

1 PLACE: Dobbs Building, Raleigh, North Carolina

2 DATE: Wednesday, March 17, 2010

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

4 TIME IN SESSION: 1:20 P.M. - 3:37 P.M.

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

8 IN THE MATTER OF:

9 Volume IV

10 Investigation of Integrated Resource Planning in North
 11 Carolina - 2008 and 2009

12

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P R O C E E D I N G S

COMMISSIONER CULPEPPER: All right.

Ms. Nichols.

MS. NICHOLS: Thank you.

COMMISSIONER CULPEPPER: Dr. Stevie is still
under oath.

RICHARD G. STEVIE, PH.D.; Having been previously duly
sworn, testified as follows:

DIRECT EXAMINATION BY MS. NICHOLS:

Q. Dr. Stevie, did you cause to be prefiled in this
proceeding rebuttal testimony consisting of 16 pages and 4
exhibits?

A. Yes.

Q. Do you have any changes or corrections to that --
to your prefiled rebuttal testimony?

A. No, I do not.

MS. NICHOLS: I move that Dr. Stevie's prefiled
rebuttal testimony be copied into the record as if given
orally from the stand and his exhibits be marked for
identification.

COMMISSIONER CULPEPPER: Motion allowed. The
exhibits are identified as marked when filed.

(Whereupon, the prefiled rebuttal testimony
of Richard G. Stevie, Ph.D. will be

1 reproduced in the record at this point the
2 same as if the questions had been orally
3 asked and the answers orally given from the
4 witness stand.)

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6 (Whereupon, Stevie Rebuttal Exhibit Nos. 1
7 through 4 were marked for identification.)
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I. INTRODUCTION AND PURPOSE

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, BY WHOM YOU**
2 **ARE EMPLOYED, AND IN WHAT CAPACITY.**

3 **A. My name is Richard G. Stevie. My business address is 139 E. Fourth St.,**
4 **Cincinnati, Ohio. I am Managing Director of Customer Market Analytics for**
5 **Duke Energy Business Services, Inc. ("Duke Energy Business Services"), a**
6 **wholly-owned service company subsidiary of Duke Energy Corporation ("Duke**
7 **Energy"). Duke Energy Business Services provides various administrative**
8 **services to Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the**
9 **"Company") and other Duke Energy affiliates including Duke Energy Ohio, Inc.,**
10 **Duke Energy Indiana, Inc., and Duke Energy Kentucky, Inc.**

11 **Q. HAVE YOU PREVIOUSLY FILED DIRECT TESTIMONY IN SUPPORT**
12 **OF DUKE ENERGY CAROLINAS IN THIS DOCKET?**

13 **A. Yes, I have.**

14 **Q. HAVE YOU REVIEWED THE PRE-FILED DIRECT TESTIMONY OF DR.**
15 **JOHN O. BLACKBURN FILED ON BEHALF OF NC WARN AND MR.**
16 **JOHN D. WILSON FILED ON BEHALF OF ENVIRONMENTAL**
17 **DEFENSE FUND, THE SIERRA CLUB, SOUTHERN ALLIANCE FOR**
18 **CLEAN ENERGY, AND THE SOUTHERN ENVIRONMENTAL LAW**
19 **CENTER?**

20 **A. Yes, I have.**

21 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY IN THIS**
22 **PROCEEDING?**

1 A. The purpose of my rebuttal testimony is to respond to several issues raised by Dr.
2 Blackburn and Mr. Wilson. I am concerned with the comments in Dr.
3 Blackburn's testimony related to his assessment of Duke Energy Carolinas'
4 projected load growth rate and his recommendation on efficiency gains of 1.5% to
5 2.0% annually. I am also concerned about numerous statements in Mr. Wilson's
6 testimony concerning the Company's IRP. Unfortunately, his statements
7 originate from mis-interpretations or mis-understandings about the Company's
8 IRP and its processes.

9 **II. RESPONSE TO TESTIMONY OF DR. BLACKBURN**

10 **Q. WHAT IS YOUR CONCERN ABOUT DR. BLACKBURN'S COMMENTS**
11 **ON THE COMPANY'S PROJECTED LOAD GROWTH?**

12 A. On page 5 of his testimony, lines 3 to 5 and lines 14 to 19, Dr. Blackburn refers to
13 projected annual load growth rates of 1.5% to 1.8% and then makes the claim that
14 he believes that "electricity demand is likely to grow more slowly than the two
15 utilities project." As evidence, he references a document from Duke Energy
16 Carolinas' recent rate case showing flat sales for the 2009 to 2014 period. He also
17 assumes this forecast is without any effects of the present recession.

18 My concern is that Dr. Blackburn has erred in his assessment in three
19 ways. First, in referring to the growth rates of 1.5% to 1.8%, Dr. Blackburn has
20 overlooked the fact that that growth rate includes sales to wholesale customers.
21 To get a true picture of the projected growth for retail sales, he should have relied
22 upon Table 3.1 on page 36 of the Revised 2009 IRP. That shows a projected
23 growth rate of 1.0%. Second, in referencing the document from the rate case

1 showing flat sales, Dr. Blackburn overlooked the fact that those sales numbers are
2 after the forecast has been reduced for the impacts of the Company's energy
3 efficiency programs. Stevie Rebuttal Exhibit No. 1 provides the forecast of retail
4 sales both before and after the impacts of the energy efficiency programs. This
5 exhibit reveals that after the inclusion of the energy efficiency programs, retail
6 sales projected for 2014 are actually below the level for 2009. And third, the
7 Company's load forecast does include impacts from the recent recession.
8 According to the National Bureau of Economic Research, which identifies the
9 beginning and end of recessions, the recession began December 2007. Given that
10 this forecast was prepared in 2009, it would have been improper for the Company
11 to have ignored the impacts of the recession in preparing this forecast.

12 Dr. Blackburn's comments concerning the Company's load growth
13 projections are unfounded.

14 **Q. WHAT IS YOUR CONCERN ABOUT DR. BLACKBURN'S**
15 **RECOMMENDATION OF ENERGY EFFICIENCY GAINS ON 1.5% TO**
16 **2.0%?**

17 **A.** On pages 5 and 6 of his testimony, Dr. Blackburn refers to two studies: a recent
18 report from the National Academy of Sciences (NAS) and a presentation to the
19 North Carolina Energy Policy Council by the American Council for an Energy-
20 Efficient Economy ("ACEEE"). Dr. Blackburn reports that the NAS study
21 concludes that a cumulative 25-31% energy savings can be achieved by 2030 and
22 that ACEEE recommends that annual gains can be achieved in energy efficiency
23 of 1.5% in 2016, rising to 2.0% by 2020.

I have reviewed both studies. My concern with the NAS study is that the numbers cited by Dr. Blackburn include all energy, including transportation fuels, not just electricity. From my reading, the NAS study cites 1.2% per year electricity impacts. However, it is not clear from the report whether this represents total energy reductions or reductions above current standards, which is the normal approach taken. With regard to the ACEEE presentation, one needs to understand that it merely presents recommendations, which are not based upon an up-to-date analysis of cost effective market potential. All of the studies surveyed in ACEEE's meta-analysis were prepared before the passage of the EISA (Energy Independence and Security Act of 2007) legislation, and thus are out of date. The only study I have seen that estimated the energy efficiency potential incorporating the EISA impacts is a study conducted by the Electric Power Research Institute ("EPRI") for the period 2010 to 2030. It was published January 2009. For the South Census region, the EPRI study found a maximum achievable potential of 11.1% by the year 2030 and a 13.4% economic potential by the year 2030. This result implies that a more reasonable annual savings recommendation would be something approaching 0.6% per year, not 1.5% to 2.0%. The EPRI study was not cited by Dr. Blackburn or ACEEE in evaluating a reasonable range to recommend for achievement of energy efficiency.

Two other points to consider are: the level of price driven conservation already included in the load forecast and the opt-out provision. First, the load forecast is based upon an expectation that the real price of electricity will rise approximately 26% from 2008 to 2029. As part of the forecasting process, this

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1 increase in price results in a price-induced reduction in energy use of 5% by
2 2029. In achieving this reduction in energy consumption, it is likely that
3 consumers will utilize the Company's energy efficiency programs. As a result,
4 the Company reduced the projected energy efficiency impacts in its High Case
5 for price-induced conservation associated with only the increases in prices due to
6 the cost of carbon (approximately 2% load reduction). As a result, the Company
7 could be underestimating its load forecast by not reducing its Base Case and High
8 Case energy efficiency impacts for all of the price-induced conservation impacts.
9 And second, industrial and large commercial customers that opt-out of the
10 Company's energy efficiency programs (as permitted under North Carolina law)
11 reduce the ability of the Company to achieve the impacts from its programs. As
12 of February 2010, approximately 550 customer locations have opted out of the
13 programs representing over 6,000,000 MWH or 8% of total retail sales, i.e., the
14 Company's market for energy efficiency. Reductions in the size of the market
15 makes it more difficult to achieve the types of reductions recommended by Dr.
16 Blackburn.

17 Based upon my review and my experience, Dr. Blackburn's
18 recommendations for energy efficiency achievement are unreasonable.

19 **II. RESPONSE TO TESTIMONY OF MR. WILSON**

20 **Q. WHAT IS YOUR CONCERN WITH MR. WILSON'S COMMENTS ON**
21 **THE COMPANY'S IRP?**

22 **A. Although I may agree with several statements made in Mr. Wilson's testimony,**
23 **there are numerous others throughout his testimony that need correction or suffer**

1 from a mis-interpretation or mis-understanding of the Company's IRP and related
2 energy efficiency processes.

3 **Q. PLEASE PROCEED WITH YOUR REVIEW AND ASSESSMENT OF**
4 **THE STATEMENTS IN MR. WILSON'S TESTIMONY.**

5 **A. There are seventeen (17) such areas that deserve comment. I will address each**
6 **one in the following paragraphs.**

7 (1) On page 6, lines 4 to 7, Mr. Wilson mentions that the utilities include
8 cumulative energy savings of 3.1% over the next fifteen years.

9 Comment: If one adjusts for the load that has opted out of participating in
10 utility sponsored energy efficiency programs as well as for price-induced
11 conservation, this percentage for Duke Energy Carolinas is actually over
12 7% in fifteen years.

13 (2) On pages 10 and 11, Mr. Wilson mentions that North Carolina ranks
14 poorly on energy efficiency achievement.

15 Comment: It is inappropriate to criticize the achievements in the State
16 using historical data from 2007 when he is well aware that Duke Energy
17 Carolinas' programs were not approved for implementation until 2009 and
18 did not start until June 2009.

19 (3) On page 11, lines 8 to 12 and Exhibit 4, Mr. Wilson makes the claim that
20 low electric rates are not a barrier to investment in energy efficiency.

21 Comment: Barriers to energy efficiency is a complex area and drawing
22 conclusions from just one factor is difficult. However, on investigating
23 this issue using data from the Energy Information Administration Form

1 861 for the year 2007, the last year available with details at the utility
2 level, I find that if one looks at the results for investor owned utilities,
3 there is direct and significant relationship between the price of electricity
4 and the percent annual incremental energy efficiency achievement. This
5 relationship is shown on Stevie Rebuttal Exhibit No. 2. In addition, on
6 Stevie Rebuttal Exhibit No. 3, I replicated Mr. Wilson's graph included on
7 his Exhibit 4, except that I added a trend line to the data. His own data
8 demonstrates that there is a relationship between investment in energy
9 efficiency and the level of electric prices. I do not think one can ignore
10 the idea that low prices are a barrier to investment in energy efficiency.
11 To ignore this concept does not make economic sense and is not borne out
12 in the data.

13 (4) On page 11, line 16, Mr. Wilson references his Exhibit 5 on which a
14 number of barriers to energy efficiency are listed. On this exhibit, there is
15 a sentence that reads as follows:

16 "One technique that leading efficiency programs use to address
17 these barriers is to ramp up gradually over time as the program
18 builds success in overcoming customer and market barriers such as
19 lack of information."

20 Comment: I agree with this statement and it is in fact exactly how Duke
21 Energy Carolinas is approaching the implementation of its programs. Yet,
22 Mr. Wilson ignores the Company's use of a gradual ramp up in making
23 unreasonable assumptions about the level of energy efficiency that is

1 achievable for the Company.

2 (5) On page 12, lines 21 to 25, Mr. Wilson makes the claim that energy
3 efficiency "remains confined to a second-class status" in the Company's
4 resource plan and that the Company has not made a long-term
5 commitment to implement cost-effective energy efficiency as a resource.

6 Comment: I totally disagree with this comment, having lived with the
7 effort to support the development of the portfolio of programs put forward
8 for approval to this Commission as well as other regulatory agencies. The
9 Company has incorporated energy efficiency programs into its IRP
10 process and is relying on it to meet the energy demands of its customers
11 over the long-term.

