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December 11, 2009

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N.C. Utilities Commission

Ms. Renne Vance Chief Clerk North Carolina Utilities Commission 4325 Mail Service Center Raleigh, NC 27600

E: Docket No. E-100, Sub 124

Dear Ms. Vance:

Please find enclosed for filing in the above-referenced docket the original and 30 copies of Progress Energy Carolinas, Inc.'s ("PEC") Direct Testimonies of David Kent Fonvielle, David Christian Edge and Glen A. Snider.

Sincerely,

Church

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

LSA:mhm

Enclosure

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STATE OF NORTH CAROLINA UTILITIES COMMISSION RALEIGH

DOCKET NO. E-100, SUB 124

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of

Investigation of Integrated Resource Planning in) NC 2009

PERSONALLY APPEARED before me, David Kent Fonvielle, who, after first being duly sworn, said that he is the Director – Portfolio Optimization with Progress Energy Carolinas, Inc. ("PEC"), and as such is authorized to make this Verification that the facts contained in the attached Testimony are true and accurate.

VERIFICATION AND

SIGNATURE

David Kent Fonvielle

Sworn to and subscribed before me, this the 11th day of December, 2009.

Marsha H. M.

MARSHA H MANNING NOTARY PUBLIC WAKE COUNTY, NC My Commission Expires 10-3-2014 FILED

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Clerk's Office N.C. Utilities Commission

STATE OF NORTH CAROLINA UTILITIES COMMISSION

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Clerk's Office N.C. Utilities Commission

DOCKET NO. E-100, SUB 124

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

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In the Matter of

Investigation of Integrated Resource Planning in North Carolina – 2009 DIRECT TESTIMONY OF DAVID KENT FONVIELLE ON BEHALF OF CAROLINA POWER AND LIGHT COMPANY D/B/A PROGRESS ENERGY CAROLINAS, INC.

1	Q.	Mr. Fonvielle, please state your full name, business address and position
2		of employment.

A. My name is David Kent Fonvielle and my business address is 410 South
 Wilmington Street, Raleigh, North Carolina. I am currently Director –
 Portfolio Optimization at Progress Energy, however at the time of the 2008
 and 2009 Integrated Resource Plan filings I held the position of Manager Renewable Energy Portfolio Standards for Progress Energy Carolinas.

- 8 Q. Mr. Fonvielle, please summarize briefly your educational background 9 and experience.
- A. I graduated from North Carolina State University with a B.S. Degree in Civil
 Engineering in 1991. From 1991 to 1993 I was employed as an engineer in
 the nuclear group with Duke Power. In 1993 I joined Carolina Power &

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Light Company and have since held a variety of positions in nuclear 1 generation, customer service, wholesale power, fuel strategy, and renewable 2 energy. In 2005 I became Manager of Fuel Planning and Origination, 3 responsible for the planning and execution of the company's long-term fuel 4 strategy. I accepted the role of Manager of Renewable Energy Portfolio 5 Standards in 2007 and have been responsible for developing and executing a 6 strategy to comply with North Carolina Senate Bill 3 (Senate Bill 3). In this 7 role I have been responsible for numerous filings with the North Carolina 8 Utilities Commission, including PEC's 2008 and 2009 REPS Compliance 9 Plans which are part of the subject of this docket. 10 0. What is the purpose of your testimony in this proceeding? 11

The purpose of my testimony is to present and support PEC's Renewable Α. 12 Energy Portfolio Standards ("REPS") Compliance Plan filed as Appendix D 13 to PEC's September 1, 2009 Integrated Resource Plan. 14

Does PEC's resource plan include the use of renewable generation **Q**. 15 resources for meeting a portion of the forecast load? 16

Yes. PEC has put forth a significant amount of effort over the previous two Α. 17 years to add renewable energy to, at a minimum, meet the requirements 18 contained in Senate Bill 3. The company filed its first REPS Compliance 19 Plan as Appendix D to the 2008 IRP and filed an updated REPS Compliance 20

