

1 PLACE: Dobbs Building, Raleigh, North Carolina

2 DATE: Tuesday, March 16, 2010

3 DOCKET NO.: E-100, Subs 118 and 124

4 TIME IN SESSION: 9:30 A.M. - 12:30 P.M.

5 BEFORE: Commissioner William T. Culpepper, III, Presiding  
6 Chairman Edward S. Finley, Jr.  
7 Commissioner Lorinzo L. Joyner  
8 Commissioner Bryan E. Beatty  
9 Commissioner Susan Warren Rabon

10 IN THE MATTER OF:

11 Volume I

12 Investigation of Integrated Resource Planning in North

13 Carolina - 2008 and 2009

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

15 FOR DUKE ENERGY CAROLINAS AND DOMINION NORTH CAROLINA  
16 POWER:

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4     Kendal C. Bowman  
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7     FOR THE USING AND CONSUMING PUBLIC:

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FOR ENVIRONMENTAL DEFENSE FUND, SOUTHERN ALLIANCE FOR  
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P R O C E E D I N G S

COMMISSIONER CULPEPPER: Good morning. Let's come to order, please, and go on the record. I am Commissioner Bill Culpepper and with me are Commission Chairman Edward S. Finley, Jr. and Commissioners Lorinzo L. Joyner, Bryan E. Beatty and Susan Warren Rabon.

The Commission now calls for evidentiary hearing at this time consolidated Docket Nos. E-100, Sub 118 and E-100, Sub 124, in the Matter of Investigation of Integrated Resource Planning in North Carolina 2008 and 2009.

Integrated Resource Planning is intended to identify those electric resource options that can be obtained at least cost to the ratepayers consistent with adequate, reliable electric service and other legal obligations. IRP considers conservation, efficiency, and load management, as well as supply-side alternatives, in the selection of resource options.

G.S. 62-110.1(c) requires the Commission to "develop, publicize, and keep current an analysis of the long-range needs" for electricity in this State. The Commission's analysis is to include: Its estimate of the probable future growth of the use of electricity; the probable needed generating reserves; the extent, size,

1 mix, and general location of generating plants; and  
2 arrangements for pooling power to the extent not regulated  
3 by the Federal Energy Regulatory Commission.

4 G.S. 62-110.1 further requires the Commission to  
5 consider this analysis in acting upon any petition for  
6 construction. In addition, G.S. 62-110.1 requires the  
7 Commission to submit annually to the Governor and to the  
8 appropriate committees of the General Assembly: A report  
9 of the Commission's analysis and plan for the future  
10 requirements of electricity for North Carolina; the  
11 progress to date in carrying out such plan; and the  
12 program of the Commission for the ensuing year in  
13 connection with such plan.

14 G.S. 62-15(d) requires the Public Staff North  
15 Carolina Utilities Commission to assist the Commission in  
16 this analysis and plan.

17 In addition, G.S. 62-2(3a) vests the Commission  
18 with the duty to regulate public utilities and their  
19 expansion in relation to long-term energy conservation and  
20 management policies. These policies include assuring that  
21 resources necessary to meet future growth through the  
22 provision of adequate, reliable utility service include  
23 use of the entire spectrum of demand-side options,  
24 including but not limited to conservation, load management

1 and efficiency programs, as additional sources of energy  
2 supply and/or energy demand reductions.

3 To meet the requirements of G.S. 62-110.1 and  
4 G.S. 62-2(3a), the Commission conducts an annual  
5 investigation into the electric utilities' integrated  
6 resource plans. Commission Rule R8-60 requires that each  
7 of the electric utilities furnish the Commission with a  
8 biennial report in even-numbered years that contains the  
9 specific information set out in that Rule. In  
10 odd-numbered years, each of the electric utilities must  
11 file an annual report updating its most recently filed  
12 biennial report.

13 Further, Commission Rule R8-67(b) requires any  
14 electric power supplier subject to Rule R8-60 to file a  
15 Renewable Energy and Energy Efficiency Portfolio Standard  
16 compliance plan as part of its IRP report. Within 150  
17 days after the filing of each electric utility's biennial  
18 report, and within 60 days after the filing of each  
19 electric utility's annual report, the Public Staff or any  
20 other intervenor may file its own plan or an evaluation  
21 of, or comments on, the electric utilities' IRP reports.  
22 Furthermore, the Public Staff or any other intervenor may  
23 identify any addition that it believes should be the  
24 subject of an evidentiary hearing.



1           On September 1, 2009, annual update reports to  
2   2008 biennial IRPs and 2009 REPS compliance plans were  
3   filed in the Sub 124 docket by Carolina Power & Light  
4   Company d/b/a Progress Energy Carolinas, Incorporated;  
5   Duke Energy Carolinas, LLC; and Virginia Electric and  
6   Power Company d/b/a Dominion North Carolina Power. On  
7   September 16, 2009, Dominion filed revisions to its 2009  
8   update report.

9           On October 19, 2009, the Commission issued its  
10   Order Scheduling Hearings on 2009 Integrated Resource  
11   Plans and REPS Compliance Plans and Consolidating Dockets  
12   for Decision. In this Order, the Commission noted that  
13   the 2009 updates to the 2008 biennial reports have been  
14   filed; that the 2009 reports supersede much of the  
15   information contained in the 2008 reports; and that the  
16   Commission had, therefore, decided to consolidate the Sub  
17   118 and Sub 124 dockets for purposes of decision.

18           Further, in this Order the Commission noted the  
19   existence of good cause to schedule an evidentiary hearing  
20   to consider the 2009 IRPs and REPS compliance plans filed  
21   by Progress, Duke, and Dominion as a replacement for the  
22   normal comment process specified by Commission Rule  
23   R8-60(j), but that it saw no need for an evidentiary  
24   hearing on the 2008 plans in view of the fact that

1 interested parties have previously filed comments in the  
2 Sub 118 docket.

3 Accordingly, the October 19, 2009, Order  
4 scheduled a nonexpert public witness testimony hearing  
5 regarding the 2009 IRPs and REPS compliance plans which  
6 was held as scheduled in this place last night, and this  
7 evidentiary hearing to consider the 2009 IRPs and REPS  
8 compliance plans filed by Duke, Progress and Dominion for  
9 this date, at this time and in this place.

10 The following parties have been granted  
11 intervenor status in these proceedings: The Carolina  
12 Industrial Groups for Fair Utility Rates I, II and III;  
13 GreenCo Solutions, Incorporated; North Carolina Waste  
14 Awareness Reduction Network, Incorporated; Fibrowatt LLC;  
15 the Carolina Utility Customers Association, Incorporated;  
16 North Carolina Sustainable Energy Association; Nucor  
17 Steel-Hertford; the Public Works Commission of the City of  
18 Fayetteville; CPI USA North Carolina, LLC; the Southern  
19 Environmental Law Center; the Environmental Defense Fund;  
20 the Southern Alliance for Clean Energy; and the Sierra  
21 Club.

22 Attorney General Roy Cooper has given notice of  
23 his intervention in these proceedings on behalf of the  
24 Using and Consuming Public pursuant to G.S. 62-20.

1 Additionally, as previously noted, the Public Staff is a  
2 party participating in these proceedings pursuant to G.S.  
3 62-15(d) and Commission Rule R1-19(e).

4 On December 11, 2009, Dominion filed the direct  
5 testimonies and exhibits of Shannon L. Venable, M. Masood  
6 Ahmad, Michael J. Jesensky and Aaron A. Reed; and Progress  
7 filed the direct testimonies of David Kent Fonvielle,  
8 David Christian Edge and Glen A. Snider.

9 On January 11, 2010, Duke filed its revised 2009  
10 IRP Annual Report, together with the direct testimonies  
11 and exhibits of Richard G. Stevie, Owen A. Smith, Robert  
12 A. McMurry and James A. Riddle.

13 On February 19, 2010, CPI USA filed the direct  
14 testimony of Don C. Reading; and EDF, Sierra, SACE and  
15 SELC filed the direct testimonies and exhibits of David  
16 Schlissel and John D. Wilson. Also on February 19, 2010,  
17 the Public Staff filed the testimony of John R. Hinton and  
18 the affidavits of Jay B. Lucas, Jack L. Floyd and Kennie  
19 D. Ellis; and NC WARN filed the direct testimony and  
20 exhibits of John O. Blackburn.

21 On February 23, 2010, Duke filed confidential  
22 Revised Table 2 to its Revised 2009 IRP.

23 On March 2, 2010, the Public Staff filed  
24 revisions to the Affidavit of Jay B. Lucas.

1           On March 9, 2010, Progress filed the rebuttal  
2 testimonies of its witnesses Fonvielle, Edge and Snider;  
3 and Dominion filed the affidavit of witness Shannon L.  
4 Venable. Also on March 9, 2010, Duke filed revisions to  
5 the direct testimony of witness Stevie; revised Exhibits  
6 Nos. 1 and 3 of the direct testimony of witness Riddle;  
7 and the rebuttal testimonies of witnesses McMurry and  
8 Stevie.

9           Pursuant to G.S. 138A-15(e), I remind members of  
10 the Commission of their duty to avoid conflicts of  
11 interest and inquire at this time as to whether any  
12 Commissioner has any known conflict of interest with  
13 respect to these proceedings?

14                     (No response.)

15           Let the record reflect that no such conflicts  
16 were identified.

17           I now call upon counsel for the parties to  
18 announce their appearances for the record, beginning with  
19 the utilities.

20           MS. BOWMAN: Good morning. This is Kendal  
21 Bowman representing Progress Energy Carolinas.

22           MR. ANTHONY: Good morning, Mr. Chairman,  
23 members of the Commission. I'm Len Anthony, also  
24 representing Progress Energy Carolinas.

1 MR. KAYLOR: Chairman, members of the  
2 Commission, Robert Kaylor appearing on behalf of Duke  
3 Energy Carolinas and Dominion North Carolina Power.

4 MS. NICHOLS: Good morning. Lara Nichols, also  
5 on behalf of Duke Energy Carolinas.

6 MR. CASTLE: Good morning. Alex Castle on  
7 behalf of Duke Energy Carolinas.

8 MS. MITCHELL: I'm Charlotte Mitchell with  
9 Blanchard, Miller, Lewis & Styers on behalf of Piedmont,  
10 Haywood and Rutherford EMCs.

11 MR. STYERS: Good morning. Gray Styers with  
12 Blanchard, Miller, Lewis & Styers on behalf of CPI USA  
13 North Carolina, LLC.

14 MR. OLSON: Good morning. I'm Kurt Olson and  
15 I'm with the North Carolina Sustainable Energy  
16 Association.

17 MS. THOMPSON: Good morning. I'm Gudrun  
18 Thompson with the Southern Environmental Law Center  
19 representing Environmental Defense Fund, Southern Alliance  
20 for Clean Energy, Southern Environmental Law Center and  
21 the Sierra Club.

22 MR. RUNKLE: John Runkle representing the North  
23 Carolina Waste Awareness and Reduction Network, NC WARN.

24 MR. GREEN: Good morning. I'm Len Green with

1 the North Carolina Attorney General's office appearing on  
2 behalf of the consumers.

3 MR. GILLAM: Good morning. I'm Bob Gillam with  
4 the Public Staff representing the Using and Consuming  
5 Public. And also appearing for the Public Staff will be  
6 Lucy Edmondson, Kendrick Fentress and Gisele Rankin.

7 COMMISSIONER CULPEPPER: All right. Good  
8 morning, counsel.

9 I inquire of you now collectively, does anyone  
10 known of any preliminary matters that the Commission would  
11 need to take up at this time prior to my determining  
12 whether or not there are any public witnesses that would  
13 like to testify in this docket, consolidated docket? All  
14 right. Mr. Kaylor.

15 MR. KAYLOR: Mr. Chairman, on behalf of Dominion  
16 North Carolina Power, I believe that all the parties have  
17 agreed and stipulated that they don't have any  
18 cross-examination. And I would ask that the testimony of  
19 the Dominion witnesses Ms. Venable, Mr. Ahmad,  
20 Mr. Jesensky and Mr. Reed be copied into the record as if  
21 given orally, their exhibits be identified and that those  
22 exhibits also be admitted into evidence.

23 COMMISSIONER CULPEPPER: All right. Mr. Kaylor,  
24 we'll take that matter as the first matter up after we are

1 finished with the public witness testimony portion of the  
2 docket.

3 Now, other than Mr. Kaylor's attention matter,  
4 does anyone else know of any other preliminary matters  
5 that we need to take up at this time?

6 (No response.)

7 All right. Mr. Gillam, have you identified any  
8 public witnesses that would like to testify in this --  
9 these proceedings this morning?

10 MR. GILLAM: Yes, there is one. Mr. Ryan  
11 Thompson.

12 COMMISSIONER CULPEPPER: Mr. Thompson, yes, sir,  
13 if you'll come forward, please.

14 RYAN THOMPSON; Being first duly sworn,  
15 testified as follows:

16 DIRECT EXAMINATION BY MR. GILLAM:

17 COMMISSIONER CULPEPPER: All right. Mr. Gillam,  
18 you may examine your witness.

19 Q. Good morning, Mr. Thompson. Will you state your  
20 name and address for the record, please?

21 A. My name is Ryan William Thompson. I live at  
22 3102-G Kings Court, Raleigh, North Carolina, 27607.

23 Q. And who is the supplier that provides you with  
24 electric service?

1 A. Progress Energy.

2 Q. Do you have a statement to make this morning?

3 A. Yes, sir, I do.

4 Q. Go right ahead.

5 A. I am a -- well, first, good morning,  
6 Commissioners. I would like to thank you for having --  
7 hearing me.

8 I am a NC State senior in sociology and political  
9 science. I have spent the past three years over at State  
10 studying environmental change. And I've noticed a simple  
11 correlation that -- throughout my short lifetime, we have  
12 seen carbon dioxide levels go to 387 parts per million on  
13 a global average scale. That was last year. It could be  
14 higher even now. NASA Goddard Institute of Space Studies  
15 states that last year -- actually it wasn't the hottest  
16 year. It tied for 2005. 2003, 2002, 2004 all come  
17 shortly behind it. We're starting to notice a trend  
18 within -- in climate change that we must start acting  
19 sustainably. We must begin transitioning to a new economy  
20 conscious of fossil fuels and our effects on the  
21 environment.

22 Cliffside 6 will -- is expected to cost \$2 billion  
23 and new nuclear plants are estimated to cost upwards of  
24 10. These resources could be allocated to such things as



1 solar and wind.

2 North Carolina is perfectly poised to grow in  
3 solar. We have twice as much sun as Germany, the world's  
4 solar leader. Our universities, NC State included, have  
5 some of the best leading experts in solar power and the  
6 economy of environmental affairs could produce hundreds of  
7 green jobs here in North Carolina.

8 Jobs within the manufacturing industry, within the  
9 manufacturing of panels, the installation of panels, the  
10 testing, the servicing of them, they could produce more  
11 jobs than any industry that we have seen introduced to NC  
12 in the past few years.

13 I believe that it's time we begin to qualify, but  
14 also quantify our times in parts per million. How we view  
15 our way of life is sustainable in touch with the  
16 ecosystems which we currently inhabit. I encourage the  
17 use of solar and wind within North Carolina to become  
18 common axioms of our way of life. I thank you.

19 COMMISSIONER CULPEPPER: Does that pretty much  
20 conclude your statement?

21 THE WITNESS: Yes, sir.

22 COMMISSIONER CULPEPPER: All right. Let's --  
23 stay right there for just a second and let's see if any of  
24 the participants have any questions for you this morning.

1 First, Mr. Gillam, do you have any additional  
2 questions you would like to ask of your witness?

3 MR. GILLAM: Yes. Let me ask one question.

4 Q. Do you have any comments on the recent controversy  
5 as to the legitimacy of the research on climate change?

6 A. Yes, I have. And I have heard that there were  
7 some fudging of numbers, and I understand this. But given  
8 my study at NC State, it is uncomprehensible to see that  
9 parts per million has jumped in the recent years, that our  
10 carbon emissions still goes up daily through our use of  
11 cars, our way of life, coal use, fossil fuels. And it  
12 continues to go up.

13 Now, whether all numbers were fudged across the  
14 board, I believe that hard to -- hard to grasp, but I  
15 believe no matter what, sustainable technology such as  
16 wind and solar would benefit us immediately in terms of  
17 health and in our environment. Whether the numbers and  
18 data are exact, it's beyond me.

19 Q. Thank you.

20 MR. GILLAM: I have no further questions.

21 COMMISSIONER CULPEPPER: All right. Are there  
22 cross-examination questions from any of the other  
23 intervenors?

24 (No response.)

1           Are there cross-examination questions from any  
2 of the utilities? I see you holding your hand up, Mr.  
3 Anthony.

4           MR. ANTHONY: Yes, sir.

5           COMMISSIONER CULPEPPER: Mr. Anthony.

6           CROSS-EXAMINATION BY MR. ANTHONY:

7           Q.       Good morning, Mr. Thompson. As a parent of a  
8 college student, I admire you for being here and you're  
9 very articulate and well spoken, so God bless you for  
10 being here. And for being a responsible student.

11           In your studies have you determined on average a  
12 cost per kW for solar generation?

13           A.       I have not. We had actually -- a professor of  
14 mine named Bob Ruck [phonetic], we had sat down and we had  
15 started to come up with some different modeling in terms  
16 of what we wanted to see in terms of solar and wind in NC,  
17 but I'm expected to graduate shortly and my final  
18 presentation has cut my study short at NC State.

19           As much as I would have liked to have seen the  
20 efficiency of solar panels and truly mapped the progress  
21 within them, I -- I cannot -- I can give no definite  
22 answer.

23           Q.       And is the same true for solar -- I mean, wind?  
24 You don't have a cost per --

1 A. I do not on me unfortunately. As I said, I'm a  
2 sociology and political science major. I would like to  
3 see those figures produced, but -- hopefully out of my own  
4 university even, but I do not have the numbers.

5 Q. And one final question. How about capacity  
6 factors for solar or wind, are you -- do you have any of  
7 those numbers?

8 A. I actually have studied them. I do not have the  
9 numbers with me per se, but I know that Western NC as well  
10 as off the coast of my home -- I'm from Wilmington -- and  
11 the Outer Banks as well as Western NC stands pretty poised  
12 in terms of resources for wind. And solar across the  
13 Piedmont region is supposed to be generally higher than  
14 most throughout the Southeast, but I do not have those  
15 numbers now.

16 Q. Thank you.

17 COMMISSIONER CULPEPPER: All right. Thank you,  
18 Mr. Anthony. Any other questions from representatives of  
19 the utilities?

20 MS. NICHOLS: No questions.

21 COMMISSIONER CULPEPPER: Mr. Gillam, do you have  
22 any redirect examination of your witness?

23 MR. GILLAM: No, sir.

24 COMMISSIONER CULPEPPER: Are there questions by

1. the Commission?

2 (No response.)

3 Thank you very much, Mr. Thompson.

4 THE WITNESS: I thank you all.

5 COMMISSIONER CULPEPPER: That will conclude your  
6 testimony. You may stand down with our deep appreciation  
7 for having come and participated in these proceedings  
8 today and good luck to you, sir. Thank you very much.

9 (Whereupon, the witness was dismissed.)

10 Mr. Gillam, have you identified any other public  
11 witnesses?

12 MR. GILLAM: I believe he is the only one.

13 COMMISSIONER CULPEPPER: All right. Well, let  
14 me make certain of that. Is there anyone else that's  
15 present this morning in the hearing room who did not  
16 testify in this case last night as a public witness who  
17 would like to come forward this morning and testify in  
18 these proceedings as a public witness? If so, please  
19 identify yourself.

20 (No response.)

21 Let the record reflect that no other individuals  
22 identified themselves as wishing to testify this morning  
23 as a public witness. That will, therefore, conclude the  
24 public witness testimony portion of these proceedings.

1 We'll proceed to the evidentiary hearing.

2 We're back with you, Mr. Kaylor. With respect  
3 to the Dominion witnesses, you've represented that all the  
4 parties have agreed that your witnesses' testimony may be  
5 introduced into the record, the exhibits introduced into  
6 the record and cross-examination has been waived by all  
7 parties; is that correct?

8 MR. KAYLOR: That's correct, Mr. Chairman.

9 COMMISSIONER CULPEPPER: All right. I'll  
10 inquire for the record of the other representatives of the  
11 other utilities, is that correct?

12 MS. NICHOLS: Yes.

13 COMMISSIONER CULPEPPER: That appears to be  
14 correct. I'll ask of the intervenors collectively, is  
15 that correct, intervenors?

16 (Intervenors nod up and down.)

17 That appears to be correct. All right. That  
18 being the case, I believe your testimony was filed on  
19 December the 11th of 2009. That would be the testimony of  
20 Shannon L. Venable consisting of eight pages and one  
21 Appendix A. That is received and copied into the record  
22 word for word as if it had been given orally from the  
23 witness stand.

24 (Whereupon, the prefiled testimony and

1 Appendix A of Shannon L. Venable will be  
2 reproduced in the record at this point the  
3 same as if the questions had been orally  
4 asked and the answers orally given from the  
5 witness stand.)  
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**FILED**

**DEC 11 2009**

**Clerk's Office  
N.C. Utilities Commission**

**DIRECT TESTIMONY  
OF  
SHANNON L. VENABLE  
ON BEHALF OF  
VIRGINIA ELECTRIC AND POWER COMPANY  
BEFORE THE  
NORTH CAROLINA UTILITIES COMMISSION  
DOCKET NO. E-100, SUB 118  
DOCKET NO. E-100, SUB 124**

1 **Q. Please state your name, and business address, and describe your position with**  
2 **Virginia Electric and Power Company.**

3 **A. My name is Shannon L. Venable and my business address is 120 Tredegar Street,**  
4 **Richmond, Virginia 23219. I am the Vice President of Integrated Resource Planning for**  
5 **Virginia Electric and Power Company d/b/a Dominion North Carolina Power (the**  
6 **"Company"). I am responsible for the development of initiatives that integrate capacity**  
7 **plans and demand-side resources in support of the Company's regulatory and strategic**  
8 **initiatives. As part of my duties, I also oversee the Company's peak demand and energy**  
9 **forecasts over a 15-year period and the analysis of demand-side management ("DSM")**  
10 **programs. A statement of my background and qualifications is attached as Appendix A.**

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

12 **A. On September 1, 2009, the Company filed its 2009 Integrated Resource Plan ("2009**  
13 **Plan") in accordance with § 62-2 and § 62-110.1 of the North Carolina General Statutes**  
14 **and Rule R8-60 of the North Carolina Utilities Commission's ("NCUC" or**  
15 **"Commission") Rules. Certain information was not properly labeled as confidential and**  
16 **therefore replacement pages were filed with the Commission on September 15, 2009.**  
17 **The 2009 Plan was filed as the Company's annual update to its 2008 Integrated Resource**  
18 **Plan ("2008 Plan") that was filed on August 29, 2008. The purpose of my testimony is to**



1 expound Chapter 1 of the 2009 Plan, provide an overview of the Integrated Resource  
2 Planning ("IRP") process, and discuss the Company's plan for future DSM and  
3 Renewable Energy and Energy Efficiency Portfolio Standard ("REPS") filings. Both the  
4 2008 Plan and the 2009 Plan were prepared under my supervision and direction and are  
5 accurate and complete to the best of my knowledge.

6 **Q. Will the Company present other witnesses in this proceeding?**

7 **A. Yes. M. Masood Ahmad, Director of Integrated Resource Planning, will present the**  
8 **Company's load forecast as well as its proposed supply-side resources, as evaluated and**  
9 **selected in the 2009 Plan. Michael J. Jesensky, Director of Demand-Side Analysis, will**  
10 **detail the Company's demand-side options including its current, proposed, and future**  
11 **DSM programs. Aaron A. Reed, Business Development Manager, will discuss the**  
12 **Company's 2009 REPS Compliance Plan that was filed with the 2009 Plan as NC IRP**  
13 **Addendum 1 pursuant to Rule R8-67 (b) of the Commission's Rules.**

14 **Q. Please provide some background on the Company.**

15 **A. The Company currently serves approximately 2.4 million electric customers in Virginia**  
16 **and North Carolina. The Company's electric service area covers approximately 30,000**  
17 **square miles in Virginia and North Carolina.**

18 **The Company's regulated electric portfolio consists of 18,245 megawatts ("MW") of**  
19 **generation capacity, including 1,776 MW of non-utility generation ("NUG") and over**  
20 **6,000 miles of transmission lines in Virginia, North Carolina, and West Virginia at**  
21 **voltages ranging from 69 kilovolts ("kV") to 500 kV. In May 2005, the Company**  
22 **became a member of PJM Interconnection, LLC ("PJM"), a regional transmission**

1 organization that is the operator of the wholesale electric grid in the Mid-Atlantic region  
2 of the United States. As a result, the Company transferred operational control of its  
3 transmission assets to PJM.

4 The Company has a diverse mix of generating resources consisting of Company-owned  
5 nuclear, fossil, hydro, pumped storage, and biomass facilities. Additionally, the  
6 Company purchases capacity and energy from NUGs and the PJM market. The  
7 Company's strategy to reduce dependence on volatile market purchases while  
8 maintaining a diverse mix of fuels and DSM programs is a fundamental focus of the 2009  
9 Plan.

10 **Q. Please briefly explain the Company's IRP process.**

11 **A.** The Company's IRP process enables the Company to balance additional generating  
12 capacity from both renewable and traditional resources, DSM programs, and market  
13 purchases, in order to meet the forecast of peak demand and energy sales, in addition to a  
14 reserve margin required to support reliability. Currently, the Company optimizes supply-  
15 and demand-side resources with market purchases to determine a strategy that offers  
16 reliable service at reasonable prices to customers. The overall goal of the IRP process is  
17 to identify the optimal mix of all resources, including supply-side and demand-side  
18 options, for meeting the Company's and its customers' near-term and long-term energy  
19 needs in an efficient and reliable manner at the lowest reasonable cost.

20 **Q. Please discuss what changes have occurred since the Company's 2007 Integrated**  
21 **Resource Plan was approved by the NCUC.**

1 A. On November 30, 2007, the Company filed its 2007 Integrated Resource Plan under then  
2 existing legislation and corresponding rules of the Commission. In 2007, the North  
3 Carolina General Assembly passed, and the Governor signed, Senate Law 2007-397,  
4 commonly referred to as Senate Bill 3. In response, the Commission amended Rules R8-  
5 60 and R8-61, which, among other things, modified the requirements for utilities filing  
6 integrated resource plans. The new rules require electric utilities to file biennial  
7 integrated resource plans as well as annual updates of these plans. Additionally, the new  
8 legislation requires an extended planning horizon of 15 years, further detail regarding  
9 DSM programs, and the inclusion of REPS compliance plans as part of its Integrated  
10 Resource Plan filing, among other new requirements.

11 In response to these legislative changes in North Carolina as well as new IRP legislation  
12 in Virginia, the Company established an IRP department in late 2007 to evaluate the best  
13 mix of supply- and demand-side resources needed to meet projected customer load. The  
14 department's responsibility is to integrate generation options, transmission planning, and  
15 demand-side options to meet long-range projected customer energy requirements.

16 Q. What are the Plan's overall objectives?

17 A. The Company's 2009 Plan represents Dominion North Carolina Power's commitment to  
18 meeting future demand effectively through a balanced portfolio approach while also  
19 providing the flexibility needed to respond to uncertainties brought on by changes in  
20 market conditions and customer demand. The 2009 Plan was developed to meet rising  
21 customer demand for electricity providing a mix of resources necessary to meet future  
22 needs in an efficient and reliable manner at the lowest reasonable cost including  
23 provisions to achieve policy goals from individual state legislatures. The Plan proposes

1 to achieve these objectives by expanding the Company's electric generation capacity and  
2 increasing its DSM programs, including energy efficiency, demand response, and peak  
3 shaving programs.

4 **Q. Please describe the Company's 2009 Plan.**

5 **A.** The 2009 Plan is a long-term planning document providing a 15-year forecast of  
6 projected load and the manner in which that load will be met. The current 2009 Plan  
7 addresses the 2010 to 2024 timeframe ("Planning Period"). The 2009 Plan is based on  
8 the Company's current assumptions regarding load growth, commodity price projections,  
9 and DSM program penetrations, as well as many other regulatory and market  
10 developments throughout the Planning Period. The Company's 2009 filing includes  
11 chapters on load forecasting, existing supply- and demand-side resources, plan  
12 requirements and constraints, and future supply- and demand-side resources. In addition,  
13 a Short-Term Action Plan ("STAP") was included to review the Company's specific  
14 actions being taken within the next five years (2010 – 2014). The Company's REPS  
15 Compliance Plan was attached as Addendum 1 to the 2009 Plan. The 2009 Plan was  
16 prepared on a system basis, specifically, the Dominion Load Serving Entity ("DOM  
17 LSE"), and represents the Company's service territories in the Commonwealth of  
18 Virginia and North Carolina as part of PJM.

19 **Q. How did the Company develop its Plan?**

20 **A.** First, the Company developed its load forecast as adopted by Company Witness M.  
21 Masood Ahmad. Once the forecast was established, The Company's objective in  
22 developing the 2009 Plan was to identify the mix of resources necessary to meet future  
23 energy needs in an efficient and reliable manner at the lowest reasonable cost. The

1 Company followed its comprehensive IRP process that gave preference to options that  
2 offer reasonable costs and contain an acceptable level of risk, maintain or increase the  
3 level of customer service, and provide reliable generation and infrastructure to meet  
4 customers' needs. The process included various planning groups within the Company  
5 who provided input and insight into evaluating all possible options including existing  
6 generation, DSM programs, and new traditional and alternative resources to meet the  
7 growing demand in the Company's service territory.

8 The Company used the Strategist model ("Strategist"), a computer modeling and resource  
9 optimization tool, to systematically evaluate various combinations of supply- and  
10 demand-side options to determine how the Company's resource requirements could be  
11 met. Based on projected capacity needs, energy needs, and the resources available to  
12 meet them, the Company developed a set of five alternative plans that represented  
13 possible future paths considering the current regulatory and business environments.  
14 Among the alternatives, one was selected as the preferred Plan ("Preferred Plan").

15 **Q. Please elaborate on how these alternative plans were developed and the Preferred**  
16 **Plan was chosen.**

17 **A.** The Company developed alternative plans that represent possible future paths considering  
18 the current regulatory and business environments including: 1) a base plan, 2) a no  
19 demand-side resources plan, 3) a no nuclear expansion plan, 4) a no renewable plan, and  
20 5) a federal renewable plan. The Company assessed the alternative plans using various  
21 sensitivities and scenarios to understand how possible futures may impact the relative  
22 costs of the supply- and demand-side resources included in each alternative plan. Each  
23 alternative plan was designed to test different resource strategies available to the

1 Company over the Planning Period. After analyzing these alternative plans, the Company  
2 identified the single option that provided the lowest reasonable cost plan most  
3 consistently given these potential future conditions. This single plan was then selected as  
4 the Preferred Plan.

5 **Q. Please elaborate on Preferred Plan.**

6 **A.** The Preferred Plan represents the single plan that performed the best, most consistently,  
7 throughout the IRP process and contains the preferred mix of supply- and demand-side  
8 options to meet expected future resource needs. Additionally, the Preferred Plan provides  
9 the lowest reasonable cost plan for the Company given considerations of these scenarios  
10 and sensitivities.

11 *In addition to existing generation, the 2009 Plan relies upon:*

- 12 ■ Proposed and future DSM programs reaching approximately 950 MW by 2024;
- 13 ■ Potential renewable resources of approximately 300 MW;
- 14 ■ Generation resources under construction of approximately 1,200 MW by 2024;
- 15 ■ Generation resources under development of approximately 1,900 MW by 2024;
- 16 ■ Additional conventional resources of approximately 4,500 MW that will continue  
17 to be studied as the resource need is established; and
- 18 ■ PJM market purchases and NUG capacity under contract.

19 To meet the projected electric customer demand and the reserve requirement in the  
20 Planning Period, the Company will need additional resources that total approximately  
21 8,900 MW, consisting of a mix of supply-side resources totaling approximately 7,900  
22 MW of capacity and nearly 950 MW of demand-side resources by 2024.

1 Q. What demand-side and renewable resources has the Company relied upon in its  
2 2009 Plan?

3 A. The Company believes that cost-effective DSM and renewable resources should be  
4 considered as viable resources in meeting customers' needs. The Company has included  
5 a capacity of up to 950 MW of DSM resources as part of its 2009 Plan. More  
6 specifically, the Company plans to file a portfolio of DSM programs in North Carolina in  
7 the second quarter of 2010. With regard to renewables, the Company filed its REPS  
8 Compliance Plan as an addendum to the 2009 Plan. Additionally, the Company filed its  
9 REPS Compliance Report in November 2009.

10 Q. Please summarize the Company's 2009 Plan.

11 A. The Company's 2009 Plan represents Dominion North Carolina Power's commitment to  
12 meet its customers' electrical needs over the next 15 years and allows flexibility to  
13 respond to uncertainties brought on by changes in market conditions, including those  
14 caused by changes in federal and state law and customer demand. The Company is  
15 committed to meeting future demand effectively through a balanced portfolio, which  
16 includes a combination of new traditional and renewable generation facilities as well as  
17 energy efficiency and DSM programs that provide a reliable supply of energy at the  
18 lowest reasonable cost to customers.

19 Q. Does this conclude your testimony?

20 A. Yes, it does.

## APPENDIX A

**BACKGROUND AND QUALIFICATIONS**  
**OF**  
**SHANNON L. VENABLE**

I graduated from Michigan State University in June of 1982 with a Bachelor of Science degree in Electrical Engineering and a minor in Biomedical Engineering. I am a member of the Society of Women Engineers, United Way's Women's Leadership Council, and the Eta Kappa Nu Society. Additionally, I became the Vice Chairman of the South Eastern Electric Exchange ("SEE") IRP Task team in 2009 and served as Secretary in 2008.

I joined Virginia Electric and Power Company in July of 1982 as an engineer in Transmission and Distribution Construction and Operations. I have held various management positions in Metering and Energy Services supporting End Use Studies and Measurement & Verifications of DSM programs, Energy Information and Telecommunications, and Energy Efficiency before being promoted to Director of IT Telecommunications in 1998. From 1999 to 2007, I held director-level leadership positions in Customer Services, Business Excellence, Electric Transmission, IT Enterprise Services, and other strategy-based assignments. Additionally, I was one of the initial deployment champions for Six Sigma at Virginia Electric and Power Company and am a certified Master Black Belt in Six Sigma. I am currently Vice President of Integrated Resource Planning in the Regulation and Integrated Planning organization of Virginia Electric and Power Company. I am responsible for the development of corporate-level initiatives that integrate capacity plans, transmission plans, and conservation and load management in support of the Company's regulatory and strategic initiatives.

In January of 1996, I gave a presentation on Strategic Partnering to Enable Energy Management and Customer Information Capabilities at the Utility Information Technology, System Strategies, and Customer Satisfaction Symposium. In 1992, I was on the Edison Electric Institute's ("EEI") editorial team for the 1992 publication of the Handbook for Electricity Metering and was the Company's representative to EEI's Metering Subcommittee from 1992 to 1994. In September 2008, I presented "Uncertainty Surrounding Potential Carbon Legislation" at the Marcus Evans Integrated Resource Planning Conference.

I have previously testified before the Virginia State Corporation Commission.



1 COMMISSIONER CULPEPPER: There was also an  
2 affidavit filed by that witness on March 9, 2010. I'm  
3 assuming you're moving that --

4 MR. KAYLOR: That's correct.

5 COMMISSIONER CULPEPPER: -- into evidence?

6 MR. KAYLOR: I move the affidavit also,  
7 Mr. Chairman.

8 COMMISSIONER CULPEPPER: All right. The  
9 affidavit of Shannon L. Venable, March 10, 2010, by  
10 stipulation is received into evidence of this proceeding.

11 (Whereupon, the prefiled affidavit of  
12 Shannon L. Venable will be reproduced in  
13 the record at this point the same as if the  
14 questions had been orally asked and the  
15 answers orally given from the witness  
16 stand.)

**FILED**

**MAR 09 2010**

DOCKET NO. E-100, SUB 124

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

Clerk's Office  
N.C. Utilities Commission

In the Matter of )  
Investigation of Integrated Resource )  
Planning in North Carolina – 2009 )  
AFFIDAVIT OF  
SHANNON L. VENABLE

CITY OF RICHMOND  
COMMONWEALTH OF VIRGINIA

I, Shannon L. Venable, being duly sworn, do depose and say:

I am the Vice President of Integrated Resource Planning for Virginia Electric and Power Company ("Dominion North Carolina Power" or the "Company"). I am responsible for the development of initiatives that integrate capacity plans and demand-side resources in support of the Company's regulatory and strategic initiatives. As part of my duties, I also oversee the Company's long-term peak demand and energy forecasts and the analysis of demand-side management ("DSM") programs. I caused to be filed direct testimony in support of the Company's 2009 Integrated Resource Plan, ("2009 Plan") on September 1, 2009, as amended September 15, 2009 and December 11, 2009 (which included updates to the 2008 Plan filed in Docket No. E-100, Sub 118). The Company also filed its Renewable Energy and Energy Efficiency Portfolio Standard ("REPS") Compliance Plan on September 1, 2009.