12 (6) On page 14, lines 11 to 14, Mr. Wilson mentions that one of the ways
13 energy efficiency can be evaluated is through a portfolio modeling
14 exercise in which supply and demand-side resources compete with each
15 other in an optimization model.

16 Comment: I agree with this and in fact this is the approach the Company
17 has undertaken with the Revised 2009 IRP.

18 (7) Beginning on line 23 of page 15 and continuing to page 16 line 3, Mr.
19 Wilson mentions a bottom up approach to study the economic potential of
20 energy efficiency.

21 Comment: Again, I agree with his comment and that is exactly how Duke
22 Energy has approached its analysis of energy efficiency.

23 (8) On page 16, footnote 18, Mr. Wilson states: "Neither a potential study nor

1 industry experience can provide a precise measure of 'cost-effective
2 energy efficiency' in the same way that a supply-side generation plan can
3 anticipate generation capacity with reasonable accuracy. These methods
4 may either under- or over-state the potential for energy efficiency to meet
5 system resource needs in much the same way that a system load forecast is
6 unable to provide an accurate prediction of future energy demand and
7 use."

8 Comment: I agree with the statement in the footnote. It highlights the fact
9 that the implementation of energy efficiency has greater uncertainty as a
10 resource and as such implies to me that one needs to gain that experience
11 with energy efficiency programs to be sure that it can be counted on over
12 the long-term.

13 (9) On page 17, lines 9 to 14, Mr. Wilson mentions that some utilities are
14 evaluating two energy efficiency resources options, either no energy
15 efficiency or one with programs.

16 Comment: If Mr. Wilson believes Duke Energy Carolinas is one of the
17 utilities that is using only the no energy efficiency case and one with
18 programs, he is mistaken. Duke Energy Carolinas evaluated a Base Case
19 with energy efficiency impacts and a High Case with even greater energy
20 efficiency impacts. .

21 (10) On page 17 line 22, Mr. Wilson refers to his Exhibit 7 on which he
22 computed energy efficiency impacts as a percent of load. He comments
23 on the declining trend represented in the data.

1 Comment: As previously mentioned, Mr. Wilson has not adjusted his
2 calculation for the fact that the impacts are for retail sales only, nor has he
3 adjusted for impacts from price induced conservation and the customers
4 that opt-out. These necessary adjustments essentially double the level of
5 impacts for Duke Energy Carolinas as a percent of retail sales. In
6 addition, Mr. Wilson's own testimony (footnote 18) implies that the level
7 of energy efficiency potential cannot be known accurately. In the context
8 of uncertainty, the Company believes it is prudent to plan based on the
9 level of energy efficiency impacts as represented by the Base Case of
10 energy efficiency impacts, but also to evaluate the possible outcome under
11 a High Case.

12 (11) On page 19, lines 3 to 7, Mr. Wilson points out that Duke Energy
13 Carolinas did not include information on the capacity, energy, number of
14 customers, and other required information.

15 Comment: Duke Energy Carolinas agrees that this should have been
16 included in the filing. In response to a data request from the Public Staff
17 (Set 3, Number 1), the Company provided the forecast of load impacts for
18 each measure. This response is attached as Stevie Rebuttal Exhibit No. 4.

19 (12) Beginning on page 19 line 8 and ending with page 20, line 15, Mr. Wilson
20 contends there are technical defects in the way that the Company put
21 together the forecast of energy efficiency impacts, because there is an
22 irregular trend in the impacts. He goes on to comment (page 20, line 12 to
23 15) that the High Case falls short of the savings needed by the year 2020.

16 With respect to the High Case energy efficiency impact forecast,
17 the Company utilized the same approach as under the Base Case forecast
18 except that in 2015, the impacts were increased to 1% of retail sales. Once
19 that was completed, the impacts were reduced to eliminate some of the
20 double counting that can result from price-induced conservation. This is
21 why the level under the High Case may not reach that expected by Mr.
22 Wilson, though it is not clear how he arrived at the value of 6,784 GWH in
23 2020 as set out on page 20, line 14 of his testimony.

1 (13) On pages 25 and 26, Mr. Wilson criticizes the Company for not including
2 a comprehensive set of energy efficiency measures in its analysis.

3 Comment: I disagree completely with Mr. Wilson's criticism. Early on
4 through a collaborative process, the Company sought input on the types of
5 measures that should be included in its energy efficiency plans. In
6 addition, the Company conducted a market potential study to also identify
7 cost-effective measures. As a result, the Company proposed a
8 comprehensive set of measures (contained within five residential and three
9 non-residential programs) to the North Carolina Utilities Commission in
10 May 2007. These were subsequently approved for implementation in
11 early 2009. There are over 120 non-residential measures, including a
12 custom incentive measure that can be used for any type of application by
13 any non-residential customer.

14 (14) On page 29 line 15 to page 31, line 13, Mr. Wilson contends that the
15 Company's market potential study (the Forefront study) identified a low
16 level of energy efficiency potential and that the residential sector analysis
17 only identified two cost-effective measures.

18 Comment: First, I need to make it clear that the Company's market
19 potential study found roughly seventeen cost-effective residential
20 measures; not the two cited by Mr. Wilson. And second, as mentioned
21 before in the response to Dr. Blackburn's testimony, the other market
22 potential studies cited by Mr. Wilson are out of date and not applicable
23 since they were prepared prior to the passage of the EISA. As previously

1 stated, the only study I have seen that estimated the energy efficiency
2 potential incorporating the EISA impacts is a study conducted by the
3 Electric Power Research Institute for the period 2010 to 2030. For the
4 South Census region, the study found a maximum achievable potential of
5 11.1% by the year 2030 and a 13.4% economic potential by the year 2030.
6 This implies that a more reasonable recommendation would be something
7 approaching 0.6% per year, not 1.0% as recommended by Mr. Wilson.

8 (15) On page 31, lines 16 to 21, Mr. Wilson recommends three new programs:
9 a Home Energy Comparison Report program, a building
10 re/retro/commissioning program, and various energy recycling
11 technologies.

12 Comment: I believe by "energy recycling technologies," Mr. Wilson may
13 be talking about Combined Heat and Power ("CHP"). Company witness
14 Mc Murry addresses the Company's approach to CHP. With regard to the
15 other two programs, the Company is discussing the design of three new
16 programs with the Public Staff, including a Home Energy Comparison
17 Report and a residential retrofit program.

18 (16) On page 33, lines 3 to 9, Mr. Wilson again comments that the High Case
19 scenario should have been higher if it were to match the level of economic
20 potential identified in the market potential study. Further on, on page 34,
21 lines 1 to 2, Mr. Wilson mentions that the IRP does not discuss why the
22 Base Case was the preferred option.

23 Comment: Mr. Wilson is correct that the level is below the economic

1 potential found by the Company's market potential study. However,
2 increasing impacts at 1% per year of retail sales imposes a constraint on
3 the level of achievement by the year 2026 as expected by Mr. Wilson.
4 Also, as previously mentioned, the Company reduced the High Case
5 energy efficiency impacts to remove the portion of the price-induced load
6 impacts attributable to the expected cost of carbon compliance.

7 As to why the Base Case was preferred, it would seem that this
8 should be clear from page 9 of the Revised 2009 IRP, which raises the
9 question as to whether DSM and EE can deliver anticipated capacity and
10 energy savings reliably and whether customers are ready to embrace EE as
11 some of the key uncertainties the Company must face in developing its
12 IRP. Further page 48 explains that the Base Case utilizes three bundles of
13 the save-a-watt portfolio of programs. The impacts from the save-a-watt
14 portfolio represent what the Company believes it can reasonably achieve
15 until it has more experience with customer response and acceptance of the
16 programs.

17 (17) On page 39 line 20 through page 41, line 2, Mr. Wilson seems to
18 recommend the creation of a regional energy efficiency collaborative and
19 a measures database for impacts.

20 Comment: I disagree with the need for a regional collaborative. The
21 Company already has a collaborative that is able to focus of issues specific
22 to the Company's customers. I believe creating a regional one will dilute
23 the focus on the Company's needs to implement energy efficiency

1 programs. With respect to the database, the Company agrees that one
2 should be created and kept up to date. In fact, one was developed by
3 Morgan Marketing Partners. It was created and was shared with the
4 Public Staff. It formed the basis for the load impact assumptions utilized
5 by the Company in its save-a-watt application.

6 III. CONCLUSION

7 Q. WERE STEVIE REBUTTAL EXHIBIT NOS. 1 THROUGH 4 PREPARED
8 BY YOU OR UNDER YOUR SUPERVISION?

9 A. Yes.

10 Q. DOES THIS CONCLUDE YOUR PRE-FILED REBUTTAL TESTIMONY?

11 A. Yes.

1 BY MS. NICHOLS:

2 Q. Dr. Stevie, do you have a brief summary of your
3 rebuttal testimony?

4 A. Yes, I do.

5 Q. Can you please provide that to the Commission?

6 A. Yes. First I want to thank --

7 MR. RUNKLE: Excuse me, counsel. Did you pass
8 out copies of the -- excuse me.

9 COMMISSIONER CULPEPPER: All right. Everybody
10 got a copy of Dr. Stevie's rebuttal summary? Thank you.
11 Proceed.

12 A. Thank you and thanks for accommodating the
13 schedule. The purpose of my rebuttal testimony is to
14 respond to several issues raised by Dr. Blackburn and Mr.
15 Wilson. I am concerned with the comments in Dr.
16 Blackburn's testimony related to his assessment of Duke
17 Energy Carolinas' projected load growth rate and his
18 recommendation on efficiency gains of 1.5 percent to
19 2 percent annually.

20 I'm also concerned about numerous statements in
21 Mr. Wilson's testimony concerning the Company's 2009 IRP.
22 Unfortunately, Mr. Wilson's statements originate from
23 misinterpretations or misunderstandings about the
24 Company's IRP and its processes.

1 With respect to Dr. Blackburn's comments on the
2 Company's load forecast, he has erred in his assessment in
3 three ways: First, in referring to the growth rates of
4 1.5 percent to 1.8 percent, Dr. Blackburn has overlooked
5 the fact that the growth rate includes sales to wholesale
6 customers; second, in referencing the rate case exhibit
7 showing flat sales, Dr. Blackburn overlooked the fact that
8 those sales numbers are after the forecast has been
9 reduced for the impacts of the Company's energy efficiency
10 programs; and third, the Company's forecast does include
11 impacts from the recent recession. Dr. Blackburn's
12 comments concerning the Company's load growth projections
13 are unfounded.

14 With regard to energy efficiency, Dr. Blackburn
15 refers to two studies: A recent report from the National
16 Academy of Sciences and a presentation to the North
17 Carolina Energy Policy Council by the American Council for
18 an Energy-Efficient Economy. I have reviewed both
19 studies, and based upon my review and my experience, Dr.
20 Blackburn's recommendations for energy efficiency
21 achievement are unreasonable.

22 Although I may agree with several statements made
23 in Mr. Wilson's testimony, there are numerous others
24 throughout his testimony that need correction or suffer

1 from a misinterpretation or misunderstanding of the
2 Company's IRP and related energy efficiency processes. My
3 prefiled rebuttal testimony details my comments regarding
4 17 such areas, including the market potential for energy
5 efficiency in the Company's service territory and the
6 selection of the energy efficiency base case.

7 This concludes the summary of my prefiled rebuttal
8 testimony.

9 MS. NICHOLS: Dr. Stevie is available for
10 cross-examination.

11 COMMISSIONER CULPEPPER: Cross-examination by
12 other counsel for the utilities?

13 MR. ANTHONY: No, sir.

14 COMMISSIONER CULPEPPER: Cross-examination by
15 intervenors? Mr. Runkle.

16 MR. RUNKLE: Thank you.

17 CROSS-EXAMINATION BY MR. RUNKLE:

18 Q. Dr. Stevie, looking at the -- Dr. Blackburn's
19 analysis of the growth rates, he was looking at a 1.5
20 percent to 1.8 percent. And you -- in your rebuttal
21 testimony you criticize that and say it also reflects not
22 just the retail rates, but the wholesale rates, the
23 wholesales to wholesale customers?

24 A. That's correct. And that was an issue we

1 discussed yesterday where with the -- Mr. Riddle mentioned
2 that the growth rate per wholesale sales is a lot higher
3 than the growth rate for retail sales. The growth rate
4 for retail sales, after you include the impacts of energy
5 efficiency, was a one percent growth rate.

6 Q. And that was after -- after the first six years?

7 A. That was a long-term growth rate.

8 Q. And that was for -- what term was that growth
9 rate?

10 A. It's actually on page 36 of the IRP. It was from
11 2008 to 2029. And if you had looked at the sales before
12 reduction for energy efficiency, you would see that it was
13 increasing. Throughout those six years, it's the energy
14 efficiency programs that are bringing it down to flat.