Plan as Appendix D to the 2009 IRP. These Compliance Plans provide 1 details of existing renewable energy resources, contracts entered into for 2 additional renewable resources, and the projected resources PEC anticipates 3 adding in future years. In addition to the amount of renewable energy 4 existing and projected in the future, the Compliance Plan provides 5 information regarding the customer cost caps contained in Senate Bill 3. 6 These details include the projected aggregate cost caps by year, the amount 7 of cost caps committed under existing contracts, and the projected amount of 8 the cost caps available to procure additional renewable energy. 9

Q. Does PEC's REPS Compliance Plan include all renewable generation providing energy to PEC's system?

The REPS Compliance Plan includes only those resources under Α. No. 12 contract with PEC that can be used to meet the requirements of Senate Bill 13 3. Existing renewable resources, such as PEC's utility-owned hydroelectric 14 resources, and renewable resources where PEC does not have the contractual 15 right to the Renewable Energy Certificates ("RECs") are not included in the 16 REPS Compliance Plan. Also, not all of the resources listed in Appendix D 17 provide energy to PEC's system, but rather are a source of RECs only. 18

Q. Briefly describe PEC's efforts to acquire or add renewable resources to its generation portfolio.

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A. 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. In addition, PEC issued a specific request for
developers proposing to generate energy using swine waste in June 2008.
As a result of these request for proposals, PEC has received numerous
proposals which has lead to the execution of approximately forty separate
contracts for renewable energy or RECs.

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Q. What is PEC's overall plan to comply with Senate Bill 3?

9 A. PEC's overall compliance plan is to meet the requirements of Senate Bill 3 10 with the most cost effective, reliable renewable resources available while 11 giving appropriate priority to the solar, swine, and poultry set asides. When 12 making decisions on which renewable resources to add to the portfolio, PEC 13 must balance the customer cost caps with the price and risks of each 14 renewable proposal.

Q. Do you anticipate adding enough solar generation to the portfolio to
 comply with the utility specific solar requirements?

17 A. Yes. PEC has executed contracts for approximately 9 MWs of solar 18 generation and plans to add 5 - 6 MWs of additional solar generation per 19 year through commercial and residential solar offerings. This amount of 20 solar will exceed the solar set aside requirements over time.

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Q. Does PEC's Compliance Plan include efforts to support the statewide aggregate swine and poultry requirements?

A. Yes. PEC's compliance plan includes a prorata share of the statewide set asides. At the direction of the Commission, the Company has begun a collaborative effort to jointly support swine waste generation projects and continues discussions with parties proposing to develop generation using poultry litter.

8 Q. Does PEC's compliance plan result in meeting the overall REPs 9 requirements?

A. Yes. Based upon experience to-date and current assumptions, the plan is projected to achieve compliance with the REPs requirements. However, there are significant uncertainties that could adversely impact PEC's ability to meet the long-term REC requirements.

14 Q. What are some of the uncertainties that may impact long-term 15 compliance?

A. PEC's long-term REPs compliance plan includes undesignated future resources, simply because all future sources of renewable energy and RECs are not yet known. If those currently undesignated resources don't materialize, compliance could be jeopardized. The availability and cost of resources to meet the set-aside requirements, especially poultry and swine

waste, are also significant uncertainties. 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 result in less overall renewable energy and could result in
 compliance costs hitting the cost cap. If that were to occur, the overall
 amount of renewable energy or RECs could be less than the aggregate REPs
 requirement.

8 Q. Do these uncertainties make compliance planning difficult and 9 challenging?

- A. Yes they do. PEC is attempting to mitigate some of the challenges and uncertainty by incorporate flexibility into its plan by including a mix of renewable energy and REC sources and timing purchases to utilize the available banking provisions.
- 14 Q. Does this conclude your testimony?
- 15 A Yes.

STATE OF NORTH CAROLINA UTILITIES COMMISSION RALEIGH

DOCKET NO. E-100, SUB 124

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of

Investigation of Integrated Resource Planning in) NC 2009 VERIFICATION AND SIGNATURE

PERSONALLY APPEARED before me, David C. Edge, who, after first being duly sworn, said that he is the Manager, Retail Customer Strategy with Progress Energy Carolinas, Inc. ("PEC"), and as such is authorized to make this Verification that the facts contained in the attached Testimony are true and accurate.