The purpose of my affidavit is to address the testimony and affidavits of the Public Staff and the testimony of the Environmental Defense Fund, the Sierra Club, Southern Alliance for Clean Energy and the Southern Environmental Law Center (collectively, "Environmental Respondents") filed in this proceeding on February 19, 2010.

The Public Staff finds that Dominion North Carolina Power's 2009 Plan meets the requirements of North Carolina statutes and the North Carolina Utility Commission's ("Commission") rules governing integrated resource plans and REPS compliance plans.

**Generating Facilities, Reserve Margin Adequacy, Non-Utility Generation, Wholesale Power Contracts, Transmission Facilities, Transmission Planning, Evaluation of Resource Options, and Levelized Busbar Costs**

By affidavit, Public Staff Witness Kennie D. Ellis states he examined the utilities' generating facilities, reserve margin adequacy, non-utility generation, wholesale power contracts, transmission facilities, transmission planning, evaluation of resource options, and levelized busbar costs. Mr. Ellis states that all the utilities, including Dominion North Carolina Power, appear to meet the requirements of R8-60.

### **Peak Load and Energy Forecasts**

Public Staff Witness John R. Hinton pre-filed direct testimony stating he examined the reasonableness of the peak load and energy forecasts of the utilities and their integration of DSM programs in their production simulation models. Mr. Hinton stated he did not have concerns and that Dominion North Carolina Power's 15-year forecasts of its peak demand and total energy sales were reasonable. Mr. Hinton also stated that the assumptions used in the forecasts were reasonable and that the Company's forecasts were accurate. Overall, he concluded the forecasts are valid and reasonable for planning purposes.

### **Demand-Side Management and Energy Efficiency**

In regard to his review of DSM programs, Mr. Hinton stated in his pre-filed direct testimony that increasing activation of load control would not defer or eliminate an additional combustion turbine or combined cycle facility, mainly because the model runs load control to address peak demand. Mr. Hinton observed that air conditioner cycling could reduce peak demand and reduce fuel costs. Similarly, Public Staff Witness Jack L. Floyd, by affidavit, provided his review of Company's DSM and energy efficiency programs. Mr. Floyd stated that he thinks the utilities should consider air conditioner cycling programs. The Company included an air conditioner cycling program in its initial DSM Portfolio modeled for the 2009 Plan (see 2009 Plan at 3-17) and will consider opportunities for lowering fuel costs once the program is formally filed and approved in North Carolina and operational data can be further analyzed.

### **REPS Compliance Plan**

Public Staff Witness Jay B. Lucas stated that, consistent with Commission Rule R8-67 (i) (7), the Company filed its assessment of existing and potential alternative supply-side energy resources; the Company provided information on changes to methods and assumptions used in assessments; and, pursuant to G.S. § 62-133.8, the Company provided specific percentages of retail sales using renewable energy resources, energy conservation, and energy efficiency. Mr. Lucas also stated that the Company provided its REPS Compliance Plan to meet the REPS requirements of G.S. § 62-133.8 (b), (c), (d), (e), and (f) for 2009, 2010 and 2011.

Mr. Lucas is correct that the Company did not mention a problem finding poultry and swine renewable energy or RECs in its REPS Compliance Plan. The Company has been having difficulty obtaining those resources, however, and participated as a joint movant on assignment and implementation issues for swine and poultry waste issues in Docket No. E-100, Sub 113.

Mr. Lucas stated that the Company complied with Rule R8-67 (b) (1) (iv) regarding customer counts and projections and Rule R8-67 (b) (1) (vi) and (vii) on projected total costs anticipated to implement the REPS Compliance Plan for 2009-2011 and a comparison to the cost caps. Mr. Lucas concludes by stating that the utilities,

including Dominion North Carolina Power "can meet their REPS requirements for the time period covered by their REPS Compliance Plans (2009, 2010, and 2011). Lucas at 9.

### **Environmental Respondents**

On behalf of the Environmental Respondents, John D. Wilson stated in his pre-filed direct testimony that the Company failed to describe "capacity, energy, number of customers and other required information" for its DSM programs. See Testimony of John D. Wilson at 23-24. The Company notes that this information is included in the Appendix to the 2009 Plan. See Appendix, Proposed Programs at AP-38 through AP-41; Future Programs at AP-107 through AP-110.

Citing Rule R8-60 (c) (1), Mr. Wilson suggests that the Commercial Distributed Generation ("Commercial DG") Program should be characterized as a supply-side resource. The Company does not agree with this statement. The Company has classified the proposed Commercial DG Program as a demand-side resource because it has the attributes of a demand-side program.

- The Commercial DG Program reduces load on the system;
- The generator is located behind the customer's meter and it is not a Company-owned resource; and
- The Company pays the customer an incentive for using the generator on their premises, which would classify the resource as a demand-side resource, not a supply-side resource.

In addition, because Commercial DGs are located at the customer location, they can provide avoided cost benefits resulting from reductions in future transmission and distribution costs as well as reductions in system transmission and distribution losses consistent with being a demand-side resource. Supply-side options generally do not produce these types of benefits.


As to Mr. Wilson's suggestion that the utilities should meet an annual energy savings goal of 1%, this is not the standard established by Senate Bill 3. See Testimony of John D. Wilson at 28. The Company is committed to pursuing energy efficiency that is cost-effective and appropriate for its customers.

The Company does not support the creation of a regional energy efficiency database and collaboration process. However, the Company is in support of an inclusive stakeholder process

**Conclusion**

The Company respectfully requests the Commission to issue an order approving Dominion North Carolina Power's 2008 and 2009 Integrated Resource Plans.

This completes my affidavit.



Shannon L. Venable


## DOCKET NO. E-100, SUB 124

## BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of	)	AFFIDAVIT OF
Investigation of Integrated Resource	)	SHANNON L. VENABLE
Planning in North Carolina – 2009	)	

CITY OF RICHMOND  
COMMONWEALTH OF VIRGINIA

I, Shannon L. Venable, Vice President of Integrated Resource Planning for Virginia Electric and Power Company ("Dominion North Carolina Power" or the "Company"), do solemnly swear that the facts stated in the foregoing affidavit, insofar as they relate to Dominion North Carolina Power, are true and correct to the best of my knowledge and belief and are based on the testimony and exhibits filed with the 2009 Plan.

  
Shannon L. Venable

COMMONWEALTH OF VIRGINIA )

City of Richmond )

to wit:

The foregoing instrument was sworn to and acknowledged before me this 8<sup>th</sup> day of March, 2010.

  
Notary Public

My registration number is 312166 and my commission expires:

9-30-13

V10753806.8



1                   COMMISSIONER CULPEPPER: The testimony filed  
2                   December 11, 2010, by M. Masood Ahmad consisting of five  
3                   pages, one Appendix A and one exhibit with six schedules,  
4                   the testimony is copied into the record word for word as  
5                   if it had been given under oath orally from the witness  
6                   stand. The witnesses exhibits are identified as marked  
7                   when filed. Those exhibits are received into evidence.

8                   (Whereupon, the prefiled testimony and  
9                   Appendix A of M. Masood Ahmad will be  
10                  reproduced in the record at this point the  
11                  same as if the questions had been orally  
12                  asked and the answers orally given from the  
13                  witness stand.)

14  
15                  (Whereupon, Exhibit MMA-1 was marked for  
16                  identification and admitted into evidence.)  
17  
18  
19  
20  
21  
22  
23  
24

**DIRECT TESTIMONY  
OF  
M. MASOOD AHMAD  
ON BEHALF OF  
VIRGINIA ELECTRIC AND POWER COMPANY  
BEFORE THE  
NORTH CAROLINA UTILITIES COMMISSION  
DOCKET NO. E-100, SUB 118  
DOCKET NO. E-100, SUB 124**

- 1   **Q.    Please state your name, business address, and position with Virginia Electric**  
2       **and Power Company.**
- 3   **A.    My name is M. Masood Ahmad, and my business address is 120 Tredegar Street,**  
4       **Richmond, Virginia 23219. I am the Director of Integrated Resource Planning for**  
5       **Virginia Electric and Power Company d/b/a Dominion North Carolina Power**  
6       **("DNCP" or the "Company"). I am responsible for facilitating the Integrated**  
7       **Resource Planning ("IRP") process including the development of an annual load**  
8       **forecast, the optimization of supply- and demand-side resources, and evaluation**  
9       **of transmission interconnection options. A statement of my background and**  
10      **qualifications is attached as Appendix A.**
- 11   **Q.    What is the purpose of your testimony in this proceeding?**
- 12   **A.    On September 1, 2009, the Company filed its 2009 Integrated Resource Plan**  
13      **("2009 Plan") with the North Carolina Public Utilities Commission ("NCUC") as**  
14      **an update to its previously filed 2008 Integrated Resource Plan. The purpose of**  
15      **my testimony is to adopt Chapter 2, Chapter 3 excluding Section 3.4 subsections,**  
16      **Chapter 4, Chapter 5 excluding Section 5.2 subsections, Chapter 6, the portions of**  
17      **Chapter 7 that discuss supply-side resources, and the corresponding appendices as**



1 presented in the 2009 Plan. These chapters and sections were prepared under my  
2 supervision and direction.

3 Q. During the course of your testimony, will you introduce an exhibit?

4 A. Yes. Exhibit MMA-1, consisting of Schedules 1 through 4, was prepared under  
5 my supervision and is accurate and complete to the best of my knowledge and  
6 belief.

7 Q. Since the 2009 Plan was submitted, do you have any corrections to that  
8 filing?

9 A. Yes. Since the submission, the Company has identified and seeks to correct a  
10 number of items within the 2009 Plan and its associated appendices.

11 Q. Do any of the corrections have a material impact on the planning or analysis  
12 that was conducted in the creation of the 2009 Plan?

13 A. No. The corrections are minor in nature and have no impact on the 2009 Plan or  
14 the corresponding analysis that was required. I will identify the corrections and  
15 provide a brief description of changes that were made to reflect appropriate  
16 values.

17 Q. What are the corrections?

18 A. On page 3-3 of the 2009 Plan, the last sentence of the second paragraph states  
19 "over 400 gigawatt hours ('GWh') of generation;" however, it should read "over  
20 1,000 gigawatt hours ('GWh') of generation." On page 3-4, Figure 3.1.1.3, Net  
21 Summer Capacity of Natural Gas Turbines Owned is represented as 2,543 MW

1 but should reflect 2,428 MW and the Net Summer Capacity of Owned Light Fuel  
2 Oil resources is represented as 237 MW, but should read 352 MW. In this  
3 instance, two peaking units were incorrectly classified for reporting purposes  
4 based on their primary fuel; however, they are represented correctly in the  
5 analysis. The reclassification has no impact on the totals presented in the table.

6 On page 3-5, the first line refers to "Appendices 3A, 3C, 3D, and 3E" but should  
7 read "Appendices 3A, 3B, 3C, 3D, and 3E" because Appendix 3B contains  
8 information about contracted NUGs.

9 On page 7-5, Figure 7.2.3, the Surry 1 Uprate effective in 2010 reports a 56 MW  
10 value, but should reflect 63 MW, the Surry 2 Uprate effective in 2011 is reported  
11 as 42 MW but should reflect 49 MW, and the North Anna 1 Uprate effective in  
12 2012 is reported as 47 MW but should reflect 43 MW. These values are correctly  
13 reported in Appendix 3I on page AP-31.

14 On page AP-4, Appendix 2C, the Company found an error in the method used to  
15 allocate sales from the system level to the North Carolina jurisdictional sales  
16 level. This error resulted in changes to the Commercial and Public Authority  
17 columns of this Appendix. I have attached an updated version of Appendix 2C  
18 from the 2009 Plan as Exhibit MMA-1, Schedule 2. As a result of finding this  
19 allocation error, there were related impacts to the Virginia sales forecasts in  
20 Appendix 2B on page AP-3. I have attached an updated Appendix 2B as Exhibit  
21 MMA-1, Schedule 1. The 2009 Plan was based on system-level numbers;  
22 therefore, there was no overall impact to the conclusions of the Plan due to this

1 error. On page AP-8, Appendix 2G (Schedule 5), the "Adjusted Winter Peak" row  
2 was corrected to reflect the winter value for North Carolina Electric Membership  
3 Cooperatives ("NCEMC") rather than a summer value that was inserted into the  
4 spreadsheet. The values now reflect the MW associated with the load shape used  
5 in modeling NCEMC. I have attached the corrected Appendix 2G as Exhibit  
6 MMA-1, Schedule 3. On page AP-9, Appendix 2H (Schedule 1) reflects a similar  
7 correction and has no impact on the analysis. An updated version of Appendix  
8 2H is attached as Exhibit MMA-1, Schedule 4.

9 On page AP-10, Appendix 2I (Schedule 6) contains two invalid values for the  
10 2009 MW and Percent of Load and have been updated to 3,122 MW and 18.7%  
11 respectively. Also, DSM in 2012 was not included in the "Reserve Margin"  
12 calculation but should have been; the resulting value is 9.5%. Finally, the  
13 "Winter Reserve Margin" for all years was calculated using the maximum  
14 capacity value rather than the seasonal capacity value in January. For example,  
15 new units are generally scheduled to enter service in June, but annual winter peak  
16 occurs in January; therefore the capacity was included prior to installation in the  
17 unit's first year of service. The Company is a summer peaking utility for  
18 planning purposes and winter values are used for reporting purposes only. These  
19 modifications have no impact on the analysis and a corrected Appendix 2I has  
20 been attached to this document as Exhibit MMA-1, Schedule 5. On page AP-116,  
21 Appendix 6E (Schedule 4), the "Winter" row was updated to reflect the same  
22 corrections in Appendix 2I. Also in this appendix, the "Capacity Sale" row was

1 included in the "Winter" section to reflect a consistent modeling construct. The  
2 changes have no impact on the analysis. I have attached a corrected Appendix 6E  
3 as Exhibit MMA-1, Schedule 6.

4 **Q. With the inclusion of these corrections to the 2009 Plan, does this conclude**  
5 **your prefiled direct testimony in this proceeding?**

6 **A. Yes, it does.**

**BACKGROUND AND QUALIFICATIONS**  
**OF**  
**M. MASOOD AHMAD**

I graduated from the University of Engineering and Technology in Lahore, Pakistan in 1986 with a Bachelor of Science degree in Electrical Engineering. I then continued my education at the Georgia Institute of Technology where I completed my Master of Science in Electrical Engineering in 1990 and also my Doctor of Philosophy in Electrical Engineering in 1993.

Between 1993 and 2002, I held various positions at different power companies including Manager of Market Analysis at Mirant Corporation, an IPP and subsidiary of Southern Company. During this time, I worked in the areas of utility planning, privatization, and generation development/acquisition. I joined Dominion Resources in May of 2002 as a Manager, Pricing and Structuring. I have held other management positions in Business Planning and Market Analysis where my responsibilities included asset evaluation, transaction analysis, and commodity price projections. I am currently the Director of Integrated Resource Planning in the Regulation and Integrated Planning organization of Virginia Electric and Power Company and I have been in this role since 2007. My responsibilities include long-term load forecasting, marginal cost development, determination of transmission impacts on generation and demand-side management plans, and the development of the Integrated Resource Plan for Virginia Electric and Power Company.

In conjunction with the positions I have held with Virginia Electric and Power Company, I have nearly 20 years of experience in the electric utility industry. In the past, I have taught courses on utility planning and the United States electric market in Spain, Austria, and the United Kingdom. Additionally, I have given presentations at both the United States Energy Association and Marcus Evans Conferences.

1                   COMMISSIONER CULPEPPER: And the testimony of  
2 Michael J. Jesensky, which was filed on December 11, 2009,  
3 on behalf of Dominion consisting of two pages and one  
4 Appendix A, that testimony is received into the evidence  
5 of this proceeding as if it had been given orally from the  
6 witness stand word for word.

7                   (Whereupon, the prefiled testimony and  
8 Appendix A of Michael J. Jesensky will be  
9 reproduced in the record at this point the  
10 same as if the questions had been orally  
11 asked and the answers orally given from the  
12 witness stand.)

**DIRECT TESTIMONY  
OF  
MICHAEL J. JESENSKY  
ON BEHALF OF  
VIRGINIA ELECTRIC AND POWER COMPANY  
BEFORE THE  
NORTH CAROLINA UTILITIES COMMISSION  
DOCKET NO. E-100, SUB 118  
DOCKET NO. E-100, SUB 124**

1   **Q.**    Please state your name, business address, and position with Virginia Electric  
2           and Power Company.

3   **A.**    My name is Michael J. Jesensky and my business address is 120 Tredegar Street,  
4           Richmond, Virginia. I am the Director of Demand-Side Analysis for Virginia  
5           Electric and Power Company d/b/a Dominion North Carolina Power ("DNCP" or  
6           the "Company"). I am responsible for the analysis of Demand-Side Management  
7           ("DSM") programs, which include both Demand Response and Energy Efficiency  
8           programs. The analysis of DSM programs includes screening and modeling, in  
9           addition to performing cost/benefit analyses to evaluate the impact of such  
10          programs on stakeholders. A statement of my background and qualifications is  
11          attached as Appendix A.

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

13   **A.**    On September 1, 2009, the Company filed its 2009 Integrated Resource Plan  
14          ("2009 Plan") with the North Carolina Public Utilities Commission ("NCUC") as  
15          an update to the previously filed 2008 Integrated Resource Plan. The purpose of  
16          my testimony is to adopt the current and proposed DSM programs discussed in  
17          Chapter 3, the future DSM programs outlined in Chapter 5, the discussion  
18          regarding planned demand-side actions for the next five years in Chapter 7, and

1 the corresponding appendices, all of which are contained in the 2009 Plan. These  
2 chapters and sections were prepared under my supervision and direction.

3 Q. Since the 2009 Plan was submitted, do you have any corrections to that  
4 filing?

5 A. Yes. On page 3-13 of the 2009 Plan, the reference to "Over 3,400,000 CFL Bulbs  
6 Sold as of June 1, 2009" in the Compact Fluorescent Light price reduction  
7 program description should read "Over 3,200,000 CFL Bulbs Sold as of June 1,  
8 2009."

9 Q. With the inclusion of these corrections to the 2009 Plan, does this conclude  
10 your prefled direct testimony in this proceeding?

11 A. Yes it does.



## APPENDIX A

**BACKGROUND AND QUALIFICATIONS**  
**OF**  
**MICHAEL J. JESENSKY**

I graduated from Virginia Military Institute in May of 1982 with a Bachelor of Science Degree in Electrical Engineering. I continued my education with a Master of Business Administration in May of 1988 from Virginia Commonwealth University.

I joined Virginia Electric and Power Company in June of 1982 as an engineer in *Telecommunications and Transmission & Distribution*. I have held various management positions in Telecommunications Engineering, Enterprise Systems Management, and Metering Technology before being promoted to Director of Metering Services in 2000. From 2001 to 2007, I held various director-level leadership positions in Billing and Credit Systems Support, and Business Development and Planning. Additionally, I am a certified Dominion Six Sigma Green Belt. I am currently the Director of Demand-Side Analysis on behalf of Virginia Electric and Power Company. I am responsible for the analysis of Demand-Side Management ("DSM") programs, including Peak-Shaving and Energy Efficiency programs. DSM analysis includes the screening and modeling of such programs, in addition to performing cost/benefit analyses required in evaluating these programs.

1                   COMMISSIONER CULPEPPER: And finally, the  
2 testimony of Witness Aaron L. Reed on behalf of Dominion,  
3 which was filed in the docket on December 11, 2009,  
4 consisting of two pages and one Appendix A, that testimony  
5 and appendix are received into evidence as if it had been  
6 offered orally from the witness stand of these  
7 proceedings.

8                   (Whereupon, the prefilled testimony and  
9 Appendix A of Aaron A. Reed will be  
10 reproduced in the record at this point the  
11 same as if the questions had been orally  
12 asked and the answers orally given from the  
13 witness stand.)  
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**FILED****DEC 11 2009**Clark's Office  
N.C. Utilities Commission

**DIRECT TESTIMONY  
OF  
AARON A. REED  
ON BEHALF OF  
DOMINION NORTH CAROLINA POWER  
BEFORE THE  
NORTH CAROLINA UTILITIES COMMISSION  
DOCKET NO. E-100, SUB 118  
DOCKET NO. E-100, SUB 124**

1   **Q.    Please state your name and position, and describe your educational**  
2           **background and experience with Virginia Electric and Power Company**  
3           **("Dominion North Carolina Power" or the "Company").**

4   **A.    My name is Aaron A. Reed, and I am a Business Development Manager for the**  
5           **Company and my business address is 120 Tredegar St, Richmond, Virginia**  
6           **23219.**

7   **Q.    Please describe your areas of responsibility with the Company.**

8   **A.    I am responsible for identifying prospective generation acquisition and**  
9           **development opportunities, coordinating evaluation, analysis, and due diligence**  
10          **activities, and participating in negotiations of key contracts and agreements for**  
11          **the Company. I am also responsible for developing strategies for expansion of the**  
12          **Company's generation business. I am also responsible for management of the**  
13          **Company's Renewable Energy and Energy Efficiency Portfolio Standard**  
14          **Compliance Plan ("REPS Compliance Plan"). A statement of my background**  
15          **and qualifications is attached as Appendix A.**

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

1    **A.**    The purpose of my testimony is to adopt Dominion North Carolina Power's 2009  
2           REPS Compliance Plan filed on September 1, 2009, as Addendum 1 to the  
3           Company's Report of its Integrated Resource Plan as revised on September 15,  
4           2009. The 2009 REPS Compliance Plan was prepared under my supervision and  
5           direction, and is accurate and complete to the best of my knowledge.

6    **Q.**    Do you have any changes or correction to Addendum 1?

7    **A.**    No.

8    **Q.**    Does this conclude your prefled direct testimony in this proceeding?

9    **A.**    Yes, it does.

## APPENDIX A

**BACKGROUND AND QUALIFICATIONS**  
**OF**  
**AARON A. REED**

I graduated from the North Carolina State University in 2000 with a Bachelor of Science degree in Mechanical Engineering. I joined Virginia Electric and Power Company in 2000. From 2000 to 2003, I worked at Chesterfield Power Station as an engineer and was promoted to Engineer II during that time. In 2003, I transferred to F&H Operations as a support staff engineer for the company's mid-west assets for approximately 2 years before I transferred to the F&H Environmental Excellence group where I was promoted to Engineer III. I was responsible for review of various new potential renewable technologies, managed a companywide biomass feasibility study, and participated in the developing the company's position on both the Virginia and North Carolina renewable energy portfolio standards. In 2007, I was promoted to Business Development Manager for the company. In my current position, I am responsible for identifying prospective generation acquisition and development opportunities, coordinating evaluation, analysis, and due diligence activities, and participating in negotiations of key contracts and agreements for the Company. I am also responsible for developing strategies for expansion of the Company's generation business and for the management of the Company's Renewable Energy and Energy Efficiency Portfolio Standard Compliance Plan ("REPS Compliance Plan").

1 MR. KAYLOR: Thank you.

2 COMMISSIONER CULPEPPER: Does that conclude your  
3 case from Dominion?

4 MR. KAYLOR: That does, Mr. Chairman.

5 COMMISSIONER CULPEPPER: All right. Thank you.  
6 Now, Progress and Duke, have y'all decided who you would  
7 like to go for -- go first?

8 MS. NICHOLS: We agreed that Progress would  
9 proceed first and then we discussed with all the parties  
10 putting both sets up as a panel, both the Progress and the  
11 Duke witnesses up as a panel.

12 COMMISSIONER CULPEPPER: All right. Well, let  
13 me ask you this. So -- is that okay, Mr. Anthony?

14 MR. ANTHONY: Yes, sir.

15 COMMISSIONER CULPEPPER: All right. Does  
16 anybody have any objection to Progress' witnesses being --  
17 testifying in these proceedings in the form of a panel?

18 (No response.)

19 All right. There appear to be no objections to  
20 that. Mr. Anthony, if you would like to call your  
21 witnesses.

22 MR. ANTHONY: Thank you, Mr. Chairman.

23 COMMISSIONER CULPEPPER: All right, gentlemen.

24 DAVID FONVIELLE, DAVID EDGE,

1 and GLEN SNIDER; Being first duly sworn,  
2 testified as follows:

3 COMMISSIONER CULPEPPER: Mr. Anthony, you may  
4 examine the witnesses.

5 MR. ANTHONY: Thank you, Mr. Chairman. And if  
6 it pleases the Commission, I will get each witness  
7 introduced and their names and jobs into the record and  
8 then let them give their summaries after that. That's  
9 okay or would you rather me do the summaries individually  
10 as we go?

11 COMMISSIONER CULPEPPER: No, that's fine. You  
12 can -- you can identify your witnesses for the record and  
13 then proceed anyhow you want to.

14 Let me ask you this: You've got some rebuttal  
15 testimony, too. And is that going to be handled  
16 separately?

17 MR. ANTHONY: Yes, sir.

18 COMMISSIONER CULPEPPER: Thank you. I like that  
19 way of doing that, so go right ahead.

20 MR. ANTHONY: Thank you.

21 DIRECT EXAMINATION BY MR. ANTHONY:

22 Q. Mr. Fonvielle, you're the closest, so let's begin  
23 with you. Would you please state your name for the  
24 record?

1 A. David Kent Fonvielle.

2 Q. Who do you work for?

3 A. Progress Energy.

4 Q. What kind of job with Progress Energy?

5 A. I am director of fleet optimization.

6 Q. And would you briefly describe for the Commission  
7 what that means?

8 A. Yes. My responsibilities include fuel forecasting  
9 for Progress Energy Carolinas, portfolio dispatch modeling  
10 for both Progress Energy Carolinas and Progress Energy  
11 Florida, as well as strategic engineering activities  
12 associated with our fossil plants in both jurisdictions.

13 Q. Now, is that a new position for you?

14 A. That is a new position. Previously I held the  
15 position of manager of renewable energy for Progress  
16 Energy Carolinas and was responsible for compliance  
17 planning and cost recovery.

18 Q. And you're primarily here to sponsor Part D,  
19 Appendix D, of Progress Energy's resource plan?

20 A. That's correct.

21 Q. Now, prior to your appearance here today, did you  
22 cause to be prefiled six pages of direct testimony?

23 A. Yes, sir.

24 Q. Do you have any changes to that testimony that you



1 would like to give the Commission?

2 A. I do not.

3 Q. If I were to ask you the same questions now that  
4 appear in your testimony, would your answers from the  
5 stand be the same?

6 A. They would.

7 MR. ANTHONY: Mr. Chairman, we ask that Mr.  
8 Fonvielle's direct prefiled testimony be copied into the  
9 record as if read.

10 COMMISSIONER CULPEPPER: All right. That  
11 request is granted and the direct testimony of the witness  
12 is copied into the record of this proceeding as if it had  
13 been given orally under oath from the witness stand.

14 (Whereupon, the prefiled direct testimony  
15 of David K. Fonvielle will be reproduced in  
16 the record at this point the same as if the  
17 questions had been orally asked and the  
18 answers orally given from the witness  
19 stand.)

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**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION**

**DOCKET NO. E-100, SUB 124**

**FILED**

**DEC 11 2009**

Clerk's Office  
N.C. Utilities Commission

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION**

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

**Q. Mr. Fonvielle, please state your full name, business address and position 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.**

**Q. Mr. Fonvielle, please summarize briefly your educational background 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 &**

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

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

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

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

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

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

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

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

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

1 A. Beginning in November 2007, PEC adopted an open, competitive bidding  
2 process to acquire renewable energy resources and has kept an open request  
3 for proposals since that time. In addition, PEC issued a specific request for  
4 developers proposing to generate energy using swine waste in June 2008.  
5 As a result of these request for proposals, PEC has received numerous  
6 proposals which has lead to the execution of approximately forty separate  
7 contracts for renewable energy or RECs.

8 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.

15 Q. Do you anticipate adding enough solar generation to the portfolio to  
16 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.

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

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

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

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

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

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

1 waste, are also significant uncertainties. Currently, the costs of purchasing  
2 energy or RECs to meet the set-aside requirements exceed the costs of other  
3 renewable resources available to PEC. Giving priority to the set-aside  
4 resources will result in less overall renewable energy and could result in  
5 compliance costs hitting the cost cap. If that were to occur, the overall  
6 amount of renewable energy or RECs could be less than the aggregate REPs  
7 requirement.

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

10 **A. Yes they do. PEC is attempting to mitigate some of the challenges and**  
11 **uncertainty by incorporate flexibility into its plan by including a mix of**  
12 **renewable energy and REC sources and timing purchases to utilize the**  
13 **available banking provisions.**

14 **Q. Does this conclude your testimony?**

15 **A Yes.**

1 BY MR. ANTHONY:

2 Q. Mr. Snider, please state your full name for the  
3 record.

4 A. Good morning, Commissioners. My name is Glen Alan  
5 Snider.

6 Q. And who do you work for?

7 A. Progress Energy Carolinas.

8 Q. What's your position with Progress Energy  
9 Carolinas?

10 A. I am manager of resource planning, responsible for  
11 the preparation and oversight of the production of our  
12 integrated resource plan.

13 Q. That is not a new position for you, is it?

14 A. No. I've held this position for a year now.

15 Q. Okay. Now, prior to your appearance here today,  
16 did you cause to be prefiled 13 pages of direct testimony?

17 A. Yes, I did.

18 Q. Do you have any changes to your testimony you  
19 would like to give the Commission?

20 A. No, I do not.

21 Q. If I were to ask you the same questions now, would  
22 your answers orally be the same?

23 A. Yes, they would.

24 Q. Mr. Snider, you also are sponsoring Progress



1 Energy Carolinas' 2009 Integrated Resource Plan; is that  
2 correct?

3 A. Yes, sir.

4 Q. Was that plan either prepared by you or under your  
5 supervision and control?

6 A. Yes, it was.

7 Q. Is it correct?

8 A. Yes, it is.

9 MR. ANTHONY: Mr. Chairman, we would ask that  
10 Progress Energy's 2009 Integrated Resource Plan be  
11 identified as PEC Exhibit No. 1.

12 COMMISSIONER CULPEPPER: The 2009 plan; is that  
13 right?

14 MR. ANTHONY: Yes, sir.

15 COMMISSIONER CULPEPPER: The exhibit as it's  
16 been described by counsel is identified as he's requested  
17 it to be identified.

18 (Whereupon, PEC Exhibit No. 1 was marked  
19 for identification.)

20 MR. ANTHONY: And we would move Mr. Snider's  
21 direct testimony into the record as if orally given.

22 COMMISSIONER CULPEPPER: All right. The direct  
23 testimony of Witness Glen A. Snider is copied into the  
24 record word for word as if it had been given orally from

1 the witness stand.

2 (Whereupon, the prefiled direct testimony  
3 of Glen A. Snider will be reproduced in the  
4 record at this point the same as if the  
5 questions had been orally asked and the  
6 answers orally given from the witness  
7 stand.)

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**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION**

**DOCKET NO. E-100, SUB 124**

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION**

<p>In the Matter of ) Investigation of Integrated Resource ) Planning in North Carolina – 2009 )</p>	<p>) ) ) ) )</p>	<p><b>DIRECT TESTIMONY OF GLEN A. SNIDER ON BEHALF OF CAROLINA POWER AND LIGHT COMPANY D/B/A PROGRESS ENERGY CAROLINAS, INC.</b></p>
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1    **Q.    Mr. Snider, please state your full name, business address and position of**  
2       **employment.**

3    **A.    My name is Glen A. Snider and my business address is 410 S. Wilmington**  
4       **Street, Raleigh, North Carolina. I am Manager - Resource Planning for**  
5       **Carolina Power and Light Company d/b/a Progress Energy Carolinas, Inc.**  
6       **("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,**

1 relative to the Company's load forecasts. I oversaw the development of  
2 PEC's Resource Plan which was filed with this Commission in September  
3 2009.

4 **Q. Please summarize your educational background and employment**  
5 **experience.**

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

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 A. 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?

12 A. PEC's forecast represents a compound annual growth rate of 1.7% for retail  
13 peak demand across the forecast period 2010 through 2024 before  
14 subtracting for Demand-Side-Management (DSM) which is almost equal to  
15 the customer growth rate of 1.8%. The retail demand growth rate drops to  
16 0.9% after adjusting for DSM.

17 Q. Is this forecasted growth comparable to PEC's forecasts in recent  
18 years?

19 A. Yes. The rate of growth in the 2009 forecast is comparable to forecasts filed  
20 with this Commission in recent Integrated Resource Planning (IRP)

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

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

9 **A. Yes. PEC used the same methods, tools and models it has employed in**  
10 **recent years to develop load and energy forecasts presented to this**  
11 **Commission in prior IRP proceedings.**

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

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

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

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

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

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

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

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

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

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

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

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



1 class summer peak load factor. The mathematical relationship is: Annual  
2 Peak Load = forecast energy/(hours in year X load factor).

3 **Q. How is conservation and Demand Side Management (DSM) treated in**  
4 **the forecast?**

5 **A. Past conservation and efficiency changes are reflected in historic energy**  
6 **consumption data. Consequently, implementation of conservation and**  
7 **efficiency measures adopted in the past is implicitly reflected in the forecast.**  
8 **In addition to customer initiated conservation, PEC has also initiated DSM**  
9 **programs. These programs consist of interruptible industrial demand (Large**  
10 **Load Curtailment) and direct load control through voltage reduction.**

11 The load reductions from Company initiated DSM programs are  
12 added back to historic databases that are used to develop the forecast. This  
13 procedure renders the forecasts developed from this database free of the  
14 historic effects of Company-initiated load management. Accordingly, future  
15 levels of Company initiated DSM, can be directly subtracted from the  
16 forecast to develop projections of net demand.

17 **Q. What economic and demographic variables are included in the**  
18 **residential class forecast?**

19 **A. Residential energy is estimated using a two-part model: an estimate of**  
20 **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 **A.** 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 **A.** 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?**

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

6 Q. Are the methods used by PEC to develop its forecast consistent with and  
7 similar to methods used by other utilities?

8 A. Yes. PEC's forecasting methods are very similar to methods used by other  
9 utilities.

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

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

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<sup>1</sup> *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."<sup>2</sup> 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?**

**A. Yes,** as shown on Table 1 in the Resource Plan, our 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 our customers at lowest reasonable cost. The plan also reflects acknowledgement of the widely accepted assumption there will be

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<sup>2</sup> *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.

**Q. Does PEC's September 2009 Resource Plan include specific plans and/or commitments to add new generation to PEC's fleet of generating 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:

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

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

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

1 A. 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 A. 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.

1 MR. ANTHONY: And we move his exhibit into the  
2 record subject to any objections that may occur during the  
3 cross-examination.

4 COMMISSIONER CULPEPPER: All right. Let it be  
5 received.

6 (Whereupon, PEC Exhibit No. 1 was admitted  
7 into evidence.)

8 Q. And finally Mr. Edge. Could you please state your  
9 name for the record?

10 A. My name is David Christian Edge.

11 Q. And who do you work for?

12 A. I work for Progress Energy.

13 Q. What is your current position with Progress  
14 Energy?

15 A. My current position is retail -- manager of retail  
16 market strategy.

17 Q. Is that a new position for you?

18 A. That is a new position since this IRP was filed.

19 Q. What was your position when the IRP was filed?

20 A. At the time the Integrated Resource Plan was  
21 filed, I was manager of DSM and energy efficiency, which  
22 included the responsibility for the design and  
23 implementation of all of our programs in the Carolinas.

24 Q. Now, prior to your appearance here today, did you



1 cause to be prefiled nine pages of direct testimony?

2 A. I did.

3 Q. Do you have any changes you would like to make to  
4 that testimony?

5 A. I do not.

6 Q. If I were to ask you those same questions now,  
7 would your answers orally from the stand be the same?

8 A. Yes.

9 MR. ANTHONY: Chairman, we ask that Mr. Edge's  
10 direct prefiled testimony be copied into the record as if  
11 read orally.

12 COMMISSIONER CULPEPPER: That request is allowed  
13 and the testimony of Witness David C. Edge is copied --  
14 prefiled testimony, that is, is copied into the record  
15 word for word as if it had been given orally from the  
16 witness stand under oath.

