers.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 4

The evidence for this finding can be found in PEC's 2010 Biennial IRP, the Comments of the Public Staff and PEC's Reply Comments.

As explained in Appendix E of PEC's IRP, PEC offers an array of DSM/EE programs to its residential, commercial, industrial and governmental customers, along with several rate options all encouraging energy efficiency and demand response. PEC has also implemented several educational initiatives aimed at increasing consumer energy efficiency awareness. These initiatives are described in detail in Appendix E of PEC's 2010 IRP.

PEC selects new DSM/EE programs and measures by first performing a market potential study. This study identifies all DSM/EE programs and measures that are technically viable. PEC then screens these programs and measures to determine their cost effectiveness using the Utility Cost Test, Rate Impact Measure Test and the Total Resource Cost Test. Through this process PEC has implemented three new demand response programs and eight new EE programs.

As explained in its IRP, PEC is investigating the potential for additional DSM/EE program opportunities on an on-going basis in an effort to expand its overall portfolio of cost-effective resource options. The 2010 IRP includes two new DSM/EE programs approved since the 2009 IRP was filed. In addition, the Commission notes that the planned residential benchmarking program included in the 2010 IRP has since been approved by the Commission. As noted by the Public Staff, PEC has increased the projected savings from its DSM/EE programs in its 2010 IRP as compared to its 2009 IRP.

The Public Staff made two recommendations regarding PEC's DSM/EE programs. The Public Staff's first recommendation is that "the Commission require both IOUs and EMCs to investigate the use of DSM for fuel savings and include a discussion of the results of their investigation in their next IRP." In its Reply Comments, PEC explains it was aware of the Public Staff's position on this issue and is investigating the use of its DSM programs to reduce its fuel costs.

The Public Staff's second recommendation is that "any IOU or EMC relying on a DSM/EE market potential study older than two years update its study or perform a new study and file with its next IRP." PEC agreed that market potential studies should be periodically updated. However, PEC argued that such updates should be prompted by changed circumstances such as changes in building codes and appliance standards rather than simply the passage of time. PEC explained that its Market Potential study, published in March 2009, incorporated projected Energy Independence and Security Act impacts, including new federal lighting standards. Further, as explained in Appendix E of PEC's IRP, its forecast of potential DSM/EE savings in the 2010 IRP incorporates an update to the 2009 Potential Study, and reflects a 12.5 percent increase in achievable energy savings over the March 2009 study. The Commission agrees that the utilities and electric cooperatives should only rely upon market potential studies that are based upon current circumstances, laws and regulations. Thus, such studies should be updated

when circumstances, laws or regulations have changed that materially impact these market potential studies' validity. The Commission, therefore, agrees with PEC that requiring biennial updates without regard to whether there have been any changes that impact the integrity of the previous study would not be productive and should not be required.

SACE suggests that PEC increase its EE efforts and raise its EE goals to more closely match those of a "leading typical utility" and then purports to provide a comparative analysis of PEC and Duke with that of a generic "leading" utility. SACE does not provide any details as to where the "leading" utility is located, the composition of its customer base and its end-use load, its rates, its avoided costs, etc. (all of which play a huge role in determining what DSM and EE programs a utility can cost effectively offer). In the absence of this data, SACE's determination of the EE potential of this generic utility and its allegations regarding PEC's efforts and plans for additional EE programs appears to be without basis.

PEC's comprehensive analysis of achievable energy efficiency potential was described in the rebuttal testimony of PEC witness Chris Edge in Docket No. E-100, Sub 124. He states that PEC contracted with ICF International, an industry leader in the design, implementation, market assessment and evaluation of DSM and EE programs, to perform a comprehensive analysis of the cost-effective,

achievable potential across PEC's service territory. Mr. Edge testified that the ICF study considered the PEC-specific factors that impact potential savings from utility administered DSM and EE programs including: demographic and customer composition; PEC electric rates and avoided costs; known regulatory factors (i.e. the significant effect of customer opt-out provisions); and other assumptions specific to PEC's service territory. Mr. Edge explained the study was intended to identify the approximate amount of cost-effective savings that can realistically be achieved through utility DSM and EE programs within the PEC service area over an extended period of time (and under a stated set of assumptions). He further explained that it serves as the foundation for identifying general areas and programs that might warrant consideration in PEC's DSM and EE portfolio. The DSM and EE potential a utility should incorporate into its least cost resource plan should be based upon a specific set of conditions that are unique to the utility's service territory to facilitate the most accurate comparisons with alternative solutions. The methodology for deriving demand-side reductions for resource planning purposes should be based on a detailed, investment grade analysis of achievable, cost effective options, versus a generic, hypothetical comparative analysis.