Sworn to and subscribed before me, this the 11^{th} day of December, 2009.

Marsha H. Manning



STATE OF NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-100, SUB 124

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

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In the Matter of Investigation of Integrated Resource Planning in North Carolina – 2009

DIRECT TESTIMONY OF DAVID. C. EDGE ON BEHALF OF CAROLINA POWER AND LIGHT COMPANY D/B/A PROGRESS ENERGY CAROLINAS, INC.

1	Q.	Please state your full name, business address and position of
2		employment.
3	А.	My name is David Christian (Chris) Edge, and my business address is 100
4		East Davie Street, Raleigh, North Carolina. I am Manager, Retail Customer
5		Strategy in Progress Energy's Efficiency and Innovative Technologies
6		Department.
7	Q.	What are your duties and responsibilities?
8	А.	I lead a team of employees that are responsible for the research,
9		development, and coordination of retail strategic initiatives and program
10		offerings for each of the utility operating companies at Progress Energy.
11		These include retail program offerings related to energy efficiency and
12		demand response.

1 '

1 **O**. Please summarize briefly your educational background and experience. I received a Master of Science and Bachelor of Science degree from North 2 A. 3 Carolina State University in Aerospace Engineering, and a Master of 4 Business Administration degree from the University of North Carolina at Wilmington. Since joining Progress Energy Carolina ("PEC") in 1996, I 5 6 have held various positions and management roles within the company in the 7 areas of Commercial & Industrial Account Management and Retail Marketing. I interrupted my tenure at PEC between 2000-2005 to accept a 8 role as Vice President and founding member of a successful energy services 9 company, PowerSecure, which focuses on utility product and service 10 offerings in the areas of distributed generation and energy efficiency. After 11 returning to PEC, I accepted a role in late 2006 as Manager of Demand Side 12 Management and Alternative Energy of which my primary responsibilities 13 were to build and oversee the organization responsible for planning, 14 designing, and implementing PEC's new demand side management and 15 In November 2009, this role evolved to my energy efficiency programs. 16 current position with broader strategic responsibilities across each of the 17 Progress Energy operating companies. In addition to the educational and 18 employment background described above, I am a member in good standing 19 of the Association of Energy Services Professionals and the Association of 20

Energy Engineers, as well as I actively participate in various industry groups and stakeholder organizations focused on energy efficiency and demand response.

4 Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to present and support PEC's demand side
 management ("DSM") and energy efficiency ("EE") programs and plans as
 contained in Appendix E of PEC's 2009 Integrated Resource Plan ("IRP").

8 Q. Please provide an overview of the DSM/EE Plan contained in PEC's
9 Resource Plan for 2009?

In May 2007, PEC announced an aggressive expansion of its DSM and EE 10 Α. Accordingly, PEC has been actively developing 11 portfolio. and implementing new DSM and EE programs throughout its service area to 12 help customers reduce their electricity demands. PEC understands that 13 significant and sustained customer participation is critical to achieving and 14 surpassing the aggressive DSM/EE goals shared by PEC and its customers. 15 Therefore, PEC is striving to offer a wide variety of energy efficiency, 16 17 demand response, and educational programs that provide participation opportunities for all of its retail customers. As part of this effort, PEC has 18 currently received Commission approval to implement the following four EE 19 programs, three DSM programs, and one pilot program: 20

Residential Home Energy Improvement Program – This program 1 • offers financial incentives to encourage PEC customers to participate 2 in a variety of energy conservation measures designed to increase 3 energy efficiency for existing residential dwellings that can no longer 4 be considered new construction. The prescriptive menu of energy 5 efficiency measures provided by the program allows customers the 6 7 opportunity to participate based on the needs and characteristics of their individual homes. 8

- Residential Home Advantage (New Construction) Program PEC
 offers developers and builders the potential to maximize energy
 savings in various types of new residential construction. New
 construction represents a unique opportunity for capturing cost
 effective DSM and EE savings by encouraging the investment in
 energy efficiency features that would otherwise be impractical or
 more costly to install at a later time.
- Neighborhood Energy Saver (Low-Income) Program This
 program provides assistance to low-income families by installing a
 comprehensive package of energy conservation measures that lower
 energy consumption at no cost to the customer. In addition to the
 installation of energy efficiency measures, an important component of

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the Neighborhood Energy Saver program is the provision for one-on one energy education.