17 (Whereupon, the prefiled direct testimony  
18 of David C. Edge will be reproduced in the  
19 record at this point the same as if the  
20 questions had been orally asked and the  
21 answers orally given from the witness  
22 stand.)

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**DOCKET NO. E-100, SUB 124**

**DOCKET NO. E-100, SUB 124**

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION**

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     **A.     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 A. 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 **Q. Please summarize briefly your educational background and experience.**

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

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

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

5 **A.** The purpose of my testimony is to present and support PEC's demand side  
6 management ("DSM") and energy efficiency ("EE") programs and plans as  
7 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?**

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

- 1       • **Residential Home Energy Improvement Program** – This program  
2       offers financial incentives to encourage PEC customers to participate  
3       in a variety of energy conservation measures designed to increase  
4       energy efficiency for existing residential dwellings that can no longer  
5       be considered new construction. The prescriptive menu of energy  
6       efficiency measures provided by the program allows customers the  
7       opportunity to participate based on the needs and characteristics of  
8       their individual homes.
- 9       • **Residential Home Advantage (New Construction) Program** – PEC  
10      offers developers and builders the potential to maximize energy  
11      savings in various types of new residential construction. New  
12      construction represents a unique opportunity for capturing cost  
13      effective DSM and EE savings by encouraging the investment in  
14      energy efficiency features that would otherwise be impractical or  
15      more costly to install at a later time.
- 16      • **Neighborhood Energy Saver (Low-Income) Program** – This  
17      program provides assistance to low-income families by installing a  
18      comprehensive package of energy conservation measures that lower  
19      energy consumption at no cost to the customer. In addition to the  
20      installation of energy efficiency measures, an important component of

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

- 3 • **Commercial, Industrial and Governmental ("CIG") Energy**  
4 **Efficiency Program** – This program is available to all CIG customers  
5 interested in improving the energy efficiency of their new  
6 construction projects or within their existing facilities. The program  
7 includes prescriptive incentives for measures that address the  
8 following major end-use categories: HVAC, Lighting, Refrigeration  
9 and Motors & Drives.

10 In addition, the program offers incentives for custom measures to  
11 specifically address the individual needs of customers in the new  
12 construction or retrofit markets, such as those with more complex  
13 applications or in need of energy efficiency opportunities not covered  
14 by the prescriptive measures.

- 15 • **Residential EnergyWise™ Program** – The Residential  
16 **EnergyWise™ Program** is a direct load control program that offers  
17 customers a \$25 annual bill credit in exchange for allowing PEC to  
18 remotely control the following appliances.

19 – Central air conditioning or electric heat pumps

1                   – Auxiliary strip heat on central electric heat pumps (Western  
2                   Region only)

3                   – Electric water heaters (Western Region only)

- 4           • **CIG Demand Response Program** – This program allows PEC to  
5           install load control and data acquisition devices to remotely control  
6           and monitor a wide variety of electrical equipment capable of serving  
7           as demand response resources. The goal is to utilize customer  
8           education, enabling two-way communication technologies, and an  
9           event-based participant incentive structure to maximize load reduction  
10          capabilities and resource reliability.

- 11          • **Distribution System Demand Response (“DSDR”)** –The DSDR  
12          Program provides the capability to reduce peak demand through the  
13          use of conservation voltage reduction for 4 to 6 hours at a time, which  
14          is the duration consistent with typical peak load periods. Customer  
15          delivery voltage will be maintained above the minimum requirement  
16          when the program is in use. This capability is accomplished by  
17          investing in a robust system of advanced technology,  
18          telecommunications, equipment, and operating controls.

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

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

7 In addition to the approved programs described above, PEC has  
8 implemented several educational initiatives aimed at increasing consumer  
9 awareness around energy efficiency. These are initiative are described in  
10 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?**

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

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



1 Q. Has PEC discontinued any of these DSM/EE programs over the past  
2 two years?

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

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

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

- 18 • Residential Lighting Program
- 19 • Appliance Recycling Program.

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.**

1 BY MR. ANTHONY:

2 Q. Now, Mr. Fonvielle, did you prepare a summary of  
3 your direct testimony?

4 A. Yes, I did.

5 Q. Would you please give that to the Commission at  
6 this time?

7 A. Yes.

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**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION**

**DOCKET NO. E-100, SUB 124**

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

<p>In the Matter of</p> <p>Investigation of Integrated Resource Planning in North Carolina – 2009</p>	<p>)</p> <p>)</p> <p>)</p> <p>)</p> <p>)</p> <p>)</p>	<p><b>SUMMARY OF THE DIRECT TESTIMONY OF DAVID KENT FONVIELLE ON BEHALF OF CAROLINA POWER AND LIGHT COMPANY D/B/A PROGRESS ENERGY CAROLINAS, INC.</b></p>
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The purpose of my testimony is to present and support Progress Energy Carolinas' (PEC) Renewable Energy Portfolio Standard ("REPS") Compliance Plan filed as Appendix D to PEC's September 1, 2008 and September 1, 2009 Integrated Resource Plan filings.

PEC has put forth a significant amount of effort over the previous two years to add renewable energy to, at a minimum, meet the requirements contained in Senate Bill 3. The company filed its first REPS Compliance Plan as Appendix D to the 2008 IRP and filed an updated REPS Compliance Plan as Appendix D to the 2009 IRP. These compliance plans provide an overview of the renewable resources under contract with PEC and the projected resources PEC anticipates adding in future years to comply with the requirements of Senate Bill 3. The compliance plans also provide information regarding the customer cost caps contained in Senate Bill 3, including 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 resources. Appendix D includes only those resources where PEC has the contractual right to the renewable energy certificates (RECs) and the resource qualifies as a New Renewable Energy Facility. As Senate Bill 3 allows a utility to comply with the REPS requirements through a variety of mechanisms, not all of the resources listed in Appendix D provide capacity and/or energy to PEC's system. Some renewable resources provide both capacity and energy, some provide energy only, and others are purchases of RECs only.

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 and more recently a wood biomass RFP in December 2009. 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.

PEC's overall 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 need for additional renewable resources in a given period with the customer cost caps, the price, and risks of each renewable proposal.

PEC's efforts have resulted in sufficient solar resources under contract to be in compliance in 2010 and beyond, and sufficient other renewable resources to comply with the general REPS requirement in 2012.

In addition to the solar set aside, PEC continues to identify and evaluate options for meeting the poultry and swine waste set asides of Senate Bill 3. Currently, the costs of purchasing energy or RECs to meet the three 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 that can be procured while adhering to the customer cost caps.

PEC is attempting to mitigate some of the challenges and uncertainty with Senate Bill 3 compliance by incorporating flexibility into its plan, including a mix of renewable energy and REC sources, and timing purchases to utilize the available banking provisions.

This completes my summary.

1 BY MR. ANTHONY:

2 Q. Mr. Snider, would you please give your summary to  
3 the Commission at this time?

4 A. Yes. Good morning, Commissioners. The purpose of  
5 my testimony is to present and support PEC's 2008 and 2009  
6 Resource Plan. PEC's Resource Plan includes a forecast of  
7 annual summer and winter seasonal peak loads and the  
8 forecast of annual energy requirements for the period 2009  
9 through 2024, as well as a mix of supply and demand-side  
10 resources to meet the growing demand for electricity. The  
11 Resource Plan also presents the projected reserve margins  
12 resulting from the proposed plan. PEC's Resource Plan,  
13 which includes additional details, meets all the  
14 requirements of Commission Rules R8-60 and R8-62.

15 PEC's retail load forecast for the 2010 through  
16 2024 time period represents a compound annual growth rate  
17 of .9 percent for peak demand after subtracting for DSM.  
18 I note that PEC's total load forecast is impacted by a new  
19 wholesale power supply and coordination agreement with the  
20 North Carolina Electric Membership Corporation for the  
21 period January 1, 2013, through December 31, 2032.

22 PEC's forecasting methods are very similar to  
23 methods used by other utilities. PEC used the same  
24 methods, tools and models it has employed in recent years

1 when it's developed its IRP.

2           PEC's Resource Plan relies upon a mix of  
3 existing generation plants, new supply resources and  
4 demand-side programs to provide for an adequate and  
5 reliable supply of electricity to serve our customers at  
6 lowest reasonable cost. The plan also reflects  
7 acknowledgment of the widely accepted assumption that  
8 there will be environmental legislation in the future  
9 requiring review of continued operation of certain  
10 coal-fired generation. The Resource Plan includes, as  
11 reported in Tables 1 and 2, the capability of PEC's DSM  
12 and energy efficiency programs as well as alternative  
13 supply resources. More information on these can be found  
14 in the appendices.

15           Importantly, with regard to new supply resources,  
16 the only resources PEC is committed to install are the  
17 combined-cycle generation facilities at PEC's Richmond  
18 County and Wayne County sites. All other generation  
19 additions shown in the plan are generic resources included  
20 in the plan solely to indicate the need for additional  
21 generation. No commitments to any specific type, amount  
22 or location or ownership of the needed capacity have been  
23 made.

24           This concludes my summary.



1 Q. Thank you, Mr. Snider. And, Mr. Edge, would you  
2 bat, 'clean up and give us your summary, please.

3 A. All right.  
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**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION**

**DOCKET NO. E-100, SUB 124**

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of	)	
	)	
Investigation of Integrated Resource	)	<b>SUMMARY OF THE DIRECT</b>
Planning in North Carolina – 2009	)	<b>TESTIMONY OF</b>
	)	<b>DAVID CHRISTIAN EDGE</b>
	)	<b>ON BEHALF OF CAROLINA</b>
	)	<b>POWER AND LIGHT COMPANY</b>
	)	<b>D/B/A PROGRESS ENERGY</b>
	)	<b>CAROLINAS, INC.</b>

On December 11, 2009, I submitted direct testimony in support of Progress Energy Carolina's (PEC) 2009 Integrated Resource Plan ("IRP"). The purpose of my testimony was to present and support PEC's demand-side management ("DSM") and energy efficiency ("EE") programs and plans as contained in Appendix E of the IRP.

Since announcing an aggressive expansion of its DSM and EE portfolio, PEC has been actively developing and implementing new, cost-effective programs throughout its service territory. PEC understands that significant and sustained customer participation is critical to successfully achieving high impacts from these programs. Therefore, PEC has concentrated on developing a wide variety of programs that provide participation opportunities for all of its retail customers.

As part of this effort, PEC has received Commission approval, and begun implementation on a multitude of new programs including:

- Home Energy Improvement Program – A residential energy efficiency program aimed at providing incentives and rebates to increase energy efficiency in existing residential dwellings.
- Home Advantage – A residential new construction program that incents developers and builders to maximize energy efficiency savings during the new construction of single-family dwellings, multi-family dwellings, and manufactured homes.
- Neighborhood Energy Saver Program – An aggressive, community-based program that provides assistance to qualified low-income families by installing a comprehensive package of energy conservation measures at no cost to the customer.
- Residential Lighting Program – A program available to all residential customers that provides incentives and education to encourage greater adoption of high efficiency lighting technologies.
- Commercial, Industrial, and Governmental Energy Efficiency Program – A comprehensive non-residential energy efficiency program available to existing customers and new construction that offers a menu of prescriptive incentives for measures including HVAC, lighting, refrigeration, and

motors. Additionally, the program offers incentives for cost-effective custom measures that address the individual and unique needs not covered within the prescriptive rebates.

- EnergyWise – A residential demand response program aimed at reducing residential energy usage during peak load periods.
- Commercial, Industrial, and Governmental Demand Response – A non-residential demand response program that leverages two-way communication technologies to monitor and control a variety of commercial equipment during peak load periods.
- Solar Water Heating Pilot – A pilot program focused on validating the energy savings and peak impacts attributed to this energy efficiency measure across PEC's service territory.
- Distribution System Demand Response – An energy efficiency program that provides energy savings benefits through the use of voltage reduction during peak load periods.

In addition to these nine DSM and EE programs, PEC is currently awaiting Commission approval of:

- Appliance Recycling Program – A program aimed at reducing energy consumption by removing less efficient refrigerators and freezers operating within residences.

PEC continues to investigate the potential for new DSM and EE program opportunities on an on-going basis in an effort to expand its overall portfolio of cost-effective demand side resources.

This concludes my summary.

1 BY MR. ANTHONY:

2 Q. Thank you.

3 MR. ANTHONY: Mr. Chairman, the witnesses are  
4 available for cross-examination.

5 COMMISSIONER CULPEPPER: All right. Let me  
6 inquire, would there be any cross-examination by counsel  
7 for the other utilities other than Progress?

8 MR. KAYLOR: No.

9 MS. NICHOLS: (Shakes head side to side.)

10 COMMISSIONER CULPEPPER: There appearing to be  
11 none, cross-examination by intervenors?

12 MR. GREEN: Mr. Chairman, if the Commission  
13 pleases, we've worked out an order of cross-examine with  
14 the intervenors. We're going to start --

15 COMMISSIONER CULPEPPER: That's always good  
16 when --

17 MR. GREEN: All right. We're going to start  
18 with Mr. Runkle and proceed down the table that way or  
19 maybe just -- or you want to go -- we'll start at that end  
20 -- and then come back to the Attorney General and then the  
21 Public Staff.

22 COMMISSIONER CULPEPPER: You should have got the  
23 agreement in writing.

24 MR. GREEN: I thought we had it.

1 COMMISSIONER CULPEPPER: All right. Mr. Runkle,  
2 you may --

3 MR. RUNKLE: I guess so.

4 COMMISSIONER CULPEPPER: Ready to cross-examine  
5 there?

6 MR. RUNKLE: I'm glad we agreed on that.

7 CROSS-EXAMINATION BY MR. RUNKLE:

8 Q. Gentlemen, I'm going to try to address the  
9 questions to each of you directly. And I -- you can turn  
10 to me if you want to. I know that gets a little hard  
11 sometimes just to keep swinging around, so we'll try from  
12 there, but...

13 I wanted to talk first of all to Mr. Snider about  
14 the -- actually the 2009 IRP. If you can turn to your  
15 Appendix B in the 2009 IRP. And Appendix B is the one  
16 that has the -- a listing of the present resources that  
17 Progress Energy has and various other analysis of the  
18 actual types. Are you -- are you there? I'm looking at  
19 page B-6.

20 A. (By Mr. Snider) Yes, sir.

21 Q. And at the top of that page there's a list of  
22 units to be retired; is that correct?

23 A. Yes, sir.

24 Q. And are the three Lee coal stations listed on the

1 -- in the 2009 IRP?

2 A. That is correct.

3 Q. Now, in -- on December 1st of last year in Docket  
4 E-2, Sub 960, Progress Energy actually listed 12 units  
5 that they were -- 12 coal plants without fuel gas  
6 desulfurization. Are you familiar with it?

7 A. Yes, sir.

8 Q. And -- and asked in that Docket, the E-2, Sub 960  
9 docket, that the -- to be allowed permission to retire 500  
10 megawatts of those 12 coal plants. Are you familiar with  
11 that?

12 MR. ANTHONY: I object to the characterization.  
13 There was not a request for permission. It was a plan  
14 submitted to the Commission pursuant to the Commission's  
15 Order.

16 COMMISSIONER CULPEPPER: All right. Well, the  
17 Commission understands what it is and saying, but thank  
18 you. Go ahead.

19 MR. RUNKLE: Yeah. I would certainly accept  
20 that. I mean it was --

21 A. Yes. I'm familiar with that plan.

22 Q. Okay. Now, of the 500 megawatt in the plan, which  
23 units are you planning to retire?

24 A. In the plan, I believe we addressed studying Cape



1 Fear and Weatherspoon facilities.

2 Q. And that's about 500 megawatts?

3 A. Yes, sir. Approximately.

4 Q. And what are you planning to do with the -- well,  
5 why don't we just -- why don't I just hand you the  
6 Appendix 1 to the E-2, Sub 960 that has a list and we can  
7 just put that into the record.

8 MR. RUNKLE: If I may approach the witness.

9 COMMISSIONER CULPEPPER: You've got an exhibit  
10 you want to mark?

11 MR. RUNKLE: I do not. I just want to -- if the  
12 witness can just give us the names of the 12.

13 COMMISSIONER CULPEPPER: All right. You want to  
14 hand him a document, but you don't want to identify it as  
15 an exhibit; is that right?

16 MR. RUNKLE: Yes, sir.

17 COMMISSIONER CULPEPPER: All right. Do you want  
18 to see the document, Mr. Anthony?

19 MR. ANTHONY: No. I'm aware --

20 COMMISSIONER CULPEPPER: You know what it is?

21 MR. ANTHONY: Yes, sir.

22 COMMISSIONER CULPEPPER: Okay.

23 Q. I hand you Appendix 1 to the -- in the --- and the  
24 request on the Docket E-2, Sub 960, that lists the 12 coal

1 plants. And can you read off the coal plants that -- that  
2 Duke [sic] had that do not have the fuel glassed fuel --  
3 excuse me, the flue gas desulfurization?

4 A. Yes, sir. With Progress Energy with respect to  
5 our coal plants without flue gas desulfurization we have  
6 Cape Fear 5 and 6; Lee 1, 2 and 3; Sutton 1, 2 and 3; and  
7 Weatherspoon 1, 2 and 3.

8 Q. Now, are you going to be closing down all 12 of  
9 those plants? Do you have plans to close down or retire  
10 all of those plants in the next ten years?

11 A. Right now our current plans are to close the Lee  
12 facility and replace it with the Wayne combined cycle.  
13 We've received a certificate of public convenience and  
14 necessity for that facility.

15 We are -- we have submitted an application for a  
16 certificate to close the Sutton coal facilities, replace  
17 it with a two-on-one combined cycle. That certificate is  
18 still pending.

19 And with respect to the remainder of the units, as  
20 we submitted back in December, we are studying the  
21 appropriate time for those and will address the timing of  
22 those retirements in our 2010 IRP.

23 Q. Now, looking at the -- the 12 plants that don't  
24 have -- that don't have the flue gas desulfurization, ones

1 we just referred to, what's the former peak for those  
2 plants?

3 A. Approximately 1,650 plus or minus megawatts.

4 Q. All right. Now, do you know what is the annual  
5 generation of those plants?

6 A. I do not have that currently off the top of my  
7 head.

8 Q. Can I refer you to the -- the back of that page,  
9 which is from Docket E-2, Sub 943, which is the annual  
10 report.

11 A. Yes, sir.

12 Q. Are you familiar with that docket?

13 A. Not -- not directly, no.

14 Q. Are you familiar with those kind of filings that  
15 Progress Energy makes to the Commission?

16 A. Yes.

17 Q. Looking at those 12 coal plants, my quick  
18 calculation shows that they have an annual generation of  
19 7.4 million megawatt hours. Would you accept that subject  
20 to check?

21 A. Subject to check.

22 Q. Looking at the list of those plants on that -- in  
23 the Docket E-2, Sub 943, it does have a net generation,  
24 does it not?

1 A. Yes, it does.

2 Q. Okay. And if you would add up the net generation  
3 for each one of those plants, you would be -- come up with  
4 the 7.4 million roughly?

5 A. (Nods head up and down.)

6 Q. Okay. Now, I guess having said that, so really  
7 the 2009 IRP does not reflect Progress Energy's latest --

8 (Whereupon, a fire alarm test was  
9 received.)

10 COMMISSIONER CULPEPPER: Let me mention there.  
11 We're working on the fire alarms in this building. It's  
12 really irritating. When this starts beeping like that and  
13 we have this guy talking, we've just got to stop. Great.  
14 Thank you.

15 Thank you. Well, hopefully that will conclude  
16 that, so Mr. Runkle you may proceed.

17 MR. RUNKLE: I've seen witnesses sweat before,  
18 but I've never set off a fire alarm.

19 Q. Anyway, what I -- I was getting down to, my  
20 question was so the 2009 IRP does not reflect Progress  
21 Energy's current plans to retire these different coal  
22 plants; is that correct?

23 A. They reflected the plans at the time the IRP was  
24 filed. And yes, there have been additional developments

1 since the 2009 IRP has been filed that will be addressed  
2 in 2010.

3 Q. Okay. Does the 2009 IRP reflect the conversion of  
4 the -- of the Sutton Plant to the natural gas and the --  
5 which was the other one, the --

6 A. The Lee facilities, which is -- Lee is the Wayne  
7 County facility.

8 Q. Okay. And does the IRP reflect the conversion of  
9 the Sutton and the Wayne County facilities to natural gas?

10 A. The only one in the 2009 IRP is the conversion of  
11 the Lee facility, Lee/Wayne. The Sutton facility was not  
12 contemplated at the time of this filing.

13 Q. Okay.

14 A. Or was not approved.

15 Q. And so then the 2010 will reflect that -- the new  
16 changes of those -- those coal facilities?

17 A. Yes, they will.

18 Q. Okay. Now, in looking at the 2009 IRP, there's an  
19 expected retirement date for the Lee stations of  
20 January 1, 2013?

21 A. That is correct.

22 Q. And in the 2010 IRP there will be a list of other  
23 additional coal plants with expected retirement dates; is  
24 that correct?

1 A. That is anticipated, yes.

2 Q. And so how does -- on the Lee Station, how did  
3 Progress Energy decide to retire those Lee coal plants on  
4 January 1, 2013?

5 A. That was part of a comprehensive examination of  
6 how to most appropriately comply with North Carolina Clean  
7 Smokestacks.

8 Q. And so -- and after that review of the -- how to  
9 comply with the Clean Smokestacks in the 2009 IRP, did --  
10 was just the three Lee coal plants; is that correct?

11 A. That is correct.

12 Q. Now, why 2013? Why not 2012?

13 A. The Clean Smokestacks Acts [sic] required the  
14 reduction of SO2 from 100,000 tons of SO2 to 50,000 in  
15 2013. So the timing was commensurate with the reduction  
16 in the Clean Smokestacks Act.

17 Q. In looking at the docket in E-2, Sub 960, which  
18 lists the 12 coal plants without flue gas desulfurization,  
19 why would those plants be retiring?

20 A. We are continuing to look at what's the least cost  
21 alternative to complying not only with Clean Smokestacks,  
22 but also other pending environmental legislation and  
23 potential greenhouse gas regulations.

24 Q. And in looking at pending greenhouse gas

1 legislation, what does -- what -- what is Progress looking  
2 at? I mean, what are your assumptions on what's going to  
3 happen on greenhouse gas reduction?

4 A. At the time of the 2009 filing, we estimated that  
5 there would be a carbon tax of some form in place in 2012  
6 and that that tax would escalate as the requirements got  
7 more stringent through the remainder of the planning  
8 horizon.

9 Q. Now, in looking at the two, the Sutton and the  
10 Wayne County sites that are being conducted to natural  
11 gas, that was on an economic basis; is that correct?

12 A. Yes, sir.

13 Q. And also, it would comply with sulfur reduction?

14 A. Yes, sir.

15 Q. Would converting from coal to natural gas also  
16 reduce the risk or the expenses from a greenhouse gas  
17 legislation?

18 A. Yes, sir.

19 Q. Is a natural gas cleaner burning in the -- the  
20 greenhouse gases in the coal plants?

21 A. A combined-cycle technology has roughly 40 percent  
22 of the carbon output per megawatt hour of a coal facility  
23 as a rough average.

24 Q. Is -- is Progress Energy looking at any other

1 natural gas powered facilities in the -- in the -- over  
2 your planning horizon?

3 A. Yes, sir. In the tables, I believe, on page 21  
4 and 22 we identify simple-cycle, hand-combined cycle  
5 technologies to meet growth as generic units.

6 Q. And are you planning single-cycle coal -- natural  
7 gas plants?

8 A. Right now, yes. There are simple-cycle units  
9 generically identified to meet growth needs.

10 Q. You've also referred to -- looking at some -- in  
11 the plans, looking at some undesignated baseload units.

12 A. Yes, sir.

13 Q. As an undesignated baseload unit, what kind of  
14 fuels are you looking at?

15 A. Particularly those are nuclear units.

16 Q. And in particular, they would be the two proposed  
17 units at the Shearon Harris site?

18 A. Potentially, but no final determination has been  
19 made on that.

20 Q. Now, do you -- do you foresee that those units  
21 will be online in your planning horizon?

22 A. As of the 2009 IRP, yes. They were in 19 and 20.

23 Q. And does -- and do you foresee in the 2010 IRP  
24 that those -- that that would change?



1 A. That's being studied right now and there's  
2 potential for that to change, yes.

3 Q. And it would be shifted back; is that correct?

4 A. Again, potentially. We are still in the midst of  
5 our 2010 planning, but there is the potential.

6 Q. Now, you've looked at, you know, in retiring of  
7 some coal units and converting others to natural gas. And  
8 those are both regulatory and economic drivers for doing  
9 that.

10 Now, looking at a nuclear plant, fairly costly new  
11 unit, would it not?

12 A. It's the least cost option to meet baseload growth  
13 in certain situations as identified in the plan.

14 Q. Okay. What does -- what do you see the -- in  
15 preparing the IRP, the 2009 IRP, what do you see the cost  
16 of the nuclear plant? What was your basic assumption  
17 there?

18 A. I do not have those figures off the top of my  
19 head. I believe they were in the 8,000 kW range, but I  
20 would hate to say, so that's subject to check, sir.

21 Q. Let's change the topic and look at the energy  
22 efficiency part of the filing. And let me see, I guess  
23 that would be Mr. Edge.

24 Now, in your prefiled testimony and also in your

1 summary you talked about an aggressive expansion of  
2 Progress' Energy [sic] DSM and energy efficiency  
3 portfolio?

4 A. (By Mr. Edge) Yes.

5 Q. Now, looking at the planning horizon for the next .  
6 -- you know, for the IRP, looking up to 2024, what is your  
7 -- what is Progress Energy's goal for savings from energy  
8 efficiency programs?

9 A. In Appendix E we've identified what the projected  
10 saving impacts for the -- all cost-effective energy  
11 efficiency as determined by our analysis.

12 Q. And so by 2024, what percentage of savings do you  
13 forecast?

14 A. Percentage of retail savings?

15 Q. Yeah. That -- we'll start with that.

16 A. If you were to utilize the information on page  
17 E-6, the table there provides accumulated -- accumulative  
18 megawatt hour impact as a result of the programs that  
19 we're projecting. And in essence, if you were to divide  
20 that by the projected retail sales, which is provided for  
21 on page 7 of the IRP, in the 2023 time frame, which is  
22 extended on page 7, it's approximately 3.8 percent.

23 Q. So in between 2009 when this was filed and the  
24 2023, looking at a 3.8 percent savings on -- from energy

1 efficiency programs?

2 A. That is currently what is projected, yes.

3 Q. Now, are those -- are those energy efficiency  
4 programs that Progress is conducting or is that just  
5 energy efficiency across the board?

6 A. Those are intended to be energy efficiency impacts  
7 on utility administered programs that Progress will be  
8 conducting, yes.

9 Q. So if I would go out as a homebuyer and buy a  
10 compact fluorescent bulb, you -- your -- that would not be  
11 reflected in your energy efficiency programs?

12 A. It depends on whether you were there buying it  
13 because we were incenting you and promoting, but if you  
14 were just simply going their under your own accord without  
15 any influence from the utility, then those would not be  
16 reflected in the impacts of what we projected through  
17 energy efficiency.

18 Q. Okay. And so if I would go in and buy that same  
19 lightbulb and you would give me a rebate, that would --  
20 you would take credit for an -- in your energy efficiency  
21 program?

22 A. If that is determined from the evaluation of the  
23 programs, subsequent evaluation of the programs by M&V.

24 Q. Okay. So are you looking at adding additional

1 energy efficiency programs to your portfolio?

2 A. Yes. We have identified within this plan one such  
3 program, which is a behavioral modification program. And  
4 additionally, we've identified that we -- we continue to  
5 look at opportunities to expand the portfolio.

6 Q. And what behavioral modification program was that?

7 A. It's -- it's similar -- it's termed different  
8 things. We termed it a behavioral modification program.  
9 It's a comparative analysis of residential usage to other  
10 customers like themselves. And inherently, the social norm  
11 drivers that are projecting to potentially cause  
12 behavioral change, which reduces energy.

13 Q. I get my power from Piedmont and you can get a  
14 daily feedback of how much power that you're -- have used  
15 the day before or the week before, those kind -- is that  
16 what you mean by the behavioral modification program?

17 A. Not under the current design, no.

18 Q. Okay. Are you looking at additional energy  
19 efficiency programs over the next -- from 2023?

20 A. We have continued to iterate that that's a  
21 continual part of our cycle, as well as within the  
22 provisions that were provided for in the settlement  
23 agreement for our cost recovery proceeding we have enabled  
24 the opportunity for people as well to -- our intervenors

1 to recommend programs and measures that could be  
2 considered within the portfolio as well. So yes.

3 Q. So is a 3.8 percent savings by 2023, does that  
4 incorporate new programs or just existing programs?

5 A. It incorporates the -- the identified  
6 cost-effective energy efficiency potential over the  
7 horizon, over the planning horizon.

8 Q. And is -- does that include programs that are not  
9 currently in place?

10 A. Yes. It would -- it would include the adaption of  
11 programs that we currently have and programs that are  
12 identified around those technologies over the course of  
13 the planning period.

14 Q. Okay. And so if a new innovative program came  
15 along, would your energy efficiency by the 2023 increase  
16 over the 3.8 percent?

17 A. I -- I -- I -- that's -- no, I can't draw that  
18 conclusion because there's a lot of other things that are  
19 occurring within the market. It could be a change in  
20 codes and standards which effectively reduce the available  
21 market potential for utility administered programs. So  
22 that's -- I can't conclude that.

23 Q. Well, if there was a utility administered program  
24 that you were -- you -- it was new and innovative and, you

1 know, you started up five years from now, would that  
2 increase the -- over the 3.8 percent energy savings? .

3 A. It depends what's happening with the projected  
4 impacts of the other composites of the portfolio at that  
5 time.

6 Q. Okay. All right. So I guess who -- I mean,  
7 besides the utility administered programs, who else can do  
8 energy efficiency? .

9 A. Energy efficiency can occur by the participants  
10 engaging in investments by themselves. It can occur  
11 through the -- as a result of codes and standards that are  
12 adopted by either federal or state agencies. There are  
13 new programs that have been identified within the federal  
14 stimulus funding, as an example, that provide funds to the  
15 state that can administer programs that seek energy  
16 efficiency reductions, and there are other proposed  
17 federal programs that look at these broader cast  
18 opportunities for third-party affiliates, as an example,  
19 to administer energy efficiency. So it's multiple  
20 agencies.

21 Q. And in your position with Progress Energy, part of  
22 your job is to monitor the other -- other programs in the  
23 state or programs in other states? .

24 A. By programs, do you mean other utility programs or

1 all these external factors that I just explained?

2 Q. Both.

3 A. Yes.

4 Q. Okay. So you're looking at other programs in  
5 North Carolina that might be reducing the energy -- might  
6 be increasing energy efficiency even though that's not a  
7 program administered by Progress Energy?

8 A. Yes. We are -- we're -- we're monitoring such  
9 programs.

10 Q. And are you looking at what other states are  
11 doing?

12 A. We monitor other states.

13 Q. Now, looking at other states, do other states have  
14 energy efficiency goals or plans greater than 3.8 percent  
15 by the year 2023?

16 A. Some states have identified targets that are  
17 greater than 3.8 percent over 2023, and it widely varies.

18 Q. So in your -- looking at the other states, is  
19 Progress Energy one of the most aggressive energy  
20 efficiency portfolios or in the middle or...

21 A. I think we have deemed to provide a market  
22 potential analysis that shows all of the identified  
23 cost-effective energy efficiency that takes into account  
24 Progress Energy's portfolio, the demographics of our

1 customers, the regulatory policies that are inherent to  
2 the State, and as such I think 3.8 percent reflects all of  
3 that identified cost-effective potential.

4 Q. Now, are you familiar with the ACEEE, which is the  
5 American Council of Energy Efficiency Economy?

6 A. Yes, I am.

7 Q. Have you reviewed any of their latest studies on  
8 energy efficiency?

9 A. I have reviewed a study that they just recently  
10 completed in South Carolina and I have seen a draft  
11 summary of a study that they -- I believe they're  
12 intending to present in North Carolina later this week.

13 Q. In fact, they're -- they're releasing that study  
14 on Thursday morning and -- and presenting it to the Energy  
15 Policy Council on Thursday?

16 A. That is correct.

17 Q. In looking at the draft and your familiarity with  
18 other ACEEE studies, is it's -- is that a pretty good  
19 study?

20 A. I don't think that ACEEE intends to represent  
21 those studies as a market potential analysis, but rather I  
22 think if you were to review the preface of the study it's  
23 indi -- indicated to provide policy options to respective  
24 states, so it's not intended to be a true market analysis



1 of utility administered energy efficiency.

2 Q. As a -- sort of a potential study of energy  
3 efficiency, is it a -- is it pretty -- is it a solid study  
4 or is it fairly weak?

5 A. I think it contains errors. If you were to apply  
6 it across our service territory, there are factors that  
7 aren't considered that have a major impact on the  
8 available cost-effective potential. As an example, the  
9 draft summary that I've seen within North Carolina fails  
10 to acknowledge opt-out provisions that are available to  
11 both industrial and commercial customers.

12 It's difficult to make the full assessment  
13 because there's very little explanation of the  
14 methodologies of their projected savings from various  
15 policy implications.

16 I think some of the other failures in their  
17 analysis are relative to the absence of net-to-gross  
18 ratios and the impacts that that has and the overall  
19 comprehensive energy efficiency that they can contain.  
20 But there are other differences of opinion relative to  
21 being a full encompassed market potential study. But I --  
22 again, I don't think that they intend to represent that  
23 study as a market potential study.

24 Q. Now, in looking at all of the various studies and

1 looking at the other states, is it inconceivable to have a  
2 one percent savings per year over the planning horizon for  
3 Progress Energy?

4 A. Based on our analysis, yes, we think it's  
5 inconceivable.

6 Q. Okay.

7 MR. RUNKLE: I have no further questions.

8 COMMISSIONER CULPEPPER: All right. Who's next,  
9 Mr. Green? Ms. Thompson, have you --

10 MS. THOMPSON: I think I misunderstood the deal,  
11 I'm afraid, so sorry about that.

12 COMMISSIONER CULPEPPER: Well, that's why you  
13 get them in writing.

14 CROSS-EXAMINATION BY MS. THOMPSON:

15 Q. Good morning, gentlemen. I'm Gudrun Thompson with  
16 the environmental intervenors.

17 A. (By Mr. Snider) Good morning.

18 Q. Let's see. Mr. Fonvielle, I just have -- start  
19 with a few questions for you. In your previous role with  
20 the company, your responsibilities included developing and  
21 executing a strategy to comply with Senate Bill 3?

22 A. (By Mr. Fonvielle) The renewable energy  
23 requirements of Senate Bill 3 --

24 Q. The renewable.

1 A. -- that's correct.

2 Q. Okay. And the purpose of your direct testimony  
3 was to -- or is to support PEC's REPS compliance plan as  
4 contained in Appendix D of the IRP?

5 A. That's correct.

6 Q. Now, I -- and I think you may have just clarified  
7 this for me. Your testimony focuses on -- on the use of  
8 renewable generation to meet the REPS obligations,  
9 correct?

10 A. Primarily, that's correct. However, our  
11 compliance plan overall, you know, does include the energy  
12 efficiency from our programs that's allowed to contribute  
13 to meeting the overall requirements.

14 Q. Okay.

15 A. However, I don't administer -- you know, I was not  
16 in charge of administering those programs.

17 Q. So that actually answers -- my next question was  
18 going to be whether the company does intend to meet a  
19 portion of its REPS obligations with energy efficiency and  
20 I think you just told me the answer is yes?

21 A. Yeah, that's correct.

22 Q. And that's reflected in Appendix D, I believe, on  
23 page D-3 where you state that -- and it's the very -- the  
24 paragraph on the very top of the page -- "PEC's overall

1 compliance plan table depicts energy efficiency megawatts  
2 only up to 25 percent and 40 percent caps in any given  
3 year." Is that correct?

4 A. Yeah. That's the statement on page D-3, that's  
5 correct.

6 Q. And has PEC analyzed levels of energy efficiency  
7 resources for purposes of the IRP beyond those that are  
8 required to comply with the REPS?

9 A. I'm going to let Mr. Edge answer that question.

10 A. (By Mr. Edge) We -- we've -- our analysis for the  
11 market potential in energy efficiency attempted to  
12 identify all cost-effective energy efficiency. Not solely  
13 for the purposes of compliance, just all cost-effective  
14 energy efficiency.

15 Q. Okay. Thank you. Now, I think I -- thank you,  
16 Mr. Fonvielle. I have no -- no further questions for you,  
17 but I have a few questions for Mr. Snider.