The Commission believes it is appropriate for PEC to continue to rely upon its comprehensive analysis specific to its territory, combined with the experience gained through actual implementation and evaluation.

SACE next asserts that Duke and PEC did not properly consider energy efficiency in their evaluation of resource options. Based upon the numerous EE programs PEC has filed with the Commission and incorporated into its resource planning, as well as the extensive market research and programs PEC is currently evaluating, this assertion appears inconsistent with PEC's actual accomplishments, efforts and plans in this regard. It also appears inconsistent with conclusions reported by SACE on its website (www.cleanenergy.org) as noted by PEC in its Reply Comments. In one of the lead articles on the website, entitled "Energy Efficiency Shining in the Southeast," SACE's John D. Wilson states: "Southeastern households and businesses are finding that their utilities may be offering attractive and comprehensive energy efficiency programs."

SACE next claims that the industrial opt-out provision included in Senate Bill 3 creates a lost energy savings opportunity. This statement has no relevance to an evaluation of the utilities' resource plans. The North Carolina General Assembly has determined that industrial customers should be allowed to implement their own DSM and EE programs and opt-out of utility sponsored programs. That is the law. PEC offers several commercial and industrial energy

efficiency programs that are available to all of its customers, including those that are eligible to opt-out. Thus, PEC has taken what steps it can to address this issue.

SACE also alleges that neither Duke nor PEC is using a comprehensive EE potential study in its IRP process. According to SACE, the utilities' EE potential studies are deficient because they are limited to cost-effective, realistically achievable programs and measures. In its Reply Comments, PEC readily admits it limits its DSM/EE programs to those that are cost effective and achievable. DSM and EE account for over 1,700 MWs of load reduction in PEC's IRP. PEC argues that these projected impacts play a substantial role in its ability to meet the future reliability needs of its customers. PEC emphasizes that such programs must be real and achievable or the reliability of PEC's system will be impaired. The Commission agrees that cost-effective, realistically achievable potential is the most prudent standard for resource planning purposes.

The Commission finds that PEC's efforts and plans with regard to the offering of DSM/EE programs and measures to its customers are reasonable and appropriate. The Commission notes that PEC is currently offering demand response programs to all of its customer classes, a residential new construction energy efficiency program, a residential existing home retrofit energy efficiency program, a residential lighting program, a residential appliance recycling program, a residential solar water heating pilot program, a comprehensive CIG program that

covers both new and existing facilities and provides for both prescriptive and custom measures, and a low-income weatherization program. The Commission further notes that there are no caps on participation on any of PEC's Commission approved programs and measures.

The Commission further notes that the utilities' and the Commission's statutory obligation with regard to resource planning is to implement the least cost resource plan. This necessarily requires that the state's utilities only offer cost-effective DSM/EE programs. The Commission finds that PEC's DSM/EE efforts and plans are reasonable and prudent and reflect the appropriate level of DSM/EE to achieve a cost-effective, least cost resource plan. Finally, as found earlier, the Commission agrees with PEC that it should only reflect in its energy load forecast those megawatt and megawatt-hour reductions that may be achieved through Commission approved programs.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 5

The evidence for this finding can be found in PEC's 2010 Biennial IRP, Comments of the Public Staff, and PEC's Reply Comments.

PEC filed its first Renewable Energy and Energy Efficiency Portfolio Standard (REPS) Compliance Plan as Appendix D to its 2008 IRP and filed an

updated REPS Compliance Plan as Appendix D to its 2009 IRP. An updated REPS Compliance Plan is included as Appendix D to PEC's 2010 IRP. These Compliance Plans provide details of existing renewable energy resources, contracts entered into for additional renewable resources, and the projected resources PEC anticipates adding in future years. In addition to the amount of renewable energy existing and projected in the future, the Compliance Plan provides information regarding the customer cost caps contained in Senate Bill 3. These details include the projected aggregate cost caps by year, the amount of cost caps committed under existing contracts, and the projected amount of the cost caps available to procure additional renewable energy.