15 Q. And then after the first six years, does the
16 energy efficiency programs reduce the growth rate on the
17 retail side?

18 A. Yes.

19 Q. Okay. And it reduces it to, as you're saying, a
20 .9 percent over the 21-year planning horizon, the 20 --
21 the 8 -- the 19-year planning horizon?

22 A. It would be the growth rates that Mr. Riddle
23 testified to yesterday.

24 Q. And also you're saying that basically Duke has no

1 control over the growth rate of sales to wholesale
2 customers; is that correct? Your energy efficiency
3 programs don't have any effect on your wholesale
4 customers?

5 A. They are not offered to wholesale customers.

6 Q. And is there any rational for not offering energy
7 efficiency programs to wholesale customers?

8 A. It would be up to the entities that have the
9 responsibility for the wholesale customers to offer energy
10 efficiency programs. It might be an opportunity for the
11 Company down the road, but at this time that's -- that is
12 not something that the Company has undertaken.

13 Q. And the growth rate of the wholesale customers is
14 at least double the growth rate or triple the growth rate
15 of the -- for the retail customers and Duke is not
16 offering energy efficiency or is not encouraging those
17 wholesale customers to save energy?

18 A. Well, part of the reason that the growth rate for
19 the wholesale customers is as high as it is has to deal
20 with the contractual portions of a major component of the
21 wholesale customers where over time more and more of the
22 wholesale customer's load is going to be the
23 responsibility of Duke Energy. Has nothing to do with the
24 underlying normal growth or the wholesale customers.

1 Q. So you've got the -- you've got a retail
2 residential customer that's participating in every one of
3 Duke's energy efficiency programs they can -- they can
4 participate in; they're doing -- they're going on --
5 beyond that and saving energy anyway that they can, that
6 helps to reduce the growth rate on the retail side?

7 A. That's true.

8 Q. And then you've got the large commercial and
9 industrials that can opt out of the energy efficiency
10 program, so that doesn't even -- that's not even reflected
11 in -- in the -- in the growth rates, is it? You've got
12 the -- you've got the industrial and the large commercial
13 that have -- are opted out, aren't doing anything energy
14 efficient?

15 A. We have -- currently eight percent of the total
16 retail load has opted out from the commercial and
17 industrial sector. I'm not sure I understand your
18 question.

19 Q. And in looking at your growth rates, are you
20 assuming that only eight percent of the industrial and
21 commercial load is opted out?

22 A. Opting out has -- when I think of a forecast
23 before energy efficiency, opting out has no impact. And
24 we have made our projections of energy efficiency with the

1 intent to try and achieve what we've projected, regardless
2 of whether customers have opted out or not.

3 Q. And in your projections of energy efficiency, are
4 you looking at only Duke controlled programs?

5 A. The projections of energy efficiency that were
6 included in the IRP are for the Save-a-Watt programs that
7 Duke is operating.

8 MR. RUNKLE: I have no further questions for the
9 witness.

10 COMMISSIONER CULPEPPER: Cross-examination,
11 Ms. Thompson?

12 MS. THOMPSON: Yes, sir.

13 CROSS-EXAMINATION BY MS. THOMPSON:

14 Q. Good afternoon, Dr. Stevie.

15 A. Good afternoon.

16 Q. Just a few questions on your rebuttal. I think
17 Mr. Runkle just asked you about this, but you've
18 criticized Dr. Blackburn's recommendation of energy
19 efficiency of 1.5 percent to 2 percent annually; is that
20 correct?

21 A. Yes. From my review of many market potential
22 studies and as I list -- as I state in my rebuttal
23 testimony, a study that was done by the Electric Power
24 Research Institute that was completed after the Energy

1 Independence and Security Act legislation that really kind
2 of changed the game for what is considered new incremental
3 energy efficiency, I think the one and a half to
4 two percent is just way too high.

5 Q. Okay. And we'll come back to that EPRI study, but
6 the studies that Dr. Blackburn cited were the National
7 Academy of Science's study and, not a study, but actually
8 a -- just a presentation to the State Energy Policy
9 Council by ACEEE, correct?

10 A. Well, it was -- it was a -- the ACEEE stud --
11 ACEEE study was really just a -- what in their terms was
12 called a meta-analysis. It was a review of other studies.
13 It wasn't really a fundamental analysis of market
14 potential. It was a recommendation.

15 Q. And that study --

16 A. To kind of clarify the distinction between an
17 actual study and a recommendation.

18 Q. I see. And the ACEEE study has not been released
19 in final form, correct?

20 A. It's on their website. That's where I got it.
21 February 2010, there's a draft that's on their website.

22 Q. Of the draft. Okay. And is it your understanding
23 that it's going to be released in final form this week?

24 A. That may be. I've had issues with how ACEEE

1 releases studies in the past that I've seen other -- you
2 know, we've seen this in Ohio and other places, so I guess
3 I'll reserve judgment till I see the final study.

4 Q. But the final study hasn't been released yet.

5 Now, you say that the sur -- the study -- the
6 studies that were surveyed in ACEEE's meta-analysis are
7 out of date?

8 A. That's correct. They were all completed prior to
9 2007. There's one that was -- has a date of 2008, but
10 again, it is just a meta-analysis of studies that were
11 completed prior to 2007.

12 Q. Okay. So could we go through the -- do you have
13 -- since you've looked at those studies, do you have
14 information about the date of each one handy?

15 A. I'd have to pull up the ACEEE study. If you have
16 the dates --

17 Q. We don't have to do that, but you said that
18 they're all prior to 2007?

19 A. Yes. The -- the -- I know one was the GDS study
20 that was prepared for North Carolina and that was
21 completed well prior to 2007. Another one is our study,
22 the Forefront study. That was completed prior to 2007.
23 Although I don't think that was reviewed in the ACEEE
24 report. I'm not sure why, but...

1 I think another one was the -- might be the
2 Appalachian State study.

3 Q. So your testimony is that studies from 2007 and
4 prior are out of date?

5 A. That's correct. Because the Energy Independence
6 and Security Act set new standards, especially related to
7 lighting, that we have incorporated in -- the impact of
8 which we've incorporated into our load forecast. So now
9 if you include the estimates of potential from studies
10 completed prior to 2007, you're going to double count the
11 impacts.

12 Q. And you mentioned the study, the market potential
13 study that was performed for Duke by Forefront Economics a
14 moment ago. When was that study performed?

15 A. It was completed in September 2007.

16 Q. And --

17 A. It has that same issue.

18 Q. So has -- it has the same issue, being that it was
19 completed prior to the federal legislation?

20 A. That's -- that's correct.

21 Q. Has the Company performed an updated study since
22 that time?

23 A. No, it has not. It's been focused on implementing
24 the programs.

1 Q. Are -- are you -- does the Company have any plans
2 to update its 2007 study?

3 A. As I have said, I think in testimony in the
4 previous cases, I think it's something that the Company
5 needs to revisit from time to time. And I would expect,
6 you know, at least every five years that we should be --
7 it would be my recommendation for the Company that we
8 would be doing that every five years because the
9 technology's changed, the market's changed, customer
10 behavior changes and we need to keep that up to date.

11 Q. So on your -- so going -- going with your
12 every-five-year schedule that you would -- would you say
13 that the Company would be -- would you anticipate or would
14 you recommend that the Company perform or have a new study
15 performed by 2012?

16 A. Something in that neighborhood. I would think
17 that would make sense. We would have to assess just how
18 much we think the market has changed at that point.

19 Q. And -- now, John Wilson also cited several studies
20 in his testimony, including a McKinsey & Company study
21 released in July of 2009. Are you familiar with that
22 study?

23 A. I have seen parts of it. There -- the McKinsey
24 study has some peculiarities to it that actually from an

1 economic standpoint make absolutely no sense -- and we can
2 talk about those if you like -- that there are some
3 negative costs associated with -- or -- that the cost of
4 implementing some energy efficiency programs haven't -- is
5 negative, which on the surface makes no sense.

6 Q. Well, maybe let's -- maybe we can get into that.
7 I was going to ask you, you also cite an EPRI study,
8 Electric Power Research Institute study, released in
9 January 2010 that you think is more reasonable?

10 A. Yes.

11 Q. And that study found a maximum achievable
12 potential of 11.1 percent by 2030. Does that sound right?

13 A. The maximum achievable potential, yes, was 11.1
14 for the south -- southern region. The realistic
15 achievable was 8.1 by 2030.

16 Q. And those terms sound a little different to me
17 from some of the other terms that are used in potential
18 studies. Can you explain maximum achievable versus -- is
19 realistic achievable cost-effective?

20 A. Yes. That's the -- the maximum achievable is --
21 is a -- is a different term. Usually people, when they
22 think of market potential studies, they think of what's
23 the technical potential; what level could we achieve
24 ignoring costs. And the EPRI study has 31 percent by the

1 year 2030. If we just ignore the cost of achieving it.

2 If you consider the cost of achieving it, they
3 come down to an economic potential by 2030 of
4 13.4 percent. So that's a lot lower.

5 The maximum achievable, now they begin to bring in
6 consumer behavior and what they think if you really went
7 after energy efficiency and pursued it in ways that they
8 would recommend, you could get to a 11.1 percent. And
9 then what they really believe is achievable in terms of
10 persuading consumers to participate, they're at 8.1
11 percent. And keep in mind, that this is above current
12 standards.

13 Q. Sorry. Could you explain what you mean by "this
14 is above current standards"?

15 A. Well, for example, the -- the EISA legislation
16 established new standards for energy efficiency, so all of
17 this is above any efficiency that would be attributed to
18 that.

19 Q. Now, did the McKinsey report, to your knowledge,
20 also -- would that also be savings above current
21 standards?

22 A. I do not know.

23 MS. THOMPSON: May I approach the witness?

24 COMMISSIONER CULPEPPER: Yes, ma'am.

1 MS. THOMPSON: And I'm going to ask that this be
2 -- I'm going to hand out an exhibit and ask that it be
3 marked as EDF Stevie Cross Exhibit 1.

4 COMMISSIONER CULPEPPER: Let it be so
5 identified. It's EDF Stevie Cross-Examination Exhibit 1.

6 (Whereupon, EDF Stevie Cross-Examination
7 Exhibit No. 1 was marked for
8 identification.)

9 Q. Dr. Stevie, what I've just handed you is a
10 McKinsey & Company document that is a "EPRI and McKinsey
11 Reports on Energy Efficiency: A Comparison." And I would
12 just like you to take a moment to look it over.

13 And I draw your attention in particular to the
14 bullet points at the bottom of the page, bottom of the
15 first page and top of the second page. Just let me know
16 when you're ready.

17 (Witness peruses document.)

18 A. Okay.

19 Q. Okay. So I just wanted to talk through some of
20 the differences that this -- this document identifies
21 between the McKinsey and EPRI reports. One is the first
22 bullet -- sorry, the one, two, three, fourth bullet on the
23 first page states that "McKinsey report addresses
24 additional end uses of energy."

1 A. That's -- that's what it says, but from my past
2 reading of some of the McKinsey report, as I was talking
3 about before, they have some peculiar ways of analyzing
4 their -- the cost-effectiveness.

5 For example, they will -- as I read the
6 information, they will contend that some energy efficiency
7 is so cheap that it has a negative cost. And that would
8 be -- it -- it -- when economists think about this in
9 terms of opportunity costs, it would be kind of like
10 saying, well, because a bank down the street is offering a
11 five percent money -- interest rate on your money and
12 maybe you're getting a three percent right now at a
13 current bank, well that -- there's a negative two percent
14 that you're giving up.

15 Q. So are you saying that that is what accounts for
16 the fact that, for example, street lighting, traffic
17 lighting, wastewater treatment, certain additional
18 industrial processes were included in the McKinsey report
19 but not the EPRI report?

20 A. I can't tell. I will also note that the note down
21 below looks like they're including some of the things that
22 we've already included in our load forecast when they talk
23 about accelerated deployment of lighting, which is
24 something we've already re -- we've reduced our load

1 forecast for those impacts. And that would be double
2 counting again.

3 Q. Now, my -- my understanding of that last bullet
4 point was that the EPRI study -- that the McKinsey study
5 allowed -- allowed stock to be replaced prior to its --
6 the end of its useful life, whereas the EPRI study only
7 assumed that stock would be replaced on burnout.

8 A. That's exactly what I'm saying.

9 Q. Oh, I'm sorry. So you're saying that you --
10 that --

11 A. They are overestimating the impacts because of
12 this.

13 Q. Okay. Finally, there's -- turning to the second
14 page of this document, the bullet at the top of the page
15 says EPRI report applies existing technology performance
16 while the McKinsey report assumes advancement of
17 technology and economics over time. As you understand --
18 as you're familiar with the EPRI report, is that accurate?