18 Mr. Snider, in your capacity as manager of  
19 resource planning, you're responsible for directing the  
20 resource planning process for the company?

21 A. (By Mr. Snider) That is correct.

22 Q. And did you oversee the development of the 2009  
23 IRP?

24 A. Yes, I did.

1 Q. How long have you been in your current position?

2 I think I missed this on the intros.

3 A. About one year now.

4 Q. About a year. So how many resource plans have you  
5 -- or how many resource plans have you overseen the  
6 development?

7 A. Just the 2009.

8 Q. Now, a lot of your direct testimony is devoted to  
9 discussion of load forecasting. And I'm not going to ask  
10 you very much about that, but I'd like to ask about  
11 environmental compliance costs. One of the things that  
12 PEC takes into account in resource planning is  
13 environmental compliance costs; is that correct?

14 A. That is correct.

15 Q. And on page 10 of your testimony -- and actually,  
16 it might be easier to just turn to your summary because I  
17 think it was reproduced verbatim there. It's not line  
18 numbered, but on page 2 of your summary, the first full  
19 paragraph in the middle of that paragraph there's a  
20 sentence that starts with "The plan also reflects."

21 A. Yes, I see that.

22 Q. Are you there? Could you just reread that  
23 sentence for me?

24 A. "The plan also reflects acknowledgment of the

1 widely accepted assumption there will be environmental  
2 legislation in the future requiring review of continued  
3 operation of certain coal-fired generation."

4 Q. Can you explain what you mean in that sentence?

5 A. Yes, I can. In our current plan, as I stated in  
6 our -- in my previous response to Mr. Runkle, we are  
7 currently envisioning a potential for a carbon tax as  
8 envisioned at the time we filed this plan. So that would  
9 be one example of potential environmental factors that  
10 would influence the ongoing operational costs of a  
11 coal-fired facility.

12 Q. So the carbon tax is one -- one example of  
13 environmental legislation. Are there other impending or  
14 possible environmental regulations that you're looking at?

15 A. Yes. There's several environmental regulations  
16 we're keeping an eye on as we do our planning.

17 Q. And I believe some of those are addressed in  
18 Appendix F to the IRP where there's discussion of air  
19 quality and regulatory issues.

20 A. That is correct.

21 Q. Let's turn to page F -- sorry, Appendix F, page  
22 F-1. I would just like to go through these or a few of  
23 these. And here it's noted that there's uncertainty with  
24 respect to several of these potential regulations or

1 legislation. One of those is the Clean Air Interstate  
2 Rule, correct?

3 A. Correct.

4 Q. Another is the possible regulations, maximal  
5 achievable -- maximum achievable control technology  
6 requirements in the wake of the vacatur of the Clean Air  
7 Mercury Rule?

8 A. Correct.

9 Q. That's only two. And revision of the National  
10 Ambient Air Quality Standards for ground-level ozone,  
11 correct?

12 A. Correct.

13 Q. And then also global climate change?

14 A. Correct.

15 Q. Did PEC run -- I'm trying to understand how you  
16 incorporated these uncertainties into your IRP. Did you  
17 run sensitivities based on any assumptions about these  
18 regulations?

19 A. No, we did not.

20 Q. You did not. Can you explain how you accounted  
21 for them in the IRP?

22 A. Yes. Probably the most direct and the biggest  
23 impact was the carbon tax, which directly influences each  
24 of the resources chosen in their variable operating costs.

1 For example, natural gas-fired facilities, as I spoke to  
2 earlier, have a smaller carbon footprint when in  
3 combined-cycle mode than a coal-fired facility. So when  
4 we look at what the least cost option is, the cost of  
5 carbon was estimated and then put into the variable cost.

6 With respect to some of the other ones, they're  
7 more capital cost driven for existing coal facilities and  
8 what environmental compliance control technologies would  
9 have to be installed. In this 2009 IRP, we did not run  
10 sensitivities to add additional capital costs to the  
11 existing coal facilities.

12 Q. So you said you didn't -- you didn't -- you didn't  
13 run sensitivities for the 2009 IRP. Are you planning to  
14 do that for the -- as you develop the 2010 IRP?

15 A. Yes, we are.

16 Q. You are. I think Mr. Runkle asked you about the  
17 plan -- the company's plan to retire 550 megawatts of coal  
18 generation without SO2 control that was filed on  
19 December 1, 2009, in Docket E-2, Sub 960.

20 A. Yes.

21 Q. Did you participate in the preparation of that  
22 plan?

23 A. Yes, I did.

24 Q. And that plan also discusses several environmental



1 regulatory requirements, correct?

2 A. Correct.

3 Q. And in addition to the issues that we just  
4 discussed and that were discussed in Appendix F of the  
5 IRP, that -- the retirement plan also discusses the  
6 potential implications of tighter regulation or EPA  
7 regulation of coal combustion waste?

8 A. That is correct.

9 Q. Thank you for not correcting me for calling it  
10 coal combustion waste instead of coal combustion products.

11 A. Products.

12 Q. Now, did you model any base assumptions regarding  
13 the compliance costs associated with regulation of coal  
14 combustion waste?

15 A. We did not.

16 Q. And did you run any sensitivities based on costs  
17 associated with regulation of coal combustion waste?

18 A. We did not.

19 Q. Are you planning to do either of those things in  
20 your -- for purposes of your 2010 IRP?

21 A. As it relates to our retirement plan, yes, that  
22 will be incorporated in one of the economic variables that  
23 drive the timing of that.

24 Q. Okay.

1                   COMMISSIONER CULPEPPER: Ms. Thompson, I think  
2 this would be a good time for us to take our morning  
3 break. We're going to take a 10-minute morning break,  
4 come back about five minutes till 11:00. For planning  
5 purposes, I intend on calling for a lunch break at 12:30  
6 for one hour.

7                   Hopefully we'll finish this case by 5:00 today.  
8 Not trying to, you know, force you to speed along and to  
9 compromise your clients or anything, but come 5:00 today,  
10 unless we are real close to finishing, we're going to go  
11 home and come back tomorrow, so see how it goes. But for  
12 right now we stand in recess five -- for 10 minutes.

13                   (RECESS - 10:45 A.M. TO 10:58 A.M.)

14                   COMMISSIONER CULPEPPER: All right. Let's come  
15 back to order, please. The witnesses will come back to  
16 the witness chairs. All right. Ms. Thompson, you may  
17 resume your cross-examination.

18                   MS. THOMPSON: Thank you, Mr. Chairman.

19 BY MS. THOMPSON:

20 Q.           Mr. Snider, we were -- we were talking about  
21 environmental compliance costs and I just have a couple of  
22 final questions on that issue.

23                   If you'll turn to page 20 of the IRP. Just let me  
24 know when you're there.

1 A. Yes, ma'am.

2 Q. Okay. And then the second full paragraph that has  
3 the sentence starting with "Once" --

4 A. Yes.

5 Q. -- do you see that? Could you -- could you just  
6 go ahead and read that -- that sentence for me please.

7 A. "Once the least cost plan is identified,  
8 sensitivity analyses are conducted to determine how the  
9 plan performs under variation key assumptions such as  
10 changes in fuel forecasts or potential changes in  
11 environmental regulation such as the implementation of the  
12 carbon tax or more restrictive air emission caps."

13 Q. And when you refer to -- or when the plan refers  
14 to implementation of a carbon tax, and we've just  
15 discussed that, you model different -- different CO --  
16 different carbon prices; is that correct?

17 A. You know, in 2000 -- when we spoke about  
18 sensitivities, 2009 is an update year, so in 2008 we did a  
19 broad range of sensitivities on a number of key variables.  
20 We plan to do that again in our full year in 2010. 2009,  
21 again, being an update year, we did not run the full gamut  
22 of sensitivities.

23 Q. Okay. That answered my question, 'then. Let's  
24 talk about energy efficiency and demand-side management,

1 which I'll call EE and DSM for short.

2           You state on page 13 of your direct testimony that  
3 the resource plan includes DSM and energy -- and EE  
4 options.

5 A.       Yes, ma'am.

6 Q.       Oh, sorry. I shouldn't have made you turn back to  
7 that because I would like you to go back to 20 -- page 20  
8 of the IRP itself where at the top of the page it states  
9 that "The resource planning process incorporates the  
10 impact of all demand-side management programs on system  
11 peak load and total energy consumption, and optimizes  
12 supply-side options into an integrated plan."

13 A.       Yes, I see that.

14 Q.       Did PEC model EE or DSM options as part of a  
15 resource portfolio?

16 A.       Probably joint answer here with Mr. Edge. The way  
17 we model it is to first identify all cost-effective DSM  
18 and EE and then reduce our demand and energy forecast to  
19 net out the implementation of cost-effective DSM and EE.

20 Q.       So the impact of DSM and EE is reflected in the  
21 load forecast?

22 A.       Correct. It reduces the gross load forecast.

23 Q.       But the -- but EE and DSM options are not modeled  
24 as -- as part of a resource portfolio the way you would

1 model supply-side options, correct?

2 A. I don't know if I would characterize it as not  
3 modeled. They are modeled to be deemed cost effective.  
4 Say -- and using a lot of the same techniques for -- for  
5 cost-effectiveness, but, you know, not -- not -- they're  
6 not done within the same group, but -- but they are models  
7 for cost-effectiveness.

8 Q. They're models for cost-effectiveness, but then  
9 once -- once that's done, are they -- let me give you an  
10 example. Are you at all -- are you at all familiar with  
11 the Duke IRP, their revised 2009 IRP?

12 A. No, I'm not.

13 Q. Then that wouldn't be a very good example. Well,  
14 let me just tell you, Duke -- Duke's plan on page 65  
15 explains that Duke modeled a base case in screening their  
16 -- at the screening stage and a base case energy  
17 efficiency, I guess, scenario at the screening stage when  
18 they were screening their resource options. Did PEC do  
19 anything similar to that?

20 A. No, we did not.

21 Q. Okay. So -- okay. So just to clarify, the EE and  
22 DSM programs were incorporated into the load forecast for  
23 system peak load and total energy, but they were not  
24 actually modeled as a resource option at the screening

1 stage or in the developmental portfolios?

2 A. That is correct.

3 Q. Now, on page 11 of your testimony, you state that  
4 -- and it's lines 9 through 10 -- you state that PEC  
5 included generic generation additions in the plan to  
6 indicate the need for new generation resources. Do you  
7 see that?

8 A. I'm sorry, what line?

9 Q. Lines 9 through 10 on page --

10 A. Yes, I see that.

11 Q. Did PEC include any generic EE or DSM resources?

12 A. No. I believe in terms of generic, DSM and EE was  
13 -- what was -- it depends on how you characterize the term  
14 generic. We included what was deemed to be all  
15 cost-effective potential DSM.

16 To the extent you mean generic, I would say, no,  
17 there's nothing additional beyond what was identified as  
18 cost-effective potential.

19 Q. Okay. So going back to page 20 of the IRP, it  
20 explains -- let's see. Now I'm not sure which paragraph  
21 it is, but it explains that after the screening of  
22 supply-side resources, alternative resource plans are  
23 created and then compared to each other. Does that sound  
24 right?

1 A. Yes.

2 Q. And then once the least cost plan is identified,  
3 sensitivity analyses are conducted based on changes and  
4 assumptions like fuel price forecast and environmental  
5 regulations, correct?

6 A. Correct.

7 Q. Did PEC conduct any sensitivity analyses based on  
8 changes to assumptions about the EE or DSM options  
9 included in the plan -- or EE and DSM resources?

10 A. No, we did not.

11 Q. You didn't. So there wasn't a low energy  
12 efficiency case and a high energy efficiency case, for  
13 example?

14 A. No. In essence, that would just be changing, you  
15 know, sensitivities in your load forecast.

16 Q. Okay. I'm sorry, could you please -- you said  
17 sensitivities in your load forecast?

18 A. In essence, yes. We start with a gross load  
19 forecast, subtract out DSM and EE to get to a net forecast  
20 that still needs to be met. To the extent there's a need  
21 with traditional supply-side resources, to the extent you  
22 vary your load forecast, it has the same impact as varying  
23 your DSM and EE to some extent.

24 Q. So did you do -- so did you perform sensitivities

1 on the load forecasts to -- for a high EE case versus a  
2 low EE case?

3 A. We did not.

4 Q. You did not. Okay.

5 A. Again, our --

6 Q. I --

7 A. I'm sorry. Our sensitivities are generally  
8 conducted in the more robust year. This is an update  
9 year, so we -- we plan on running sensitivities on a  
10 number of variables in our 2010 IRP as we did in our 2008.

11 Q. Okay. So are you planning on running  
12 sensitivities for, for example, a high energy efficiency  
13 case and a low case for purposes of the 2010 IRP?

14 A. At this time that's not been determined, no.

15 Q. Now, the next step outlined on page 20 is -- of  
16 the IRP is to -- once the preferred plan is identified, to  
17 benchmark it against purchased power options.

18 A. I'm sorry, what lines are you on?

19 Q. Let me find it. Well, there's a heading,  
20 "Assessment of Purchased Power Alternatives." Let me find  
21 it. Sorry. I believe it's the first sentence under the  
22 heading "Assessment of Purchased Power Alternatives."

23 A. Okay. I see that.

24 Q. "The plan that has been identified as the



1 preferred plan then serves as a benchmark against which  
2 purchased power opportunities are measured."

3 A. Yes, I see that.

4 Q. Is there any similar benchmarking process for  
5 energy efficiency and DSM options where you benchmark them  
6 against the preferred plan the way you would with the  
7 purchased power?

8 A. I'm not sure -- I'm sorry. I'm not sure I  
9 understand the question.

10 Q. It may actually be just my misunderstanding about  
11 how the process works, but it looks like the plan that's  
12 been identified as the preferred resource plan is --  
13 serves as a benchmark and then you look at purchased power  
14 opportunities.

15 Would you also look at additional energy  
16 efficiency or DSM options at that stage the way you would  
17 look at purchased power?

18 A. I believe that what you're talking about here is  
19 that, you know, the -- other than the two units that I  
20 identified earlier, being the Richmond County unit and the  
21 Wayne County unit, before a generic unit is built, we go  
22 out for an RFP for a green field. So if we're going to  
23 build a green field combustion turbine, at that point a  
24 need has been identified and then we identify whether or

1 not the self-built option is the cheapest or whether or  
2 not there's a more economic option with the purchased  
3 power.

4 Presumably at that point we've already identified  
5 within the load -- within the load forecast all  
6 cost-effective DSM and EE and still have a need for that  
7 unit, so I don't know that we would in a similar fashion  
8 go out for competitive EE or DSM. So no, I don't think  
9 it's an appropriate analogy on it.

10 Q. Okay. Thank you. Give me just one moment. You  
11 talked with Mr. Runkle about the timing of retiring the  
12 remaining unscrubbed coal units which you're going to be  
13 looking at for purposes of the 2010 IRP.

14 A. Yes, ma'am.

15 Q. And you stated that the 2009 IRP doesn't reflect  
16 developments regarding retirements since the 2009 IRP was  
17 filed.

18 A. That is correct.

19 Q. I guess it's sort of an obvious statement. Is PEC  
20 going to take into account the latest developments with  
21 regard to natural gas prices in putting together a 2010  
22 IRP?

23 A. Yes. We update our fuel forecasts periodically  
24 and certainly for the IRP.

1 Q. I think that's all the questions I have on direct  
2 for any of you gentlemen. I think I -- my questions for  
3 Mr. Edge are all on his rebuttal, so thank you.

4 COMMISSIONER CULPEPPER: All right. Thank you,  
5 Ms. Thompson. Mr. Green, who's next? Or have you lost  
6 your credibility?

7 MR. GREEN: We're organizing licenses --

8 COMMISSIONER CULPEPPER: I'll quit calling on  
9 you.

10 MR. OLSON: I'm going to be very quick anyway,  
11 so...

12 COMMISSIONER CULPEPPER: All right. Mr. Olson.

13 MR. OLSON: Thank you.

14 CROSS-EXAMINATION BY MR. OLSON:

15 Q. Good morning.

16 A. (By Mr. Snider) Morning.

17 Q. Sir, if you would -- in your conversation with  
18 Mr. Runkle kept referring to the market potential study.  
19 And you said that the ACEEE study that was going to be  
20 released this Thursday you didn't -- in your view, anyway,  
21 was not a true market analysis.

22 Can you just go into greater detail about that and  
23 what you mean by that?

24 A. (By Mr. Edge) Well, part of that was deemed, I

1 think, relative to how ACEEE describes the characteristics  
2 of the study. But the analysis in itself, again, as I  
3 point out, in at least the preliminary draft that I've  
4 seen, fails to, once again, recognize the difference of  
5 impact of opt out.

6 But let me just further clarify the opt out. The  
7 opt out as it's provided for in the current legislation  
8 and subsequent Commission rules represents 40 percent of  
9 the total retail sales from Progress Energy. So I think  
10 that's a materially large impact on the potential for  
11 cost-effective energy efficiency when such studies don't  
12 recognize that inherent to the State of North Carolina.

13 Additionally -- and again, I clarified my earlier  
14 statements that it's somewhat difficult in the ACEEE as  
15 they really don't outline in full detail their methodology  
16 to describing what they identify as the potential or their  
17 projections. But I as well fail to recognize, as an  
18 example, net to gross. Which it appears that most of the  
19 savings that are inherently identified there are gross  
20 savings rather than net savings and thus far we're  
21 reporting to our Commission any of our projections net  
22 savings.

23 So they as well can be very material, almost  
24 creating -- look at the most proficient low cost energy

1 efficiency that's been demonstrated arguably throughout  
2 the United States right now has been in lighting, as an  
3 example. Lighting measures, the current mechanism which  
4 we're evaluating, we're acknowledging that there's  
5 probably a 70 percent net to gross, meaning that 30  
6 percent of the people are -- Mr. Runkle, as he was headed  
7 to the store to buy CFLs -- are already inherently there.

8           So when we look at an ACEEE study, it appears that  
9 they discount or don't include the impacts of -- you know,  
10 if you take whatever the projected savings are, now we're  
11 materially deducting 40 percent because of the opt out and  
12 another 30 percent because of recognition of high free  
13 ridership and/or -- you know, there becomes some major  
14 differences of opinion as to the accuracy of those  
15 projections.

16 Q.       Okay. Thanks. You also refer to a cost-effective  
17 energy efficiency program. Can you just define -- what do  
18 you mean by cost-effective?

19 A.       Good question. The mechanism of which we've  
20 screened through our market analysis of identifiable  
21 programs, we screen it on a total resource cost basis, the  
22 TRC test. Of course we're required to present four tests  
23 to this Commission, but we've screened available programs  
24 under TRC with a very careful eye on rate impact measure

1 as well.

2 Q. And can you just explain that in -- I mean, in  
3 sort of lay terms? I'm not that familiar with -- what is  
4 a TRC test and how does that all work?

5 A. The total resource cost test is when the savings  
6 -- you're comparing the cost of the program to the  
7 savings. And so from the perspective of -- and the total  
8 resource cost is intended to capture the view of both  
9 participating and non-participating customers.

10 So when you're looking at the inherent cost from  
11 that particular view, the costs are described as the  
12 program costs, not including incentive payments, and  
13 additionally, you're looking at the full participant costs  
14 regardless of who pays for the -- for the cost of the  
15 measure. So that, in essence, is your cost. And you're  
16 comparing that to your avoided cost.

17 So when we're comparing and when we're screening  
18 measures under total resource costs -- let's again take  
19 the example of a lightbulb -- we're looking at the  
20 projected impacts and low profiles of that lightbulb over  
21 the full 8,760 hours across the full measure life and  
22 comparing that to the avoided cost during those periods of  
23 operation to determine net present value of the savings  
24 and inherently you come up with a total resource cost

1 benefit.

2 Additionally, I mentioned rate impact measure.

3 Rate impact measure is looking at identifying it from the  
4 view of the non-participants, which inherently is  
5 identifying inequity. So if a program fails to pass rate  
6 impact measure, then inherently there's an inequity that's  
7 occurring of which some customer class potentially is  
8 subsidizing the cost of that investment within the class.  
9 So we as well think that's an important mechanism for  
10 viewing when we're screening programs.

11 Q. Okay. Thank you.

12 Mr. Fonvielle?

13 A. (By Mr. Fonvielle) Yes, sir.

14 Q. Good morning. How are you?

15 A. I'm doing well. How about yourself?

16 Q. Okay. If I understand your testimony and the  
17 summary of your testimony, you're saying that PCE -- PEC  
18 will be in compliance with the REPS requirements; is that  
19 correct?

20 A. That is correct. I think I state in my testimony  
21 that based upon current contracts signed and projections  
22 on energy efficiency that we are in compliance through  
23 2013 currently.

24 Q. Through 2013?

1 A. 2013 currently.

2 Q. You also say in Appendix D on page D-2 that PEC  
3 does not currently own or operate new renewable generating  
4 facilities. Do you see that? About the fourth paragraph  
5 down.

6 A. It -- I think you're referring to the small  
7 paragraph "In case of utility ownership;" is that correct?

8 Q. Yes.

9 A. Yes. PEC does not currently own or operate new  
10 renewable generating facilities.

11 Q. Okay. So is it fair to say that, then, in terms  
12 of its compliance efforts, it's relying to a large extent  
13 on third-party vendors or third-party contracts?

14 A. That is correct.

15 Q. And with regard to those vendors or contracts, can  
16 you tell me how many are -- and this may get a little  
17 confusing, but how many -- how many are for -- are the  
18 contracts with new renewable energy facilities that are  
19 located in North Carolina?

20 A. Can you repeat your question, make sure I  
21 understand what you're asking?

22 Q. All right. You're saying that to a large extent  
23 your compliance effort has been through contracting with  
24 third-party vendors to either providing RECs or let's use



1 a term bundled energy, which is the energy and the RECs.  
2 Am I characterizing that correctly?

3 A. That's correct.

4 Q. Okay. And I'm asking you with regard to those  
5 contracts, can you tell me how many are with facilities  
6 that are located within the geographic boundaries of North  
7 Carolina?

8 A. I probably can't tell you a specific number off  
9 the top of my head, but I can tell you that the vast  
10 majority of all of those contracts are for facilities  
11 located in North Carolina.

12 Q. Okay. Would -- could you say 80 percent? Would  
13 that be fair to say?

14 A. Yeah. I think it's possibly higher than that.

15 Q. Okay. Well, that's good to hear. And can you  
16 tell me, are -- are you planning to use unbundled RECs  
17 from out-of-state vendors as part of your compliance plan?

18 A. Yes, we are.

19 Q. Do you anticipate using the full 25 percent that's  
20 allowable in that context?

21 A. At this point in time we've procured some  
22 out-of-state RECs that we will bank and use for compliance  
23 per the banking provisions of Senate Bill 3. We have not  
24 developed a strategy to procure 25 percent in every year

1 for the planning horizon, no.

2 Q. So that -- that's not part of your strategy, then,  
3 to procure up to 25 percent out-of-state RECs?

4 A. Yeah. I characterize our strategy as meeting the  
5 requirements of Senate Bill 3 in a least cost manner on  
6 behalf of our customers. To the extent that that least  
7 cost manner would include the purchase of out-of-state  
8 RECs, up to that 25 percent limit we certainly would  
9 consider that.

10 Q. Can you identify for the Commission any problems  
11 you see going forward in terms of meeting the requirements  
12 of the portfolio standard?

13 A. I'd say in the near term to midterm we don't  
14 foresee any problems meeting our solar requirements nor  
15 our overall general requirements that begin in 2012.

16 You know, there are certainly some technologies  
17 that are in more of a development stage than others.  
18 We're pursuing those. We're working with a number of  
19 parties. A lot of those parties, you know, are start-up,  
20 you know, small ventures. So, for example, the, you know,  
21 swine waste provisions, the set-aside provisions within  
22 Senate Bill 3, you know, it is a technology that has been  
23 attempted by several folks that are in that industry and  
24 they have abandoned those attempts.

1           So there is some risk, you know, going forward  
2 about whether that technology proves out, whether those  
3 folks have the, you know, financial capacity to develop  
4 enough within a given time period. However, we're  
5 actively engaged in identifying as many parties that are  
6 interested in that technology and can come to the table.

7           But overall, I think we're in good shape to meet  
8 the short and midterm requirements.

9       Q.       So is it your testimony sitting here today that  
10 you will meet the requirements of the swine and the -- and  
11 the poultry waste set-aside?

12       A.       Well, I can't tell you today whether we will be in  
13 compliance at 2012. But we're -- we're engaged with  
14 parties that are, you know, looking into that technology,  
15 proposing development of swine waste generation. We'll  
16 evaluate those. We'll contract with ones that are viable  
17 and the most cost effective and in order to meet our  
18 requirements in 2012.

19           However, there's always development risks. To the  
20 extent we see that pop up, we'll per the -- you know, per  
21 the requirements of Senate Bill 3 and the Commission's  
22 rules, you know, we will be in front of the Commission,  
23 you know, identifying those concerns and requesting relief  
24 if necessary. But I can't say today that we won't be or

1 will be in compliance.

2 Q. Do you have any estimate on if you may reach your  
3 -- come up against the cost cap that's in Senate Bill 3?

4 A. I don't have any estimate today. You know,  
5 certainly cost caps, the customer cost caps are a  
6 consideration that we have to continuously take into  
7 account as we evaluate renewable resources into our plan.

8 But to forecast, you know, whether we'll hit those  
9 cost caps would be -- would require forecasting the cost  
10 of renewable resources far into the future as well as the,  
11 you know, avoided cost at that point in time and I'm not  
12 in a position to guesstimate around those.

13 Q. You don't see the cost cap as a -- any kind of  
14 barrier in terms of immediate compliance in 2010 or 2012;  
15 is that fair to say?

16 A. That's correct. Based upon contracts that we have  
17 entered into thus far. Other than, you know, continuing  
18 to pursue the specific swine and poultry set-aside  
19 requirements, we already have enough resources under  
20 contract to be in compliance in 2010 and -- for solar --  
21 and 2012 and beyond for the general renewable  
22 requirements.

23 Q. That's all I have. Thank you.

24 COMMISSIONER CULPEPPER: Mr. Styers, do you have

1 any cross-examination of these witnesses on direct?

2 MR. STYERS: I was going to hold for rebuttal,  
3 but I think I would like one exhibit to be admitted that I  
4 would like to hand up, if I may, to the witness and to  
5 follow up with some questions of Mr. Olson.

6 COMMISSIONER CULPEPPER: How do you want to  
7 identify that exhibit, Mr. Styers?

8 MR. STYERS: CPI Cross-Examination Exhibit 1.

9 COMMISSIONER CULPEPPER: CPI Progress Energy  
10 Cross-Examination 1?

11 MR. STYERS: That's correct. That will be fine.

12 COMMISSIONER CULPEPPER: Let it be so  
13 identified.

14 (Whereupon, CPI Progress Energy  
15 Cross-Examination Exhibit No. 1 was marked  
16 for identification.)

17 Mr. Styers, I'm assuming that this exhibit does  
18 not contain any confidential information to your  
19 knowledge?

20 MR. STYERS: To my knowledge it does not. It  
21 was a page from the Progress IRP.

22 CROSS-EXAMINATION BY MR. STYERS:

23 Q. Mr. Fonvielle, I have handed you an exhibit  
24 labeled CPI Cross-Examination -- or Progress Exhibit 1 and

1 ask if that is the same as page D-13 from the Progress  
2 Energy Carolinas' Integrated Resource Plan for 2009?

3 A. (By Mr. Fonvielle) I would answer that it  
4 certainly appears to be the same as my Exhibit 7 of  
5 Appendix D. However, without cross-checking each number  
6 from your page to my page in the IRP, I --

7 Q. Of course it would be subject to check. I  
8 represent it is a copy directly from that page.

9 COMMISSIONER CULPEPPER: I think he's saying  
10 subject to check he agrees with you.

11 MR. STYERS: Thank you.

12 Q. And could you just explain what that Exhibit 7 to  
13 the IRP is describing?

14 A. Yes. This is a summarization of our renewable  
15 energy portfolio standard compliance plan for the  
16 integrated resource planning kind of problem.

17 Q. The third line is labeled REPS requirement in  
18 gigawatt hour equivalence. Gigawatt hours, am I correct  
19 -- and that's 1,000 megawatt hours; is that correct, Mr.  
20 Fonvielle?

21 A. That's correct.

22 Q. Okay. And in 2012, the REPS requirement is 1,144  
23 gigawatt hours; is that correct?

24 A. That's correct.

1 Q. And that's both in-state and out-of-state REPS  
2 requirements?

3 A. That would be our total requirement under Senate  
4 Bill 3, renewable energy requirements for 2012.

5 Q. And under Senate Bill 3, 75 percent would need to  
6 be in-state REPS; is that correct?

7 A. That's correct.

8 Q. And subject to check, you would agree that 75  
9 percent of 1,144 is approximately 850 gigawatts subject to  
10 check?

11 A. Yes.

12 Q. So about 850 gigawatts is the requirement of your  
13 in-state REPS in 2012; is that correct?

14 A. Yeah. I would say approx -- 75 percent of our  
15 1,144 gigawatt hours would be a requirement for in-state  
16 renewable energy certificates and energy efficiency.

17 Q. Now, moving down that 2012 column, you have 285 as  
18 energy efficiency and then you have contracted purchases  
19 below that. And you have 12 for solar generation that you  
20 currently have contracted for 2012; is that correct?

21 A. Yes. As of the date of the filing of the 2009  
22 Integrated Resource Plan, that's correct.

23 Q. And biomass generation you have 245?

24 A. That's correct.

1 Q. And that's -- if I'm not mistaken, that's a single  
2 contract with one biomass facility in eastern North  
3 Carolina; is that correct?

4 A. Yes, I believe that that is correct.

5 Q. Now, there's no new hydro, so there's no hydro  
6 generation under your REPS compliance in the next line, is  
7 it?

8 A. Not shown in the 2009 Integrated Resource Plan  
9 filing.

10 Q. In the 2012 column, there's no REPS that you have  
11 projected at this time for wind generation; is that  
12 correct?

13 A. In 2012, no.

14 Q. Okay. And moving down that column, none for  
15 poultry generation?

16 A. That's correct.

17 Q. Now, you have 33 gigawatt hour equivalents under  
18 solar generation projected, not yet contracted, but  
19 projected for 2012; is that correct?

20 A. That's correct.

21 Q. And a 19 projected for swine waste generation?

22 A. That's correct.

23 Q. And those are set-asides under Senate Bill 3?

24 A. The poultry, solar and swine --



1 Q. Correct.

2 A. -- are, yes.

3 Q. And then you have basically undesignated other  
4 renewables, 477; is that correct?

5 A. Correct.

6 Q. You have not yet identified, you know, what the  
7 sources of those REPS will be at this time?

8 A. That's correct.

9 Q. And, in fact, you don't know what renewable  
10 resources would be utilized to make up that 477 at this  
11 time, do you?

12 A. At the time of the 2009 Integrated Resource Plan  
13 filing, that was a projected resource, but not a specific  
14 defined contract.

15 Q. Now, is it safe to say that, you know, if you have  
16 those projections for your set-asides, poultry, solar and  
17 swine, the vast majority of the 477 by necessity has to be  
18 biomass, does it not, Mr. Fonvielle?

19 A. It could be biomass, certainly.

20 Q. It wouldn't be swine?

21 A. That's correct.

22 Q. Or solar?

23 A. I'd correct -- I correct my answer. To the extent  
24 that swine, poultry or solar in that period became the

1 most cost-effective resource, it could be.

2 Q. But that's not your projection as of the time of  
3 the 2009 Integrated Resource Plan?

4 A. No. That's correct.

5 Q. So basically of what is here is basically other  
6 renewables, and what's not classified are other biomass;  
7 is that correct?

8 A. Well, it could also include RECs from other new  
9 renewable facilities in the state. As an example, REC  
10 purchases from small hydro generation in the state could  
11 be a portion of that as well.

12 Q. Let me ask you about that. So that would be a  
13 facility, say in Duke's territory, potentially, that would  
14 be selling renewable energy but not selling the RECs; is  
15 that an example of what you would be referring to there?

16 A. I would say --

17 Q. To the purchaser of the energy, excuse me.

18 A. It could be a number of things. It could be small  
19 hydro generation that we purchased the output from that's  
20 in our territory and we could subsequently contract for  
21 the renewable energy certificates to the extent they  
22 qualified under Senate Bill 3.

23 Q. But typically for any large scale, the facilities  
24 generating the energy is also generating the RECs that are

1 being purchased as a general rule. Hasn't that been the  
2 experience to date?

3 A. Can you -- can you state your question again?

4 Q. Certainly. Generally to date, larger facilities  
5 that have sold their energy to a utility has also sold  
6 RECs with that energy to the utility, have they not?

7 A. It certainly has been our experience to date.

8 Q. And certainly to look at 477 gigawatt hour  
9 equivalence, it's reasonable to expect that the -- that a  
10 majority of that would be, based upon information we  
11 currently have today, would be biomass?

12 A. I'd say a portion of that we would anticipate  
13 likely being biomass. I would tell you that subsequent to  
14 filing the Integrated Resource Plan we have continued to  
15 pursue cost-effective renewable resources. And as you  
16 speak of biomass in terms of landfill gas, wood biomass,  
17 other things. But we've also, you know, identified some  
18 additional resources such as small hydro resources and  
19 things of that nature that are being added to fill our  
20 needs going forward.

21 Q. And not to belabor the point, but at this point  
22 you just don't know where that 477 is coming from at this  
23 point?

24 A. At the point that we filed the Integrated Resource

1 Plan, filing that 477 was a generic representative -- a  
2 generic resource or a combination of generic resources  
3 that were not identified definitively at that time.

4 MR. STYERS: No further questions on direct at  
5 this time. Thank you.

6 COMMISSIONER CULPEPPER: Ms. Mitchell, do you  
7 have any questions?

8 MS. MITCHELL: No.

9 COMMISSIONER CULPEPPER: Mr. Green?

10 MR. GREEN: No.

11 COMMISSIONER CULPEPPER: Mr. Gillam?

12 MR. GILLAM: I have a few.

13 CROSS-EXAMINATION BY MR. GILLAM:

14 Q. Good morning.

15 A. (By Mr. Fonvielle) Good morning.

16 Q. I think I have just one question for  
17 Mr. Fonvielle. Looking at the CPI PEC Cross-Examination  
18 Exhibit 1 and looking in the column for 2012 -- thank you.

19 COMMISSIONER CULPEPPER: Mr. Gillam, is your  
20 mike on or you need to --

21 MR. GILLAM: I think it is on. I think it was  
22 too far from me and I appreciate Mr. Runkle bringing it  
23 close.

24 COMMISSIONER CULPEPPER: Thank you.

1 Q. Looking in the column under 2012 and the line  
2 that's marked "Undesignated Poultry Generation," are you  
3 there?

4 A. Yes, sir.

5 Q. And that is a blank, is it not?

6 A. That is correct.

7 Q. The poultry set-aside does, however, take effect  
8 in 2012, does it not?

9 A. That is correct.

10 Q. Thank you. Now -- well, I'll ask you, do you have  
11 any further explanation that you would like to make about  
12 that?

13 A. Yes, sir, I do. In our 2008 renewable compliance  
14 filing as part of the 2008 Integrated Resource Plan, on  
15 that same line we reflected Progress Energy's pro rata  
16 share of the statewide poultry set-aside as defined in  
17 Senate Bill 3 that begins at 170,000 total megawatt hours  
18 for the state as a whole in 2012; growing to 700,000  
19 megawatt hours for the state as a whole and continuing to  
20 grow to the -- to the ultimate 900,000 megawatt hours.

21 At the time that we filed the Integrated Resource  
22 Plan filing, based upon negotiations of parties that had  
23 been identified at that time, as the Commission's aware,  
24 we, along with other utilities, submitted a request to

1 consider delaying the implementation of the poultry  
2 set-aside and reducing the total amount of the poultry  
3 set-aside to a total of 300,000.

4           The 2009 Integrated Resource Plan table, this  
5 Exhibit 7, reflects that request that was in front of the  
6 Commission at the time to delay and reduce and would  
7 reflect Progress Energy Carolinas' pro rata share of that  
8 reduced set-aside. However, subsequent to filing the 2009  
9 Integrated Resource Plan, along with the other utilities  
10 that filed a joint motion, we agreed to remove that joint  
11 motion and are actively pursuing meeting the original date  
12 of 2012. And our pro rata share of the set-aside is  
13 stated in the original Senate Bill 3.