PEC explained that its REPS Compliance Plan includes only those resources under contract with PEC that can be used to meet the requirements of Senate Bill 3. Existing renewable resources, such as PEC's utility-owned hydroelectric resources and renewable resources where PEC does not have the contractual right to the Renewable Energy Certificates (RECs), are not included in the REPS Compliance Plan. Also, not all of the resources listed in Appendix D to PEC's IRP provide energy to PEC's system, but rather, some are a source of RECs only.

As explained in PEC's REPS Compliance Plan, beginning in November 2007, PEC adopted an open, competitive bidding process to acquire renewable energy resources and has kept an open request for proposals since that time. As a

result of these requests for proposals, PEC has received numerous proposals which have led to the execution of numerous separate contracts for renewable energy or RECs.

PEC also explained that its overall REPS compliance plan is to meet the requirements of Senate Bill 3 with the most cost-effective, reliable renewable resources available while giving appropriate priority to the solar, swine, and poultry set-asides. When making decisions on which renewable resources to add to the portfolio, PEC must balance the customer cost caps with the price and risks of each renewable proposal.

According to its REPS Compliance Plan, PEC plans to add 5-6 MWs of additional solar generation per year through commercial and residential solar offerings. This amount of solar will allow PEC to meet its solar set-aside requirements over time.

Regarding generation fueled by poultry and swine waste, PEC's compliance plan includes a pro-rata share of the statewide set-asides. PEC has participated in a collaborative effort to jointly support swine waste generation projects and is continuing discussions with parties proposing to develop generation using poultry litter.

Based upon PEC's experience to-date and current assumptions, PEC's compliance plan is projected to achieve compliance with PEC's REPS

requirements. However, there are uncertainties that could adversely impact PEC's ability to meet the long-term REPS requirements such as insufficient renewable generation being available and the fact that currently, the costs of purchasing energy or RECs to meet the set-aside requirements exceed the costs of other renewable resources available to PEC. Giving priority to the set-aside resources will thus result in less overall renewable energy and could result in compliance costs hitting the cost cap.

In its Comments, the Public Staff explained that for 2010, PEC is obligated to procure 0.02 percent of anticipated sales from solar, increasing to 0.07% for 2012. This solar set-aside equates to 7,300 MWh in 2011 and 25,800 MWh in 2012. Further, the Public Staff notes that PEC anticipates meeting its solar requirements with solar energy and solar RECs from participants in its SunSense programs.

The Public Staff concluded that PEC can meet its 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 its REPS Compliance Plans. The Public Staff also concluded that PEC, as well as other electric power suppliers, may have difficulty meeting the poultry and swine waste set-asides, but PEC, and the other electric power suppliers are actively pursuing energy and RECs to meet these requirements for 2012.

The Commission finds that PEC's REPS compliance actions and plans are reasonable. PEC prudently began purchasing RECs prior to the 2012 initial obligation in order to maximize renewable generation under the spending levels approved in Senate Bill 3 and procure RECs as cost-effectively as possible. Given the relatively short time periods required to construct new renewable generation, the fact that the REC market in North Carolina is still in its infancy, and the advances in technology and reduction in REC pricing that is anticipated to occur over the coming years, PEC's decision to procure only the most cost-effective resources needed to meet the next increment of RECs needed for compliance is reasonable and appropriate.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 6

The evidence for this finding can be found in PEC's 2010 Biennial IRP, Comments of the Public Staff, and PEC's Reply Comments.

As explained in its IRP, PEC used the same methods, tools and models it has employed in recent years to develop its 2010 IRP. PEC's plan relies upon a mix of existing generating plants, new supply resources and demand-side programs to provide for an adequate and reliable supply of electricity to serve its customers at

the lowest reasonable cost. PEC's resource plan includes the capability of PEC's DSM and Energy Efficiency programs as well as alternative supply resources.

While PEC's resource plan includes specific uprates at its nuclear units, and the addition of combined-cycle generation at PEC's Richmond County, Wayne County and Sutton plant sites, all other proposed generation additions are generic resources included in the plan solely to indicate the need for additional generation resources. No commitments to any specific type, amount, location or ownership of the needed capacity have been made. The IRP proceeding is intended as a review of PEC's long-range plans, not approval of a specific plan to add specific resources.