- Commercial, Industrial and Governmental ("CIG") Energy
 Efficiency Program This program is available to all CIG customers
 interested in improving the energy efficiency of their new
 construction projects or within their existing facilities. The program
 includes prescriptive incentives for measures that address the
 following major end-use categories: HVAC, Lighting, Refrigeration
 and Motors & Drives.
- In addition, the program offers incentives for custom measures to specifically address the individual needs of customers in the new construction or retrofit markets, such as those with more complex applications or in need of energy efficiency opportunities not covered by the prescriptive measures.
- Residential EnergyWiseTM Program The Residential
 EnergyWiseTM Program is a direct load control program that offers
 customers a \$25 annual bill credit in exchange for allowing PEC to
 remotely control the following appliances.
 - Central air conditioning or electric heat pumps

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- Auxiliary strip heat on central electric heat pumps (Western
 Region only)
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- Electric water heaters (Western Region only)

- CIG Demand Response Program This program allows PEC to
 install load control and data acquisition devices to remotely control
 and monitor a wide variety of electrical equipment capable of serving
 as demand response resources. The goal is to utilize customer
 education, enabling two-way communication technologies, and an
 event-based participant incentive structure to maximize load reduction
 capabilities and resource reliability.
- Distribution System Demand Response ("DSDR") -The DSDR 11 Program provides the capability to reduce peak demand through the 12 use of conservation voltage reduction for 4 to 6 hours at a time, which 13 is the duration consistent with typical peak load periods. Customer 14 delivery voltage will be maintained above the minimum requirement 15 when the program is in use. This capability is accomplished by 16 investing in robust system of advanced technology, 17 a telecommunications, equipment, and operating controls. 18
- 19 20

• Solar Water Heating Pilot – This pilot program was designed to provide PEC with the ability to measure and validate the achievable

energy savings and coincident peak impacts associated with implementing residential solar water heating in the PEC service territory. Results from the pilot program will enable PEC to determine whether it is cost effective to incorporate solar water heating as part of its least cost mix of demand reduction and generation measures to meet the electricity needs of its customers.

In addition to the approved programs described above, PEC has
implemented several educational initiatives aimed at increasing consumer
awareness around energy efficiency. These are initiative are described in
detail within Appendix E of PEC's IRP.

11 Q. Does PEC include any other DSM/EE programs as part of its Resource 12 Plan?

A. Yes it does. The Resource Plan includes the capability of PEC's Large Load
 Curtailment and Voltage Control programs.

In addition, the effects of both customer initiated conservation and PEC's past energy efficiency and demand response rate programs are implicitly captured in historical data used to develop the energy and load forecasts, and therefore are also reflected in the resource plan. Appendix E of PEC's 2009 IRP contains a list and description of these past programs.

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- Q. Has PEC discontinued any of these DSM/EE programs over the past
 two years?
- 3 Α. Yes. During 2009, PEC discontinued its previous Mail-In Home Energy Check and Online Home Energy Check educational tools. It was determined 4 that the new Customized Home Energy Report educational program 5 provided the same basic features as these previous comparable tools, with 6 significantly enhanced and new features including: user-friendly interface 7 questionnaire, concise reporting with graphical 8 and illustrations, comparative analysis with similar households, and specific information 9 10 about applicable, new DSM and EE program opportunities.

Q. Are there potential opportunities for other cost-effective energy efficiency and conservation measures?

A. PEC is investigating the potential for new DSM/EE program opportunities
 on an on-going basis in an effort to expand its overall portfolio of cost effective demand-side resource options. For example, PEC hopes to receive
 Commission approval to implement the following two new residential
 energy efficiency programs:

- 18 Residential Lighting Program
 - Appliance Recycling Program.