19 A. That's -- that's true. I -- I note that they
20 refer to LED lights and actually we have LED lights as
21 some of the measures in our programs, in some of the
22 prescriptive measures.

23 But as far as market potential studies go, you
24 know, I do agree that you would like to be able to project

1 when a new technology is going to be coming online and how
2 cost-effective it is, but, you know, you can't -- you
3 can't take that to the bank necessarily. They're still
4 working on improving -- getting the costs down for LED
5 lights.

6 Q. But is it -- is it your -- is it your expectation
7 that as technology evolves that -- that -- or as
8 technology becomes more widespread that the cost of that
9 technology would go down?

10 A. One would hope that's what they're trying to do.
11 There's a new lighting technology that I read about on the
12 plane on the way out here that's called quantum dots that
13 will -- could replace the LED lights. So I'm interested
14 to see how that develops.

15 But like I said, there's no guarantee and
16 indications are it may take 10 years before that becomes
17 available, maybe longer.

18 Q. Well, maybe we can -- I'll tell Mr. Wilson to
19 bring up quantum dots in the stakeholder group.

20 Okay. Well, let's -- let's move on. Also you
21 disagree with Mr. Wilson's statement that the Company
22 didn't include a comprehensive analysis of energy
23 efficiency measures in its IRP?

24 A. Yes, I do. He made the statement, if I remember

1 correctly, that we had only looked at -- the Forefront
2 study had only looked at two -- or found two
3 cost-effective residential items and there were actually
4 -- there's 17, so it just didn't make any sense to me.

5 Q. You also note that Mr. Wilson recommends three new
6 programs in his testimony and you state that the Company's
7 discussing those programs with the Public Staff?

8 A. Yes.

9 Q. And were those programs discussed in the IRP?

10 A. No. This is a more recent development. This is
11 just evidence that we were continuing to look at
12 additional programs.

13 Q. And the Home Energy Comparison Report that was
14 mentioned earlier today, were the measures in that program
15 analyzed in the Company's market potential study?

16 A. No, it was not.

17 Q. Now, you also mentioned in response to
18 Mr. Wilson's comment that you're looking at a -- excuse me
19 -- a residential retrofit program. And you mention that
20 in response to Mr. Wilson's recommendation for a
21 commercial building retro commissioning program.

22 A. I'm not sure I understand your question.

23 Q. Okay. Let's go to page 14 of your rebuttal, lines
24 8 through 11 where you -- you say -- you state "On page

1 31, line 16 and 21, Mr. Wilson recommends three new
2 programs: Home Energy Comparison Report program, a
3 building re/retro/commissioning program, and various
4 energy recycling technologies."

5 A. Yes. That's my understanding of his testimony.

6 Q. And then again on page 14, lines 14 through 17,
7 you mention that the Company's discussing the design of
8 three new programs with the Public Staff and -- including
9 a residential retrofit program.

10 Did you understand that Mr. Wilson wasn't
11 recommending a residential retrofit program in his
12 testimony, but he was talking about building -- about
13 commercial building re and retro commissioning?

14 A. It wasn't clear to me from his testimony what --
15 what customer group he was referring to. I put the
16 residential retrofit in there as that this was evidence
17 that we were examining a -- additional programs and I
18 think it's in a similar vain. As it turns out, maybe
19 that's a different customer class, but still in the same
20 type of direction.

21 Q. Now, I'd like to talk about opt out. On page 7 of
22 your rebuttal you mention opt out. Now, the Company is
23 offering programs to the commercial and industrial
24 sectors, is it not?

1 A. That's correct. The Smart Saver Assessment
2 Program for non-residential as well as the Smart Saver
3 Incentive Program, yeah. And along with that a custom
4 option.

5 Q. And do you think -- is it your opinion that those
6 programs should be attractive to commercial and industrial
7 customers?

8 A. I believe they are. We have found them to be
9 attractive in other jurisdictions. I will add that we
10 have -- the experience that we've seen since we started
11 the programs, since June of 2009, the overall response to
12 adopting energy efficiency has not been, you know, rapid.
13 And I think the -- a point to the economy has been a major
14 contributing factor to that. Capital, access to capital
15 is tough for customers and it's -- the initial capital
16 cost for participating programs can be a barrier.

17 Q. Now, are you aware that Progress Energy Carolinas
18 has received a number of opt-in notices recently from
19 customers that had opted out previously?

20 A. I am not aware.

21 Q. Has Duke received any similar opt-in notices?

22 A. I don't believe so.

23 Q. Finally, in your rebuttal you respond to
24 Mr. Wilson's testimony where he says that one way energy

1 efficiency can be evaluated is through a portfolio
2 moderate -- modeling exercise where supply and demand-side
3 resources compete with each other in an optimization
4 model.

5 A. Yes, that's exactly what we do.

6 Q. Now -- so your -- your testimony is that that is
7 the approach the Company took in developing its revised
8 2009 IRP?

9 A. Yes. It's also the approach we took in the
10 original 2009 and the approach we took in 2008.

11 Q. Okay. So was the -- was the high case -- and I
12 think we did touch on this yesterday, but just so I'm
13 understanding, was the high energy efficiency case
14 evaluated as a resource option in the same way that the
15 base case was?

16 A. That might be a question for Mr. McMurry. I
17 believe it was, but I would ask him that question.

18 Q. In that case, that is all I have for you. Thank
19 you very much.

20 COMMISSIONER CULPEPPER: Cross-examination,
21 Mr. Olson?

22 MR. OLSON: No. No questions.

23 COMMISSIONER CULPEPPER: Mr. Styers?

24 MR. STYERS: No questions.

1 MR. CARMICHAEL: No, sir.

2 COMMISSIONER CULPEPPER: Mr. Carmichael? Mr.
3 Green?

4 MR. GREEN: No questions.

5 COMMISSIONER CULPEPPER: Ms. Edmondson?

6 MS. EDMONDSON: No questions.

7 COMMISSIONER CULPEPPER: Redirect examination?

8 REDIRECT EXAMINATION BY MS. NICHOLS:

9 Q. Dr. Stevie, when you were discussing with Mr.
10 Runkle our wholesale customers, those wholesale customers
11 have in turn retail customers?

12 A. That's correct.

13 Q. And those wholesale customers as electric
14 suppliers can offer to their customers energy efficiency
15 programs?

16 A. That -- that's correct.

17 Q. And if they're North Carolina wholesale customers,
18 they have a REPS obligation to meet, right?

19 A. I would assume so.

20 Q. And energy efficiency is one of the ways to meet
21 your REPS obligation?

22 A. Yes.

23 Q. And if energy efficiency is the least cost supply
24 option, then it would be in those wholesale customers'

1 interest to offer energy efficiency programs to their
2 retail customers?

3 A. Yeah. I would think that would follow.

4 Q. And I wanted to ask you, Ms. Thompson was talking
5 to you about whether the new programs that we've been --
6 that you've talked about that we're developing are
7 included in the IRP, and I wanted to ask you about in both
8 the base case and the high case, I think you've testified
9 previously that years three and four are scaled up; is
10 that accurate?

11 A. Yes. To comply with the conditions in the
12 settlement agreement.

13 Q. And that means that we're assuming we're going to
14 reach those levels of participation, but we don't have
15 programs yet to get there?

16 A. Exactly. And that's behind the need to add these
17 -- or to develop new programs, so we've -- we've got a
18 chance to meet that or potentially meet the high case.

19 Q. And so --

20 A. That's the intent.

21 Q. -- the Company has got to come up with these
22 additional programs to meet what's already in the IRP?

23 A. Yes.

24 Q. And you testified yesterday as to why you had

1 recommended to Mr. McMurry use of the base case. Does
2 your recommendation of the base case mean that Duke is not
3 committed to pursuing all cost-effective energy
4 efficiency?

5 A. No. No. The recommendation of the base case is
6 that we have a fundamental belief that the programs that
7 were designed to -- if we can achieve those kinds of
8 impacts for four years, can we continue that? Can we go
9 on and continue to meet the incremental impacts that we're
10 projecting and we need additional programs to be able to
11 do that.

12 MS. NICHOLS: Thank you. Nothing further.

13 COMMISSIONER CULPEPPER: Questions by the
14 Commission? Chairman Finley.

15 EXAMINATION BY CHAIRMAN FINLEY:

16 Q. Dr. Stevie, I think I heard Mr. Wilson testify
17 this morning that with regard to the energy conservation
18 programs that it's his observation that the rates that the
19 utilities charge don't have much of an impact on the
20 willingness of the customers to buy into those programs.
21 Do you have any response to that?

22 A. I -- I was having trouble tracking with that --
23 with his testimony on that. In fact, I had some testimony
24 in my rebuttal testimony and some graphs actually,

1 Exhibits 2 and 3, to address that very point because it
2 didn't -- to me that doesn't make economic sense that if
3 the rates are higher, it's a lot easier for customers to
4 find cost-effective energy efficiency; if rates are lower,
5 it's tougher.

6 But if you look at my exhibits, Rebuttal Exhibits
7 2 and 3, Rebuttal Exhibit 3 I took Mr. Wilson's exact data
8 and just ran a correlation between the two and plotted the
9 lines, you know, just a straight linear line, and it shows
10 that there's a positive relationship between rates and
11 energy efficiency achievements.

12 And then in Exhibit 2 I did the same thing for
13 individual utilities. Exhibit 3 was at a state level;
14 Exhibit 2 I went and picked investor-owned utilities from
15 across the country that were achieving more than a tenth
16 of a percent of energy efficiency in 2007 and plotted that
17 against their average retail rate. And, again, I find a
18 positive relationship.

19 Q. Are you aware of any studies -- have you seen any
20 studies that address that topic?

21 A. I've seen different things over the years that go
22 one way versus the other. To me I had to go to look at
23 the hard data myself to see what I would find.

24 Q. Well, when I walk down the sidewalk and I see a

1 penny, I won't stop to pick it up, but if there's a
2 quarter there I'll stop to pick it up. Does that
3 principle not apply here?

4 A. I think it does.

5 Q. Thank you.

6 COMMISSIONER CULPEPPER: Questions based on
7 Chairman Finley's questions from Duke? Ms. Nichols, do
8 you have any questions based on Chairman Finley's
9 questions?

10 MS. NICHOLS: Oh, I'm sorry. Nothing for me.

11 COMMISSIONER CULPEPPER: Other utilities?

12 (No response.)

13 How about any intervenors? Have any questions
14 based on Chairman Finley's questions?

15 (No response.)

16 All right. Thank you, Dr. Stevie. That would
17 appear to conclude your rebuttal testimony. You may stand
18 down from the witness chair.

19 THE WITNESS: And thank you for accommodating my
20 schedule.

21 COMMISSIONER CULPEPPER: Certainly.

22 (Whereupon, the witness was dismissed.)

23 Ms. Nichols, we'll need to deal with Stevie
24 rebuttal exhibits.

1 MS. NICHOLS: One through four, we would move
2 those into evidence.

3 COMMISSIONER CULPEPPER: All right. That motion
4 is allowed. The exhibits are admitted.

5 (Whereupon, Stevie Rebuttal Exhibit Nos. 1
6 through 4 were admitted into evidence.)

7 Ms. Thompson, we need to deal with EDF Stevie
8 Cross-Examination Exhibit No. 1.

9 MS. THOMPSON: Yes, Mr. Chairman. I would move
10 that that exhibit be admitted into evidence.

11 COMMISSIONER CULPEPPER: Motion is allowed and
12 that exhibit is admitted into evidence.

13 (Whereupon, EDF Stevie Cross-Examination
14 Exhibit No. 1 was admitted into evidence.)

15 All right. Mr. Styers, you want to call your
16 witness.

17 MR. STYERS: Yes. CPI USA North Carolina, LLC
18 would call to the witness stand Don C. Reading.

19 COMMISSIONER CULPEPPER: Now, Mr. Reading, I've
20 been mispronouncing your name earlier. I apologize for
21 that. If you'll come forward.

22 MR. STYERS: We had previously circulated, I
23 think, to every station Mr. -- a summary of Mr. Reading's
24 testimony as well as two pages of corrections, which he'll

1 explain in a moment. And so I think you should have it at
2 your chairs.

3 COMMISSIONER CULPEPPER: All right. If
4 everybody will locate that. We do have it. It is among
5 their papers somewhere.

6 DON C. READING; Being first duly sworn,

7 testified as follows:

8 DIRECT EXAMINATION BY MR. STYERS:

9 COMMISSIONER CULPEPPER: Mr. Styers, you may
10 examine your witness.

11 Q. Could you please state your name and address for
12 the record?

13 A. Don C. Reading, R-E-A-D-I-N-G, 6070 Hill Road,
14 Boise, Idaho.

15 Q. You're testifying on behalf of the intervenor CPI
16 USA North Carolina, LLC in this docket?

17 A. Yes, that is correct.

18 Q. And I think we'll probably condense that to CPI
19 for the remainder of your testimony and my questions
20 today.

21 In this case on February 19th, 2010, did you
22 prefile direct testimony consisting of 17 pages in
23 question-and-answer format?