PEC's IRP also includes the retirement of approximately 1,500 MW of coal-fired generators at its Lee, Sutton, Cape Fear and Weatherspoon sites in 2013 and 2014.

The Public Staff, in its Comments, found that the utilities use accepted production cost simulation models that have the ability to perform optimization analysis to select between competing resource portfolios to satisfy the utility's future load requirements. Further, the Pubic Staff found that the projected operating and capital costs used in the production models and the evaluation of resource options were conducted in a reasonable manner for purposes of this proceeding.

Regarding the production cost simulation models PEC used to develop and evaluate resource options, the Public Staff found that these were accepted industry models, and PEC's projected operating and capital costs used in the production models and evaluation of resource options were reasonable for purposes of this proceeding.

Regarding the evaluation of resource options, the Public Staff recommends a requirement that future IRP filings, starting with 2011, include scenarios addressing the impact of carbon emissions regulation. As explained in PEC's 2010 resource plan, PEC's scenario analyses do include a consideration of various carbon emissions reduction requirements.

Regarding PEC's reserve margins, the Public Staff made two recommendations. The first recommendation was that PEC file "the capacity/reserve margins that result after taking into account the Robinson 1 retirement."

PEC disagreed with this recommendation, explaining that it is premature at this time because PEC is still evaluating the best course of action for its Robinson coal plant. PEC observed that the Robinson Plant is different from its Cape Fear, Sutton, Lee and Weatherspoon coal plants, all of which PEC intends to retire by the end of 2014. None of those plants have any environmental controls, while the Robinson Plant does. In addition, PEC's new Lee and Sutton natural gas-fired

generation are only sufficient to replace the Cape Fear, Weatherspoon, Sutton and Lee coal units. The retirement of PEC's Robinson coal plant would therefore require the construction of additional natural gas-fired generation.

The Commission agrees that it would be premature for PEC to evaluate retirement of its Robinson coal plant.

The Public Staff's second recommendation seeks a "specific explanation required by Rule R8-60(i)(3) for each year in which the revised projected reserve margin exceeds plus or minus 3% of target." PEC also disagreed with this recommendation. In its Reply Comments PEC explained that its reserve margin exceeds 3% in those years immediately following the addition of new generation resources, which is to be expected. Resource additions are inherently "lumpy." They cannot economically be added in the exact amount needed each year to maintain an exact reserve margin. PEC's forecasted reserves exceed 3% of PEC's minimum capacity margin target in 2011 and 2012 as a result of the economic addition of the Richmond combined cycle (CC) unit as demonstrated in Docket No. E-2, Sub 916. Reserves exceed 3% of PEC's minimum capacity margin target in 2013 and 2014 as a result of the economic addition of the Wayne County CC unit as demonstrated in Docket No. E-2, Sub 960.

With regards to PEC's reserve margin adequacy, the Public Staff's comments imply that PEC's studies are dated and the Public Staff recommends

that the Commission require both Duke and PEC to conduct a comprehensive study to determine the appropriate reserve and capacity margin values to be used for planning of their respective systems. The Public Staff further recommends that the study consider "costs to customers for power outages."

PEC explained in its Reply Comments that it conducts its reliability assessments based on maintaining a loss of load expectation (LOLE) of less than one day in ten years. The one day in ten years LOLE criterion is widely accepted within the industry for establishing generation reliability. PEC explained this type of analysis does not rely on the costs to customers for power outages, and to PEC's knowledge, no utility attempts to capture and incorporate consideration of this variable in its reserve margin analyses. The Commission agrees with PEC that any attempt to quantify such a variable would be very subjective. Customer outage costs would be extremely difficult to calculate and would require numerous detailed assumptions regarding individual customers' energy use, the value derived by the customer from that energy use, and the economic consequences of interruptions for individual customers. Such a complex and time-consuming hypothetical exercise would be of no value in determining an appropriate reserve margin. Rather, PEC employs the widely accepted LOLE methodology for an assessment of reliability and acceptable reserve margin.