14 Q.       So this exhibit dates back to the time when your  
15 request was pending and before it was withdrawn?

16 A.       That's correct.

17 Q.       Thank you. I think I have one or two questions  
18 for Mr. Edge.

19           Mr. Edge, going back to your examination by  
20 Mr. Runkle, if I understood you correctly, you said that  
21 when you -- in response to questions from him that by the  
22 end of the 15-year planning period your projection was  
23 that your energy efficiency savings would amount to  
24 approximately 3.8 percent of your total energy sales?

1 A. (By Mr. Edge) That was of the total retail energy  
2 sales.

3 Q. Okay. Thank you. And I believe Mr. Runkle asked  
4 you whether it was conceivable that your energy efficiency  
5 savings might amount to as much as 15 percent for the 15  
6 years of the planning period. In other words, an average  
7 of one percent per year. And you said that that was not  
8 conceivable?

9 A. Not conceivable based on our current market  
10 analysis, that is correct.

11 Q. And can you briefly explain why that would be  
12 inconceivable?

13 A. And we -- we discussed it later, but under the  
14 premise that we're going to define the energy efficiency  
15 must continue to be cost effective, then our analysis thus  
16 far doesn't demonstrate that there is enough  
17 cost-effective potential based under the screening of the  
18 total resource costs that we've previously discussed.

19 I'm not sure of the basis of the assumption  
20 relative to the 15 percent or the one percent annual  
21 incremental that Mr. Runkle was referencing, but we've --  
22 we've screened all available measures, based on the  
23 current knowledge of the market, based on the current  
24 knowledge of the regulatory policies inherent to the State

1 with assumptions of impacts and factors like net to gross  
2 and we've yet to derive a plan of where we identify that  
3 there is enough cost-effective energy efficiency potential  
4 or else we jeopard -- unless we jeopardize the purpose of  
5 cost-effectiveness.

6 Q. Thank you.

7 MR. GILLAM: That's all the questions I have.

8 COMMISSIONER CULPEPPER: All right.

9 Mr. Anthony, do you have some redirect?

10 MR. ANTHONY: I do.

11 COMMISSIONER CULPEPPER: All right. Before you  
12 get to get -- before you get to that, just a  
13 house-cleaning matter here. We've already admitted what's  
14 been identified as PEC 1, which is the 2009 annual plan.

15 Now, that annual plan as filed by Progress  
16 contains confidential components. And I guess what I want  
17 to know is, are you wanting to introduce those into  
18 evidence and let them remain confidential or was it your  
19 intent to not admit those -- move to admit those at all?

20 MR. ANTHONY: Admit them into the evidence and  
21 remain confidential.

22 COMMISSIONER CULPEPPER: All right. Well, let  
23 the record reflect that the portion of the September 1  
24 filing that is labeled "Confidential Components" is



1 received into evidence as a portion of PEC Exhibit No. 1,  
2 but the court reporter is directed to maintain the  
3 confidentiality of that portion of the exhibit, so it  
4 shall remain sealed.

5 MR. ANTHONY: Thank you.

6 COMMISSIONER CULPEPPER: Thank you, Mr. Anthony.

7 Now you may cross-examine -- redirect.

8 MR. ANTHONY: Thank you. May I approach the  
9 witness to show him a document?

10 COMMISSIONER CULPEPPER: Absolutely. Do you  
11 want to identify it as an exhibit?

12 MR. ANTHONY: I will in just a moment.

13 COMMISSIONER CULPEPPER: All right.

14 REDIRECT EXAMINATION BY MR. ANTHONY:

15 Q. Mr. Edge, would you please look through those four  
16 pages and tell me what those four pages represent?

17 A. (By Mr. Edge) These four pages represent three of  
18 the four cost effectiveness analysis that we're required  
19 to present to the Commission when we're inherently asking  
20 for approval of programs. The only one that is absent  
21 from this is utility cost test. Or at least in the copy  
22 that you provided me.

23 Q. And as fate would have it, for some reason I've  
24 copied the TRC test license.

1 A. That's all right. But I think we can, based on  
2 that, if it's -- I can explain what utility cost test is.  
3 It's a provision of the rate impact.

4 MR. ANTHONY: I would ask that this be marked as  
5 PEC Redirect Exhibit No. 1.

6 COMMISSIONER CULPEPPER: All right. Let the  
7 exhibit be so identified. That's PEC Redirect Examination  
8 No. 1.

9 (Whereupon, PEC Redirect Examination  
10 Exhibit No. 1 was marked for  
11 identification.)

12 MR. ANTHONY: And Mr. Chairman, my purpose in  
13 offering this up is simply to simplify and help us as we  
14 go through this hearing to have these graphic pictorials  
15 of what the test represents so that we can keep track when  
16 someone references TRC or participants test, and I  
17 apologize that the utility cost test got somehow lost.

18 Q. But --

19 COMMISSIONER CULPEPPER: That's all right.

20 Q. -- for our purposes, the TRC test is the primary  
21 screening tool that we use with an eye on RIM. Did I hear  
22 you say that correctly?

23 A. That is correct.

24 Q. Now, Mr. Fonvielle, let me refer you back to the

1 cross-examination exhibit, which is Exhibit 7 of your  
2 sponsored Appendix D of the IRP.

3 A. Yes, sir.

4 Q. During the years 2009, 2010, and 2011 under  
5 contracted purchases, you show numbers, megawatt hour --  
6 gigawatt hours, right?

7 A. That is correct.

8 Q. Tell us what those numbers represent and what  
9 happened in '09, '10 and '11.

10 A. Yeah. Those numbers represent the contract -- the  
11 resources that we have contracted for compliance with  
12 Senate Bill 3's renewable requirements and the projected  
13 amount of generation or renewable energy certificates that  
14 we would receive under those contracts during that period  
15 of time.

16 Q. Now, did PEC have a REPS obligation in 2009?

17 A. No, we did not, other than not to exceed the cost  
18 caps within that year.

19 Q. So why did you buy these RECs in 2009?

20 A. Senate Bill 3 allows for -- I'd say there are a  
21 number of reasons, one of which is Senate Bill 3 does  
22 allow for -- or the Commission's rules allow for banking  
23 of renewable energy certificates. Progress Energy, with  
24 its commitment to Senate Bill 3 and the intent to promote

1 renewable energy and the development of a marketplace,  
2 thought it best to start early and identify resources that  
3 we could procure, have built and generating ahead of the  
4 requirements. And to the extent that we did have those,  
5 we could bank them for future compliance needs.

6 Q. So when you look at the position PEC is in in 2012  
7 and 2013 as far as sufficient RECs to meet the Senate Bill  
8 3 requirements, does PEC have enough RECs to satisfy the  
9 requirements in those years?

10 A. Yes. Based upon -- based solely upon the  
11 contracts that are represented in my Exhibit 7 of the 2009  
12 IRP, not counting resources that we have contracted for  
13 since that time, just the ones at that time, if you take  
14 our requirements, the energy efficiency that's projected  
15 and only the contracted resources, we have enough  
16 resources to meet compliance through 2013 and would only  
17 need an additional 180 gigawatt hours to be in compliance  
18 in 2014.

19 Q. Has PEC issued any requests for proposals for RECs  
20 or the corresponding megawatt hours?

21 A. Yes. As I stated previously in my summary, we've  
22 had an ongoing open RFP since November of 2007 for  
23 renewable resources. We issued a specific swine RFP in  
24 June of 2008, PEC specific. We now issue, along with

1 other utilities, a collaborative RFP for swine waste  
2 resources. And as of December of '09, issued a specific  
3 request for proposals for wood biomass facilities.

4 Q. Are those RFPs still open?

5 A. I believe that the wood biomass RFP date for  
6 submittal has passed and we're currently evaluating those  
7 proposals. Our generic renewable RFP does remain open, as  
8 well as several programs that we have implemented over the  
9 last two years for folks to continue to develop solar  
10 generation in the state.

11 Q. Do you know whether CPI USA responded to the  
12 biomass RFP?

13 A. I do not believe they did.

14 Q. Mr. Snider, you were asked about the cost per kW,  
15 I believe, of new nuclear; is that correct?

16 A. (By Mr. Snider) Yes, sir.

17 Q. And what answer did you give to that?

18 A. I said subject to check 8,000 a kW.

19 Q. Is that -- do you wish to elaborate on that  
20 answer?

21 A. Yes. I broke one of my own cardinal rules, which  
22 is never quote dollars per kW. It's often misleading and  
23 can often be misquoted. 5,000 a kW when I checked at the  
24 break is the first unit cost; 3,000 a kW is second unit

1 cost. You don't add the two. It is -- I spoke  
2 incorrectly. So after check, that is the cost that was  
3 used in the 2009 IRP development.

4 Q. Thank you.

5 MR. ANTHONY: That's all I have.

6 COMMISSIONER CULPEPPER: All right. Questions  
7 by the Commission? Chairman Finley.

8 EXAMINATION BY CHAIRMAN FINLEY:

9 Q. Mr. Snider, on the nuclear questions, Mr. Anthony  
10 just asked you some questions about that. And I believe  
11 in your IRP you have in future years generic placeholder  
12 for some nuclear generation, right?

13 A. (By Mr. Snider) That is correct.

14 Q. Where do you stand on combined operating license  
15 or any of the filings before the NRC with respect to any  
16 type of nuclear generation?

17 A. I'm sorry, Commissioner, I don't -- do not know  
18 where we stand at this moment with respect to that  
19 process.

20 Q. All right. Whether it's \$5,000 a kilowatt or  
21 \$8,000 a kilowatt, I think it is fair to say that a new  
22 nuclear unit is likely to be relatively expensive,  
23 correct?

24 A. When compared on a dollar per kilowatt it can

1 appear that way. My rebuttal talks a lot about how that  
2 can be very misgiving because it does not take into  
3 account the operating efficiencies and the low fuel costs  
4 and no carbon output of such a unit.

5 So when you just compare things on a dollar per kW  
6 installed, it can have that appearance. In reality,  
7 depending on gas prices, carbon prices, coal prices,  
8 environmental legislation, et cetera, that can very well  
9 be the cheapest option on a all-in cost basis.

10 Q. Well, comparatively speaking -- there are  
11 variables there, I understand that. But if you're talking  
12 about a 1,100-megawatt plant, it's -- based on the  
13 capitalization of these companies, this can be an  
14 expensive proposition, can it not?

15 A. It's the most expensive capital proposition made  
16 up for by cheaper operating and fuel costs.

17 Q. And based on the uncertainties of the cost, we  
18 don't really know for sure what it will cost, correct?

19 A. I believe with all of our costs, we do update them  
20 on an annual basis, and yes, they have changed as well as  
21 traditional gas-fired resources.

22 Q. Right. In Duke's IRP they talk about the  
23 potential of joint ownership, joint operation, joint  
24 ventures to construct nuclear units. And by that I take

1 that to mean that rather than Duke building its own plant  
2 at the same time that Progress is building its plant and  
3 Dominion is building its plant and South Carolina Electric  
4 & Gas Company is building its plant, that there will be  
5 some collaboration there and you stagger the construction  
6 of those plants.

7 And I hear a lot of talk about that. What is  
8 PEC's reaction to that concept of joint operation, joint  
9 ownership?

10 A. We mention in our 2009 IRP as well that we're  
11 going to be investigating that as part of our more  
12 comprehensive 2010 filing. Again, I'm not familiar with  
13 the exact status of any joint ownership discussions at  
14 this point in time, but we intend to address that  
15 potential more fully in the 2010 IRP.

16 Q. Doesn't that sound like a good idea to you?

17 A. In general, spreading risk over larger bodies with  
18 any investment can -- can have its benefits. So in  
19 general, yes.

20 Q. But I guess the hesitancy in your answer would  
21 suggest that perhaps the devil's in the details?

22 A. Yes, sir.

23 Q. Okay. Well, sounds like a good idea to me and I  
24 hope that you and Duke and others will pursue that,



1 realizing that there are certainly constraints in bringing  
2 that about, for what that's worth.

3 We talked some about the possibility of meeting  
4 the REPS requirements at least by 2013. And of course the  
5 ultimate REPS requirement of twelve and a half percent by  
6 2021 is in the legislation; that's correct, is it not?

7 A. (By Mr. Fonvielle) That's correct.

8 Q. And in reading the testimony in the IRP, it looks  
9 like at least PEC is hopeful in meeting the twelve and a  
10 half percent by 2021. Am I reading that correctly?

11 A. I would certainly say that it's our full intent to  
12 do everything we can to meet that full twelve and a half  
13 percent. You know, a lot -- a lot will depend upon the  
14 cost of renewable resources over time compared to, you  
15 know, our avoided cost as a utility as to whether the  
16 customer cost caps will become constrained in any given  
17 period.

18 Q. Well, if you had to handicap your chances now, how  
19 would you handicap it?

20 A. Based upon the current prices?

21 Q. Yes, sir.

22 A. Not so great in the long term.

23 Q. And what, in your opinion, should be done to make  
24 it easier for you to meet the twelve and a half percent by

1 2021?

2 A. You know, I think we're -- you know, as I've said  
3 before, I think we're in good shape with respect to  
4 meeting the early and the midterm. So, I mean, I think  
5 that looking at the cost caps and the resources we have  
6 under contract and new resources that we're evaluating  
7 based upon offers that come in the door through our IRP  
8 currently, that I don't think there's any need to change  
9 anything in the near to midterm.

10 I think we're in very good shape, you know, to --  
11 to be able to comply with cost caps and, you know, meet  
12 the requirements, again, through 2013, '14 to '15. You  
13 know, and I think hopefully the development of the  
14 renewable market, cost of those resources, becoming more  
15 competitive, competition that we create as a utility  
16 through our RFP and engaging in the marketplace will drive  
17 the cost of some of those resources down over time.

18 So, you know, my personal opinion, you know, is  
19 that there's no need to make any changes currently. If we  
20 at some point in time determine that the cost of those  
21 resources aren't coming down, the cost caps are  
22 constrained, I would anticipate that through one of our  
23 filings, either cost recovery filing, compliance report  
24 filing or compliance plan, we would identify that to the

1 Commission and hopefully make suggestions if we felt  
2 necessary.

3 Q. Well, to the Commission or to the legislature?

4 A. Yeah, I guess to the legislature is probably the  
5 more appropriate route. Potentially there are some rules  
6 that the Commission could look at that still fall within  
7 the legislative action that we could look at as well.

8 Q. All right. That's helpful. You were asked some  
9 questions about the maximum 25 percent out-of-state RECs  
10 to meet the requirements.

11 A. Yes, sir.

12 Q. It's my understanding that out-of-state wind RECs  
13 are relatively cheap. Am I right about that or not?

14 A. That's been our observation to date is that they  
15 are certainly cheap relative to resources identified to be  
16 built within the State.

17 Q. And if PEC's objective is to maximize its  
18 renewable purchases at the lowest cost, why wouldn't you  
19 use the maximum out-of-state wind RECs?

20 A. I think to meet -- currently, to meet the least  
21 cost objectives we likely would. And one of the reasons I  
22 think you see in my exhibit -- in my Exhibit 7, the line  
23 that says wind generation and has the 809 in 2010 and the  
24 591 in 2007 -- 2011, excuse me, those are out-of-state

1 wind RECs.

2           They were very cost effective compared to all of  
3 the resources we had procured at that time. So we --  
4 knowing that we had the ability within the cost caps to  
5 acquire those resources, we did so.

6           That will help us a couple of ways. It brings  
7 down the overall average cost of renewable energy in any  
8 given period by averaging those in. It also gives us a  
9 block of resources to -- to bring in at given periods of  
10 time because within the state you can't magically go out  
11 and identify a resource this year that's going to provide  
12 you generation. There's typically a year to three of  
13 development lead time depending upon the resource, so we  
14 can bring those in to meet the overall requirements, you  
15 know, given the amount of money that we have in a given  
16 year. So it gives us some flexibility, as I mentioned in  
17 my testimony summary.

18 Q.       All right. Just to a minor point of  
19 clarification. I think Mr. Runkle asked about a customer  
20 going out and buying the CFL without receiving a Progress  
21 incentive. Now, would that customer fall into the  
22 category of a free driver or is that a free rider?

23 A.       (By Mr. Edge) It depends, unfortunately is the  
24 answer. If Mr. Runkle, if it was determined that he was

1 there under his own premise without any influence of  
2 market conditions that were created by Progress Energy,  
3 let's say general awareness, then he would be a free  
4 rider. He was already on his mission to go buy  
5 lightbulbs.

6 If perhaps Mr. Runkle -- and I'm just providing  
7 such an example -- had already participated, bought a pack  
8 of CFLs last week and found out they were the latest and  
9 greatest things and they were really no detriment to his  
10 personal life and then was so inspired to go out and  
11 purchase another CFL bulb and it so happens that bulb was  
12 not an incentive of our program, but his actions and  
13 motivations were inevitably created by the fact that he  
14 originally participated, then that would be a free driver.

15 So there's two such examples of that.

16 Q. Well --

17 A. But in our projections of the program, our  
18 assumption are more -- they're probably more over a  
19 longstanding program the potential for free riders rather  
20 than free drivers.

21 Q. And free riders and free drivers are one of the  
22 variables that makes this a little bit complicated --

23 A. It's an incredibly important variable, yes.

24 CHAIRMAN FINLEY: That's all I have.

1 COMMISSIONER CULPEPPER: Other questions by the  
2 Commission?

3 (No response.)

4 All right. Questions based on Chairman Finley's  
5 questions from any of the intervenors?

6 (No response.)

7 Any of the utilities?

8 MR. ANTHONY: No, sir.

9 COMMISSIONER CULPEPPER: All right. Gentlemen,  
10 that would appear to conclude your testimony. Thank you  
11 very much. You may stand down.

12 Mr. Anthony, let's go ahead and deal with PEC  
13 Redirect Examination Exhibit No. 1.

14 MR. ANTHONY: We move that into the record as  
15 well as PEC Exhibits [sic] 1, which is the IRP itself.

16 COMMISSIONER CULPEPPER: Those exhibits are  
17 admitted into evidence. And we've already talked about  
18 the confidential components remaining under seal.

19 (Whereupon, PEC REDIRECT EXAMINATION  
20 Exhibit No. 1 was admitted into evidence.)

21 Mr. Styers, let's deal with CPI Progress Energy  
22 Cross-Examination Exhibit No. 1.

23 MR. STYERS: We'd ask that be admitted into  
24 evidence.

1 COMMISSIONER CULPEPPER: Let it be received.

2 (Whereupon, CPI Progress Energy

3 Cross-Examination Exhibit No. 1 was

4 admitted into evidence.)

5 MR. STYERS: And it's my understanding that  
6 Progress witnesses will be recalled for rebuttal testimony  
7 later.

8 COMMISSIONER CULPEPPER: That's what I  
9 understand --

10 MR. STYERS: Thank you.

11 COMMISSIONER CULPEPPER: -- Mr. Styers. All  
12 right. That concludes your direct case. That would move  
13 us over to Duke Energy Carolinas, LLC.

14 MR. RUNKLE: Chairman, one other matter.

15 COMMISSIONER CULPEPPER: Mr. Runkle.

16 MR. RUNKLE: The Progress Energy 2008 IRP has  
17 not been admitted into evidence. It was referred to by a  
18 couple of the witnesses. Should we just put the 2008 into  
19 the record?

20 COMMISSIONER CULPEPPER: That's a good question,  
21 Mr. Runkle. I conferred with our staff beforehand and I'm  
22 lead to believe by my staff, and I therefore believe it,  
23 that the 2008 plan is before the Commission. It is filed;  
24 it is a part of the record; it's a part of this proceeding

1 and it will be part of the order that will be entered in  
2 this case because the order will deal with both the 2008  
3 and the 2009 plans.

4 MR. RUNKLE: And similarly for the Duke 2008,  
5 2009 and the January 2010 revision?

6 COMMISSIONER CULPEPPER: That's correct. My  
7 understanding is that those -- those items are before the  
8 Commission as a part of this case. Sort of like a  
9 complaint being filed in a lawsuit. The complaint's  
10 before the court.

11 MS. NICHOLS: We call as a panel Robert McMurry,  
12 Jim Riddle, Dick Stevie and Owen Smith.

13 COMMISSIONER CULPEPPER: All right. If the four  
14 named witnesses could come forward, please.

15 RICHARD STEVIE, OWEN SMITH,

16 ROBERT MCMURRY,

17 AND JAMES RIDDLE; Being first duly sworn,

18 testified as follows:

19 DIRECT EXAMINATION BY MS. NICHOLS:

20 MS. NICHOLS: And like we did with the Progress  
21 panel, I'll take the opportunity to introduce each  
22 witness, get their prefiled testimony admitted into the  
23 record and then have them do their summaries at the end.

24 COMMISSIONER CULPEPPER: That's fine.



1 Q. Mr. McMurry, can you please state your name and  
2 address for the record?

3 A. My name is Robert Alexander McMurry. I work at  
4 526 South Church Street in Charlotte, North Carolina.

5 Q. And what is your position with Duke Energy?

6 A. I am the director of integrated resource planning  
7 for Duke Energy Carolinas.

8 Q. And is this your first time testifying before this  
9 Commission?

10 A. I presented testimony to the Commission in the  
11 Energy Independence Security Act, but this is the first  
12 time testifying in front of the Commission.

13 Q. So you've submitted prefiled testimony previously,  
14 but this is your first time being subject to  
15 cross-examination?

16 A. Yes, that is correct.

17 Q. And did you cause to be prefiled in this  
18 proceeding direct testimony consisting of 19 pages?

19 A. Yes.

20 Q. Do you have any changes or corrections to your  
21 testimony?

22 A. No.

23 Q. And your testimony essentially sponsors the  
24 revised 2009 IRP?

1 A. That's correct.

2 MS. NICHOLS: And consistent with the Chairman's  
3 instruction, I don't think it's necessary to move -- to  
4 identify the IRP as an exhibit.

5 COMMISSIONER CULPEPPER: That's correct. It's  
6 before the Commission.

7 Q. So if I were to ask you the questions in your  
8 prefiled direct testimony today, would your answers be the  
9 same?

10 A. Yes.

11 MS. NICHOLS: So I would move that the prefiled  
12 direct testimony of Mr. McMurry be admitted into the  
13 evidence as if given orally from the stand.

14 COMMISSIONER CULPEPPER: All right. That motion  
15 is allowed. Did he have any exhibits to his testimony?

16 MS. NICHOLS: No exhibits to the direct.

17 COMMISSIONER CULPEPPER: All right. Thank you.

18 (Whereupon, the prefiled direct testimony  
19 of Robert A. McMurry will be reproduced in  
20 the record at this point the same as if the  
21 questions had been orally asked and the  
22 answers orally given from the witness  
23 stand.)  
24

**I. INTRODUCTION AND PURPOSE**

1  
2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Robert A. Mc Murry, and my business address is 526 South Church  
4 Street, Charlotte, North Carolina.

5 **Q. WHAT IS YOUR POSITION WITH DUKE ENERGY CORPORATION?**

6 A. I am Director, Integrated Resource Planning ("IRP") for Duke Energy Carolinas,  
7 LLC ("Duke Energy Carolinas" or the "Company"). Duke Energy Carolinas is a  
8 wholly-owned subsidiary of Duke Energy Corporation ("Duke Energy").

9 **Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL**  
10 **BACKGROUND AND PROFESSIONAL AFFILIATIONS.**

11 A. I am a civil engineer, having received a Bachelor of Science in Engineering from  
12 the University of North Carolina at Charlotte. I am a registered Professional  
13 Engineer in North Carolina and South Carolina and a member of American Society  
14 of Civil Engineering.

15 **Q. PLEASE DESCRIBE YOUR BUSINESS BACKGROUND AND**  
16 **EXPERIENCE.**

17 A. I began my career at Duke Power Company (now known as Duke Energy  
18 Carolinas) in 1982 and have had a variety of responsibilities across the Company  
19 in areas of structural design, environmental strategy, allowance management and  
20 resource planning. I assumed my current position in March 2008.

21 **Q. WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT**  
22 **POSITION?**

1 A. I have responsibility for integrated resource planning for Duke Energy Carolinas.  
2 In that role, I oversee long-term resource planning and the short term action plan  
3 that supports long term decisions.

4 Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NORTH  
5 CAROLINA UTILITIES COMMISSION?

6 A. No. I have not appeared before the Commission, however, I previously filed direct  
7 testimony In The Matter of Consideration Certain Standards for Electric Utilities  
8 Related to Integrated Resource Planning, Rate Design Modifications to Promote  
9 Energy Efficiency Investments, Smart Grid Investments, and Smart Grid  
10 Information Pursuant to the Energy Independence and Security Act of 2007,  
11 Docket No. E-100, Sub 123.

12 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

13 A. The purpose of my testimony is to discuss the IRP process, to describe and  
14 support any portions of the 2009 Duke Energy Carolinas IRP that represent  
15 changes from the Company's 2008 IRP filed in Docket No. E-100, Sub 118, and to  
16 support the conclusions contained in the 2009 Duke Energy Carolinas IRP, as  
17 initially filed in this docket on September 1, 2009 and as filed with revisions  
18 concurrently with this testimony on January 11, 2010 ("Revised 2009 IRP"). In  
19 addition, my testimony addresses the requirements set forth in the Commission's  
20 *Order on Advance Notice* in Docket No. E-7, Sub 923 and *Notice of Decision* in  
21 Docket No. E-7, Sub 831.

1 Q. PLEASE DESCRIBE THE REQUIREMENTS SET FORTH IN THE  
2 COMMISSION'S *ORDER ON ADVANCE NOTICE* IN DOCKET NO. E-7,  
3 SUB 923 AND *NOTICE OF DECISION* IN DOCKET NO. E-7, SUB 831 AS  
4 TO THE IRP.

5 A. Pursuant to the Commission's *Order on Advance Notice* in Docket No. E-7, Sub  
6 923, Duke Energy Carolinas is required to present revisions to its IRP as necessary  
7 to include information

8 (1) to move the load from the power purchase agreement with Central Electric  
9 Power Cooperative, Inc. ("Central") out of the undesignated wholesale load  
10 amount;

11 (2) to explain the discrepancy between the 130 MW amount stated in the advance  
12 notice in Docket No. E-7, Sub 923 and the 150 MW amount shown on the  
13 Company's October 21 filing in that docket;

14 (3) to provide the amount of load and projected load for each present wholesale  
15 customer, including Central, on a year-by-year basis through the terms of the  
16 current contracts, and explain any growth rate projections that differ from the  
17 Company's projections for its own retail load;

18 (4) to the extent any undesignated wholesale load is included in the IRP, to justify  
19 the amount shown, on a year-by-year basis, with information, filed confidentially  
20 if appropriate, as to potential customers' current supply arrangements and the  
21 Company's reasonable expectations for serving such customers.

22 The Commission's *Notice of Decision* in Docket No. E-7, Sub 831, regarding the  
23 Company's application for approval of Save-a-Watt approach, Energy Efficiency

1 Rider and Portfolio of Energy Efficiency Programs directed Duke Energy  
2 Carolinas to include in its Revised 2009 IRP the most recent and appropriate  
3 information regarding its energy efficiency and demand side management goals.

4 **Q. HOW ARE THESE REQUIREMENTS ADDRESSED IN THE REVISED**  
5 **2009 IRP?**

6 A. Each of the individual requirements of the Commission's *Order on Advance*  
7 *Notice* in Docket No. E-7, Sub 923 and *Notice of Decision* in Docket No. E-7, Sub  
8 831 is addressed in Appendix F of the Revised 2009 IRP.

9 **Q. WHAT IMPACT DO THESE REQUIREMENTS, AS DESCRIBED IN**  
10 **APPENDIX F TO THE REVISED 2009 IRP, HAVE ON THE REVISED**  
11 **2009 IRP RESOURCE PLAN?**

12 A. The inclusion of the Central load as a firm requirement, and the undesignated load  
13 associated with wholesale customers we have a reasonable expectation to serve,  
14 increased the need of combustion turbine generation in the 2017 and 2026  
15 timeframe. Also, the inclusion of these wholesale customers further supports the  
16 need for Lee Nuclear in the 2018 to 2021 timeframe.

17 **Q. PLEASE PROVIDE AN OVERVIEW OF THE INTEGRATED RESOURCE**  
18 **PLANNING PROCESS FOR THE DUKE ENERGY CAROLINAS**  
19 **REVISED 2009 IRP.**

20 A. The IRP Planning process begins with a 20-year load forecast. The forecast includes  
21 projections of summer and winter peak demands, as well as energy use. Information  
22 is gathered for Duke Energy Carolinas' existing resources, including Company-  
23 owned generation, purchased power agreements, and demand-side/energy efficiency  
24 resources. The information includes items such as capacity rating, heat rate, fuel

1 costs and emission allowance costs. Data is gathered on the costs of additional  
2 resource options to meet customer needs. Such data includes lead times for  
3 construction, capacity costs, fixed and variable operating and maintenance costs and  
4 emissions costs for generation, as well as the costs of demand-side options.  
5 Quantitative analyses are conducted to identify combinations of options that will  
6 meet customer energy needs (plus reserve margin) while minimizing the costs to  
7 customers. The Revised 2009 IRP incorporates a target planning reserve margin of  
8 17%, which Duke Energy Carolinas' historical experience has shown to be sufficient  
9 based on the prevailing expectations of reasonable lead times for the development of  
10 new generation, siting of transmission facilities and procurement of purchased  
11 capacity. These quantitative analyses enable the Company to identify potential  
12 portfolios that can be tested under base assumptions, and for sensitivities and  
13 scenarios around those base assumptions.

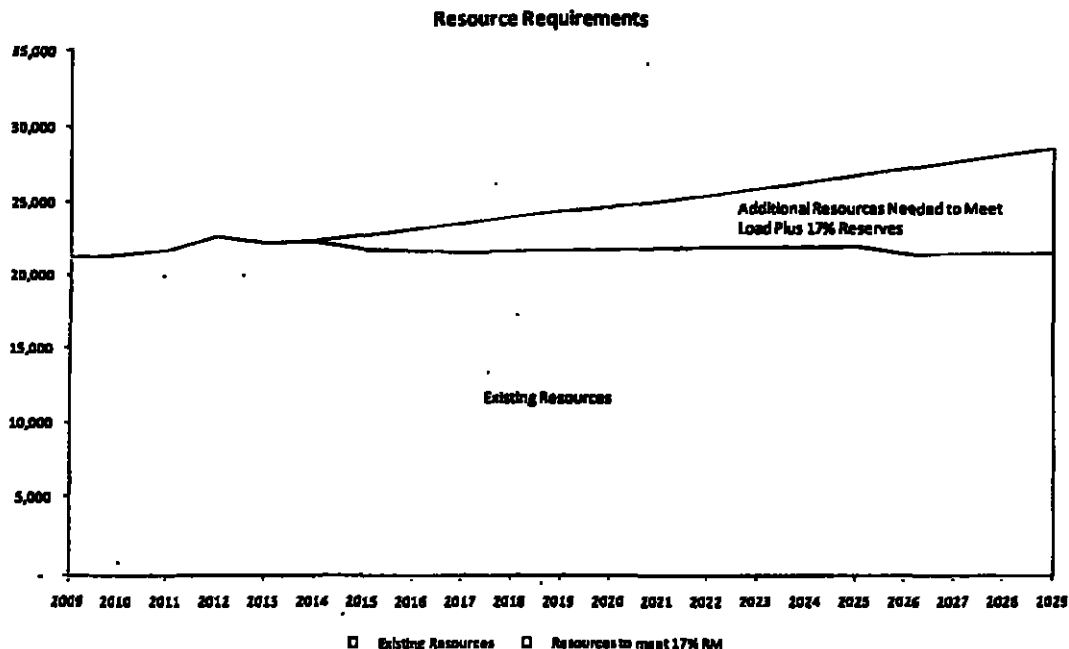
14 **Q. WHAT ADDITIONAL SYSTEM RESOURCE NEEDS DID THE REVISED**  
15 **2009 IRP IDENTIFY OVER THE PLANNING HORIZON?**

16 **A.** Before the impact of energy efficiency programs are included, the current load  
17 forecast reflects a 1.8 percent average annual growth in summer peak demand, a  
18 1.7 percent average annual growth in winter peaks, and a 1.8% increase in total  
19 energy usage. These percentages equate to an average annual growth rate of  
20 approximately 380 MW, and 2,000,000 megawatt-hours, of energy per year. In  
21 addition to this forecasted growth, we must consider that certain existing resources  
22 will no longer be available to meet our customers' needs over time. Each MW of  
23 capacity that is no longer available must be replaced with new capacity, either

from supply-side or demand-side resources. McMurry Graph 1 and McMurry Table 1 below show the existing resources and resource requirements to meet the load obligation, plus the 17 percent target planning reserve margin.

Beginning in 2009, existing resources, consisting of existing generation, DSM, and purchased power to meet load requirements, total 21,213 MW. The load obligation plus the target planning reserve margin is 20,462 MW, indicating sufficient resources to meet Duke Energy Carolinas' obligation through 2009. The need for additional capacity grows over time due to load growth, unit capacity adjustments, unit retirements, existing DSM program reductions, and expirations of purchased-power contracts. The need grows to approximately 3,280 MW by 2021 and to 7,150 MW by 2029.

**McMurry Graph 1  
Load/Resource Balance**





**McMurry Table 1**  
**Cumulative Resource Additions to Meet a 17 % Planning Reserve Margin**

<u>Year</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Resource Need	0	0	10	0	0	110	980	1450	1970	2330	2710

<u>Year</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
Resource Need	2980	3280	3610	4020	4440	4860	5820	6260	6710	7150

2    **Q.    WHAT ARE THE KEY ISSUES OR UNCERTAINTIES THAT WERE**  
3        **CONSIDERED IN THE REVISED 2009 IRP?**

4    **A.    A few of the key uncertainties include, but are not limited to:**

- 5        • **Load Forecasts:** How elastic is the demand for electricity? Will environmental  
6                regulations such as greenhouse gas legislation result in higher costs of electricity  
7                and, thus, lower electricity usage? Can a highly successful energy efficiency  
8                program actually flatten or even reduce demand growth? At what pace will  
9                recovery from the current economic conditions affect the demand for electricity?
- 10       • **Nuclear Generation:** Is the region ready for a nuclear revival? What is the  
11               timeframe needed to license and build nuclear plants? What level of certainty can  
12               be established with respect to the capital costs of a new nuclear power plant?
- 13       • **Greenhouse Gas Regulation:** What type of greenhouse gas legislation will be  
14               imposed? Will it be industry-specific or economy-wide? Will it be a "cap-and-  
15               trade" system? How will allowances be allocated? To what extent will carbon  
16               offsets be allowed?
- 17       • **Renewable Energy:** Will utilities be able to secure sufficient renewable resources  
18               to meet renewable portfolio standards? Will a federal standard be set? Will it  
19               have a "safety valve" price?

- 1 • Demand-Side Management ("DSM") and Energy Efficiency ("EE"): Can DSM  
2 and EE deliver the anticipated capacity and energy savings reliably? Are  
3 customers ready to embrace energy efficiency? Will an investment in Demand-  
4 Side Management and Energy Efficiency be treated equally with investments in a  
5 generating plant?
- 6 • Building Materials Availability and Cost: How long will the demand for  
7 building materials and equipment continue to be depressed and will there be  
8 significant price increases and lengthened delivery times? Is this an aberration or  
9 a long-term trend?
- 10 • Gas Prices: What is the future of natural gas prices and supply? Will enhanced  
11 natural gas recovery techniques open up new reserves in the United States?
- 12 • Coal Prices: What is the future of coal prices and supply? What impact will  
13 increased regulatory pressure on the coal mining industry have on availability and  
14 price?

15 Duke Energy Carolinas' resource planning process seeks to identify what  
16 actions the Company must take to ensure there is a safe, reliable, reasonably-priced  
17 supply of electricity regardless of how these uncertainties unfold. The  
18 comprehensive planning process considers a wide range of assumptions and  
19 uncertainties and develops an action plan that preserves the options necessary to  
20 meet customers' needs.

21 **Q. ARE DECISIONS REGARDING RESOURCE PLANNING MADE ON THE**  
22 **BASIS OF QUANTITATIVE ANALYSES ALONE?**

1 A. No. Consistent with the responsibility to meet customer energy needs in a reliable  
2 and economic manner, the Company's resource planning approach includes both  
3 quantitative analysis and qualitative considerations. Quantitative analysis provides  
4 insights on the potential impacts of future risks and uncertainties associated with  
5 fuel prices, load growth rates, capital and operating costs, and other variables.  
6 Qualitative perspectives such as the importance of fuel diversity, the Company's  
7 environmental profile, the stage of technology deployment, and regional economic  
8 development are also important factors to consider as long-term decisions are  
9 made regarding new resources.