24 A. Yes.

1 Q. Do you have any additions or corrections to that
2 prefiled testimony?

3 A. I have two corrections. The first one would be on
4 page 2 where it says I have more than 30 years experience.
5 It's 40 years, not 30 years.

6 And the same paragraph, the last sentence there
7 after "I have," eliminate the words between "then" and
8 "testimonies" and say "testified for over 35 years in more
9 than 60 proceedings." That got pulled from an older
10 resume.

11 The other correction I have is on page -- excuse
12 me -- 13 down on line 21 where the sentence currently ends
13 "\$120 a megawatt hour." Between that and the period put
14 "in year one" and then add a sentence after that saying
15 "the 15-year levelized cost would be \$122/megawatt hour."
16 Those are all the corrections I have.

17 Q. If I were to ask you the same questions today as
18 stated in the prefiled direct testimony, would your
19 answers be the same as stated in that prefiled testimony?

20 A. Yes, they would.

21 MR. STYERS: At this time, Mr. Chairman, I would
22 ask the prefiled testimony of Mr. Don Reading be -- as
23 corrected be admitted into the record as if given from the
24 witness stand.

1 COMMISSIONER CULPEPPER: All right. That is
2 allowed. The prefiled direct testimony of witness Don C.
3 Reading filed February 19, 2010, as has been amended by
4 the witness on the witness stand is admitted into
5 evidence. I don't believe there's any exhibits; is that
6 right?

7 MR. STYERS: That is correct.

8 COMMISSIONER CULPEPPER: All right. Thank you.

9 (Whereupon, the prefiled direct testimony
10 of Don C. Reading will be reproduced in the
11 record at this point the same as if the
12 questions had been orally asked and the
13 answers orally given from the witness
14 stand.)

1 **Q. WHAT IS YOUR NAME, POSITION AND BUSINESS ADDRESS?**

2 **A. My name is Don C. Reading. I am Vice President and Consulting**
3 **Economist with Ben Johnson Associates, Inc. My business address is**
4 **6070 Hill Road, Boise, Idaho, 83703.**

5

6 **Q. WHAT IS YOUR EDUCATIONAL EXPERIENCE AND**
7 **BACKGROUND?**

8 **A. I have more than 30 years experience in the field of economics. I**
9 **have a Bachelors of Science in Economics from Utah State University, a**
10 **Masters of Science in Economics from the University of Oregon, and a**
11 **Ph.D. in Economics from Utah State University. Since 1986, I have been**
12 **employed by Ben Johnson Associates, Inc. At Ben Johnson Associates,**
13 **Inc., I have been involved in more than 35 expert testimonies concerning**
14 **economic and regulatory issues.**

15

16 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY AT THIS**
17 **HEARING?**

18 **A. Our firm has been retained by CPI USA North Carolina LLC ("CPI**
19 **USA") to analyze Progress Energy Carolinas, Inc.'s ("PEC"), 2009 IRP**
20 **filed with the Commission on September 1, 2009. My testimony will**
21 **comment on how PEC's 2009 IRP treats renewables, biomass generation**
22 **costs, generation plant mix, and purchased power.**

23

1 **Q. PLEASE DESCRIBE CPI USA NORTH CAROLINA LLC.**

2 **A. CPI USA NORTH CAROLINA LLC is a limited liability company**
3 **under the laws of the State of Delaware, with its principal office located at**
4 **2000 York Road, Suite 129, Oak Brook, Illinois, 60523. CPI USA owns**
5 **two generating facilities in North Carolina (which together constitute**
6 **substantially all of its assets): a) the "Southport Facility" located at 1281**
7 **Powerhouse Drive SE, Southport, North Carolina; and b) the "Roxboro**
8 **Facility" located at 331 Allie Clay Road, Roxboro, North Carolina.**

9 **The Roxboro and Southport facilities are referred to individually as**
10 **a "Facility" and together as the "Facilities." The Roxboro Facility was**
11 **originally a nominal 56 MW coal cogeneration facility. The Facility is**
12 **undergoing modification to utilize a blend of biomass, tire-derived fuel**
13 **("TDF") and coal such that the facility can qualify for renewable energy**
14 **credits ("RECs") under the North Carolina renewable energy portfolio**
15 **standards ("REPS") contained in Senate Bill 3. Following the completion**
16 **of the renovations, the nominal capacity of the Facility will be reduced to**
17 **approximately 47 MWs. The Roxboro Facility is a qualifying small power-**
18 **producing facility under PURPA based on the percentage of biomass and**
19 **alternative fuel utilized. Currently, output from the Facility is sold to**
20 **Progress Energy Carolinas, Inc. pursuant to a power purchase agreement**
21 **that expired December 31, 2009, but whose terms remain in effect**
22 **pursuant to the Commission's Order Providing Interim Relief and**

1 Scheduling Arbitration Proceedings, in Docket No. E-2, Sub 966, issued
2 December 18, 2009.

3 The Southport Facility was originally a nominal 112 MW coal-fired
4 cogeneration facility. The Facility is undergoing modifications to burn a
5 blend of biomass, TDF and coal such that the facility can qualify for RECs.
6 Following completion of the renovations, the nominal capacity of the
7 Facility will be reduced to approximately 86 MWs. The Facility sells steam
8 to Archer Daniels Midland and is a qualifying cogeneration facility ("QF")
9 under PURPA. Currently, electric output from the Southport Facility is
10 sold to Progress Energy pursuant to a power purchase agreement that
11 expired December 31, 2009, but whose terms remain in effect pursuant to
12 the Commission's Order Providing Interim Relief and Scheduling
13 Arbitration Proceedings, in Docket No. E-2, Sub 966, issued December
14 18, 2009.

15
16 **Q. HAVE THERE BEEN SIGNIFICANT CHANGES IN PEC'S**
17 **RESOURCE PLANNING SINCE THE TIME IT FILED ITS 2009**
18 **INTEGRATED RESOURCE PLAN (IRP) ON SEPTEMBER 1, 2009?**

19 A. Yes, for example on December 1, 2009 PEC filed a plan to retire
20 550MW of coal-fired generation in Docket No. E-2 Sub 960, and on
21 December 18, 2009 they filed an application for a certificate of public
22 convenience and necessity for a 620MW natural gas-fired combined cycle
23 plant in New Hanover County, Docket No. E-2 Sub 968.

1 **Q. DOES PEC'S IRP ADEQUATELY FULFILL SENATE BILL 3 AND**
2 **PEC'S STATED RENEWABLE GOALS IN THE NEAR-TERM AND**
3 **OVER THE IRP'S PLANNING HORIZON?**

4 **A. No. PEC's preferred resource plan is depicted in Tables 1 and 2 of**
5 **their IRP. IRP, pp. 22-23. With the exception of 228MW of existing**
6 **company-owned hydropower (generated by 15 units) and 25MW of**
7 **renewable (biomass) QF capacity, no other renewable resources are**
8 **shown for 2010 in the resource plan. As PEC's hydro capacity is not**
9 **regarded as "new", it is not eligible to generate RECs¹. Accordingly, the**
10 **only in-state source of RECs in the resource plan in 2010 (and 2011) is**
11 **the 25MW non-utility owned QF.**

12 **From the perspective of current capacity capable of generating**
13 **RECs, the aforementioned 25MW of renewable QF capacity represents**
14 **only 0.18% of PEC's total supply resources in 2010.**

15 **With respect to future supply, the growth in REC-producing**
16 **renewables is nearly non-existent over the planning horizon, and in fact,**
17 **these renewable resources are shown to decline in 2015 (Table 1),**
18 **representing only 0.12% of total resources. IRP, p. 22.**

¹ Under Senate Bill 3, a "new renewable energy facility" means a renewable energy facility that either, among other attributes, was placed into service on or after January 1, 2007, or is a hydroelectric power facility with a generation capacity of 10MW or less. N.C. Gen. Stat. § 62-133.7(a)(5). Only 8 of 15 units, representing 31MW of PEC's hydro capacity, are rated at below 10MW. In Exhibit 7 of the 2008 IRP, p. D-12, PEC-owned hydro generation was shown to generate 600GWh of RECs in 2009, and 599GWh each year thereafter through 2023, however, in Exhibit 7 of the 2009 IRP, p. D-13, no PEC owned hydro resources are shown to generate RECs. Hydro is represented only by 11GWh of "contracted purchases" in each of 2009 and 2010.

TABLE 1		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
NUG QF-Renewable	MW	25	25	28	35	40	19	19	19	23	23	23	23	23	24	24

This current level of REC-producing renewable supply is so small it is not visually represented in the IRP's pie-chart illustrating projected capacity and energy by fuel type for 2009. Figure 4, IRP, p. 24. The only renewable capacity and fuel type depicted is PEC's company-owned hydro resources, which as stated above, do not produce RECs. As indicated on Exhibit 7 of PEC's IRP, p. D-13, in order to fulfill the REPS requirement, more than 8,300GWh of total RECs are required through and including 2016. See Table 2 below. Of this requirement, 25% (2,075GWh) are projected by PEC to be satisfied by energy efficiency, and another 36% (3,001GWh) are showing as fulfilled with "contracted purchases". Nearly 17% (1,400GWh) of the entire 5-year REPS requirement is met through the purchase of out-of-state wind RECs, and wind RECs comprise nearly half of the contracted RECs.

Given that Senate Bill 3 mandates that no more than 25% of the REPS requirement may be satisfied by out-of-state RECs, N.C. Gen. Stat. § 62-133.7(b)(2)e., only an additional 679GWh of out-of-state REC purchases are possible. There is a concern that more than 3,200GWh (nearly 40%) of the RECs needed to fulfill the requirement through 2016 are forecast to be generated by undesignated "projected resources". Included in this total is swine and poultry generation, both of which PEC indicates will not be sufficient to meet the statewide requirement by 2012,

1 and, PEC expresses concerns with respect to the scale and viability of the
2 technology associated with this type of generation². IRP, p. D-4. The
3 balance of the "projected resources" are marked as "other", and represent
4 the largest contribution – nearly 2,500GWh of the 3,200GWh required. On
5 an annual average basis these undesignated resources represent more
6 than 640GWh per year. To satisfy this need would require 146MW of
7 renewable capacity, assuming a 50% capacity factor. This is nearly six
8 times the size of the current supply of in-state REC-producing generation
9 (i.e., the aforementioned 25MW QF shown in Table 1 on page 22 of PEC's
10 IRP).

11 To illustrate the magnitude of the need for in-state REC-producing
12 renewable resources from a different perspective, in each of the first 3
13 years starting in 2012, the total need for RECs is more than 1,140 GWh
14 per year (and grows each year in synch with retail load growth). At the
15 75% in-state requirement, this translates into a need of more than
16 850GWh of in-state RECs per year. To generate this level of RECs,
17 based on a renewable facility operating at a 50% capacity factor, would
18 require nearly 195MW of in-state renewable capacity, nearly 8 times what
19 is shown in PEC's current resource supply.³ Moreover, the need for in-

² PEC indicates that the majority of the responses received in their RFP for swine resources received "were associated with small-scale or test projects", and that "the technology appears to be less developed than other biomass fuels". IRP, p. D-4.

³ Based on a more typical capacity factor for renewables of 35% or lower (wind and solar), the need for in-state capacity increases accordingly. At an average 35% capacity factor, more than 277MW of capacity is required to generate 850GWh of RECs. This is more than 10 times what is shown in PEC's current total resource supply for each of 2010 and 2011. IRP, p.22.

state RECs will double starting in 2015 when the RPS requirement increases to 6% of retail load. Given the significant lead time required to construct new renewable resources, PEC's ability to fulfill the requirements of Senate Bill 3 with in-state RECs is in doubt.