PEC's 2003 reliability analysis formed the basis for its target capacity margin, and the 2007 reliability analysis reaffirmed those findings. The Commission agrees that future updates should be driven by significant changes in input assumptions such as resource mix, outage rates, and load uncertainty. Given that there has not been a significant change in these assumptions, an updated study would produce results similar to the 2003 and 2007 analyses, and thus an updated study is not warranted at this time.

Turning to NC WARN's comments, they first allege the utilities have overestimated the need for baseload generation, both new and existing, asserting that the utilities have "excess" baseload generation. PEC explained that NC WARN's comments are based upon several incorrect assumptions. The first such flawed assumption is that "baseload generation" is any supply side resource with a capacity factor greater than 40%. Using this definition, NC WARN then creates a load duration curve that purports to support its claims. NC WARN's baseload definition sweeps in many intermediate, load following plants including combined cycle and intermediate coal plants. NC WARN's definition of "baseload" is so broad as to include all of PEC's plants except its simple cycle combustion turbine peaking units.

By defining baseload generation to include generating facilities with capacity margins as low as 40%, NC WARN can then arguably assert that wind

and solar generation could be characterized as baseload. However, PEC states in its Reply Comments that neither wind nor solar can achieve that level of operation. PEC states that solar has, at best, a 25% capacity factor, while wind can generally achieve no greater than a 35% capacity factor.

PEC further explains that wind and solar are each more expensive than PEC's current net asset value on a $/kW basis, and since PEC would have to add 2 MW of wind and solar generation to equal 1 MW of replaced capacity, the net effect for PEC would be at least a doubling of its capital costs. PEC then observes that the REPS structure recognizes that the cost of wind and solar each exceed the utilities' avoided cost which is confirmed by the fact that PEC's solar and wind actual contracts to date exceed its avoided costs. Therefore, even considering that wind and solar provide free energy, a combination of the capital costs of wind and solar would far exceed PEC's avoided cost, without even taking into account the embedded cost of the generation to be shut down. NC WARN's approach overlooks the many important considerations in resource planning, including availability, reliability, dispatchability and overall cost of the resource mix.

PEC further explained in its Reply Comments that resource planning does not hinge on administrative definitions of "baseload," "intermediate" or "peaker." Instead, PEC's resource planning considers the load and energy needs of its customers, then models the dispatch of existing resources to meet these load and

energy requirements, including necessary reserves, and identifies additional resources needed to reliably meet the remaining energy and load at lowest reasonable cost. The timing and characteristics of future capacity needs are determined by sophisticated industry-accepted modeling.

In further support of its "baseload is not needed" argument, NC WARN claims that "In his July 2010 paper, Dr. John O. Blackburn reviewed the costs of solar energy and nuclear power plants and determined that in 2010 solar energy has finally become less expensive than nuclear energy. Dr. Blackburn's finding is confirmed in depth by the U.S. Energy Information Administration (EIA)." Dr. Blackburn then appears to conclude that solar generation should be built and nuclear should not. PEC explained in its Reply Comments that this argument is flawed for several reasons. PEC first states that this comparison is irrelevant. PEC explains that a resource such as nuclear, that operates at 90% availability and is dispatchable, cannot be compared to one, such as solar, that operates 30% of the time and is an as-available intermittent resource. From a planning economics perspective, the capacity value of solar must be discounted, and then compared to the total costs of the alternatives while factoring in the impacts on the existing system.

PEC then argues that the EIA data cited by NC WARN actually supports constructing nuclear generation. The EIA data states that new nuclear generation

costs $5,335/kW, large photovoltaic solar (PV) is $4,755/kW, and off-shore wind generation is $5,975/kW (small PV is $6,050/kW and on-shore wind is $2,438/kW). Applying NC WARN's unsupported assertion that "a combination of wind and solar function as an equivalent to baseload," it would follow that 1 MW of solar plus 1 MW of wind would equal 1 MW of baseload nuclear. However, using EIA's estimates the combined cost would be $10,730/kW for PV and off-shore wind, which is more than twice the capital cost of nuclear, and is still not as reliable, nor will this provide as much dependable energy throughout the year: 25% capacity factor for PV and 35% capacity factor for wind, at best, versus 90% capacity factor for nuclear. A combination of PV and on-shore wind would cost $7,193/kW, which is still more than a third greater than nuclear. This comparison of capital costs does not take into account fuel, operations and maintenance, land use, reliability, dependability, dispatchability, and many other factors that would need to be considered in such an analysis.