10 Company management uses all of these perspectives and analyses to ensure  
11 that Duke Energy Carolinas will meet near-term and long-term customer needs, while  
12 maintaining flexibility to adjust to evolving economic, environmental, and operating  
13 circumstances in the future. The environment for planning the Company's system  
14 continues to be the most dynamic in Duke Energy Carolinas' 100-year-plus history.  
15 As a result, the Company believes prudent planning for customer needs requires a  
16 plan that is robust under many possible future scenarios. At the same time, it is  
17 important to maintain a number of options to respond to many potential outcomes of  
18 major planning uncertainties (e.g., federal greenhouse gas emission legislation).

19 Q. GIVEN THE ANALYSIS CONDUCTED WITH THESE CONSIDERATIONS  
20 IN MIND, WHAT WERE THE CONCLUSIONS OF THE REVISED 2009  
21 IRP?

22 A. The results of the quantitative and qualitative analyses suggest that a combination  
23 of additional baseload, intermediate, and peaking generation, renewable resources,  
24 and EE and DSM programs are required over the next 20 years. The near-term

1 resource needs can be met with new EE and DSM programs, completing  
2 construction of the Buck, Dan River, and Cliffside Projects, as well as pursuing  
3 nuclear uprates and renewable resources.

4 In each IRP, the Company selects one portfolio as "the plan" to best meet  
5 customer needs. The portfolio chosen for the Revised 2009 IRP is made up of  
6 4,464 MW of new natural gas simple cycle capacity, 2,234 MW of new nuclear  
7 capacity, 1,100 MW of Demand-Side Management, 483MW of Energy Efficiency,  
8 and 458 MW of renewable resources. The portfolio also included the Cliffside  
9 Unit 6 and Buck and Dan River Combined Cycle Projects.

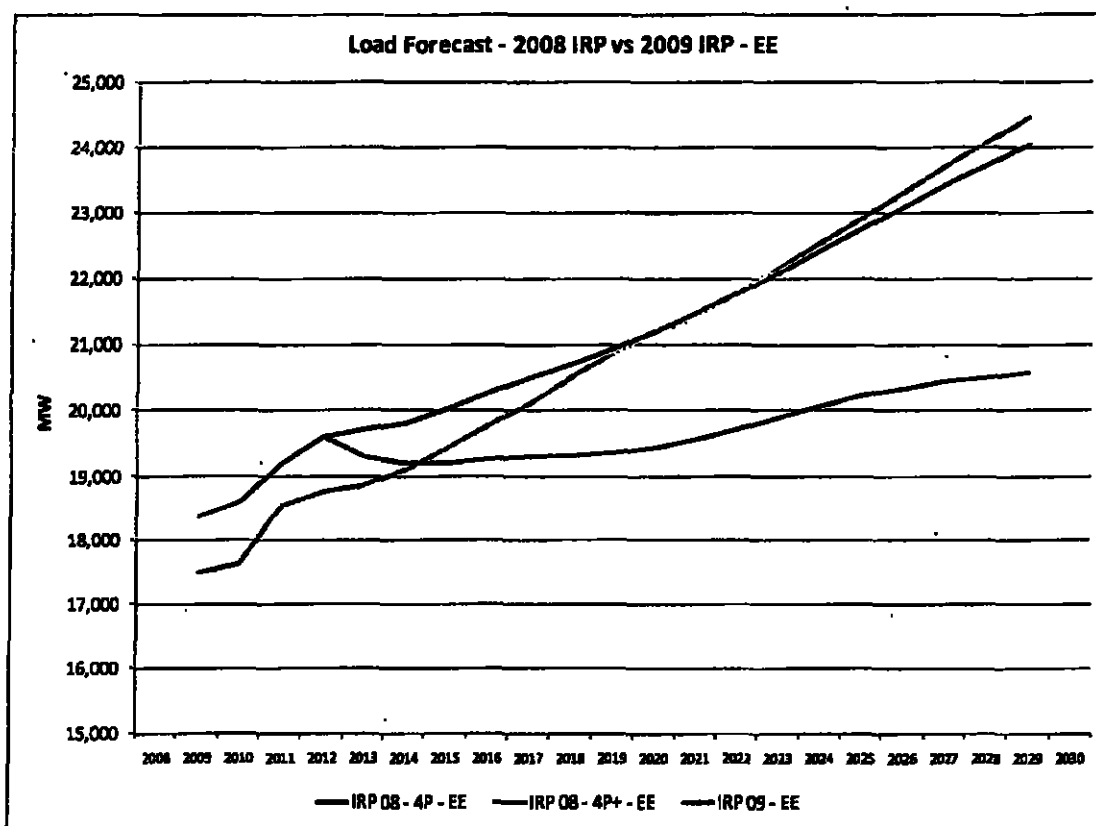
10 **Q. WHAT ARE THE MAJOR CHANGES FROM THE 2008 IRP TO THE**  
11 **REVISED 2009 IRP?**

12 **A.** Four major changes from the 2008 IRP to the Revised 2009 IRP involved the load  
13 forecast, energy efficiency, retirements and nuclear escalation rates. An explanation  
14 of each of these changes is described below.

15 • Load Forecast – Company Witness Riddle discusses the changes in the load  
16 forecast between the 2008 IRP and the Revised 2009 IRP. As noted by Mr.  
17 Riddle, the Company began to incorporate the expected impact of greenhouse gas  
18 ("GHG") regulation in the 2009 load forecast. However, my group created an  
19 estimate of the impact of GHG on the 2008 forecast in order to perform the  
20 Higher Carbon case analyses in the 2008 IRP. The 2008 Carbon Impact forecast  
21 was lower than the 2009 load forecast, which included the impact of GHG. The  
22 2009 forecast is, I believe, a more accurate representation of the impact of GHG  
23 on customer loads. In particular, the 2008 forecast for the Higher Carbon cases

assumed no allocation of carbon allowances to utilities, resulting in higher costs to customers, and thus, reduced usage and a lower forecast. Also, the 2008 forecast likely "double counted" energy efficiency impacts by not recognizing that a response of customers to higher costs would be additional participation in the Company's energy efficiency programs. Other differences from the 2008 IRP include additional wholesale customers and some market penetration of plug in hybrid vehicles. An illustration of the 2008 and 2009 load forecast is shown in McMurry Graph 2 below.

McMurry Graph 2



- Energy Efficiency – Both the 2008 and the Revised 2009 IRPs included energy efficiency based on pursuit of the Company's energy efficiency plan as proposed

1 in Docket No. E-7, Sub 831. The 2009 load forecast with energy efficiency  
 2 incorporated the impact on proposed programs of the settlement agreement  
 3 ultimately approved in that docket. The agreement establishes goals increasing  
 4 energy saving by approximately 50%, which were incorporated into the Revised  
 5 2009 IRP. (See further discussion below.) However, through measure and  
 6 verification of the comparable programs in other jurisdictions, it was determined  
 7 that the some of the benefits of the lighting program occurred later in the evening  
 8 than when the peak load occurred, thereby reducing the contribution to peak load  
 9 demand. Company Witness Stevie also discusses these results. Thus, the  
 10 contribution to peak load reflected in the Revised 2009 IRP is lower than shown  
 11 in the 2008 IRP (See McMurry Table 2 below).

12 McMurry Table 2

Reference	Contribution to Peak Load	Energy Impact
2008 IRP	1,800 MW	2,200 GW-hrs
2009 IRP	1,583 MW	3,800 GW-hrs

- 13 • Retirement Assumptions – The assumed retirement dates of the old fleet  
 14 combustion turbines at Buck Steam Station, Dan River Steam Station, Riverbend  
 15 Steam Station and Buzzard Roost Combustion Turbine Station were accelerated  
 16 from 2014-2015 timeframe to June 2012 based on de-rates documented in 2009,  
 17 availability of replacement parts, and the general condition of the units. Also, the  
 18 remaining coal units without scrubbers at Buck Steam Station Units 5 & 6 and  
 19 Lee Steam Station Units 1-3 were assumed to be retired in 2020, based on the  
 20 continued increased regulatory scrutiny from an air, water and waste perspective.

1 This accounts for an additional 625 MW of generation that was assumed to be  
2 retired in the Revised 2009 IRP versus the 2008 IRP.

3 • Nuclear Project Escalation – The development period for the 2008 IRP was a  
4 high inflationary period for major construction projects. For this reason, the  
5 estimated nuclear project escalation rate used in the 2008 IRP was 6% through  
6 2011 and 4% for the remainder of the project. However, the recessionary impacts  
7 in 2009 have reduced the forecasted inflationary impacts on major construction  
8 projects. As such, for the Revised 2009 IRP, the assumed project escalation rate  
9 for the entire project is 2.5%.

10 **Q. SPECIFICALLY, WHAT DID THE REVISED 2009 IRP CONCLUDE AS TO**  
11 **NEED FOR AND TIMING OF NEW NUCLEAR GENERATION?**

12 **A.** The Revised 2009 IRP strongly supports new nuclear generation as the best option  
13 to meet our customers' needs for future baseload generation under all scenarios  
14 analyzed; it is highly efficient and does not emit greenhouse gases. The Revised  
15 2009 IRP findings favor both regional generation and a commercial operation date  
16 ("COD") for Lee Nuclear Station in the 2018 to 2021 time frame. This benefits our  
17 customers by providing time to (1) secure regional partnerships which allows  
18 costs to be spread between the partners (larger customer base), which keeps  
19 customer costs lower; and (2) seek cost recovery of project financing costs in  
20 North Carolina as they are incurred which lessens rate impact to customers. Our  
21 credit rating agencies view this as essential to moving forward with new nuclear,  
22 and it keeps our financing rates lower, which lowers total project costs.

1 Q. DID DUKE ENERGY CAROLINAS CONSIDER ENERGY EFFICIENCY  
2 AND DEMAND-SIDE RESOURCES IN THE REVISED 2009 IRP?

3 A. Yes. As discussed by Company Witness Stevie, projected load impacts for energy  
4 efficiency and demand-side resources were developed for the base case based on  
5 the terms of the settlement of the Application of Duke Energy Carolinas, LLC for  
6 Approval of Save-a-Watt Approach, Energy Efficiency Rider and Portfolio of  
7 Energy Efficiency Programs, Docket E-7, Sub 831, that was recently approved by  
8 the Commission. The conservation impacts were assumed at 85% of the target  
9 impacts from the terms of the proposed settlement. The projected load impacts  
10 from the conservation programs were based upon three bundles of the save-a-watt  
11 portfolio of programs. This was accomplished by allowing a new bundle to enter  
12 every four years. The projected load impacts from the DSM programs are based  
13 upon the continuing as well as the new demand response programs. This level of  
14 DSM/EE accomplishments was cost-effective in the screening stage of the analysis  
15 and thus was included in all portfolios.

16 In addition, a high case scenario was developed which uses the full target  
17 impacts of the save-a-watt bundle of programs for the first five years and then  
18 increases the load impacts at 1% of retail sales every year after that until the load  
19 impacts reach the economic potential identified by the 2007 market potential  
20 study. This level of DSM/EE accomplishments was also cost-effective.

21 Q. DID DUKE ENERGY CAROLINAS CONSIDER RENEWABLE ENERGY  
22 RESOURCES?

23 A. Yes. As discussed by Company Witness Smith in his testimony, the Company  
24 filed its Renewable Energy and Energy Efficiency Portfolio Standard ("REPS")



1 Compliance Plan along with the 2009 IRP on September 1, 2009. REPS, and the  
2 related statutory and regulatory compliance planning requirements, resulted from  
3 the passage of Session Law 2007-397 ("Senate Bill 3"), which requires each of the  
4 State's electric public utilities to meet certain statutory percentages of its retail  
5 load through renewable energy and energy efficiency resources.

6 With the passage of Senate Bill 3, Duke Energy Carolinas modified its  
7 consideration of renewable energy resources. In previous IRPs, resources were  
8 screened on economics. Therefore, renewable resources were screened out as a  
9 result of their higher cost than traditional supply-side resources. In the Revised  
10 2009 IRP, the level of renewable resources necessary for compliance with the  
11 REPS statute (N.C. Gen. Stat. § 62-133.8) and Commission rules in North Carolina  
12 was included in each portfolio. The assumptions for planning purposes are as  
13 follows:

14 Overall Requirements/Timing

- 15 • 3% of 2011 load by 2012
- 16 • 6% of 2014 load by 2015
- 17 • 10% of 2017 load by 2018

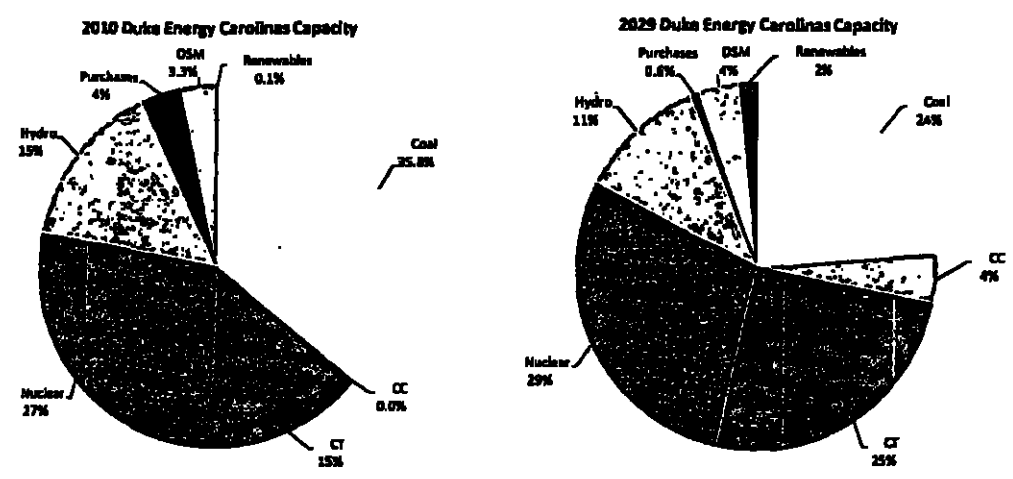
18 12.5% of 2020 load by 2021A portion of the REPS requirements also was assumed  
19 to be provided by EE, co-firing biomass in some of Duke Energy Carolinas'  
20 existing units, and by purchasing Renewable Energy Certificates from out of state,  
21 as permitted by the statute and Commission rules. The overall requirements were  
22 applied to all retail loads and legacy Schedule 10A customers served by Duke  
23 Energy Carolinas. The requirement that a certain percentage of generation must

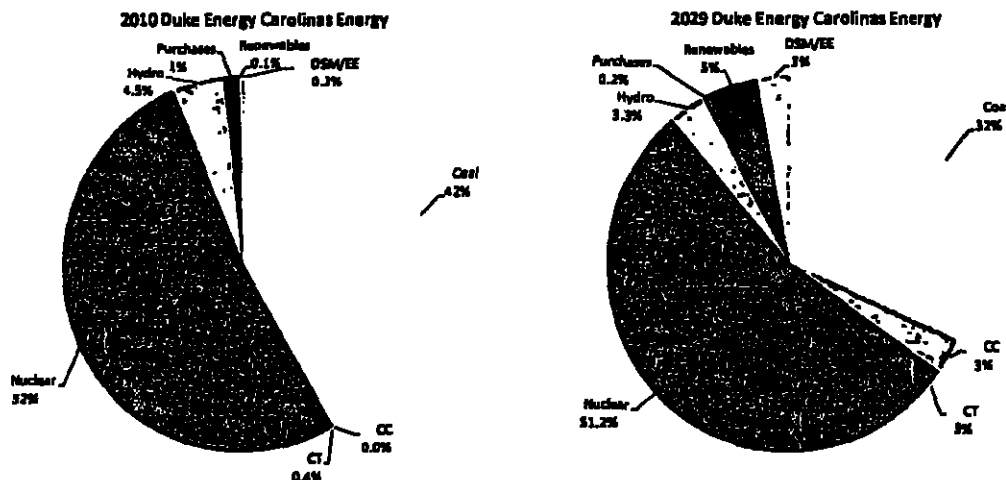
1 come from solar, swine waste and poultry waste resources was not applied to the  
2 South Carolina allocable portion. The Revised 2009 IRP includes 171 MW of on  
3 peak contribution from renewable energy by 2012 and approximately 458 MW by  
4 2029.

5 **Q. PLEASE DESCRIBE DUKE ENERGY CAROLINAS' EXISTING**  
6 **GENERATION RESOURCE PORTFOLIO MIX.**

7 **A.** Duke Energy Carolinas' generation portfolio is composed of over 21,000 MWs of  
8 generation capacity. As shown on the charts below in McMurry Graph 2, while  
9 Duke Energy Carolinas' capacity mix is roughly one-third coal, one-third nuclear,  
10 and one-third hydroelectric and gas-fired, the energy mix is roughly 50% nuclear  
11 and 40% coal-fired generation.

12 **McMurry Graph 2**





1 Q. HOW DOES BUILDING ADDITIONAL NUCLEAR GENERATION  
2 AFFECT THE DIVERSITY OF THE PORTFOLIO?

3 A. As noted above, Duke Energy Carolinas is planning on adding significant amounts  
4 of renewable and DSM/EE resources. Even with these efforts which would add  
5 significant levels of additional DSM/EE and renewable energy, as well as the  
6 addition of the 825 MW new advanced clean coal Cliffside unit, significant  
7 generation resources are needed to meet customer demands. If additional nuclear  
8 or coal capacity is not added, the only feasible generation alternative is natural gas-  
9 fired generation and continued operation of older, less efficient coal-fired  
10 generation. The addition of the Lee Nuclear Station will mean less dependence on  
11 natural gas or coal-fired generation. The continued development of Lee Nuclear  
12 would allow for continued diversification of resources, which is a benefit to all  
13 customers.

14 Q. HOW DO THE CONCLUSIONS FROM THE REVISED 2009 IRP  
15 COMPARE TO THOSE OF THE 2008 IRP?

1 A. The Revised 2009 IRP still supports the need for the Cliffside Unit 6 and the new  
2 Combined Cycle units at Buck and Dan River prior to 2015. However, the impact  
3 of the recession on load demand has (1) impacted the need to phase-in the Buck  
4 Combined Cycle unit so that the Combustion Turbine portion will not be operable  
5 during the summer of 2011; and (2) delayed the need for the Dan River Combined  
6 cycle until the summer of 2013. Additionally, the Revised 2009 IRP, as well as  
7 the 2008 IRP, strongly supports the need for the Lee Nuclear Station as a critical  
8 part of Duke Energy Carolinas' resource mix. In sum, with the inclusion of the  
9 updated information for the Revised 2009 IRP, the basic conclusions of the 2008  
10 IRP remain unchanged.

11 Q. **DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

12 A. Yes, it does.

1 BY MS. NICHOLS:

2 Q. Mr. Riddle -- well, we can go -- we can go in  
3 order. You're there. Dr. Stevie, please state your name  
4 and address for the record.

5 A. My name is Richard G. Stevie. I am employed at  
6 139 East Fourth Street, Cincinnati, Ohio.

7 Q. And what is your role with Duke Energy?

8 A. I'm managing director of customer market  
9 analytics.

10 Q. And contrary to Mr. McMurry, is it fair to say  
11 you're a -- you've been sitting in this seat before?

12 A. Several times unfortunately.

13 Q. Did you cause to be prefiled in this docket direct  
14 testimony consisting of 21 pages and one exhibit?

15 A. Yes.

16 Q. And on March 9, 2010, did you cause to be filed a  
17 revised page 19 and 20 of that direct testimony?

18 A. Yes.

19 Q. Can you please explain the purpose of the revised  
20 pages?

21 A. It was really to update the two tables, one on  
22 each -- one on page 19, one on page 20, that did not  
23 properly reflect the amount of demand response that was  
24 included in the January 10th -- or the January filing of

1 the revised 2009 IRP.

2 Q. And other than those, do you have any other  
3 changes to your prefiled testimony?

4 A. No, I do not.

5 MS. NICHOLS: I would ask that Dr. Stevie's  
6 prefiled testimony as corrected be copied into the record  
7 as if given orally from the stand and his exhibit be  
8 marked for identification.

9 COMMISSIONER CULPEPPER: Motion is allowed. The  
10 prefiled direct testimony as amended is copied into the  
11 record word for word as if it were given orally and read  
12 from the witness stand. The witness' exhibit is  
13 identified as marked when filed.

14 (Whereupon, the prefiled amended direct  
15 testimony of Richard G. Stevie, will be  
16 reproduced in the record at this point the  
17 same as if the questions had been orally  
18 asked and the answers orally given from the  
19 witness stand.)

20  
21 (Whereupon, Stevie Exhibit No. 1 was marked  
22 for identification.)

23

24

**I. INTRODUCTION AND PURPOSE**

1  
2 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, BY WHOM YOU**  
3 **ARE EMPLOYED, AND IN WHAT CAPACITY.**

4 **A.** My name is Richard G. Stevie. My business address is 139 E. Fourth St.,  
5 Cincinnati, Ohio. I am Managing Director of Customer Market Analytics for  
6 Duke Energy Business Services LLC ("Duke Energy Business Services"), a  
7 wholly-owned service company subsidiary of Duke Energy Corporation ("Duke  
8 Energy"). Duke Energy Business Services provides various administrative  
9 services to Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the  
10 "Company") and other Duke Energy affiliates including Duke Energy Ohio, Inc.,  
11 Duke Energy Indiana, Inc., and Duke Energy Kentucky, Inc.

12 **Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AND**  
13 **RESPONSIBILITIES AS MANAGING DIRECTOR OF THE CUSTOMER**  
14 **MARKET ANALYTICS DEPARTMENT.**

15 **A.** I have responsibility for several functional areas including load forecasting,  
16 demand side management ("DSM") analysis, customer survey research, market  
17 analytics, customer data analysis, load research, and load management analytics.  
18 The Customer Market Analytics Department is responsible for providing  
19 functional analytical support to Duke Energy Carolinas as well as the other Duke  
20 Energy affiliates previously mentioned.

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1 Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND  
2 AND BUSINESS EXPERIENCE.

3 A. I received a Bachelor's degree in Economics from Thomas More College in May  
4 1971. In June 1973, I was awarded a Master of Arts degree in Economics from  
5 the University of Cincinnati. In August 1977, I received a Ph.D. in Economics  
6 from the University of Cincinnati.

7 My past employers include the Cincinnati Water Works where I was  
8 involved in developing a new rate schedule and forecasting revenues, the United  
9 States Environmental Protection Agency's Water Supply Research Division  
10 where I was involved in the research and development of a water utility  
11 simulation model and analysis of the economic impact of new drinking water  
12 standards, and the Economic Research Division of the Public Staff of the North  
13 Carolina Utilities Commission where I presented testimony in numerous utility  
14 rate cases involving natural gas, electric, telephone, and water and sewer utilities  
15 on several issues including rate of return, capital structure, and rate design. In  
16 addition, I was involved in the Public Staff's research effort and presentation of  
17 testimony regarding electric utility load forecasting. This included the  
18 development of electric load forecasts for the major electric utilities in North  
19 Carolina. I also was involved in research concerning cost curve estimation for  
20 electricity generation, rate setting, and separation procedures in the telephone  
21 industry, and the implications of financial theory for capital structures, bond  
22 ratings, and dividend policy. In July 1981, I became the Director of the Economic



1           Research Division of the Public Staff with the responsibility for the development  
2           and presentation of all testimony of the Division.

3           In November 1982, I joined the Load Forecast Section of The Cincinnati  
4           Gas & Electric Company ("CG&E"). My primary responsibility involved  
5           directing the development of CG&E's Electric and Gas Load Forecasts. I also  
6           participated in the economic evaluation of alternate load management plans and  
7           was involved in the development of CG&E's Integrated Resource Plan ("IRP"),  
8           which integrated the load forecast with generation options and demand-side  
9           options.

10           With the reorganization after the merger of CG&E and PSI Energy, Inc. in  
11           late 1994, I became Manager of Retail Market Analysis in the Corporate Planning  
12           Department of Cinergy Services and subsequently General Manager of Market  
13           Analysis with responsibility for the load forecasting, load research, DSM impact  
14           evaluation, and market research functions of Cinergy Corporation. After the  
15           merger of Cinergy Corp. and Duke Energy in 2006, I became the General  
16           Manager of the Market Analysis Department with responsibility for several areas  
17           including load forecasting, load research, market research, DSM strategy and  
18           analysis, load management development, and business development analytics.  
19           Since then, I have become the Managing Director of the Customer Market  
20           Analytics Department.

21           Since 1990, I have chaired the Economic Advisory Committee for the  
22           Greater Cincinnati Chamber of Commerce. I have been a part-time faculty  
23           member of Thomas More College located in Northern Kentucky and the

1 University of Cincinnati teaching undergraduate courses in economics. In  
2 addition, I am an outside adviser to the Applied Economics Research Institute in  
3 the Department of Economics at the University of Cincinnati as well as a member  
4 of an advisory committee to the Economics Department at Northern Kentucky  
5 University.

6 **Q. ARE YOU A MEMBER OF ANY PROFESSIONAL ORGANIZATIONS?**

7 **A.** Yes, I am a member of the American Economic Association, the National  
8 Association of Business Economists, and the Association of Energy Services  
9 Professionals.

10 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE ANY**  
11 **REGULATORY AGENCIES?**

12 **A.** Yes. I have presented testimony on several occasions before the North Carolina  
13 Utilities Commission (the "Commission"), the South Carolina Public Service  
14 Commission, the Kentucky Public Service Commission, the Indiana Utility  
15 Regulatory Commission, and the Public Utilities Commission of Ohio.

16 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
17 **PROCEEDING?**

18 **A.** My testimony summarizes actions taken by Duke Energy Carolinas to develop  
19 energy efficiency and demand response programs for the "demand side" of the  
20 meter. I also describe Duke Energy Carolina's current regulated DSM programs,  
21 discuss alternative DSM cases provided to Company Witness Mc Murry for the  
22 IRP analysis, and review the impact of Duke Energy Carolinas' DSM programs  
23 on the load forecast.

1 Q. PLEASE DESCRIBE THE EXHIBIT TO YOUR TESTIMONY.

2 A. Stevie Exhibit No. 1 provides a matrix of the components of each test Duke  
3 Energy Carolinas uses to screen energy efficiency measures for cost-  
4 effectiveness.

5 Q. WAS THIS EXHIBIT PREPARED BY YOU OR AT YOUR DIRECTION  
6 AND UNDER YOUR SUPERVISION?

7 A. Yes.

8 II. ANALYSIS OF ENERGY EFFICIENCY PROGRAMS

9 Q. HOW WERE DUKE ENERGY CAROLINAS' ENERGY EFFICIENCY  
10 PROGRAMS DEVELOPED?

11 A. Duke Energy Carolinas developed its portfolio of programs in collaboration with  
12 interested stakeholders (the "Collaborative"). The energy efficiency and demand-  
13 side management programs and measures considered by the Company and the  
14 Collaborative included (i) programs already offered and tested by Duke Energy  
15 Carolinas' affiliate utility operating companies, (ii) new programs that were  
16 recommended to the Collaborative, and (iii) existing programs offered by Duke  
17 Energy Carolinas. The Company then analyzed each potential program, applying  
18 multiple cost-effectiveness tests using the DSMore Model to compile the list of  
19 energy efficiency programs.

20 The Company's list of energy efficiency and DSM programs are as  
21 follows:

1           **RESIDENTIAL CUSTOMER PROGRAMS**

- 2           •     Residential Energy Assessments
- 3           •     Smart Saver<sup>®</sup> for Residential Customers
- 4           •     Low Income Services
- 5           •     Energy Efficiency Education Program for Schools
- 6           •     Power Manager

7           **NON-RESIDENTIAL CUSTOMER PROGRAMS**

- 8           •     Non-Residential Energy Assessments
- 9           •     Smart Saver<sup>®</sup> for Non-Residential Customers
- 10          •     PowerShare<sup>®</sup>

11    Q.    **DID DUKE ENERGY CAROLINAS CONDUCT A MARKET POTENTIAL**  
12           **STUDY ON ENERGY EFFICIENCY PROGRAM POTENTIAL?**

13    A.    Duke Energy Carolinas commissioned a Market Potential Study in 2007 to  
14           ascertain the level of cost-effective energy efficiency that might be achieved.

15    Q.    **WHAT IS THE PURPOSE OF THE MARKET POTENTIAL STUDY?**

16    A.    The purpose of the Market Potential Study is to provide estimates of the market  
17           potential for energy efficiency for Duke Energy Carolinas customers. The study  
18           provided estimates of the technical, economic, and market potentials for energy  
19           efficiency.

20               The technical potential is defined as the amount of energy efficiency that  
21           could be obtained if all energy efficiency measures were adopted without regard  
22           to costs. This level of savings represents the upper limit of energy efficiency  
23           opportunity.

1           The economic potential is defined as the total energy savings available at a  
2           specified long-term avoided cost of energy. Measures with levelized costs that  
3           are lower than the avoided cost are included in estimates of economic potential.

4           The market potential is defined as the total energy savings available from  
5           all programs recommended in the Market Potential Study, considering cost-  
6           effectiveness and adoption rates. In evaluating the market potential, the  
7           recommended programs must have passed a rigorous cost-effectiveness review or  
8           were recommended for research or societal purposes.

9           The study was completed and indicated an economic potential for energy  
10          efficiency for NC of 19% over the next twenty years and a market potential of  
11          1.6% over the next five years. This means that the market potential for energy  
12          efficiency is estimated to be 1.6% of retail sales over the five year period. Even  
13          though the economic potential may be 19%, that just means it is cost effective, not  
14          that it is actually achievable or that consumers will decide to participate.  
15          Consumers have numerous choices to make and the decision on their level of  
16          energy efficiency is just one of them. For example, it may be cost-effective for a  
17          consumer to buy a new car or to start a new business. Just because it is cost-  
18          effective does not mean it happens. That is why the market potential is important  
19          – because it is the estimate of what is considered achievable.

20          One other point to note is that this study was completed before the passage  
21          of the Energy Independence and Security Act, which effectively banned  
22          incandescent lights. As a result, by the year 2013, the economic potential  
23          estimate is slightly overstated.

1 Q. WHAT IS THE DSMore MODEL?

2 A. DSMore is a financial analysis tool designed to evaluate the costs, benefits, and  
3 risks of energy efficiency programs and measures. DSMore estimates the value  
4 of an energy efficiency measure at an hourly level across distributions of weather  
5 and/or energy costs or prices. By examining energy efficiency performance and  
6 cost-effectiveness over a wide variety of weather and cost conditions, the  
7 Company is in a better position to measure the risks and benefits of employing  
8 energy efficiency measures versus traditional generation capacity additions, and  
9 further, to ensure that demand-side resources are compared to supply-side  
10 resources on a level playing field.

11 The analysis of energy efficiency cost-effectiveness traditionally has  
12 focused primarily on the calculation of specific metrics, often referred to as the  
13 California Standard tests: Utility Cost Test ("UCT"), Ratepayer Impact Measure  
14 ("RIM") Test, Total Resource Cost ("TRC") Test, Participant Test, and Societal  
15 Test. DSMore provides the results of those tests for any type of energy efficiency  
16 program (*demand response and/or energy saving*).

17 The test results are provided for a range of weather conditions, including  
18 normal weather, and under various cost and market price conditions. Because  
19 DSMore is designed to be able to analyze extreme conditions, one can obtain a  
20 distribution of cost-effectiveness outcomes or expectations. Avoided costs for  
21 energy efficiency tend to increase with increasing market prices or more extreme  
22 weather conditions as a result of the covariance between load and costs.  
23 Understanding the manner in which energy efficiency cost-effectiveness varies

1 under these conditions allows a more precise valuation of energy efficiency  
2 programs and demand response programs.

3 Generally, the DSMore model requires the user to input specific  
4 information regarding the energy efficiency measure or program to be analyzed as  
5 well as the cost and rate information of the utility. These inputs enable one to  
6 then analyze the cost-effectiveness of the measure or program.

7 **III. MODEL ASSUMPTIONS**

8 **Q. WHAT ENERGY EFFICIENCY AND DEMAND-SIDE MANAGEMENT**  
9 **PROGRAM OR MEASURE INFORMATION IS INPUT INTO THE**  
10 **MODEL?**

11 **A.** The information required on an energy efficiency or demand-side management  
12 program or measure includes, but is not limited to:

- 13 • Number of program participants, including free ridership or free drivers
- 14 • Projected program costs, contractor costs, and/or administrative costs
- 15 • Customer incentives, demand-side management credits, or other  
16 incentives
- 17 • Measure life, incremental customer costs, and/or annual maintenance costs
- 18 • Load impacts (kWh, kW, and the hourly timing of reductions)
- 19 • Hours of interruption, magnitude of load reductions, or load floors

20 **Q. WHAT UTILITY INFORMATION IS INPUT INTO THE MODEL?**

21 **A.** The utility information required for the model includes, but is not limited to:

- 22 • Discount rate
- 23 • Loss ratio, either for annual average losses or peak losses

#### 4 Q. HOW ARE PROGRAMS OR MEASURES MODELED?

5     A.     An analyst or program manager develops the inputs for the program or measure  
6           using information on expected program costs, load impacts, customer incentives  
7           necessary to drive customers' participation, free rider expectations, and expected  
8           number of participants. This information is used in initial runs of the model to  
9           determine cost-effectiveness and whether adjustments need to be made to a  
10          program or measure in order for it to pass the participant test, the first critical test.

11 Then, the load impacts of the program or measure may be analyzed as a  
12 percent of savings reduction from the current level of use, as a proportion of the  
13 load shape for the customer, or as an hourly reduction in kWh and/or kW. These  
14 approaches apply to energy saving programs and measures. For demand-side  
15 management programs, the analyst must provide information on the amount of the  
16 expected load reduction and the possible timing of the reduction.

17 Q. WHAT IS THE SOURCE OF THE DATA FOR THE PROGRAM OR  
18 MEASURE?

19 A. Program managers and analysts develop the inputs for each program or measure  
20 from industry information derived from sources such as Electric Power Research  
21 Institute, Energy Star, E-Source, other utility program information, as well as  
22 from external experts in the industry. Over time, as impact and process  
23 evaluations are performed on Duke Energy Carolinas program results,



1 information and input specifically related to Duke Energy Carolinas customers  
2 will begin to emerge and be used within future cost-effectiveness analyses.

3 **Q. WHAT IS THE SOURCE FOR THE UTILITY INPUTS TO THE MODEL?**

4 **A.** All of the utility inputs are the same as those used in the analyses for the save-a-  
5 watt set of programs reviewed in Docket No. E-7, Sub 831. This includes the loss  
6 ratio, the discount rate, and the estimates for avoided costs of capacity, energy,  
7 and transmission and distribution.

8 **IV. COST-EFFECTIVENESS TESTS**

9 **Q. PLEASE DESCRIBE HOW ENERGY EFFICIENCY AND DEMAND-SIDE**  
10 **MANAGEMENT PROGRAMS AND MEASURES ARE ANALYZED.**

11 **A.** The net present value of the financial stream of costs versus benefits is assessed,  
12 *i.e.*, the costs to implement the measures are valued against the savings or avoided  
13 costs. The resultant benefit/cost ratios, or tests, provide a summary of the  
14 measure's cost-effectiveness relative to the benefits of its projected load impacts.  
15 As previously mentioned, the Participant Test is the first screen for a program or  
16 measure to make sure a program makes economic sense for the individual  
17 consumer. Duke Energy Carolinas also uses the UCT, the TRC, and the RIM Test  
18 for screening energy efficiency measures.

- 19 • The Participant Test compares the benefits to the participant through bill  
20 savings and incentives from the utility, relative to the costs to the  
21 participant for implementing the energy efficiency or demand-side  
22 management measure. The costs can include capital cost as well as  
23 increased annual operating cost, if applicable.

1       •     The UCT compares utility benefits (avoided costs) relative to incurred  
2             utility costs to implement the program, and does not consider other  
3             benefits such as participant savings or societal impacts. This test  
4             compares the cost (to the utility) to implement the measures with the  
5             savings or avoided costs (to the utility) resulting from the change in  
6             magnitude and/or the pattern of electricity consumption caused by  
7             implementation of the program. Avoided costs are considered in the  
8             evaluation of cost-effectiveness based on the projected cost of power,  
9             including the projected cost of the utility's environmental compliance for  
10            known regulatory requirements. The cost-effectiveness analyses also  
11            incorporate avoided transmission and distribution costs, and load (line)  
12            losses.

13       •     The TRC test compares the total benefits to the utility and to participants  
14             relative to the costs to the utility to implement the program along with the  
15             costs to the participant. The benefits to the utility are the same as those  
16             computed under the UCT. The benefits to the participant are the same as  
17             those computed under the Participant Test; however, customer incentives  
18             are considered to be a pass-through benefit to customers. As such,  
19             customer incentives or rebates are not included in the TRC.