Table 2

(source: Derived from IRP, p. D-13)

PEC REPS Requirement (GWh)	2009	2010	2011	2012	2013	2014	2015	2016	% of Need	TOTAL
	1,144	1,180	1,184	2,397	2,428					8,314
Less contracted purchases										
Wind RECs contracted		809	591						16.8%	
Solar	4	12	12	12	12	12	12	12	1.1%	
Biomass	266	245	245	245	245	245			17.9%	
Hydro	11	11							0.3%	
TOTAL RECS PURCHASED	281	1077	848	257	257	257	12	12	36.1%	3,001
EFFICIENCY		2	2	285	289	295	597	605	25.0%	2,075
NET REQUIRED:										3,238
PROJECTED RESOURCES	2009	2010	2011	2012	2013	2014	2015	2016	TOTAL	
Poultry - undesignated	0	0	0	0	51	90	90	90	321	
Solar - undesignated	0	10	23	33	42	52	61	71	292	
Swine - undesignated	0	0	0	19	19	19	19	19	95	
Other - undesignated	0	0	0	477	477	477	477	587	2,485	
	0	10	23	529	589	638	647	767	3,203	

Finally, with respect to the balance of the planning horizon, and renewables in general (without regard to REC production), PEC's projection through the end of 2024 shows an overall *reduction* in renewable capacity and energy, with renewables representing only 1.3% of capacity, and renewable fuel representing less than 1% of total energy produced. By contrast, both nuclear and gas-fired resources increase from more than 51% of capacity in 2009 to nearly 69% by 2024, and from 48.9% of energy generated in 2009 to more than 73% by 2024. See Table 3 below. None of the capacity additions cited in PEC's resource

1 plan are renewable in nature. See Table 4 below. As a result, PEC's
2 "strong commitment" to renewables is questionable. See IRP, pp. 3, 17
3 and 28.

4
5 **Table 3**
6 (source: IRP, pp 24-25; New Hanover CPCN Application, Docket No. E-2,
7 Sub 968, p. 22)
8

Resource Mix Capacity		
	2009	2024
Coal	37.10%	27.30%
Gas & Oil	26.30%	35.80%
Nuclear	24.90%	33.00%
Hydro	1.60%	1.30%
Purchases	10.00%	2.70%
	<u>99.90%</u>	<u>99.90%</u>

Resource Mix Energy		
	2009	2024
Coal	46.00%	24.80%
Gas & Oil	3.90%	12.70%
Nuclear	45.00%	60.70%
Hydro	1.10%	0.90%
Purchases	4.10%	0.90%
	<u>100.10%</u>	<u>100.00%</u>

Resource Mix Energy: New Hanover CPCN Application, Docket E-2, Sub 968, p. 22
Before & After Wayne County and Sutton coal plants
are replaced with CC's

	2010	2014
Coal	48.30%	35.30%
Gas & Oil	3.20%	16.80%
Nuclear	44.00%	43.50%
Hydro	1.10%	1.00%
Purchases	3.40%	3.40%
	<u>100.00%</u>	<u>100.00%</u>

9
10
11
12
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14
15
16

Table 4
(source: IRP p. 21)

The 2009 resource plan includes the following capacity additions:

Name	Capacity (MW)	Type	In-Service date
Richmond County CC	635	CC	06/11
Undesignated	126	CT	12/12
Wayne County CC	950	CC	01/13
Undesignated	169	CT	06/2017
Undesignated	338	CT	06/2018
Undesignated	1105	Baseload	06/2019
Undesignated	1105	Baseload	06/2020
Undesignated	169	CT	06/2024

**Q. ARE THERE OTHER SOURCES OF IN-STATE RECS
AVAILABLE TO PEC?**

A. In PEC's Table 1, it indicates that the megawatts "include potential sources that have not yet been identified but are expected to be obtained to meet PEC's Renewable Portfolio Standard requirements". IRP, p. 22. As mentioned above, the only renewable resource included in Table 1 of the IRP that is capable of generating RECs is the 25MW QF Renewable facility. According to Table 1 above, this resource category declines in capacity over time. Other potential sources could include poultry or swine waste generation. However, as mentioned above, PEC is concerned that these resources identified for development in the near term will not be sufficient to meet the statewide requirement by 2012, and that these resources are challenged by technology that appears to be less developed than other biomass fuels. IRP, p. D-4.

1 Two other sources of in-state RECs are now available. These facilities are
2 listed in Appendix C of the IRP as "Primary Energy – Roxboro" and
3 "Primary Energy – Southport". These facilities are owned by CPI USA and
4 have undergone significant capital upgrades to utilize a biomass fuel blend
5 incorporating wood and tire-derived materials. These facilities now qualify
6 for RECs under Senate Bill 3. The facilities are QFs, and have been
7 upgraded from traditional stoker coal boilers into state-of-the-art facilities
8 at an aggregate upgrade cost of more than \$85 million. In combination,
9 the two facilities offer 134MW of capacity and the ability to generate more
10 than one-half of one REC for every megawatt-hour of electricity produced,
11 more than 275GWh of RECs annually at a capacity factor of 47.5%. At
12 this assumed output, the combined facilities would supply more than 55%
13 of the unfulfilled RECs identified in the IRP as "undesignated other
14 renewables." IRP, Exhibit 7, p. D-13. Moreover, these facilities are
15 dispatchable, and thus provide capacity in addition to energy, a favorable
16 characteristic that is not common to all renewables, as evidenced by
17 PEC's acknowledgement that only "a limited number" of the renewable
18 purchase contracts in the resource plan provide capacity. IRP, p. 10.

19
20 **Q. DO YOU HAVE ANY COMMENTS WITH RESPECT TO PEC'S**
21 **LEVELIZED BUSBAR COST FOR ALL TECHNOLOGIES WITHOUT**
22 **CARBON?**

1 A. Yes. In Figure 1-1 of the IRP, biomass technology is represented
2 by an orange line that, on interpolating from the graph, starts at
3 approximately \$670/kW-year at a 0% capacity factor and rises to
4 approximately \$870/kW-year at a 47% capacity factor. The comments at
5 the bottom of the figure indicate that the costs presented are based on
6 "generic capital, O&M, and delivered fuel costs data without transmission
7 or other site specific criteria". IRP, p. 12. This cost structure is well in
8 excess of the cost associated with two existing biomass facilities situated
9 within the State of North Carolina. The facilities in question are CPI USA's
10 Southport and Roxboro facilities, described earlier in my testimony. On an
11 aggregate basis, these facilities represent 134MW of newly-modified
12 capacity with state-of-the-art boilers that burn fuel comprised of more than
13 50% renewable biomass⁴.

14 At a zero capacity factor, the Facilities' aggregate revenue
15 requirement (i.e., all fixed costs including a financial return) totals under
16 \$30 million, which translates to just under \$225/kW-year, well below half
17 the cost indicated by PEC for biomass technology. Assuming a 47.5%
18 capacity factor, the facilities' aggregate revenue requirement is under \$65
19 million, or \$485/kW-year. This is 45% less than PEC's stated cost for
20 biomass at this dispatch level.

⁴ The Roxboro Facility's fuel blend is 55%/20%/25% wood, tire-derived fuel (TDF) and coal, and based on a State of North Carolina determination approving 25% of TDF as renewable, approximately 60% of the output is considered biomass or "renewable". The Southport Facility's fuel blend is 45%/21%/34% wood, tire-derived fuel (TDF) and coal, for an average output that is 50% renewable.

1 Furthermore, the costs outlined above for the Roxboro and
2 Southport Facilities are below not only those depicted for biomass, but
3 also below those presented in PEC's Figure 1-1 for a combined-cycle
4 natural gas-fired facility (whether "conventional" or "advanced"). The
5 conventional combined cycle facility ("CCGT") presented in Figure 1-1
6 indicates a cost in excess of \$300/kW-year at zero percent capacity factor.
7 This is more than \$75/kW-year higher than the CPI USA Facilities, and at
8 a dispatch of 47.5%, the CCGT facility shows a cost of just under
9 \$600/kW-year, more than \$100/kW-year higher than the CPI USA facilities
10 at the same output. The lower cost for the CPI USA facilities is also
11 demonstrated by comparing the levelized cost per megawatt-hour of the
12 Roxboro and Southport facilities to PEC's proposed Wayne County facility,
13 a 950MW gas-fired combined-cycle plant. See Application for a Certificate
14 of Public Convenience and Necessity to Construct a 950MW Combined
15 Cycle Natural Gas Fueled Generation Facility in Wayne County and
16 Motion for Waiver of Rule R-8-61, Docket No. E-2, Sub 960, p.6, filed
17 August 18, 2009. Based on PEC's recommended facility configuration,
18 the Wayne County plant's levelized busbar cost is projected by PEC to be
19 \$147/MWh based on a 40% capacity factor. At this same capacity factor,
20 the average aggregate cost for the Roxboro and Southport Facilities is
21 under \$120/MWh. It should be noted that, in making operational
22 comparisons, both the CPI USA facilities and PEC's Wayne County plant
23 would be considered intermediate resources, and both are dispatchable.

1 The key difference, however, is that PEC's Sutton facility would not be
2 capable of generating RECs, unlike the Roxboro and Southport Facilities.

3
4 **Q. DOES PEC'S IRP MEET SENATE BILL 3'S REQUIREMENTS**
5 **FOR REPS IN A COST-EFFECTIVE MANNER?**

6 A. PEC indicates that it is "not fully known at this time...exactly how
7 the requirements of the REPS will be achieved, and through which
8 technologies". IRP, pp. 16-17⁵. Based on the foregoing cost comparisons,
9 it is apparent that cost-effective resources that materially contribute to
10 satisfying PEC's in-state REPS needs are available in North Carolina.

11
12 **Q. DO YOU SEE ANY INCONSISTENCIES WITHIN PEC'S**
13 **RESOURCE PLAN?**

14 A. Yes. PEC states that it "advocates a balanced approach" and
15 claims that such a diversified approach "helps to insulate customers from
16 price volatility with any one particular fuel source." IRP, p. 3. PEC defines
17 "balanced" to include a commitment to investing in renewables, yet this is
18 not effectuated in their resource plan to any material degree. Indeed, as
19 noted earlier in my testimony, the renewable component of PEC's capacity
20 and energy supply is extremely low. Further, renewable energy and
21 capacity are declining in relative terms over the planning horizon. All of

⁵ Indeed, as noted above, PEC has expressed its reservations with respect to the current viability and availability of poultry and swine waste renewable resources, and moreover, that proposals to date have been "small-scale or pilot projects". IRP, p. D-4.

1 PEC's projected capacity additions are gas-fired (denoted by PEC as "CC"
2 or "CT") or "baseload". Presumably, the baseload capacity is either
3 nuclear or natural gas-fired since each proposed baseload resource is
4 shown as 1,105MW. See Table 4, above. The only exception to this is
5 the addition of 10-15MW of "QF Renewable" incremental capacity by 2013
6 and 2014, which then drops back down to a total of 19MW by 2015. This
7 is less than the current 25MW of QF Renewable capacity. See Table 1,
8 above. A balanced plan would reflect a significantly greater commitment
9 to renewables. A balanced plan would include far more renewables than
10 just over one-tenth of one percent of PEC's total resources (represented
11 by QF Renewables in 2015). Aside from not adequately embracing
12 renewables as a means of diversifying fuel risk to mitigate rate impacts – a
13 stated objective of PEC's balanced approach, IRP, p. 28 – it is apparent
14 that as an added consequence, PEC is creating a further price risk
15 exposure for ratepayers given their "short" position with respect to
16 contracted in-state RECs.

17
18 **Q. DO YOU HAVE ANY OBSERVATIONS WITH RESPECT TO THE**
19 **USE OF PURCHASED POWER AS SET FORTH IN THE IRP?**

20 **A. Yes. Tables 1 and 2, IRP, pp. 22-23, reflect a significant decline in**
21 **the level of purchased power. In particular, the QF "Cogen" category has**
22 **been reduced to zero (2010 through 2024) in the 2009 IRP from the**
23 **179MW level (through 2024) shown in the 2008 IRP. Additionally, the**

1 "renewables undesignated" category has been reduced from 44MW
2 starting in 2012 (rising to over 100MW by 2015 through 2024) in PEC's
3 2008 IRP to just 25MW through 2011 in the 2009 IRP. See Table 5
4 below. On balance, and over the long term, as indicated in PEC's Figures
5 4 and 5, IRP, pp. 24-25, capacity purchases decline from 10% in 2009 to
6 just 2.7% in 2024, and energy purchases decline from 4.1% down to
7 under 1% Id. This sharply declining percentage of purchased power
8 indicates a less – rather than more – robust and balanced resource plan,
9 as the benefits of supply diversity and an active competitive procurement
10 process are greatly diminished. Furthermore, PEC indicates that its
11 "assessment of purchase power options has not yet been conducted" IRP,
12 p. 21. However, judging by PEC's projections for purchased power, it
13 seems a foregone conclusion that this future capacity need will be met
14 with PEC-built resources.

Table 5
(source: 2008 IRP, p. 18 and 2009 IRP, p. 22)

2008 IRP	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Purchases*	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179
NUG QF - cogen	28	25	25	25	25	25									
Renewables				44	44	44	98	98	98	102	102	102	103	103	103
Renewables Undesignated															
NUG QF - Other	9														
	216	204	204	248	248	248	277	277	277	281	281	281	282	282	282

* Purchases are assumed to be renewed unless information available indicates otherwise.
Undesignated renewables are projections.