PEC also argues that Dr. Blackburn's study was discredited in the 2009 IRP proceeding. This is the study in which Dr. Blackburn purported to demonstrate that all of the coal units in the state could be retired and replaced with a combination of wind and solar generation and new cogeneration facilities. PEC notes that in that proceeding Dr. Blackburn admitted that in performing his study, he just assumed away 20% of the utilities' energy requirements, claiming

unspecified energy efficiency advances would reduce consumption by this amount. He then claimed the remaining load could be met with a combination of wind and solar energy and new cogeneration facilities. However, he admitted that given the huge land needs of wind and solar and state land-use regulation policies it would not be possible to construct sufficient solar and wind generation to do so.

Dr. Blackburn also admitted that during 17 hours of the 123 days his study analyzed with regard to the use of solar and wind generation to meet North Carolina's utilities' electricity needs, his system did not have adequate resources to meet the needs of the utilities' customers. In other words, the lights went out. He also admitted that his study only attempted to balance load on an hourly basis, notwithstanding his admission that load and generation have to be balanced instantaneously.

PEC explains that Dr. Blackburn's assertions with regard to the potential use of solar, wind and combined heat and power generation are simply too speculative to be relied upon by this state's utilities to meet the electricity needs of their customers. PEC observes that even if a combination of wind and solar generation could replace PEC's existing coal fired generation, it would not be cost-effective. The 1,800 megawatts of new combined heat and power generation envisioned by Dr. Blackburn does not displace utility generation on a megawatt per megawatt basis. Rather, the utility is expected to maintain adequate resources to

backstand all 1,800 megawatts of new combined heat and power generation capability. Furthermore, the expenditure of $20 billion on a resource that only generates electricity when the sun is directly overhead is not a least cost solution.

NC WARN further opines that large nuclear units would require large reserve capacity in case they are out of operation, increasing the utilities' costs. PEC observed in its Reply Comments that NC WARN offers no support for this statement and that these units require no more reserves than the other units PEC already has that are nearly 1,000 MW in size.

NC WARN next makes a cents/kWh comparison between energy efficiency and supply side resources. PEC responded that such a comparison provides no meaningful information. PEC explained that a combustion turbine (CT), for instance, may cost 30 cents per kWh because it does not generate many kWhs, but that does not mean PEC would never select it as the "least cost" resource. The only meaningful comparison for cost to customers is the final rates they pay (or as a proxy, revenue requirements when only supply-side resources are considered) based upon the total least cost resource mix proposed, including total system fuel impacts. In addition, the amount of energy efficiency reasonably and economically available must also be considered in this analysis.

PEC also emphasizes that NC WARN frequently comments on energy savings when discussing energy efficiency without any real recognition of peak

demand impact, implying that a 1% energy savings translates to 1% demand savings. PEC argues this is a significantly flawed assumption. In support of its position, PEC explains that NC WARN claims significant energy savings are realized through the replacement of incandescent light bulbs with compact fluorescents. While true that such actions produce energy savings, they have a negligible impact on summer peak demand which occurs late in the afternoon when lighting usage is insignificant.

Finally, NC WARN states "In essence, the Senate Bill 3 minimum has become the de facto ceiling" for utility deployment of solar and wind generation. PEC attempted to place this assertion in context by observing that its actual experience in seeking to comply with Senate Bill 3 and the EIA data relied upon by NC WARN, demonstrate solar and wind are more expensive than conventional supply-side resources and are not dispatchable. Therefore, in planning a least cost resource mix, the only basis for a utility in North Carolina including such a resource in its portfolio is if the utility is required by state or federal law to do so. Prudence would then dictate that a utility utilize no more of these expensive resources than are required.

Turning to the comments of SACE, it claims Duke and PEC do not use accurate nuclear generation cost estimates in their IRPs. SACE asserts that PEC did not consider nuclear construction cost uncertainty in its analysis. In response,

PEC refers SACE to Appendix A of PEC's 2010 IRP, in which PEC presents sensitivities (see page A-4) that were +/- 30%; and to page A-7, where PEC used the +30% figure for 2 of the 3 scenarios. The Commission notes that PEC's IRP does not include the construction of a new nuclear unit. The only new nuclear generation is the potential participation in a regional project. PEC would have to obtain Commission approval prior to participating in such a project.