20       •     The RIM Test, or non-participants test, indicates if rates increase or  
21             decrease over the long-run as a result of implementing the program.

22             The use of multiple tests can ensure the development of a reasonable set of  
23             energy efficiency and demand-side management programs, indicate the likelihood

1 that customers will participate, and also protect against cross-subsidization.  
 2 Stevie Exhibit No. 1 provides a matrix of the components included in each test. It  
 3 also should be noted that none of the tests described above include external  
 4 benefits to participants and non-participants that can also offset the costs of the  
 5 programs.

6 **Q. WHAT WERE THE RESULTS OF THE PROGRAM COST-EFFECTIVENESS ANALYSES?**

8 A. The table attached below contains the cost-effectiveness test results for each  
 9 program. These cost-effectiveness tests incorporate the avoided energy costs  
 10 previously discussed. In general, the customer programs pass the UCT and TRC  
 11 cost-effectiveness tests, but not the RIM test. For the residential and non-  
 12 residential customer programs, all measures tested are included in the programs.

Program Cost Effectiveness Test Results				
	Utility Test	TRC Test	RIM Test	Participant Test
<b>RESIDENTIAL CUSTOMER PROGRAMS</b>				
• Residential Energy Assessments	2.56	2.56	0.74	NA
• Residential Smart Saver® Energy Efficiency	3.33	2.48	0.79	5.32
• Low Income Services Agency Kits	5.74	5.74	0.84	NA
• Low Income Weatherization	0.37	0.37	0.28	NA
• Energy Efficiency Education Program for Schools	3.10	3.10	0.82	NA
• Power Manager	7.55	145.01	7.55	NA
<b>NON-RESIDENTIAL CUSTOMER PROGRAMS</b>				
• Non-Residential Energy Assessments	NA	NA	NA	NA
• Smart Saver® for Non-Residential Customers	2.85	1.79	1.12	2.41
• Power Share®	4.23	124.12	4.23	NA

13 **V. ENERGY EFFICIENCY AND DEMAND-SIDE MANAGEMENT**

14 **Q. PLEASE BRIEFLY DESCRIBE DUKE ENERGY CAROLINAS'**  
 15 **CURRENT ENERGY EFFICIENCY AND DSM PROGRAMS.**

16 A. Duke Energy Carolinas is pursuing the implementation of the following set of  
 17 programs, which were approved by the Commission in Docket No. E-7, Sub 831:

- 1       •     **Residential Energy Assessments**  
2       --Offers energy audits to residential customers on-site, on-line, or through  
3       the mail.
  
- 4       •     **Low Income Services**  
5       --Assists low income residential customers with energy efficiency kits or  
6       assistance with equipment cost or weatherization measures.
  
- 7       •     **Energy Efficiency Education Program for Schools**  
8       --Educates students about energy efficiency in homes and schools and  
9       provides energy audits.
  
- 10      •     **Smart Saver® for Residential Customers**  
11      --Provides incentives for the installation of energy efficiency equipment  
12      such as air conditioners, heat pumps, and compact fluorescent lights.
  
- 13      •     **Non-Residential Energy Assessments**  
14      --Assists non-residential customers in assessing their energy usage and  
15      provides recommendations for improved efficiency.
  
- 16      •     **Smart Saver® for Non-Residential Customers**  
17      --Provides incentives to offset a portion of the higher cost of energy  
18      efficiency equipment in new and existing non-residential establishments.  
19      Incentives may also be provided for non-standard equipment on a case-by-  
20      case basis.
  
- 21      Duke Energy Carolinas is pursuing the implementation of demand-side  
22      management programs through offering the following programs:
  
- 23      •     **Power Manager Program**  
24      --Provides billing credits to residential customers for the ability to cycle  
25      air conditioners and to interrupt central air conditioning when the  
26      Company has a capacity need.
  
- 27      •     **Power Share® Program**  
28      --Provides capacity based incentives to non-residential customers for the  
29      amount of load they agree to curtail during utility-initiated emergency  
30      events. Energy credits are also provided for curtailed load from an event.
  
- 31      Duke Energy Carolinas also continues to utilize load reduction capability obtained  
32      under Riders IS and SG (North Carolina only) and Rate HP (Hourly Pricing).

1 Q. ARE THE CURRENT ENERGY EFFICIENCY AND DSM PROGRAMS  
2 THE BASIS FOR THE LOAD IMPACTS UTILIZED BY COMPANY  
3 WITNESS MC MURRY IN HIS ANALYSES?

4 A. Yes. The projected impacts from the current programs represent the Base Case  
5 load impacts provided to Mr. Mc Murry for use in his analyses. The projected  
6 energy efficiency and DSM impacts assume that the current set of DSM programs  
7 remain in place over the forecast horizon. It should be mentioned that the Base  
8 Case relies upon the bundle of programs approved under the Company's save-a-  
9 watt energy efficiency program. Those programs have been approved by the  
10 Commission for a four-year period. Under the Base Case, it is assumed that the  
11 energy efficiency programs continue for two additional four-year periods or  
12 "bundles", for a total of twelve years. It is this twelve year projection of energy  
13 efficiency impacts that comprise the Base Case used in witness Mc Murray's  
14 analysis.

15 This twelve year projection of load impacts assumes that the impacts from  
16 the first four-year bundle of programs are replicated in additional bundles, each of  
17 which starts after the prior one ends. In other words, the load reduction impacts  
18 from the second bundle begin in the fifth year of the analysis and the impacts  
19 from the third bundle begin in the ninth year of the analysis, *i.e.*, the start of each  
20 has a four year lag. The inclusion of additional bundles applies to the energy  
21 efficiency programs only because the DSM or demand response programs reach a  
22 maximum level in the first bundle.

1           The approach for the Base Case is the same for the 2008 and 2009 plans.  
2           However, for the development of the 2009 IRP (as originally filed on September  
3           1, 2009 and as updated with the filing of this testimony ("Revised 2009 IRP")) the  
4           projection of energy efficiency impacts differs for three reasons. First, the start of  
5           the programs was delayed to the middle of 2009, consistent with the Commission  
6           order approving the implementation of the programs. Second, the energy  
7           efficiency impacts were scaled up in the third and fourth years to be consistent  
8           with the requirements of the settlement agreement in the recently completed  
9           proceeding on the Company's save-a-watt recovery mechanism. However, also  
10          consistent with that agreement, it was assumed that the Company would include  
11          eighty-five percent of the revenue requirements in the computation of the  
12          recovery rider. As a result, for the Base Case, the Company included eighty-five  
13          percent of the projected load impacts. And third, new information on the load  
14          shape associated with hourly load savings from the installation of compact  
15          fluorescent light bulbs has been incorporated into the projection of the coincident  
16          peak load impacts. This new information results in a reduction in the level of  
17          energy efficiency peak savings projected for the Revised 2009 IRP as compared  
18          to the 2008 IRP. A summary of the Base Case projected energy efficiency load  
19          impacts is provided on page 47 of the Revised 2009 IRP.

20   **Q.   REGARDING THE COMMISSION'S NOTICE OF DECISION IN**  
21   **DOCKET NO. E-7, SUB 831, PLEASE SUMMARIZE THE**  
22   **COMMISSION'S REQUEST OF THE COMPANY FOR THIS**  
23   **PROCEEDING.**

1 A. The Commission requested that "the information and tables presented in the  
2 Company's IRP plan properly reflect the most recent and appropriate information  
3 regarding Duke's EE and DSM goals."

4 Q. WHAT ARE DUKE ENERGY CAROLINAS' EE AND DSM GOALS  
5 RELATIVE TO THE IMPACTS INCLUDED IN THE 2009 IRP?

6 A. In Docket No. E-7, Sub 831, the Company proposed the following goals for the  
7 first four years of the save-a-watt program:

EE and DSM Goals		
Docket No.E-7, Sub 832		
	EE MWH	EE & DSM MW
Year 1	234,132	368
Year 2	490,634	548
Year 3	872,548	736
Year 4	1,439,742	844

8 It is important to understand that these MWh goals represent annualized levels of  
9 impacts. In other words, this means that the customer participants in the energy  
10 efficiency programs are on-line the full year. The use of annualized levels is an  
11 outfall of the modeling process that assesses cost-effectiveness of the annual  
12 participants and impacts.

13 For the IRP, participants and load impacts are assumed to escalate linearly  
14 through the year to better align impacts when they are likely to happen. As a  
15 result, the full number of participants and the annual run rate of impacts are not  
16 reached until the end of the year, instead of assumed to be there all year long. In  
17 other words, on an annual basis, the number of participants and the load impacts  
18 reflected in the IRP will represent roughly a mid-year level of the impacts in the  
19 goals.

1 Another complicating factor affecting a comparison between the IRP and  
2 the goals is that the Company began implementing the programs in the middle of  
3 2009. The year 2010 is the first full year during which the programs will have  
4 been in place. For the Revised IRP, the cumulative impact value for 2010  
5 reported on page 47 of the Annual Plan includes the partial year impacts from  
6 2009. The table below provides a quick summary for the Base Case.

EE and DSM Base Case		
Load Impacts in IRP (1)		
Year	EE MWh	EE & DSM MW
2010	309,917	496
2011	584,555	744
2012	1,014,730	932
2013	1,317,350	971
2014	1,572,072	1,001
2015	1,919,128	1,043
2016	2,385,480	1,100
2017	2,613,110	1,143
2018	2,859,958	1,173
2019	3,210,799	1,201
2020	3,684,262	1,259
(1) Excludes Impacts from IS and SG		

7 This demonstrates that the Base Case peak MW impacts in the IRP analysis align  
8 closely with the goals previously provided and that the MWh impacts follow the  
9 goals for the first three years. The fourth year goal is above the impacts in the  
10 IRP and falls between the IRP MWh impacts for 2013 and 2014. This shift can  
11 occur due to the differences in the way impacts are assumed to increase within  
12 each year, linear growth through the year in the IRP versus a full annual value.

13 **Q. DID YOU ALSO PREPARE AN ALTERNATE FORECAST OF ENERGY**  
14 **EFFICIENCY IMPACTS?**



1 A. Yes. I prepared an alternate High Case energy efficiency impact forecast. For the  
 2 High Case energy efficiency forecast, I assumed that the level of energy  
 3 efficiency impacts initially follow the Base Case for the first five years but then  
 4 increase at the rate of 1% of retail sales each year until the economic potential is  
 5 reached as estimated in the Company's energy efficiency market potential studies.  
 6 The table below provides the forecast of impacts for this High Case:

EE and DSM High Case		
Load Impacts in IRP (1)		
Year	EE MWH	EE & DSM MW
2010	309,917	496
2011	687,711	757
2012	1,193,800	954
2013	1,317,350	970
2014	1,572,072	1,001
2015	2,098,426	1,065
2016	2,698,371	1,138
2017	3,299,643	1,232
2018	3,922,556	1,309
2019	4,638,791	1,377
2020	5,360,536	1,464
(1) Excludes Impacts from IS and SG		

7 This demonstrates how much faster the MWh and MW impacts would increase  
 8 under the assumptions of the High Case. A more detailed summary of the High  
 9 Case projected energy efficiency load impacts is provided on page 48 of the 2009  
 10 Annual Plan.

11 Q. HOW DO THESE PROJECTIONS AFFECT THE FORECAST OF LOAD?

12 A. These projected EE and DSM impacts are included in the IRP analysis. This  
 13 essentially reduces the load forecast for these projected impacts.

VI. CONCLUSION

1  
2 Q. DOES THAT CONCLUDE YOUR PREPARED TESTIMONY?

3 A. Yes, it does.

1 BY MS. NICHOLS:

2 Q. Mr. Riddle, can you please state your name and  
3 address?

4 A. My name is James Riddle. My business address is  
5 139 East Fourth Street, Cincinnati, Ohio.

6 Q. And what is your position with the company?

7 A. I'm the manager of load forecasting in the  
8 customer market analytics department.

9 Q. And this is your first time testifying before this  
10 Commission?

11 A. Yes, it is.

12 Q. Did you cause to be prefiled direct testimony  
13 consisting of 18 pages and three exhibits?

14 A. Yes.

15 Q. And on March 9th, 2010, did you likewise cause to  
16 be filed revised Exhibits 1 and 3?

17 A. That is correct.

18 Q. And what was the purpose of those revisions?

19 A. The purpose of those revisions was to provide the  
20 numbers from the 2008 IRP, the 2009 IRP and the revised  
21 2009 IRP.

22 Q. So as originally filed, your exhibits compared  
23 forecast data for -- from the 2008 IRP to the 2009 IRP?

24 A. That is correct.

1 Q. And you've added an additional column to show the  
2 revised 2009 IRP?

3 A. Yes.

4 Q. Other than those changes, do you have any other  
5 corrections?

6 A. No, I don't.

7 MS. NICHOLS: I move that the prefiled direct  
8 testimony of Mr. Riddle be admitted into the evidence as  
9 if given orally from the stand. And I would mark for  
10 identification his revised exhibits 1 and 3 and his  
11 original Exhibit 2.

12 COMMISSIONER CULPEPPER: That motion is allowed.

13 (Whereupon, the prefiled direct testimony  
14 of James A. Riddle will be reproduced in  
15 the record at this point the same as if the  
16 questions had been orally asked and the  
17 answers orally given from the witness  
18 stand.)

19  
20 (Whereupon, Riddle Revised Exhibit No. 1,  
21 Exhibit No. 2 and Revised Exhibit No. 3  
22 were marked for identification.)  
23  
24

**1. INTRODUCTION AND PURPOSE**

1  
2 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, BY WHOM YOU**  
3 **ARE EMPLOYED, AND IN WHAT CAPACITY.**

4 **A.** My name is James A. Riddle. My business address is 139 E. Fourth St.,  
5 Cincinnati, Ohio. I am Manager, Load Forecasting in the Customer Market  
6 Analytics Department for Duke Energy Business Services LLC ("Duke Energy  
7 Business Services"), a wholly-owned service company subsidiary of Duke Energy  
8 Corporation ("Duke Energy"). Duke Energy Business Services provides various  
9 administrative services to Duke Energy Carolinas, LLC ("Duke Energy  
10 Carolinas" or the "Company") and other Duke Energy affiliates including Duke  
11 Energy Ohio, Inc., Duke Energy Indiana, Inc., and Duke Energy Kentucky, Inc.

12 **Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AND**  
13 **RESPONSIBILITIES AS MANAGER OF LOAD FORECASTING.**

14 **A.** I have responsibility for load forecasting across all regulated jurisdictions served  
15 by Duke Energy. I direct the preparation of each operating company's demand,  
16 energy, and customer forecasts, including the collection, analysis, and  
17 presentation of the data used for the forecasts. I also am responsible for  
18 reviewing new techniques of analysis and forecast preparation to ensure that  
19 reasonable forecasting procedures are used.

20 Load Forecasting is a function of the Customer Market Analytics  
21 Department, which is responsible for providing functional analytical support to  
22 Duke Energy Carolinas as well as the other Duke Energy affiliates previously  
23 mentioned.

1 Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND  
2 AND BUSINESS EXPERIENCE.

3 A. I received a B.S. degree in Agriculture from Wilmington College, Ohio in June  
4 1979. In June 1981, I received a Master of Science degree in Agricultural  
5 Economics from the Ohio State University. I worked as a Field Office  
6 Manager/Loan Officer for the Farm Credit System in Ohio from July 1981 to  
7 September 1985.

8 In April 1986, I was hired by the Cincinnati Gas & Electric Company  
9 ("CG&E"), now known as Duke Energy Ohio, Inc., as an Associate Economic  
10 Analyst. Since that time I have been involved in the preparation of the gas and  
11 electric forecasts, which includes data collection and organization, regression  
12 analysis, model building and solving, report writing, and dissemination of the  
13 forecast.

14 In 1995, subsequent to the merger of CG&E with PSI Energy, Inc., I was  
15 promoted to Supervisor, Load Forecasting in the Retail Market Analysis  
16 Department with responsibility for the preparation of Cinergy's Gas and Electric  
17 Load Forecasts.

18 In my current role as Manager, Load Forecasting I responsible for the  
19 preparation of the Gas and Electric Load Forecasts of the Midwest and Carolinas  
20 operating company subsidiaries of Duke Energy, including Duke Energy  
21 Carolinas, Duke Energy Ohio, Inc., Duke Energy Indiana, Inc., and Duke Energy  
22 Kentucky, Inc.

1 Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE ANY  
2 REGULATORY AGENCIES?

3 A. Yes. I have presented testimony on several occasions before the Kentucky Public  
4 Service Commission, the Indiana Utility Regulatory Commission, and the Public  
5 Utilities Commission of Ohio.

6 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS  
7 PROCEEDING?

8 A. My testimony presents and explains Duke Energy Carolinas' long-term energy  
9 and demand forecasts prepared in 2008 and 2009, which were utilized in the  
10 Company's Integrated Resource Plans ("IRPs") filed with the Commission on  
11 November 3, 2008 and September 1, 2009, as updated on January 11, 2010  
12 ("Revised 2009 IRP").

13 Q. PLEASE DESCRIBE THE EXHIBITS TO YOUR TESTIMONY.

14 A. Riddle Exhibit No. 1 provides a summary of the 2008 and 2009 load forecasts for  
15 energy and peak demand. Riddle Exhibit No. 2 provides information on the peak  
16 loads, contract terms, and the growth rate projections for each wholesale  
17 customer. Riddle Exhibit No. 3 provides a summary of the Base Case projected  
18 energy efficiency impacts as well as the energy and peak forecast after it has been  
19 adjusted for the projected impacts from the new energy efficiency programs.

20 Q. WERE RIDDLE EXHIBITS 1 THROUGH 3 PREPARED BY YOU OR AT  
21 YOUR DIRECTION AND UNDER YOUR SUPERVISION?

22 A. Yes.

**II. LOAD FORECASTS**

1  
2 **Q. DID YOU PARTICIPATE IN THE PREPARATION OF THE**  
3 **COMPANY'S 2008 AND 2009 LOAD FORECASTS?**

4 **A.** Yes, I participated directly in the development of the forecasts, along with the  
5 people who directly report to me. I have reviewed the projections and found them  
6 to be reasonable and appropriate for preparing the resource plans of the Company.

7 **Q. HOW IS DUKE ENERGY CAROLINAS' LOAD FORECAST**  
8 **DEVELOPED?**

9 **A.** The Load Forecast is developed in two steps: first, a service area economic  
10 forecast is obtained; second, using the economic forecast, an energy forecast and  
11 the summer and winter peak demand forecasts are developed. The methodology  
12 used in the 2008 and 2009 forecasts is the same as that utilized by the Company  
13 for past plans filed with this Commission. The models are updated on a regular  
14 basis to include the most recent data available, and forecasts are completed as  
15 needed to allow adequate time to complete the resource planning work in advance  
16 of the IRP deadline.

17 **Q. PLEASE DESCRIBE HOW THE SERVICE AREA ECONOMIC**  
18 **FORECAST IS OBTAINED.**

19 **A.** The economic forecast for the Duke Energy Carolinas region is obtained from  
20 Moody's Economy.com, a nationally recognized economic forecasting firm.  
21 Based upon its forecast of the national economy, Moody's Economy.com  
22 prepares a forecast of key economic concepts for the Carolinas. The local  
23 economic forecast provides detailed projections of employment, income, wages,



1 industrial production, inflation, prices, and population. This information serves as  
2 input into the energy forecast models.

3 **Q. HOW IS THE ENERGY FORECAST DEVELOPED?**

4 A. The energy forecast projects the load of Duke Energy Carolinas' major retail  
5 customer classes – residential, commercial, industrial, and street lighting – as well  
6 as wholesale customers. The projected energy requirements for Duke Energy  
7 Carolinas' retail and wholesale electric customers are determined through  
8 econometric analysis. Econometric models are a means of representing economic  
9 behavior through the use of statistical methods, such as regression analysis.

10 **Q. WHAT ARE THE PRIMARY FACTORS AFFECTING ENERGY USAGE?**

11 A. Some of the primary factors are the number of customers, weather, energy price,  
12 and economic activity measures including employment, industrial production, and  
13 income. Energy use typically increases with greater economic activity and  
14 declines with lower economic activity.

15 **Q. ARE THESE FACTORS RECOGNIZED IN THE ECONOMETRIC**  
16 **MODELS USED TO PROJECT THE ENERGY REQUIREMENTS OF**  
17 **DUKE ENERGY CAROLINAS' RETAIL CUSTOMERS?**

18 A. Yes. By including these variables in the forecasting process, future energy  
19 consumption can be projected based on forecasts of these customer, economic,  
20 and weather factors.

21 **Q. HOW IS THE FORECAST OF ENERGY REQUIREMENTS FOR DUKE**  
22 **ENERGY CAROLINAS PREPARED?**

1 A. The Duke Energy Carolinas forecast of energy requirements is prepared by using  
2 the forecast of the economy in conjunction with the econometric models  
3 developed for each customer class and major industrial sector. The forecast of the  
4 economic concepts is employed with each econometric equation to produce a  
5 forecast of sales. The forecasts of sales are summed to generate the projection of  
6 total delivered load. The forecast of total energy is arrived at after including line  
7 losses, which occur as power travels over the transmission and distribution  
8 network.

9 Q. ARE THERE ANY ADJUSTMENTS MADE TO THE FORECASTS  
10 DERIVED FROM THE ECONOMETRIC MODELS?

11 A. The Company may adjust the forecast for anticipated increases in load due to a  
12 major new customer or a significant expansion at a current customer's site. For  
13 the 2008 and 2009 Load Forecasts, there were no adjustments to the retail sales  
14 projection for new individual customer loads or expansion at any current  
15 customer's site. However, adjustments were made to the forecast in two areas.  
16 First, the forecast was adjusted to incorporate the impacts from the projected  
17 adoption of electric vehicles. Second, the forecast of wholesale sales was  
18 adjusted for known or anticipated changes in wholesale contracts.

19 Q. HOW WERE THESE ADJUSTMENTS DEVELOPED?

20 A. With respect to electric vehicles, information on the historical market penetration  
21 of hybrid vehicles was used to develop a projection of the market penetration of  
22 Plug-In Hybrid Electric Vehicles ("PHEV"). An end-point or final PHEV  
23 penetration level was established based on Company communications with major

1 original equipment manufacturers, expected government subsidies, and gasoline  
2 price elasticity. Then, the population forecast for each service territory (NC, SC,  
3 IN, OH, and KY) is used to project the anticipated total number of PHEVs within  
4 each service territory.

5 With respect to wholesale sales contracts, econometric forecasting models  
6 are developed for each wholesale customer in a process similar to that used for  
7 retail to produce MWh sales forecasts. Where contracts are in place, the  
8 wholesale forecasts are incorporated into the final forecasts based on dates of  
9 service specified in the contracts. As discussed by Company Witness Mc Murry  
10 and reflected in the Revised 2009 IRP, the Company revised the 2009 Load  
11 Forecast to further adjust projected wholesale load consistent with the  
12 requirements of the Commission's *Order on Advance Notice* in Docket No. E-7,  
13 Sub 923.

14 **Q. HOW DOES JUDGMENT FIT INTO THE LOAD FORECASTS?**

15 A. Under any approach to load forecasting, judgment is required in many ways, from  
16 the selection of a methodology to the choice of forecast variables and data. In  
17 addition, judgment is utilized in evaluating the reasonableness of the models and  
18 the resulting forecasts. Every utility must use the approach that, in its judgment,  
19 best applies to forecasting its customer loads.

20 **Q. PLEASE EXPLAIN HOW THE PEAK FORECASTS ARE DEVELOPED.**

21 A. The Company projects both a summer and a winter peak for the total Duke  
22 Energy Carolinas service area. Using factors for the weather around the time of

1 the peak as well as measures of economic activity (total energy), econometric  
2 models are developed to forecast peak loads.

3 **Q. WHAT IS THE FORECAST FOR ENERGY AND PEAK DEMAND FOR**  
4 **DUKE ENERGY CAROLINAS?**

5 **A.** Riddle Exhibit No. 1 provides a summary of the 2008 and 2009 load forecasts for  
6 energy and peak demand. The 2008 15-year projected growth rates in energy and  
7 summer peak demand are 1.4% and 1.6%, respectively. The 2009 15-year  
8 projected growth rates in energy and peak demand are 1.4% and 1.5%,  
9 respectively. The growth rates are computed before incorporating projected  
10 reductions from the impacts of the Company's energy efficiency programs.

11 **Q. WHAT ARE THE PRIMARY REASONS FOR THE DIFFERENCES IN**  
12 **THE 2008 AND 2009 LOAD FORECASTS?**

13 **A.** There are several areas in which the 2009 forecast changed. First and foremost,  
14 there was a change in the economic outlook and declining commercial and  
15 industrial sales due to the slowing economy. The long-term annual growth rate  
16 (2008 to 2018) projections between the two forecasts for non-manufacturing  
17 employment declined from 1.8% to 1.4%; and the projections for manufacturing  
18 output declined from 1.7% to 1.2%, respectively. Even more telling are the  
19 changes in short term growth rates. For the year 2009, the growth in non-  
20 manufacturing employment declined from 1.7% to -1.3% between the two  
21 forecasts and the growth in manufacturing output declined from 1.9% to -3.5%.  
22 For the year 2010, the growth in non-manufacturing employment declined from

1 1.9% to 0.4% between the two forecasts and the growth in manufacturing output  
2 declined from 2.1% to -0.5%.

3 Second, there were changes in the projections of wholesale electric sales  
4 and increased estimates of the impacts from the Company's save-a-watt programs  
5 and for energy efficiency.

6 Third, the potential impact of carbon legislation on load was estimated  
7 directly through a projected increase in electric prices to Duke Energy Carolinas'  
8 customers.

9 Finally, the 2009 forecast includes positive impacts from the adoption of  
10 electric vehicles.

11 **Q. WHAT IS THE FORECAST OF PEAK LOAD FOR THE WHOLESALE**  
12 **CUSTOMERS AND WHAT ARE THE TERMS OF THE VARIOUS**  
13 **CONTRACTS?**

14 **A.** Riddle Exhibit No. 2 provides information on the peak loads, contract terms, and  
15 the growth rate projections for each wholesale customer. Page 102 of the Revised  
16 2009 IRP shows the forecasted growth rate in Company load is 1.2% per year  
17 from 2008 to 2024.

18 **Q. WHY DO THE WHOLESALE GROWTH RATE PROJECTIONS DIFFER**  
19 **FROM DUKE ENERGY CAROLINAS' PROJECTION FOR RETAIL**  
20 **LOAD?**

21 **A.** As noted above, with respect to wholesale sales contracts, econometric  
22 forecasting models are developed for each wholesale customer in a process  
23 similar to that used for retail to produce MWh sales forecasts. The wholesale

1 customer growth rates vary among customers, and also differ from the historical  
2 growth rate in the Company's retail load. Page 102 of the Revised 2009 IRP  
3 shows an average annual historical growth rate of 1.4% per year from 2003 to  
4 2008 in total Duke Energy Carolinas' load. However, the average annual  
5 historical growth rate for wholesale customers in that time period was 3.0%. Just  
6 as historical wholesale load growth rates have been different than Duke Energy  
7 Carolinas' overall load growth, the projected growth rates are likely to be  
8 different. Riddle Exhibit No. 2 also provides the historical growth in peak loads  
9 for the wholesale customers.

10 Load growth rates can be influenced by changes and/or differences in  
11 population, employment, industrial output, customer growth, and customer mix.  
12 In general, the wholesale customers have a greater concentration of residential  
13 and commercial as compared to Duke Energy Carolinas, where the concentration  
14 is almost equally split among Residential, Commercial, and Industrial. Because  
15 of these types of characteristic differences between the Company's retail load and  
16 each of the wholesale customers, different growth rates are to be expected.

17 Additionally, the growth rates for Central Electric Cooperative ("Central")  
18 and North Carolina Electric Membership Corporation ("NCEMC"), are driven  
19 primarily by contract terms. The Central contract provides for a seven year "step-  
20 in" to the customer's full load requirement such that Duke Energy Carolinas will  
21 provide only 15% of Central's total member cooperative load in the Company's  
22 Balancing Authority Area requirement in 2013. This will be followed by 15%  
23 annual increases in load over the subsequent six years until 100% of the

1 contracted load is served. The NCEMC sale is essentially a fixed quantity of  
2 capacity and energy specified by the contract. The contract also gives NCEMC  
3 an option to increase the amount of capacity by 25 MWs for specific years of the  
4 contract. Therefore, the growth rates for those wholesale customers do not reflect  
5 underlying economic conditions, and as a result, are not really applicable.

6 **Q. DOES DUKE ENERGY CAROLINAS' ENERGY AND PEAK LOAD**  
7 **FORECAST ALREADY INCLUDE THE IMPACT OF HISTORICAL**  
8 **CONSERVATION PROGRAMS?**

9 **A.** Yes, the impacts from historical conservation/energy efficiency programs that  
10 have been implemented in the Duke Energy Carolinas service area are already  
11 reflected in these forecasts. The historical data used to develop the Load  
12 Forecasts incorporate the historical impact of those programs.

13 **Q. HOW IS THE IMPACT FROM CUSTOMER-DRIVEN ENERGY**  
14 **EFFICIENCY REFLECTED IN THE DUKE ENERGY CAROLINAS'**  
15 **FORECAST?**

16 **A.** Customer interest in energy efficiency is not new. For example, this interest has  
17 been reflected over the years through changes in building codes and efficiency  
18 improvements in heating and air conditioning equipment and appliances. As a  
19 result, past trends and impacts of energy efficiency are captured in the historical  
20 data and reflected in the coefficients developed for the forecasting models. The  
21 forecast reflects a continuation of the trend for increasing energy efficiency.

22 These trends are not expected to change suddenly. However, to the extent  
23 that new directions on energy efficiency develop, such as from legislative

1 initiatives like the Energy Independence and Security Act of 2007, additional  
2 adjustments are made to the sales forecast to incorporate the impacts.

3 **Q. DOES DUKE ENERGY CAROLINAS PREPARE A LOAD FORECAST**  
4 **THAT INCLUDES THE PROJECTED IMPACT FROM THE**  
5 **INSTALLATION OF MEASURES FROM ITS NEW ENERGY**  
6 **EFFICIENCY PROGRAMS?**

7 **A.** Yes. Riddle Exhibit No. 3 provides a summary of the Base Case projected  
8 energy efficiency impacts as well as the energy and peak forecast after it has been  
9 adjusted for the projected impacts from the new energy efficiency programs. The  
10 Base Case projected energy efficiency load impacts are incorporated in the  
11 development of the IRP for the purpose of identifying generation needs. That is  
12 the typical way to incorporate incremental energy efficiency effects in the  
13 creation of an integrated resource plan.

14 **Q. ARE THERE LOAD IMPACTS FROM OTHER PROGRAMS IN THE IRP**  
15 **THAT ARE NOT REFLECTED IN DUKE ENERGY CAROLINAS' LOAD**  
16 **FORECAST?**

17 **A.** Yes. The load forecast does not reflect the impact of load reductions due to the  
18 Company's demand response or Demand-Side Management ("DSM") programs  
19 such as Power Manager, Power Share, Standby Generators, and Interruptible  
20 Service. The load forecast portrays the level of expected peak demand prior to  
21 any reductions for DSM programs. The projected impacts of the DSM programs  
22 are captured and incorporated in the development of the annual resource plan as  
23 an offset to the load forecast. Information on the projections of the energy



1 efficiency and DSM programs is provided in the testimony of Company Witness  
2 Stevie.

3 **Q. WHAT WAS THE IMPACT OF THESE PROGRAMS ON THE PEAK**  
4 **LOAD IN 2008 AND 2009?**

5 **A.** The 2008 actual native summer peak load on June 9th was 17,711 MW, which  
6 excludes the non-Duke Energy Carolinas load associated with the four Catawba  
7 co-owners. This load would have been 83 MW higher if it had not been for the  
8 impacts of load reductions achieved by customers on rate schedule HP (hourly  
9 pricing). DSM programs encourage customers to reduce load during higher cost  
10 time periods. Including the load reductions implies the actual load would have  
11 been 17,794 MW. After accounting for the difference between actual and normal  
12 weather, the 2008 peak load was 17,704 MW, which is about 1.7% below the  
13 projected peak of 18,011 MW.

14 The 2009 actual native summer peak load on August 10th was 16,875  
15 MW, which excludes the non-Duke Energy Carolinas load associated with the  
16 four Catawba co-owners. There we no load reductions due to rate schedule HP.  
17 After accounting for the difference between actual and normal weather, the 2009  
18 peak load was 17,100 MW, which is about 2.2% below the projected peak of  
19 17,479 MW.

20 **Q. ARE YOU FAMILIAR WITH OTHER ELECTRIC UTILITIES' LONG-**  
21 **TERM LOAD FORECASTS?**

1 A. Yes, I am. Over my career in forecasting, I have had the opportunity to review  
2 the forecasts and methodologies of numerous utilities as well as to study the  
3 literature on forecasting.

4 Q. ARE THE FACTORS THAT ARE USED BY DUKE ENERGY  
5 CAROLINAS IN FORMULATING ITS LOAD FORECASTS SIMILAR TO  
6 THE FACTORS USED BY OTHER UTILITIES IN THEIR LOAD  
7 FORECASTS?

8 A. Yes. While the forecasting approaches that other utilities use to prepare load  
9 forecasts may vary (including use of econometric, end-use, trend analysis, or time  
10 series analysis), nearly all of the utilities I am familiar with use the same factors  
11 considered by Duke Energy Carolinas. These commonly used factors include:  
12 population, weather data, income, industrial production measures, price, and other  
13 economic concepts.

14 Q. WHAT HAS BEEN THE HISTORICAL ACCURACY OF THE DUKE  
15 ENERGY CAROLINAS FORECASTS?

16 A. There are several ways to examine the historical accuracy. One that I tend to  
17 favor is the mean percent error ten years from the date of the forecast. On that  
18 basis, the accuracy has been very good. Errors in projected peak loads on a  
19 weather normal basis have averaged only 2.7% ten years out. Errors on total  
20 energy have been higher, but still at a reasonable level at 9.0%. The higher error  
21 rate for energy has been driven by the decline in manufacturing in the Carolinas,  
22 something hard to predict ten years in advance.

1 Q. WHAT HAS BEEN THE COMPANY'S EXPERIENCE DURING THIS  
2 BUSINESS CYCLE?

3 A. In an economic downturn the industrial sector is affected more quickly and more  
4 deeply than the residential or commercial sectors. This downturn in particular has  
5 had a significant impact on the Duke Energy Carolinas industrial sales. Total  
6 industrial sales declined 5.5% in 2008 and are down 15.2% in 2009. All  
7 industries have suffered declines but the hardest hit have been textiles, apparel,  
8 the transportation sector, and those industries related to housing – such as stone,  
9 clay, glass, furniture, and lumber. At this point, we expect continued weakness  
10 through 2010.

11 Q. HAVE YOU REVIEWED THE ELECTRIC LOAD FORECASTS OF  
12 OTHER ORGANIZATIONS?

13 A. Yes.

14 Q. WHAT RESULTS DID YOU FIND?

15 A. The Energy Information Administration within the Department of Energy  
16 publishes an Annual Energy Outlook ("AEO") each year. The 2009 AEO was  
17 released in March 2009, and listed the average annual growth rate for Retail  
18 electricity sales for the Southeastern Electric Reliability Council, which includes  
19 Duke Energy Carolinas, from 2007 to 2030 to be 0.9%. This is very similar to the  
20 1.0% reported in the Revised 2009 IRP for the average annual growth rate for  
21 Retail electricity sales from 2008 to 2029.

1 Q. HOW DOES DUKE ENERGY CAROLINAS' PROJECTED RATE OF  
2 PEAK LOAD GROWTH COMPARE TO ITS HISTORICAL  
3 EXPERIENCE?

4 A. Over the last twenty years, the growth in peak load has been 2.2% per year. Over  
5 the last ten years, the growth in peak load was 1.4% per year. The twenty-year  
6 historical growth rate is above Duke Energy Carolinas' projected twenty-year  
7 native load growth rate of 1.5% per year (excluding the impacts of new energy  
8 efficiency programs) and 1.4% per year including the impacts of new energy  
9 efficiency programs (both numbers shown on page 35 of the Revised 2009 IRP).

10 Duke Energy Carolinas relies upon long-term projections of population  
11 growth and business activity in developing its estimates of future load growth.  
12 These economic projections indicate that the rate of economic and Company load  
13 growth are expected to continue at a pace similar to the last ten years. As shown  
14 by Witness Mc Murry, although the Company's growth rate has slowed, new  
15 resources continue to be needed to meet customer demand. Further, if the  
16 economy were to grow at a pace similar to the 2.2% historical long-term rate of  
17 growth in retail loads, in twenty years, Duke Energy Carolinas could see peak  
18 demands that are more than 3,200 MW higher than currently projected.