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1 Additionally, other potential future programs that are currently being 2 considered include a residential behavioral change initiative and other 3 DSM/EE research and development pilots.

- 4 Q. Does this conclude your direct testimony?
- 5 A. Yes.

STATE OF NORTH CAROLINA UTILITIES COMMISSION RALEIGH

DOCKET NO. E-100, SUB 124

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of

Investigation of Integrated Resource Planning in) NC - 2009 VERIFICATION AND SIGNATURE

PERSONALLY APPEARED before me, Glen A. Snider, who, after first being duly sworn, said that he is the Manager – Resource Planning with Progress Energy Carolinas, Inc. ("PEC"), and as such is authorized to make this Verification that the facts contained in the attached Testimony are true and accurate.

Snider

Sworn to and subscribed before me, this the 11th day of December, 2009.

sista H.

MARSHA H MANNING NOTARY PUBLIC WAKE COUNTY, NC My Commission Expires 10-3-2014

STATE OF NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-100, SUB 124

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

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In the Matter of Investigation of Integrated Resource Planning in North Carolina – 2009

DIRECT TESTIMONY OF GLEN A. SNIDER ON BEHALF OF CAROLINA POWER AND LIGHT COMPANY D/B/A PROGRESS ENERGY CAROLINAS, INC.

Q. Mr. Snider, please state your full name, business address and position of

2 employment.

A. My name is Glen A. Snider and my business address is 410 S. Wilmington
Street, Raleigh, North Carolina. I am Manager - Resource Planning for
Carolina Power and Light Company d/b/a Progress Energy Carolinas, Inc.
("PEC" or the "Company").

7 Q. What are your duties and responsibilities?

8 A. I am responsible for directing the resource planning process for the 9 Company. Our resource planning process is an integrated approach to 10 finding the most cost-effective alternatives to meet the Company's 11 obligation to serve, in terms of long-term price, reliability and environmental 12 compliance. We examine both supply-side and demand-side resources 13 available and potentially available to the Company over its planning horizon,

relative to the Company's load forecasts. I oversaw the development of
 PEC's Resource Plan which was filed with this Commission in September
 2009.

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Please summarize your educational background and employment experience.

My educational background includes a bachelor of science in mathematics Α. 6 and a bachelor of science in economics from Illinois State University. With 7 respect to professional experience I have been in the industry for twenty 8 I started as an associate analyst with the Illinois Department of 9 vears. Energy and Natural Resources responsible for assisting in the review of 10 Illinois utilities' integrated resource plans. In 1992, I accepted a planning 11 analyst job with Florida Power Corporation and for the past ten years have 12 held various management positions within the industry. These positions 13 have included managing the risk analytics group for Progress Ventures, the 14 wholesale transaction structuring group for ArcLight Energy Marketing and 15 my current position as Manager of Resource Planning for Progress Energy 16 Carolinas. 17