Regarding reducing greenhouse gas emissions, SACE claims neither Duke nor PEC has shown in its 2010 IRP that it has a realistic plan for reducing greenhouse gas emissions. As explained by PEC, this allegation is incorrect. Appendix A to PEC's 2010 IRP explicitly shows that PEC considered the potential impact of carbon regulation in performing its scenario analyses. Implicit in the high and low carbon regulation scenarios is the reduction of greenhouse gases.

SACE then turns its attention to natural gas-fired generation, and for the first time appears to attack this supply side resource. PEC notes that public documents demonstrate that PEC is retiring 1,500 MWs of coal generation and replacing it with new natural gas-fired generation. SACE did not object to PEC being awarded the certificates of public convenience and necessity to construct the new natural gas-fired generation, and supports PEC retiring the coal generation. However, it now appears that SACE is arguing that even though natural gas-fired generation emits only about 60 percent as much CO2 per MWh as coal-fired units, PEC can

be expected to operate the new natural gas-fired generation more often than the coal units it is replacing and therefore, emit the same amount of greenhouse gases. This assertion is inconsistent with the basis for and findings in the certificate proceedings in which the Commission approved PEC constructing the new Wayne County and Sutton natural gas facilities. One of the key cost justifications for the new gas-fired units was to better allow PEC to comply with new or future greenhouse gas emissions requirements due to their reduced emissions.

Regarding the issue of retiring unscrubbed coal-fired generating units, SACE commented "Both Duke and PEC have prudently decided to retire their existing unscrubbed coal-fired generating units, but neither utility shows in the IRP that continued operation of their scrubbed coal units is economical." PEC's analysis of shutting down unscrubbed coal units in its Lee/Wayne and Sutton filings Docket No. E-2, Subs 960 and 968, demonstrated that a significant part of the cost of continued operation was the addition of scrubbers and Selective Catalytic Reduction (SCRs) to those units. PEC correctly argues that scrubbed units would not face these costs, and the existing scrubbers do address in part future environmental requirements, including mercury.

SACE then asserts that "Duke and PEC have not evaluated renewable resources beyond minimum REPS compliance with North Carolina's Renewable Energy and Efficiency Portfolio Standard." As explained earlier the cost of

renewable energy exceeds PEC's avoided cost. Thus, including more high-cost renewable energy would result in higher costs to customers.

After careful consideration of all comments and evidence, the Commission finds that PEC's 2010 IRP is reasonable and should be approved. PEC's IRP meets the requirements of G.S. 62-110.1(c) and Commission Rule R8-60. PEC's load and energy forecasts were performed using the same methodologies and procedures that were approved by the Commission in its previous Orders issued in IRP dockets. PEC's capacity margin studies and capacity margins during the forecast period are reasonable and appropriate. The only supply-side generation resources PEC has committed to procure are its Richmond, Wayne County and Sutton combined-cycle generation facilities for which PEC has obtained certificates of public convenience and necessity from this Commission. All other resources to be added during the forecast period are undesignated. Finally, PEC has aggressively pursued all cost-effective DSM/EE programs and reflected the impacts of those programs in PEC's energy and load forecasts.

IT IS, THEREFORE, ORDERED as follows:

1) That this Order shall be adopted as 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. 62-110.1(c);

2) That the Integrated Resource Plan filed in this proceeding by PEC is hereby approved;

3) That future IRP filings by PEC shall continue to include a detailed explanation of the basis and justification for the adequacy and appropriateness of the level of PEC's projected reserve margins; and

4) That future IRP filings by PEC shall continue to include a copy of the most recently completed FERC Form 715, including all its attachments and exhibits.

ISSUED BY ORDER OF THE COMMISSION.

NORTH CAROLINA UTILITIES COMMISSION

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STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-100, SUB 128

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of:

Investigation of Integrated Resource Planning in NC - 2010	))	**CERTIFICATE OF SERVICE**

I, Len S. Anthony, hereby certify that a copy of Progress Energy Carolinas, Inc.'s Proposed Order have been served on all parties by depositing said copy in the United States mail, postage prepaid, addressed as follows:

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This the 6th day of June, 2011.

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