19 III. CONCLUSION

20 Q. WHAT DO YOU CONCLUDE FROM YOUR REVIEW OF DUKE  
21 ENERGY CAROLINAS' LOAD FORECASTS?

22 A. I am very confident in the reasonableness of the Duke Energy Carolinas' forecasts  
23 and I believe they are a reliable basis for preparing the resource plan of the

1       Company. One must always remember that a forecast is a projection of the  
2       future. It is not a projection of something that is known. As a result, variances  
3       from the forecast likely will occur. The real issue is whether one can rely on the  
4       load forecast as a basis for planning for the future. Therefore, I conclude that the  
5       forecasts are reasonable for planning purposes, and the methods used to create  
6       them are both reasonable and appropriate.

7    **Q.    DOES THAT CONCLUDE YOUR PREPARED TESTIMONY?**

8    **A.    Yes, it does.**

1 BY MS. NICHOLS:

2 Q. Lastly on the end there, Mr. Smith, could you  
3 please state your name and address for the record?

4 A. My name is Owen Alexander Smith. My business  
5 address is 526 South Church Street, Charlotte.

6 Q. And your position with Duke Energy?

7 A. Managing director of renewable strategy and  
8 compliance.

9 Q. And did you cause to be prefiled direct testimony  
10 consisting of 11 pages and one exhibit?

11 A. Yes, I did.

12 Q. And is the purpose of your prefiled direct  
13 testimony to sponsor the Company's REPS -- 2009 REPS  
14 compliance plan?

15 A. Yes, it is.

16 MS. NICHOLS: Duke Energy did file their -- our  
17 REPS compliance plan as a separate document, but it is  
18 likewise already in -- filed in the proceeding.

19 COMMISSIONER CULPEPPER: It is before the  
20 Commission, let the record so reflect.

21 Q. Mr. Smith, do you have any changes or corrections  
22 to your testimony?

23 A. I have two minor corrections.

24 Q. Please provide those to the Commission.

1 A. On page 4, line 3, it refers to the period in my  
2 exhibit and it says 2010 through 2022. That should  
3 actually read 2028.

4 And again on page 5, the same correction. On line  
5 7 where it reads 2010 through 2022, that should read 2028.

6 Q. Other than those changes, do you have any  
7 additional corrections?

8 A. No, I don't.

9 MS. NICHOLS: I move that the prefiled direct  
10 testimony of Mr. Smith be copied into the record as  
11 corrected as if given orally from the stand and that his  
12 exhibit be marked for identification.

13 COMMISSIONER CULPEPPER: Motion is allowed. The  
14 exhibit is marked as it was marked when filed.

15 MS. NICHOLS: Thank you.

16 (Whereupon, the prefiled direct testimony  
17 of Owen A. Smith will be reproduced in the  
18 record at this point the same as if the  
19 questions had been orally asked and the  
20 answers orally given from the witness  
21 stand.)

22  
23 (Whereupon, Smith Exhibit No. 1 was marked  
24 for identification.)

**I. INTRODUCTION AND PURPOSE**

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

**A. My name is Owen A. Smith, and my business address is 526 South Church Street, Charlotte, North Carolina.**

**Q. WHAT IS YOUR POSITION WITH DUKE ENERGY CORPORATION?**

**A. I am Managing Director, Renewable Strategy & Compliance for Duke Energy Corporation ("Duke Energy").**

**Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL AFFILIATIONS.**

**A. I received a Bachelor of Arts from East Carolina University and a Master's degree in Business Administration from Wake Forest University. I serve on the Boards of Directors of the Solar Electric Power Association ("SEPA") and Palmetto Clean Energy, Inc. ("PaCE").**

**Q. PLEASE DESCRIBE YOUR BUSINESS BACKGROUND AND EXPERIENCE.**

**A. I joined Duke Energy in 2002 as a Commercial Associate. I have held positions in Corporate Strategy, Treasury, Mergers & Acquisitions, Market Research, and Renewable Energy Strategy. I assumed my current position in August 2008.**

**Q. WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT POSITION?**

**A. I am responsible for the development and execution of strategies related to renewable energy requirements for Duke Energy's regulated utility businesses, including Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the**



1 "Company") and our utility operating companies in Indiana, Ohio, and Kentucky.  
2 This includes pursuing renewable generation initiatives, customer programs, and  
3 compliance with renewable energy requirements.

4 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NORTH**  
5 **CAROLINA UTILITIES COMMISSION?**

6 **A.** Yes, I recently appeared to present testimony in support of Duke Energy  
7 Carolinas' Application for Approval of REPS Cost Recovery in Docket No. E-7,  
8 Sub 872 and filed testimony in support of the Joint Motion of Progress Energy  
9 Carolinas, Inc., Duke Energy Carolinas, Dominion North Carolina Power, North  
10 Carolina Electric Membership Corporation, North Carolina Eastern Municipal  
11 Power Agency and North Carolina Municipal Power Agency Number 1  
12 (collectively "the Electric Power Suppliers") to request the Commission to modify  
13 the swine and poultry waste resource requirements of N.C. Gen. Stat. §§ 62-133.8  
14 (e) and (f), in Docket No. E-100, Sub 113 ("Joint Motion").

15 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

16 **A.** My testimony is offered to describe Duke Energy Carolinas' 2009 Renewable  
17 Energy and Energy Efficiency Portfolio Standards ("REPS") Compliance Plan,  
18 filed in this docket on September 1, 2009 pursuant to N.C. Gen. Stat. § 62-133.8  
19 and Commission Rule R8-67(b), and the activities taken by the Company in  
20 furtherance of that Plan and in support of its compliance with North Carolina's  
21 REPS under N.C. Gen. Stat. § 62-133.8.

1 Q. PLEASE DESCRIBE THE EXHIBIT TO YOUR TESTIMONY.

2 A. Smith Exhibit No. 1 provides a forecast of Duke Energy Carolinas' REPS  
3 obligations for the period 2010-2022.

4 Q. WAS THIS EXHIBIT PREPARED BY YOU OR AT YOUR DIRECTION  
5 AND UNDER YOUR SUPERVISION?

6 A. Yes.

7 **II. DUKE ENERGY CAROLINAS' 2009 REPS COMPLIANCE PLAN**

8 Q. WHAT ARE DUKE ENERGY CAROLINAS' REPS OBLIGATIONS  
9 UNDER N.C. GEN. STAT. § 62-133.8?

10 A. Under Section 62-133.8(b)(1), each electric public utility in the State must  
11 comply with the REPS requirement in accordance with a statutorily set schedule  
12 beginning in the year 2012 based upon 3% of the utility's North Carolina retail  
13 sales. The schedule escalates to 6% in 2015, 10% in 2018 and 12.5% in 2021 and  
14 thereafter. Additionally, beginning with the year 2010, Section 62-133.8(d)  
15 further requires that each electric public utility satisfy its REPS requirement with  
16 solar energy (the "Solar Set Aside"). The Solar Set Aside similarly requires  
17 compliance in accordance with a statutorily set schedule beginning in the year  
18 2010 based upon 0.02% of the utility's North Carolina retail sales. The schedule  
19 escalates to 0.07% in 2012, 0.14% in 2015 and 0.20% in 2018 and thereafter.

20 In its *Order Clarifying Electric Power Suppliers' Annual REPS*  
21 *Requirements*, issued on November 26, 2008, in Docket No. E-100, Sub 113, the  
22 Commission clarified that the calculation of these requirements for each year shall  
23 be based upon the electric utility's North Carolina retail sales for the prior year.

1        Additionally, the Commission has ordered that compliance with the swine and  
2        poultry waste set-aside requirements of N.C. Gen. Stat 62-133.8 is an aggregate  
3        obligation of Electric Suppliers.<sup>1</sup> As a result of the Commission's Order, Duke  
4        Energy Carolinas is planning collaborative efforts with other Electric Suppliers in  
5        North Carolina to comply with the aggregate requirements for swine waste and  
6        poultry waste renewable resources. A forecast of Duke Energy Carolinas' REPS  
7        obligations for the period 2010 through 2022 is attached as Smith Exhibit No. 1.

8                In addition to its REPS obligations arising from its retail operations, Duke  
9        Energy Carolinas plans to provide services to wholesale customers that contract  
10       with the Company for services to meet the REPS requirements. These services  
11       include delivery of renewable energy resources and compliance planning and  
12       reporting. These wholesale customers, including electric membership  
13       corporations, municipalities, and other wholesale customers, may rely on Duke  
14       Energy Carolinas to provide this renewable energy delivery service in accordance  
15       with N.C. Gen. Stat. §62-133.8(c)(2)e. The Company's 2009 REPS Compliance  
16       Plan, filed in this docket on September 1, 2009, provides the information required  
17       by Commission Rule R8-67(c) in aggregate for the Company and the following  
18       wholesale customers for whom the Company will provide renewable energy  
19       resources and compliance reporting services: Rutherford Electric Membership  
20       Corporation, City of Dallas, Forest City, City of Concord, Town of Highlands,  
21       and City of Kings Mountain ("Wholesale"). Unless otherwise stated, the  
22       requirements that are described in this testimony and accompanying exhibit

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<sup>1</sup> *Order on Duke Energy Carolinas, LLC, Motion for Clarification*, Docket No. E-100, Sub 113 (May 7, 2009).

1 reflect the aggregation of the requirements for Duke Energy Carolinas retail  
2 customers and these Wholesale customers. The Company also is involved in  
3 discussions with certain other customers and may elect to provide renewable  
4 resources and compliance reporting services to these additional customers, but as  
5 of this date the above referenced list of customers remain the only ones that the  
6 Company has reflected in its compliance plans.

7 **Q. WHAT IS DUKE ENERGY CAROLINAS' OVERALL STRATEGY FOR**  
8 **REPS COMPLIANCE?**

9 **A.** In developing the Company's 2009 REPS Compliance Plan filed with its 2009  
10 Integrated Resource Plan ("IRP") in Docket No. E-100, Sub 124, Duke Energy  
11 Carolinas has focused on a balanced, diversified approach of utilizing: (1) existing  
12 or new Duke Energy Carolinas-owned generation assets, (2) the purchase of  
13 energy from renewable energy resources available in the market through power  
14 purchase agreements ("PPAs"), and (3) the purchase of unbundled renewable  
15 energy certificates ("RECs") from both in-state and out-of-state suppliers to  
16 satisfy its REPS requirement. Duke Energy Carolinas also sees great potential  
17 value in maximizing the opportunity to use cost-effective energy efficiency  
18 savings as part of its REPS compliance strategy. Company Witness Stevie  
19 discusses the Company's portfolio of energy efficiency and demand side  
20 management programs and projected megawatt hour reductions from such  
21 programs.

1 Q. WHAT STEPS HAS DUKE ENERGY CAROLINAS' TAKEN TO  
2 PROCURE OR DEVELOP RENEWABLE ENERGY RESOURCES IN  
3 ORDER TO SATISFY THE REQUIREMENTS OF N.C. GEN. STAT. § 62-  
4 133.8?

5 A. In seeking to build a diversified portfolio of renewable and energy efficiency  
6 resources, the Company has undertaken several key efforts, including (1) seeking  
7 proposals from various potential renewable suppliers for either PPAs or REC  
8 purchase agreements, (2) evaluating opportunities to make direct investments in  
9 the ownership and/or operation of renewables, (3) developing programs such as a  
10 Standard Offer for RECs to facilitate procurement of RECs from smaller  
11 producers, and (4) making regulatory applications to pursue specific initiatives  
12 such as the Company's Distributed Generation Solar Photovoltaic "PV" program,  
13 approved in Docket No. E-7, Sub 856<sup>2</sup> or the Company's energy efficiency  
14 program, approved in Docket No. E-7, Sub 831. With respect to utility-owned  
15 assets, the Company has begun implementing the certificate of public  
16 convenience and necessity granted by the Commission in Docket No. E-7, Sub  
17 856 for Duke Energy Carolinas' Solar DG Program, and conducted tests and  
18 analysis of co-firing biomass fuels and re-powering at certain of the Company's  
19 coal-fired units. The Company also is moving forward in its development of a  
20 coastal wind demonstration project in the Pamlico Sound, which may include up  
21 to three (3) turbines and could provide up to fifteen (15) MW in total capacity.  
22 The Company believes these actions collectively constitute a thorough and

<sup>2</sup> See *Order Granting Certificate of Public Convenience and Necessity Subject to Conditions*, Docket No. E-7, Sub 856 (December 28, 2008) and *Order on Reconsideration* (May 6, 2009).

1 prudent plan for compliance with the REPS law and demonstrate the Company's  
2 commitment to pursue its renewable energy and energy efficiency strategies. The  
3 Commission has approved Duke Energy Carolinas' execution of its compliance  
4 planning, as it has approved the Company's initial REPS Compliance Report and  
5 application for REPS cost recovery pursuant to N.C. Gen. Stat. § 62-133.8(h). In  
6 its *Order Approving Cost Recovery and Directing Further Proceedings*  
7 *Regarding REPS Riders*, Docket E-7, Sub 872 (August 21, 2009), the  
8 Commission concluded that "Duke has diligently pursued its REPS obligations in  
9 acquiring a portfolio of RECs from existing or new Duke-owned resources, the  
10 purchase of energy from renewable resources available in the market, and the  
11 purchase of RECs."

12 **Q. PLEASE DESCRIBE DUKE ENERGY CAROLINAS' BID EVALUATION**  
13 **PROCESS FOR RENEWABLES.**

14 **A.** *Duke Energy Carolinas evaluates renewable proposals based on (1) economic*  
15 *analysis, (2) risk of project execution, and (3) analysis of other factors.*

16 *In the case of proposals involving the delivery of electrical energy to the*  
17 *Company's control area, economic analysis involves a life-cycle benefit-cost*  
18 *approach by which renewable resources are valued on the basis of their cost*  
19 *relative to the combination of their energy value, capacity value, and*  
20 *environmental value arising from avoided emissions.*

21 *In the case of REC purchase agreements, economic analysis involves the*  
22 *comparison of offered REC prices to (1) REC prices offered by other providers;*  
23 *and (2) implied REC prices arising from proposals involving the delivery of*

1           electrical energy to the Company's control area, where the implied REC price is  
2           the cost of the renewable PPA that exceeds the Company's avoided cost.

3           Analysis of project execution risk involves an evaluation of potential risk  
4           factors including owner/operator experience, whether the proposed technology is  
5           proven and reliable, the status of the project being proposed (such as status of  
6           required permits, site control, and financing), access to transmission or  
7           distribution, and credit quality.

8           Finally, other factors that are considered include but are not limited to  
9           dispatch flexibility, deliverability, the mix of renewable resources, and location of  
10          the projects.

11          Once proposals have been evaluated using the methodology described  
12          above, the most attractive proposals are identified, and based on the Company's  
13          projected need for additional resources, the Company then proceeds to negotiate  
14          with those bidders. This evaluation process is one that the Company feels is  
15          reasonable and prudent in that it enables the Company to maintain a disciplined  
16          approach to identifying and engaging in negotiations for the most attractive  
17          renewable opportunities.

18   **Q. HAS DUKE ENERGY CAROLINAS DEVELOPED AND IMPLEMENTED**  
19   **PLANS TO COMPLY WITH THE REPS SWINE AND POULTRY WASTE**  
20   **SET-ASIDE REQUIREMENTS OF N.C. GEN. STAT. § 62-133.8(e) AND**  
21   **(f)?**

22   **A. Yes. Duke Energy Carolinas has not included such plans in its 2009 REPS**  
23   **Compliance Plan because the initial swine and poultry waste set aside**

1 requirements occur in 2012, which is outside of the planning horizon for this  
2 year's plan. Additionally, uncertainties remain regarding the swine and poultry  
3 waste aggregate statewide set-aside requirements for 2012, including Duke  
4 Energy Carolinas' respective procurement obligation of the aggregate statewide  
5 requirements. The Company continues to work with the other Electric Power  
6 Suppliers and swine and poultry waste generation resource providers to resolve  
7 those issues raised by the Joint Motion, and to reach agreements to procure energy  
8 or RECs to satisfy its statutory obligations for swine and poultry waste  
9 generation.

10 That being said, the Company has engaged in numerous activities  
11 designed to identify renewable energy and REC purchase opportunities to satisfy  
12 its statutory swine and poultry waste set-aside obligations for 2012 and beyond.  
13 Despite the fact that the Company does not have a specific obligation within the  
14 aggregate state-wide set-aside requirements, Duke Energy Carolinas has  
15 endeavored to secure swine waste and poultry waste resources through a variety  
16 of methods. Specifically, in addition to those general resource and REC  
17 procurement methods identified above, Duke Energy Carolinas has (1) engaged in  
18 joint discussions with the other Electric Power Suppliers regarding the  
19 development of swine waste resources through the issuance of a state-wide RFP;  
20 (2) engaged in direct negotiations with multiple power suppliers regarding  
21 bundled power supply and REC purchase agreements from proposed poultry  
22 waste generation facilities; (3) engaged in direct negotiations with potential  
23 suppliers regarding REC purchase agreements from proposed swine waste



1 generation facilities; and (4) actively explored research and development projects  
2 relating to innovative swine and poultry waste generation technologies.

3 **III. CONCLUSION**

4 **Q. DO YOU BELIEVE THAT DUKE ENERGY CAROLINAS' 2009 REPS**  
5 **COMPLIANCE PLAN WILL ENABLE IT TO MEET ALL OF ITS**  
6 **STATUTORY OBLIGATIONS IN THE REPS PLANNING HORIZON?**

7 **A. Duke Energy Carolinas intends to meet its statutory REPS requirements and its**  
8 **2009 REPS Compliance Plan provides the operating blueprint for it to achieve**  
9 **compliance over the planning horizon. The Company's resource evaluation and**  
10 **plan implementation activities to date have enabled it to develop a solid**  
11 **understanding of market pricing and other considerations regarding renewable**  
12 **resources, both within and outside of North Carolina. Based upon this market**  
13 **knowledge and analysis, as well as other considerations associated with various**  
14 **types of renewable energy resources, the Company has designed and developed**  
15 **its REPS Compliance Plan to meet its general and set aside REPS obligations**  
16 **under N.C. Gen. Stat. § 62-133.8 utilizing the most appropriate and cost-effective**  
17 **resources.**

18 **Q. DOES THIS CONCLUDE YOUR PREPARED TESTIMONY?**

19 **A. Yes.**

1 BY MS. NICHOLS:

2 Q. And now gentlemen, if we could provide a summary  
3 of each of your testimony to the Commission, starting with  
4 Mr. McMurry.

5 A. (By Mr. McMurry) Okay. The purpose of my direct  
6 testimony is to discuss the integrated resource planning  
7 process, to describe and support any portions of the 2009  
8 Duke Energy Carolinas' Integrated Resource Plan, or IRP,  
9 that represents changes from the 2008 IRP, and to support  
10 the conclusions contained in the 2009 Duke Energy  
11 Carolinas IRP, as initially filed in this docket on  
12 September 1st, 2009, and revised on January 11, 2010.

13 In addition, my testimony addresses the  
14 requirements set forth in the Commission's Order on  
15 Advance Notice in Dockets No. E-7, Sub 923 and Notice of  
16 Decision in Docket No. E-7, Sub 831.

17 The IRP process begins with a 20-year load  
18 forecast, which includes projections for summer and winter  
19 peaks, as well as energy use. Information is gathered for  
20 Duke Energy Carolinas' existing resources, including  
21 Company-owned generation, purchased power agreements, and  
22 demand-side/energy efficiency resources. The information  
23 includes items such as capacity rating, heat rate, fuel  
24 costs and emission allowance costs. Data is gathered on

1 the cost of additional resource options to meet customer  
2 needs.

3 Quantitative analyses are conducted to identify  
4 combinations of options that meet customer energy needs,  
5 plus a reserve margin, while minimizing costs to some  
6 customers. Quantitative analysis enables the company to  
7 identify potential portfolios that can be tested under  
8 base assumptions and for sensitivity and scenarios around  
9 those base assumptions.

10 The results of the quantitative and qualitative  
11 analyses suggest that a combination of additional  
12 baseload, intermediate and peaking generation -- peaking  
13 generation, renewable resources and energy efficiency and  
14 demand-side programs are required over the next 20 years  
15 to meet the customers' -- the company's customers'  
16 energy's [sic] needs.

17 The near-term resource needs can be met through  
18 the implementation of energy efficiency and demand-side  
19 programs, the completion and construction of commercial  
20 operation of the Buck and Dan River, Cliffside projects,  
21 and the pursuit of nuclear uprates and additional  
22 renewable resources.

23 Four major changes from the 2008 IRP to the 20 --  
24 revised 2009 IRP include the load forecast, energy

1 efficiency impacts, retirement assumption, and nuclear  
2 escalation rates. The 2009 IRP strongly supports new  
3 nuclear generation as the best option to meet our  
4 customers' future needs for baseload generation under all  
5 scenarios analyzed. It is highly efficient and does not  
6 emit greenhouse gases.

7           The 2009 IRP findings favor both regional  
8 generation and a commercial operation date for Lee Nuclear  
9 Station in the 2018 to 2021 time frame. The IRP still  
10 supports the need for Cliffside Unit 6 and the new  
11 combined-cycle units at Buck and Dan River prior to 2015.  
12 However, the impact of the recession on the load demand  
13 has eliminated the need to phase in the Buck  
14 combined-cycle unit during the summer of 2011 and delayed  
15 the need for the Dan River combined-cycle unit until the  
16 summer of 2013.

17           In summary, with the inclusion of the updated  
18 information for the Revised 2009 IRP, the basic  
19 conclusions of the 2008 IRP remains unchanged. This  
20 concludes my summary of my prefiled direct testimony.

21 Q.       Thank you. Dr. Stevie.

22 A.       My direct testimony summarizes actions taken by  
23 Duke Energy Carolinas to develop energy efficiency and  
24 demand response programs for the demand side of the meter.

1 I also describe Duke Energy Carolinas' current DSM  
2 programs, discuss alternative DSM cases provided to  
3 company witness McMurry for the IRP analysis, and review  
4 the impact of Duke Energy Carolinas' DSM programs on the  
5 forecast.

6 I describe how Duke Energy Carolinas developed its  
7 portfolio of programs in collaboration with interested  
8 stakeholders, and how the company analyzed each potential  
9 program, applying multiple cost-effectiveness tests using  
10 the DSMore Model to compile the list of energy efficiency  
11 programs.

12 My testimony discusses how the company  
13 incorporates the results of a 2007 Market Potential Study,  
14 which provided estimates of the technical, economic and  
15 market potential for energy efficiency.

16 I go on to describe how the company utilizes  
17 DSMore, which is a financial analysis tool designed to  
18 evaluate the costs, benefits and risks of energy  
19 efficiency programs and measures. I also describe the  
20 series of tests generally used to analyze energy  
21 efficiency cost-effectiveness. These include the Utility  
22 Cost Test, Ratepayer Impact Measure Test, the Total  
23 Resource Cost Test, and the Participant Test. The DSMore  
24 provides the results of those tests for any type of energy

1 efficiency or DSM program.

2           The projected impacts from the current programs  
3 represent the base case load impacts provided to  
4 Mr. McMurry for use in his analyses. The base case relies  
5 upon the bundle of programs approved under the company's  
6 Save-a-Watt energy efficiency program that has been  
7 approved by the Commission for a four-year period.

8           Under the base case, it is assumed that the energy  
9 efficiency programs continue for two additional four-year  
10 periods, or bundles, for a total of 12 years. It is this  
11 12-year projection of energy efficiency impacts that  
12 compromise the base case used in witness McMurry's  
13 analysis. The inclusion of additional bundles applies to  
14 the energy efficiency programs only because the DSM or  
15 demand response programs reach a maximum level in the  
16 first bundle.

17           The approach for the base case is the same for the  
18 2008, 2009 plans. However, for the development of the  
19 2009 IRP, projection of energy efficiency impacts differs  
20 for three reasons. First, the start of the programs was  
21 delayed to the middle of 2009, consistent with the  
22 Commission's Order approving the implementation of the  
23 programs.

24           Second, the energy efficiency impacts were scaled

1 up in the third and fourth years to be consistent with the  
2 requirements of the recently approved settlement agreement  
3 on the company's Save-a-Watt recovery mechanism.

4 And third, new information on the load shaved  
5 associated with hourly load savings from the installation  
6 of compact fluorescent lightbulbs hasn't been -- has been  
7 incorporated into the projection of the coincident peak  
8 load impacts. This new information results in a reduction  
9 in the level of energy efficiency peak savings projected  
10 for the Revised 2009 IRP as compared to the 2008 IRP.

11 I also prepared an alternate high case energy  
12 efficiency impact forecast. For the high case energy  
13 efficiency forecast, I assumed that the level of energy  
14 efficiency impacts initially follow the base case for the  
15 first five years, but then increase at the rate of one  
16 percent of retail sales each year until the economic  
17 potential is reached as estimated in the company's energy  
18 efficiency market potential studies.

19 This concludes the summary of my prefiled direct  
20 testimony.

21 Q. Thank you. Mr. Riddle.

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**DUKE ENERGY CAROLINAS, LLC**  
**Docket No. E-100, Subs 118 and 124**  
**SUMMARY OF JAMES A. RIDDLE'S DIRECT TESTIMONY**

My testimony presents and explains Duke Energy Carolinas' long-term energy and demand forecasts prepared in 2008 and 2009, which were utilized in the Company's Integrated Resource Plans filed with the Commission on November 3, 2008 and September 1, 2009, as updated on January 11, 2010.

I describe the process of developing the Load Forecast, which includes obtaining a service area economic forecast, and then using that economic forecast to develop an energy forecast and the summer and winter peak demand forecasts. My testimony also points out that the methodology used in the 2008 and 2009 forecasts is the same as that utilized by the Company for past plans filed with this Commission.

As described in my pre-filed testimony, there are several factors that affect energy usage, including the number of customers, weather, energy price, and economic activity measures such as employment, industrial production, and income. Not surprisingly, energy use typically increases with greater economic activity and declines with lower economic activity. By including these variables in the forecasting process, future energy consumption can be projected based on forecasts of these customer, economic, and weather factors.

My testimony goes on to describe several areas in which the 2009 forecast changed from the 2008 forecast. First and foremost, there was a change in the economic outlook and declining sales due to the slowing economy. Second, there were changes in the projections of wholesale electric sales and increased estimates of the impacts from the Company's energy efficiency programs. Third, the potential impact of carbon legislation on load was estimated directly



through a projected increase in electric prices to Duke Energy Carolinas' customers. Finally, the 2009 forecast includes impacts from the projected adoption of electric vehicles.

My testimony also explains the effects of wholesale contracts on load growth. In addition, the load forecast does not reflect the impact of load reductions due to the Company's demand response programs. Rather, the load forecast portrays the level of expected peak demand prior to any reductions for DSM programs. The projected impacts of the DSM programs are captured and incorporated in the development of the annual resource plan as an offset to the load forecast.

Duke Energy Carolinas relies upon long-term projections of population growth and business activity in developing its estimates of future load growth. These projections indicate that the rate of Company load growth is expected to continue at a pace similar to the last ten years.

I am very confident in the reasonableness of the Duke Energy Carolinas' forecasts and I believe they provide a reliable basis for preparing the resource plan of the Company. I conclude that the forecasts are reasonable for planning purposes, and the methods used to create them are both reasonable and appropriate.

This concludes the summary of my pre-filed direct testimony.

1 BY MS. NICHOLS:

2 Q. Thank you. And lastly, Mr. Smith.

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**DUKE ENERGY CAROLINAS, LLC**  
**Docket No. E-100, Subs 118 and 124**  
**SUMMARY OF OWEN A. SMITH'S DIRECT TESTIMONY**

My testimony describes the Company's 2009 Renewable Energy and Energy Efficiency Portfolio Standards (or "REPS") Compliance Plan, and the activities taken by the Company in furtherance of that Plan and in support of its compliance with North Carolina's REPS.

In developing the Company's 2009 REPS Compliance Plan filed with its 2009 IRP in this docket, Duke Energy Carolinas has focused on a balanced, diversified approach of utilizing:

1. existing or new Company-owned generation assets;
2. the purchase of energy from renewable energy resources available in the market through power purchase agreements; and
3. the purchase of unbundled renewable energy certificates (or "RECs") from both in-state and out-of-state suppliers to satisfy its REPS requirement.

Duke Energy Carolinas also sees great potential value in maximizing the opportunity to use cost-effective energy efficiency savings as part of its REPS compliance strategy.

Duke Energy Carolinas intends to meet its statutory REPS requirements and its 2009 REPS Compliance Plan provides the operating blueprint for it to achieve compliance over the planning horizon. The Company's resource evaluation and plan implementation activities to date have enabled it to develop a solid understanding of market pricing and other considerations regarding renewable resources, both within and outside of North Carolina. Based upon this market knowledge and analysis, as well as other considerations associated with various types of renewable energy resources, the Company has designed and developed its REPS Compliance Plan to meet its general and set aside REPS obligations utilizing the most appropriate set of renewable resources.

This concludes the summary of my pre-filed direct testimony.

1 MS. NICHOLS: The panel is available for  
2 cross-examination.

3 COMMISSIONER CULPEPPER: All right. First off,  
4 are there any other -- are there any questions that would  
5 be directed by the witnesses on cross-examination by the  
6 other two utilities?

7 MS. BOWMAN: No.

8 COMMISSIONER CULPEPPER: All right.  
9 Intervenors. Mr. Runkle, cross-examination.

10 CROSS-EXAMINATION BY MR. RUNKLE:

11 Q. We can start and -- and start talking about the  
12 coal plants. We have about 10 minutes left. Okay.

13 I guess my first question to you is to  
14 Mr. McMurry. In looking at the January 2010 revisions to  
15 the IRP on page 43. Okay. That Table 3.4, which is  
16 "Rejected Unit Retirements," you with me?

17 A. (By Mr. McMurry) Yes, I'm with you.

18 Q. Okay. In looking at the -- these planned unit  
19 retirements of -- coal plants and combustion turbines,  
20 right?

21 A. That's -- that is correct.

22 Q. And if you add up the capacity in megawatts for  
23 the coal plants, it's 15,004 megawatts?

24 A. I think it's closer to 1,650 megawatts.

1 Q. Okay. Is there a difference between the 2008 and  
2 2009 plan?

3 A. Yes.

4 Q. Okay. Are there additional -- are there  
5 additional units in the 2009 plan that are on the  
6 projected unit retirement list?

7 A. Yes, there are.

8 Q. Now, for those units that are being projected to  
9 retire, there's also a decision date. What's a decision  
10 date?

11 A. The decision date is reflective of when we're  
12 planning on retiring the unit.

13 Q. So you -- why is it called the decision date and  
14 why not a date for retiring these units?

15 A. That's the term that was used, but that can be --  
16 you -- that can be used in conjunction with retirement  
17 date.

18 Q. So as -- when a plant is retired, let's look at  
19 the first one, is Buck 4 --

20 A. That's correct.

21 Q. -- 38 megawatts, and it will be retired -- the  
22 projected retirement date is October 1st, 2011?

23 A. That is correct. Now, the Buck 3 and 4 units are  
24 part of the -- also part of the Buck Combined-Cycle

1 Project that -- and so -- and that is the commercial  
2 operation date, projected commercial operation date of the  
3 Buck Combined-Cycle Project.

4 Q. And then a -- so when a-- when Buck 3 and 4  
5 retire, what happens to the units? Are they closed down,  
6 demolished, put in mothballs?

7 A. That's something we're evaluating now. Certainly  
8 once it's closed down and the combined cycle is  
9 operational, the coal units will not be turned back on  
10 unless they're re-permitted as a, you know, biomass plant  
11 or a gas plant, but it will have to go through a different  
12 re-permitting process for that.

13 But they'll be officially retired. The state of  
14 the building, there will be future analysis on that.

15 Q. And then looking at the Cliffside 1 through 4, the  
16 decision date is also October 1st, 2011. What's -- why  
17 that date for them?

18 A. That is first fire in the Cliffside units -- or  
19 projected first fire in Cliffside Unit 6, coal-fired unit.  
20 And per the permit conditions, you must retire those units  
21 prior to first fire in the Cliffside Unit 6.

22 Q. And then the -- near the bottom of that page it  
23 talks -- there were a series of other -- of the coal  
24 plants, the Riverbend, the other Buck stations and the Lee

1 stations. Why are -- why are they having decision dates  
2 that they do?

3 A. A part of the Cliffside agreement, that we would  
4 retire approximately 1,050 megawatts of coal generation.  
5 And there was a prescribed timeframe of which these units  
6 would be retired; so many megawatts by '13, by '15, by  
7 '18. And these retirements of Buck 3 and 4, Dan River and  
8 Riverbend and Cliffside 1 through 4, those dates  
9 correspond with the requirements set forth in the  
10 Cliffside Unit 6 Order.

11 Q. Now, in the Cliffside Order, which is Docket No.  
12 E-7, Sub 790, Duke is required to file an annual plan  
13 showing the coal units to be retiring; is that correct?

14 A. Subject to check. I'm not familiar with that  
15 exact requirement.

16 Q. Does the IRP, does the table 3.4, the projected  
17 unit retirements, reflect the retirements required by the  
18 Cliffside Order?

19 A. Yes.

20 Q. Now, this is a -- this table 3.4 looks at megawatt  
21 capacity, does it not?

22 A. That's correct.

23 Q. Now, what is the net generation of the coal plants  
24 that are required to be retired?

1 A. Could you further explain your question, please?

2 Q. Well, looking at Duke's monthly report in Docket  
3 E-7, Sub 876, it looks at power plant performance data  
4 over the last 12 months.

5 A. Uh-huh.

6 Q. And it also has a net generation and megawatt  
7 hours for each of the plants. Are you familiar with that  
8 monthly report?

9 A. No, I'm not. But what I am familiar with is when  
10 we modeled these units in our production cost models of  
11 what they're projected to run, the -- the capacity factor,  
12 if that's what you're trying to get at, you know, varies  
13 anywhere between 20 percent and 50 percent. And in some  
14 cases it could go even -- really even higher on -- on like  
15 the -- some of the Riverbend units and the larger Buck  
16 units.

17 Q. Well, I'm not sure that I was looking for a  
18 capacity factor as opposed to the annual net generation  
19 for each one of these plants that you're proposing to  
20 retire over the next decade.

21 A. I don't have that information.

22 Q. Would you -- but Duke has a monthly report that --  
23 that has this kind of power plant performance data, does  
24 it not?



1 A. I'm -- I'm sure that data is collected.

2 Q. All right. So what you would be -- looking at the  
3 Buck 5, 6 and Lee 1, 2, 3 that have a proposed retirement  
4 date of -- a decision date of January 1st, 2020, under  
5 what conditions would those plants be closed down earlier  
6 than that?

7 A. Well, first of all, we -- if it had three stars  
8 beside the -- beside the designation and -- and we said --  
9 we said those units would be -- for the 2009 IRP process,  
10 remaining coal units without scrubbers were assumed to be  
11 retired in 2020.

12 You know, based on the increased regulatory  
13 scrutiny from air, water and waste perspective, these  
14 units will likely either be required to install additional  
15 controls or retire.

16 I want to emphasize that we still have the  
17 opportunity and -- and the firm decision hasn't been made  
18 to retire these units, but most likely we're retiring, but  
19 we're looking at control requirements of, you know,  
20 potential environmental regulations that may be coming.  
21 Okay.

22 Q. And in -- in the testimony this morning from --  
23 from Progress Energy witnesses looking at a couple of  
24 fairly substantial conversions to natural gas of their --

1 as part of their closure, is Duke also looking at  
2 converting plants to natural gas or replacing coal plants  
3 with natural gas?

4 A. Let's see. I mean, certainly we will consider  
5 that. We will consider that for, you know, the Buck unit  
6 and Lee units. But that decision hasn't been made at this  
7 point. They're [sic] either can be converted or they can  
8 be retired and then a combined cycle could be located at  
9 that site. But that decision -- no decision in that  
10 regard has been made.


11 MR. RUNKLE: I think that's the end of the coal  
12 questions. We can start in after lunch on the -- on the  
13 energy efficiency.

14 COMMISSIONER CULPEPPER: All right. Sounds like  
15 this is a good time to break for our lunch hour, so we  
16 will stand in recess for lunch until 1:30.

17 (LUNCH RECESS - 12:30 P.M. TO 1:30 P.M.)  
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CERTIFICATE

The undersigned Court Reporter certifies that this is the transcription of notes taken by her during this proceeding and that the same is true, accurate and correct.



Candace Covington  
Court Reporter II

**FILED**

**MAR 29 2010**

**Clerk's Office  
N.C. Utilities Commission**