18 Q. What is the purpose of your testimony in this proceeding?

19 A. The purpose of my testimony is to present and support PEC's Resource Plan.

20 Q. Will you please provide an overview of PEC's Resource Plan for 2009?

1	А.	PEC filed its Resource Plan on September 1, 2009, pursuant to Commission
2		Rules R8-60 and R8-62 (p). The Company's Resource Plan includes a
3		forecast of annual summer and winter seasonal peak loads and forecast of
4		annual energy requirements for the period 2009 through 2024, as well as mix
5		of supply and demand-side resources to meet the growing demand for
6		electricity. The Resource Plan also presents the projected reserve margins
7		resulting from the proposed plan. PEC's Resource Plan, which includes
8		additional details, meets all the requirements of Commission Rules R8-60
9		and R8-62 (p).
10	Q.	What is the projected rate of growth in energy and peak demand
11		presented in PEC's Resource Plan?
11 12	А.	presented in PEC's Resource Plan? PEC's forecast represents a compound annual growth rate of 1.7% for retail
11 12 13	А.	presented in PEC's Resource Plan? PEC's forecast represents a compound annual growth rate of 1.7% for retail peak demand across the forecast period 2010 through 2024 before
11 12 13 14	А.	presented in PEC's Resource Plan? PEC's forecast represents a compound annual growth rate of 1.7% for retail peak demand across the forecast period 2010 through 2024 before subtracting for Demand-Side-Management (DSM) which is almost equal to
11 12 13 14 15	А.	presented in PEC's Resource Plan? PEC's forecast represents a compound annual growth rate of 1.7% for retail peak demand across the forecast period 2010 through 2024 before subtracting for Demand-Side-Management (DSM) which is almost equal to the customer growth rate of 1.8%. The retail demand growth rate drops to
11 12 13 14 15 16	А.	presented in PEC's Resource Plan? PEC's forecast represents a compound annual growth rate of 1.7% for retail peak demand across the forecast period 2010 through 2024 before subtracting for Demand-Side-Management (DSM) which is almost equal to the customer growth rate of 1.8%. The retail demand growth rate drops to 0.9% after adjusting for DSM.
 11 12 13 14 15 16 17 	A. Q.	 presented in PEC's Resource Plan? PEC's forecast represents a compound annual growth rate of 1.7% for retail peak demand across the forecast period 2010 through 2024 before subtracting for Demand-Side-Management (DSM) which is almost equal to the customer growth rate of 1.8%. The retail demand growth rate drops to 0.9% after adjusting for DSM. Is this forecasted growth comparable to PEC's forecasts in recent
 11 12 13 14 15 16 17 18 	A. Q.	presented in PEC's Resource Plan? PEC's forecast represents a compound annual growth rate of 1.7% for retail peak demand across the forecast period 2010 through 2024 before subtracting for Demand-Side-Management (DSM) which is almost equal to the customer growth rate of 1.8%. The retail demand growth rate drops to 0.9% after adjusting for DSM. Is this forecasted growth comparable to PEC's forecasts in recent years?
 11 12 13 14 15 16 17 18 19 	A. Q.	presented in PEC's Resource Plan? PEC's forecast represents a compound annual growth rate of 1.7% for retail peak demand across the forecast period 2010 through 2024 before subtracting for Demand-Side-Management (DSM) which is almost equal to the customer growth rate of 1.8%. The retail demand growth rate drops to 0.9% after adjusting for DSM. Is this forecasted growth comparable to PEC's forecasts in recent years? Yes. The rate of growth in the 2009 forecast is comparable to forecasts filed

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proceedings. There has been a reduction in the peak load forecast and growth in the near term due to the continuation of the current economic downturn. In addition, the Company entered a new wholesale power supply and coordination agreement with North Carolina Electric Membership Corporation for the period January 1, 2013 through December 31, 2032.

Q. Were the methods and tools PEC used to develop its forecast similar to
the methods and tools used to develop load and energy forecasts in
recent years?

9 A. Yes. PEC 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.

Q. What techniques are available for developing an energy and peak load forecast for an electric utility?

A. There are several forecasting techniques available to any forecaster in any
 industry. These range from simple trend analysis, exponential smoothing,
 time series, end-use, and econometric approaches. These approaches range
 from relatively simple techniques to complex statistical techniques that
 relate multiple inputs like weather, housing stock, employment, income, and
 industrial production to energy use.

Q. What techniques does PEC use to develop the company's energy and peak load forecast?

A. The PEC energy and peak load forecast is prepared using econometric
 models. In statistical terms, it is described as multivariate regression
 analysis. This means, we relate load growth to relevant economic and
 demographic influences.

Q. In general what are the steps in developing the energy and peak load forecasts shown in the PEC Integrated Resource Plan?

The process consists of two steps: estimation of the historic relationships Α. 9 among weather, economic, and demographic variables, and then using those 10 relationships to develop a forecast using projections of the weather, 11 economic, and demographic data. The historic relationships are developed 12 using known load and energy data in conjunction with appropriate 13 explanatory factors. Examples of these explanatory factors include economic 14 variables such as price, personal income, and employment; demographic 15 variables such as population, housing stock, and number of customers. 16 Actual temperature variation is included in the estimation for those customer 17 classes that are sensitive to weather. 18

19 The estimated relationships among the relevant variables are then 20 used to forecast energy consumption in the future by substituting forecast

values for each of the explanatory variables used in the estimations. Forecasts of econometric and demographic variables are purchased from well-known economic consulting firms and include national as well as individual state data. For weather, the most recent thirty-year average of monthly actual temperatures from multiple weather stations is used to form as "normal" temperature for the forecast period.