2009 IRP	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NUG QF - cogen	25	25	25	35	40	19	19	19	23	23	23	23	23	24	24
NUG QF - Renewable**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NUG QF - Other	25	25	25	35	40	19	19	19	23	23	23	23	23	24	24

** Renewables are assumed to be provided by sources that are dispatchable and/or high capacity factor sources and therefore are counted towards capacity margin. The MW shown include potential sources that have not yet been identified but are expected to be obtained to meet PEC's Renewable Portfolio Standard requirements.

1 **Q. HOW DOES THE IRP REFLECT PEC'S RESOURCE**
2 **PROCUREMENT PHILOSOPHY?**

3 **A. PEC claims that as a general policy it solicits the wholesale market**
4 **before making resource decisions. Further, PEC claims that it evaluates**
5 **alternatives to identify the feasible options to meet the identified need, and**
6 **uses detailed economic analysis to identify the most cost-effective**
7 **resource plan. PEC also indicates that "before proceeding with a self-**
8 **build option it must be determined whether there are any purchase power**
9 **alternatives available that might maintain the system reliability level in a**
10 **more cost-effective manner" IRP, p. 20; Progress Energy Carolinas, Inc's**
11 **Resource Planning Philosophy Concerning Purchased Power, p. 4,**
12 **Docket No. E-100, Subs 118 and 122. However, this stated procurement**
13 **policy is not consistent with the drastic reductions in purchased power**
14 **shown in the IRP.**

15
16 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

17 **A. Yes it does, at this time.**

1 MR. STYERS: At this time the witness would like
2 to provide a brief oral summary of his testimony. I don't
3 know if he's going to read what's been distributed or just
4 paraphrase it. I'll leave that up to him.

5 THE WITNESS: If it's all right, Mr. Chairman, I
6 will paraphrase rather than read through it.

7 COMMISSIONER CULPEPPER: That would be
8 appreciated. Thank you.

9 THE WITNESS: I was asked by -- our firm was
10 asked by CPI to review the 2009 IRP that is subject to
11 this docket.

12 Just a little bit about who I am. I work for
13 Ben Johnson Associates, which is a Tallahassee national
14 consulting firm. You noted that I lived in Boise, Idaho.
15 I'm a telecommuter, so that's why I'm here from Boise.

16 The CPI in North Carolina has two plants that
17 produce power and for 23 years they have been selling them
18 to PEC. Both plants originally were built as combined
19 heat and power that produce steam as well as electricity.

20 The Roxboro plant lost the manufacturing firm
21 and so it is just -- produces electricity at this
22 particular time.

23 The Southport plant supplies both steam -- sells
24 steam to ADM, a firm that's producing food additives,

1 Archer Daniels Midland, and employs about 150 people.

2 Both plants are QFs. When the Roxboro plant
3 lost the associated manufacturer, they lost their QF
4 status and they have reestablished it. The company spent
5 \$86 million to refurbish these plants and so they can
6 produce RECs on 50 to 60 percent of their output
7 currently.

8 In my review of the PEC IRP, I did not find it
9 -- as I explained in my testimony, I did not find that in
10 my mind over the long run -- not arguing about whether
11 they are compliant with Senate Bill 3 and the RECs between
12 now and 2011 as the Staff says or 2013 as the PEC
13 witnesses said -- but in general, were not fulfilling over
14 the course of the forecast period within the IRP what
15 Senate Bill 3 is asking for. And two ways on that: One
16 is, as I'll explain in a few minutes, I didn't see where
17 the RECs were coming from; and the second, Senate Bill 3
18 states explicitly that -- that there should be an
19 encouragement of private investment in renewable energy in
20 the state.

21 If you look at the IRP, you will see that both
22 in capacity and energy, if you look at their pie charts,
23 there's several -- or their tables -- you will see that
24 the percents of coal, gas and nuclear power are going up.

1 However, the percents of purchased power are going down
2 and you don't see in those comparisons the renewable
3 power.

4 An example of where that renewable power could
5 come from -- and as I say, as an example -- would be the
6 two plants that CPI has in North Carolina that -- that are
7 dispatchable and can provide RECs, in-state RECs.

8 PEC in their IRP talks about they need a
9 balanced approach, that they look at the wholesale market
10 first and that they want to engage in a mixture of
11 generation kinds of resources which reduce REC -- reduce
12 risk and also are good for the customers.

13 If you -- again, if you look at, for instance,
14 their figures four and five, you will see that the
15 purchased power goes down both in capacity and energy, and
16 there is no biomass or renewable. So my probably biggest
17 problem was is given what I saw in the IRP, I didn't see
18 how they could get here from there. And there was some,
19 in my mind, disconnects in some of the rhetoric that was
20 in the IRP and also some of the tables and graphs, be they
21 either in the body or in the appendices.

22 That finishes my summary. Thank you.

23 MR. STYERS: We appreciate the summary by Mr.
24 Reading and make the available -- the witness available

1 for cross-examination.

2 COMMISSIONER CULPEPPER: All right. Thank you,
3 Mr. Styers. Is there cross-examination by any of the
4 other intervenors of the witness?

5 MR. RUNKLE: No.

6 MR. GILLAM: No.

7 COMMISSIONER CULPEPPER: Mr. Green, do you have
8 any?

9 MR. GREEN: No.

10 COMMISSIONER CULPEPPER: Mr. Gillam, do you have
11 any?

12 Cross-examination by the utilities, Mr. Anthony?

13 MR. ANTHONY: Yes, sir, we have some.

14 MS. BOWMAN: Yes.

15 CROSS-EXAMINATION BY MS. BOWMAN:

16 Q. Good afternoon, Dr. Reading.

17 A. Good afternoon.

18 Q. I know you have a plane to catch, so I plan to be
19 as efficient as possible, no pun intended.

20 One of the main points of your testimony seems to
21 be directed towards PEC's plans to comply with the
22 renewable portfolio standards of Senate Bill 3; correct?

23 A. That is correct.

24 Q. So you're familiar with Senate Bill 3?

1 A. I have read through it and also read
2 interpretations of it in Commission orders and also the
3 IRPs, the discussions in this case, yes.

4 Q. So PEC has an obligation to procure RECs to
5 satisfy Senate Bill 3 as cost-effectively as possible,
6 correct?

7 A. That's what it says, yes.

8 Q. And Senate Bill 3 requirements are based on
9 energy, that is a REC is produced in conjunction with a
10 megawatt hour, correct?

11 A. That is correct. And I might add that energy and
12 capacity are -- are together. You -- you can't get energy
13 without capacity and you can get capacity without energy.
14 It's like a -- capacity is like a battery and the energy
15 is electricity that flows from it.

16 Q. And as shown on CPI's Exhibit 1 and PEC's IRP
17 Exhibit 7 of Appendix D, PEC's currently compliant with
18 Senate Bill 3 through 2013, correct?

19 A. If you use your banked RECs, that would be
20 correct.

21 Q. And your testimony implies that PEC should
22 purchase energy and capacity from your client, CPI, in
23 order to meet compliance with Senate Bill 3? And that's
24 on pages 10 and 11 of your testimony.

1 A. I would have to read it. I did not say that to
2 comply they needed to buy from CPI plants. What I said
3 was that here is an example of two dispatchable, renewable
4 resources that when the costs, the levelized -- the
5 costs -- I added the levelized -- were compared to the
6 latest generating plant that -- to be added in PEC's
7 system, and that would be Wayne County, that this was a
8 cost-effective way which the Company could fulfill those
9 RECs.

10 Q. And are you familiar with the reason that Progress
11 Energy Carolinas, I think it was mentioned in testimony
12 yesterday morning, was going to build the Wayne County
13 plants was for compliance with the Clean Smokestacks bill?

14 A. Yes. Yes. 950 megawatts and then subsequent
15 Order by this Commission said they needed more and your
16 company filed the updated coal retirement plan, so -- to
17 meet the requirements of doing that, yes.

18 Q. And that this Commission has approved that?

19 A. Okay. They certainly approved the Wayne County
20 plant. My understanding is that, yes, they approved the
21 plan for coal retirement plants.

22 Q. Okay. Going back to your recommendation that PEC
23 should consider purchasing energy and capacity from CP&I
24 [sic], would you recommend that PEC lock in a price for

1 both energy and capacity for our Senate Bill compliance
2 for 2013 and beyond today in 2010?

3 A. Again, I think you're misrepresenting my testimony
4 that doesn't directly say that they should purchase from
5 CPI. As I stated before, it's an example. And I guess
6 without getting in trouble with my clients, I'm assuming
7 that if CPI can do it, others can do the same kind of
8 thing.

9 And that's the -- the main thrust of my testimony
10 is, is that when you compare that to the cost of -- that
11 the Company reported for the Wayne County plant, in that
12 sense it is cost-effective because it is less on a
13 levelized basis per megawatt hour.

14 Q. Dr. Reading, do you know how much renewable
15 generation is available in the State of North Carolina
16 today that is not currently under contract?

17 A. I looked at -- I read Mr. Fonvielle's testimony
18 where he discussed the renewable -- the different buckets,
19 the swine, the poultry, the -- and biomass. In his
20 testimony he referred to the La Capra study and so I
21 looked at the La Crap [sic] -- I have -- I've heard some
22 dispersions about it, but I haven't looked into it, so --
23 I don't think that was Freudian. The La Capra study,
24 which indicated for biomass that -- that there was --

1 assuming what kind of capacity factor you want, between
2 4,400 and 8,800 gigawatt hours available in biomass in the
3 state.

4 And according to Mr. Fonvielle's testimony, for
5 300 and 400 megawatts for PEC, that would be 1,300 to
6 2,800 gigawatt hours. And I would state that I don't know
7 how Mr. Fonvielle determined from a La Capra study an
8 allocation or whatever to PEC. So I'll just have to
9 accept that. I don't know how -- how those numbers were
10 arrived at.

11 Q. So given that there are other resources or
12 potential resources for renewable generation in this
13 state, would you agree that an RFP is probably the best
14 way to -- for Progress Energy Carolinas to
15 cost-effectively go out and seek such resources?

16 A. RFPs would be -- would be one way, yes.

17 Q. Okay.

18 MS. BOWMAN: I have no further questions.

19 COMMISSIONER CULPEPPER: All right. Other
20 questions by members of the utilities?

21 (No response.)

22 COMMISSIONER CULPEPPER: Redirect examination,
23 Mr. Styers?

24 MR. STYERS: Yes. Thank you, Commissioner

1 Culpepper.

2 REDIRECT EXAMINATION BY MR. STYERS:

3 Q. Do you have -- I think you were asked a question
4 about Exhibit 7 in the -- Progress' IRP that's now been
5 marked, as an enlargement, CPI Cross-Examination Exhibit
6 1. Do you have that enlargement there with you, Mr.

7 Reading?

8 A. I meant to bring it, but I succeeded. Thank you.

9 Q. And you had a chance to review that information
10 that was provided in the Progress Energy IRP; is that
11 correct?

12 A. That is correct.

13 Q. You've also heard testimony in this hearing since
14 you've been here that talks about lead time in developing
15 facilities; is that correct?

16 A. Yes.

17 Q. Mr. Ellis with Public Staff testified that for
18 larger facilities and -- that would provide a substantial
19 number of RECs it -- like a biomass larger facil --
20 facility -- may take several years, two or three years I
21 believe he testified?

22 A. Yes.

23 Q. And the testimony about that on cross-examination,
24 witnesses noted that beginning in 2012 and then going out,

1 they have 477 undesignated gigawatt hour equivalence of
2 RECs on this chart, but they don't have it designated to
3 where that may be coming from; is that correct?

4 A. Yeah. That -- that's projected. Now, the lines
5 above there are the -- are the contracted or, you know,
6 the horse is in the barn. These others are -- are, I
7 assume, what they hope they can obtain.

8 Q. You were asked on cross-examination whether
9 Progress Energy should purchase RECs at this time for
10 compliance with Senate Bill 3. Do you remember that
11 question?

12 A. Yes.

13 Q. And they also noted that they were in compliance
14 through 2013?

15 A. Correct.

16 Q. Have you done an analysis of Progress Energy's
17 needs for RECs going out into the planning period 2012,
18 2013, '14, '15, '16, further out? There's been a number
19 of questions. Have you done that type of an analysis?

20 A. Yes, I have. In response to Mr. Fonvielle's
21 rebuttal, I performed that analysis.

22 Q. That was put together last night, I believe?

23 A. What?

24 Q. That was put together last night --

1 A. Yeah.

2 Q. -- after Mr. Fonvielle's testimony?

3 MS. BOWMAN: Commissioner, I object to this line
4 of questioning. He's trying to rebut our rebuttal
5 testimony.

6 COMMISSIONER CULPEPPER: Well, I'm going to
7 overrule it. Let's go ahead.

8 MR. STYERS: I would like to hand the witness a
9 exhibit called Reading Redirect Exhibit 1.

10 COMMISSIONER CULPEPPER: All right. Has it been
11 marked as such?

12 MR. STYERS: It has now. And I need to
13 distribute this because I don't think it's been seen by
14 other parties.

15 COMMISSIONER CULPEPPER: Well, have you got
16 copies for them?

17 MR. STYERS: Yes, sir.

18 COMMISSIONER CULPEPPER: Okay.

19 MR. STYERS: Yes, sir.

20 Q. Mr. Reading, does this exhibit help you respond to
21 the question that you were asked on cross-examination as
22 to why Progress should consider purchasing RECs at this
23 time in order to satisfy Senate Bill 3 requirements?