7 Q. What is the source for the data used in the forecast?

PEC utilizes both historic and forecast economic and demographic data from Α. 8 Moody's Economy.com, a nationally recognized economic forecasting firm. 9 Moody's Economy.com provides forecasts of key economic indicators for 10 the Carolinas which are then used as input for PEC's energy forecast model. 11 Population data used in customer forecasts is from the NC Office of State 12 Budget and Management. The most recent NOAA thirty year normal degree 13 day summary is used as the expected or normal forecast temperature. Other 14 historic data for the estimation comes from historic billing data from 15 company records and historic temperature data from four Class A weather 16 stations in the Carolinas. 17

18 Q. How are the class peak demand forecasts developed?

A. The energy forecast in megawatt-hours is converted into the demand
 forecasts in megawatts for each separate customer class using the customer

class summer peak load factor. The mathematical relationship is: Annual l Peak Load = forecast energy/(hours in year X load factor). 2 How is conservation and Demand Side Management (DSM) treated in 3 0. the forecast? 4 Past conservation and efficiency changes are reflected in historic energy Α. 5 Consequently, implementation of conservation and consumption data. 6 efficiency measures adopted in the past is implicitly reflected in the forecast. 7 In addition to customer initiated conservation, PEC has also initiated DSM 8 programs. These programs consist of interruptible industrial demand (Large 9 Load Curtailment) and direct load control through voltage reduction. 10 The load reductions from Company initiated DSM programs are 11 added back to historic databases that are used to develop the forecast. This 12 procedure renders the forecasts developed from this database free of the 13 historic effects of Company-initiated load management. Accordingly, future 14 levels of Company initiated DSM, can be directly subtracted from the 15 forecast to develop projections of net demand. 16 What economic and demographic variables are included in the **Q**. 17

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residential class forecast?

A. Residential energy is estimated using a two-part model: an estimate of
 customer growth and an estimate of usage per customer. The number of

1		customers is estimated as a function of population growth. Usage per
2		customer is estimated as a function of the growth in real income and the real
3		price of electricity.
4	Q.	What economic and demographic variables are included in the
5		commercial class forecast?
6	А.	Commercial energy is estimated as a function of commercial employment
7		and the real price of electricity.
8	Q.	What economic and demographic variables are included in the
9		industrial class forecast?
10	А.	Industrial energy is estimated as a function of industrial production and the
11		price of electricity. The industrial forecast is comprised of a total of 18
12		industries modeled at the two-digit Standard Industrial Classification (SIC)
13		code levels.
14		PEC also relies heavily on input from our commercial and industrial
15		account representatives. Coordination with account representatives has
16		become more critical during the past five years as the textile and associated
17		industries have shrunk dramatically due to foreign competition.
18	Q.	What economic and demographic variables are included in the
19		wholesale forecast?

A. The wholesale forecast considers variables such as income and population
 along with weather. Forecasts for individual wholesale customers also rely
 on input from company representatives working with these customers
 because industrial and commercial load additions or losses can be a
 significant portion of these loads.

- Q. Are the methods used by PEC to develop its forecast consistent with and
 similar to methods used by other utilities?
- 8 A. Yes. PEC's forecasting methods are very similar to methods used by other
 9 utilities.

Q. Have PEC's forecasting methods and models been reviewed in past IRP proceedings?

Yes. The Public Staff and the Commission have consistently found PEC's Α. 12 forecasting methods to be acceptable in past IRP proceedings. The 13 Commission has repeatedly stated in its orders in previous IRP dockets that 14 ".... the Commission is of the opinion that the IRP review is intended to 15 ensure that each utility is generally including all of the considerations 16 required by the Commission's Rules in its planning process, that each utility 17 is generally utilizing state-of-the-art techniques for its forecasting and 18 planning activities....."¹ More recently, in the 2007 IRP proceeding, the 19

¹ Order Approving Integrated Resource Plans, N.C.U.C., Docket No. E-100, Sub 102, February 22, 2005.

Commission examined PEC's forecasts and concluded "....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."² Based upon this explicit standard of review, the Commission has consistently approved the utilities' filed resource plans in prior IRP dockets. **Q. Were the methods and tools PEC used to develop its Resource Plan**

similar to the methods and tools used to develop PEC's Resource Plans
in recent years?

A. Yes. PEC used the same methods, tools and models it has employed in recent years to develop its Resource Plan presented to this Commission in prior IRP proceedings.

Q. Does PEC's Resource Plan include a mix of resources to meet the growing load?

Yes, as shown on Table 1 in the Resource Plan, our plan relies upon a mix of Α. 15 existing generating plants, new supply resources and demand-side programs 16 to provide for an adequate and reliable supply of electricity to serve our 17 reflects lowest reasonable cost. The plan also at 18 customers acknowledgement of the widely accepted assumption there will be 19

² Order Approving Integrated Resource Plans, N.C.U.C., Docket No. E-100, Sub 114, September 19, 2008

environmental legislation in the future requiring review of continued
 operation of certain coal-fired generation.

3 Q. Does PEC's September 2009 Resource Plan include specific plans 4 and/or commitments to add new generation to PEC's fleet of generating 5 plants?

A. While the plan does include specific derates at identified generating plants
due to the installation of scrubbers, and the addition of combined cycle
generation at the Company's Richmond County and Wayne County 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.

Q. Is PEC applying to the Commission in this proceeding for approval to
 build any additional generating unit or plant?

A. No. PEC fully understands the Commission's position as articulated in
 numerous past orders, including its order in the last IRP proceeding, that the
 IRP proceeding is intended as a review of the utilities' long-range plans, not
 approval of specific plan to add specific resources.

In its order in the last IRP proceeding, the Commission noted:

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"As stated in previous IRP dockets, the Commission is of the 1 opinion that the IRP review is intended to ensure that each utility 2 is generally including all of the considerations required by the 3 Commission's Rules in its planning process, that each utility is 4 generally utilizing state-of-the-art techniques for its forecasting 5 and planning activities, and that each utility has developed a 6 reasonable analysis of its long-range needs for expansion of 7 generation capacity. Also, the Commission reiterates its opinion 8 that evaluations of individual DSM programs, certificates to 9 construct new generating plants or transmission lines, and 10 individual purchased power contracts should be handled in 11 separate dockets from the IRP proceeding. Consistent with this 12 view, it should be emphasized that inclusion of a DSM program, 13 a proposed new generating station, a proposed new transmission 14 line, or a purchased power contract in a utility's IRP filing does 15 not constitute approval of such individual elements even if the 16 IRP is approved."³ 17

Q. Will PEC require further Commission approvals prior to constructing additional generating resources?

³ Order Approving Integrated Resource Plans, N.C.U.C., Docket No. E-100, Sub 102, February 22, 2005.

1	А.	Yes. Pursuant to G.S. 62-110.1 PEC must obtain specific approval from the
2		Commission for the construction of any new generating facility.
3	Q.	Does PEC's Resource Plan include DSM options and Alternative Supply
4		Resources?
5	А.	Yes it does. The Resource Plan includes, as reported in Tables 1 and 2, the
6		capability of PEC's DSM and Energy Efficiency programs as well as
7		alternative supply resources. More information on these can be found in the
8		appendices.
9	Q.	Does this conclude your testimony?
10		Yes it does.

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STATE OF NORTH CAROLINA UTILITIES COMMISSION RALEIGH

DOCKET NO. E-100, SUB 124

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of:

Investigation of Integrated Resource Planning in NC - 2009

CERTIFICATE OF SERVICE

I, Len S. Anthony, hereby certify that Progress Energy Carolinas, Inc.'s Direct Testimonies of witnesses David Kent Fonvielle, David Christian Edge and Glen A. Snider have been served on all parties of record either by hand delivery or by depositing said copy in the United States mail, postage prepaid, addressed as follows this the 11th day of December, 2009:

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