24 A. Yes.

1 Q. Would you explain what Reading Redirect Exhibit 1
2 is and explain what it says, Mr. Reading?

3 A. I'll try to be as succinct and straightforward as
4 possible. It's fairly busy, but it really is not that
5 complicated.

6 It -- the calculations, I provided the values and
7 the numbers and it all come from the IRP, primarily from
8 Exhibit 7 in Appendix D. Up at the very top is the
9 purchased RECs or those banked RECs that were discussed
10 earlier that PEC purchased in 2009, '10 and '11.

11 And I might add that I think your out-of-state
12 wind REC purchase was -- they're not on there. I'm
13 discussing just in-state -- but was -- that alluded to, I
14 thought that was a smart move by the Company to get those
15 at a good price. It needs to be remembered that they can
16 only fulfill the out-of-state REC requirement of the --
17 the 25 percent.

18 So at the top there is the amount of RECs that are
19 -- that are in the bank. If you look -- also on the
20 exhibit you will see they need 1,100 -- under 2012, they
21 need 1,144 gigawatt hours of REC producing energy.
22 Twenty-five percent of those can come from out of state,
23 and so the allocation there of 286 is 25 percent of 1,144.
24 Therefore, they would need to fulfill their REC

1 requirement in 2012, they would need to have 858 RECs,
2 have the ability to purchase or have purchased 868 [sic]
3 gigawatt hours of RECs.

4 The next lines are the energy efficiency. And I
5 might add that that line -- these are numbers from the
6 IRP; and so this line assumes that PEC can achieve the
7 energy efficiency programs that they have, the solar, the
8 biomass, and so that you -- you subtract those off the 858
9 and you get a total end-year need of RECs of 542. You can
10 net those out, those 542 from the 858 and -- and that
11 would leave a -- a ending balance when you supply -- when
12 you satisfy the RECs for 2012, what do you have left over
13 that you can move into the next year.

14 So this just reiterates and kind of goes up and
15 down and up and down and follows through the same
16 procedure. Where, due to load growth, in '13 they need
17 1,160. They can use 290 or 25 percent of that. And the
18 in-state REC needed is 870. They have that 546 and they
19 can move forward the 494 banked and so they have 170. So
20 you just keep moving around.

21 You will notice in the column 2014 it goes
22 negative. And as I recall in Mr. Fonvielle's testimony --
23 I get a little bit different number -- depending on the
24 capacity factor, I think he states in there that 2014 can

1 be satisfied by 25 megawatts of renewable, and that is of
2 that an onerous chore, so that they can satisfy that in
3 2014.

4 However, you see as you move on out, and
5 especially into 2015 where the requirement for RECs goes
6 from three percent to six percent, there would be a need
7 of, at a 50 percent capacity factor, 309 megawatts of
8 in-state renewable producing RECs to satisfy through 2015.
9 An 80 percent capacity factor, it's 193. As you move out,
10 it -- it's 584 megawatts would be needed in 2016 and 365
11 at an 80 percent capacity factor.

12 So it's just a calculation, arithmetic, so much in
13 the bank, what needs to be used, what is satisfying
14 in-state RECs. And I would add again that this is
15 in-state and this is the RECs that are already purchased.
16 This isn't the -- the non-purchased RECs or the
17 non-contracted RECs as found in Exhibit 7.

18 Q. Given the quantity of RECs that your redirect
19 Exhibit 1 illustrates, do you have an opinion as to the
20 most readily available renewable resource from which
21 Progress can meet its in-state REPS requirements?

22 A. Again, referring back to the La Capra study and
23 Mr. Fonvielle's testimony, it looks like it's biomass. As
24 stated in the testimony of Mr. Fonvielle, there's no wind;

1 there is a struggle with poultry; there's a struggle with
2 swine. However, looks like biomass is a potential place
3 that PEC could get renewable RECs in the state.

4 MR. STYERS: No further questions.

5 COMMISSIONER CULPEPPER: All right. Ms. Bowman,
6 I'm going to allow you to cross-examine the witness based
7 on this Reading Redirect Examination Exhibit No. 1. Do
8 you need any time to confer with Mr. Anthony or research
9 your notes there? You want to recess before you do that?

10 MS. BOWMAN: I would like a few-minute recess,
11 please.

12 COMMISSIONER CULPEPPER: All right. Will five
13 minutes do you? Do you need ten minutes?

14 MS. BOWMAN: Five should be sufficient.

15 COMMISSIONER CULPEPPER: All right. We stand in
16 recess for five minutes.

17 (RECESS - 2:20 P.M TO 2:27 P.M.)

18 COMMISSIONER CULPEPPER: All right. We're going
19 to go back on the record. Ms. Bowman, let me also say to
20 you that you've got some rebuttal witnesses that have yet
21 to testify, and when you get to that part of the
22 proceeding, if you want to ask them some questions about
23 Reading Redirect Examination Exhibit No. 1 that may not be
24 included in whatever testimony they were prepared to offer

1 at the beginning of the day, you're certainly free to do
2 that then.

3 MS. BOWMAN: Thank you.

4 COMMISSIONER CULPEPPER: But for now, you may
5 cross-examine the witness.

6 MS. BOWMAN: Okay.

7 RECROSS-EXAMINATION BY MS. BOWMAN:

8 Q. Mr. Reading --

9 A. Yes.

10 Q. -- your exhibit, I think, shows what we've agreed
11 to, that Progress doesn't have a deficit with regard to
12 our renewable requirements until 2014, correct?

13 A. That is correct.

14 Q. And so I think we've established in your testimony
15 and previous testimony that it takes somewhere between one
16 to three years to build in-state renewable resources. And
17 I know that you mentioned bio -- biomass.

18 A. Correct.

19 Q. So based on this deficit that Progress has in
20 2014, Progress would need to be concerned about trying to
21 lock in requirements in 2011?

22 A. Well, on the three-year timeframe, yes. And a
23 Staff witness -- I'm sorry, I forgot his name -- but the
24 bigger ones may take longer. But yes, three years would

1 -- that -- that's reasonable.

2 Q. Okay.

3 MS. BOWMAN: No further questions.

4 COMMISSIONER CULPEPPER: All right. Redirect
5 examination, Mr. Styers?

6 (No response.)

7 Questions by the Commission?

8 (No response.)

9 All right. Appear to be no questions by the
10 Commission, so Mr. Reading, you may step down from the
11 witness chair.

12 THE WITNESS: And thank you for accommodating my
13 travel.

14 COMMISSIONER CULPEPPER: Yes, sir. Thank you
15 very much.

16 (Whereupon, the witness was dismissed.)

17 That appears that that would conclude your case,
18 Mr. Styers, except we need to deal with Reading Redirect
19 Examination No. 1.

20 MR. STYERS: Yes. We would ask that that be
21 admitted into the record.

22 COMMISSIONER CULPEPPER: All right. That motion
23 is allowed and the exhibit is admitted into the record.

24 (Whereupon, Reading Redirect Examination

1 Exhibit No. 1 was admitted into evidence.)

2 That was the only exhibit that I could identify.

3 MR. STYERS: That is correct.

4 COMMISSIONER CULPEPPER: That would appear to
5 move us back to the rebuttal testimony. And Duke, you
6 have another rebuttal witness; is that correct?

7 MS. NICHOLS: We would call Mr. McMurry back to
8 the stand.

9 COMMISSIONER CULPEPPER: All right. Mr.
10 McMurry, if you'll come back. I'll remind you as you're
11 coming forward that you're still under the oath that you
12 were administered yesterday.

13 ROBERT A. MCMURRY; Having been previously duly
14 sworn, testified as follows:

15 COMMISSIONER CULPEPPER: You may examine your
16 witness.

17 MS. NICHOLS: Thank you.

18 DIRECT EXAMINATION BY MS. NICHOLS:

19 Q. Mr. McMurry, did you cause to be prefiled in this
20 docket rebuttal testimony consisting of 19 pages?

21 A. Yes.

22 Q. And you didn't have any rebuttal exhibits?

23 A. No.

24 Q. Do you have any changes or corrections to your

1 prefiled rebuttal testimony?

2 A. No.

3 MS. NICHOLS: I move that Mr. McMurry's prefiled
4 rebuttal testimony be copied into the record as if given
5 orally from the stand.

6 COMMISSIONER CULPEPPER: That motion is allowed.

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

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I. INTRODUCTION AND PURPOSE

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. HAVE YOU PREVIOUSLY FILED DIRECT TESTIMONY IN SUPPORT OF**
6 **DUKE ENERGY CAROLINAS IN THIS DOCKET?**

7 **A. Yes, I have.**

8 **Q. HAVE YOU REVIEWED THE PRE-FILED DIRECT TESTIMONY OF**
9 **INTERVENOR WITNESSES IN THIS CASE?**

10 **A. Yes, I have.**

11 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY IN THIS**
12 **PROCEEDING?**

13 **A. The purpose of my rebuttal testimony is to clarify one statement in the Affidavit of**
14 **Kennie D. Ellis and to respond to several issues raised in the testimony of David**
15 **A. Schlissel on behalf of Environmental Defense Fund, The Sierra Club, Southern**
16 **Alliance for Clean Energy and the Southern Environmental Law Center and Dr.**
17 **Blackburn on behalf of NC WARN.**

18 **II. CLARIFICATION TO TESTIMONY OF MR. ELLIS**

19 **Q. WHAT CLARIFICATION DO YOU WANT TO MAKE WITH REGARDS**
20 **TO THE AFFIDAVIT OF KENNIE D. ELLIS?**

21 **A. On page 2 of his Affidavit, Mr. Ellis states, "Duke witness Mc Murray indicates in**
22 **his prefiled direct testimony filed on January 11, 2010 in this proceeding that**
23 **preliminary results indicate that the inclusion of the *undesigned* wholesale load**
24 **increases the need for additional peaking generation in the 2017 to 2026**

1 timeframe, and increases the need for additional baseload generation in the 2018
2 to 2021 timeframe.” (emphasis supplied). I will clarify my original testimony in
3 order to eliminate any misunderstanding as to both the need for peaking and
4 baseload resource needs during the listed timeframes.

5 My prefiled direct testimony states on page 5, lines 12 through 15, that “*the*
6 *inclusion of the Central load as a firm requirement*, and the undesignated load
7 associated with wholesale customers we have a reasonable expectation to serve,
8 increased the need of combustion turbine generation in the 2017 and 2026
9 timeframe.” (emphasis supplied). It is both the inclusion of the Central load and
10 the specified undesignated wholesale load increased the need for additional
11 peaking generation within the subject timeframe.

12 Likewise, the additional wholesale undesignated load in the Revised 2009
13 IRP did not create a need for additional baseload resources over and above that
14 called for in the 2009 IRP as filed on September 1, 2009, nor does this additional
15 undesignated wholesale load alone support the need for Lee Nuclear. My prefiled
16 testimony on page 5, lines 15 & 16, states “the inclusion of these wholesale
17 customers *further* supports the need for Lee Nuclear in the 2018 to 2021
18 timeframe.” Duke Energy Carolinas needs Lee Nuclear with or without the
19 inclusion of the undesignated wholesale load in the IRP. The inclusion of the
20 undesignated wholesale load does *further* support that need, but the need for Lee
21 Nuclear is not dependent on the addition of the undesignated load.

III. RESPONSE TO TESTIMONY OF MR. SCHLISSEL

Q. WHAT ARE THE SPECIFIC ISSUES WITH REGARDS TO THE TESTIMONY OF DAVID A. SCHLISSEL THAT ARE ADDRESSED IN YOUR REBUTTAL TESTIMONY?

A. Specifically, I am responding to following points and claims concerning:

Points and claims raised by David A. Schlissel:

- Duke Energy Carolinas' emissions are "going in the wrong direction" (page 8) when mandated emission levels are going down.
- The Company's increase in carbon dioxide ("CO2") emissions between 2010 and 2029 is due to the addition of Cliffside Unit 6.
- Duke Energy Carolinas will need to reduce its reliance on coal-fired generation to further reduce CO2 emissions.
- Duke Energy Carolinas can add additional natural gas-fired generation combined cycle units to replace coal fired generating capacity without concern regarding becoming unreasonably dependent on natural gas as a fuel source.
- Duke Energy Carolinas should be including the potential cost of additional air emission requirements and the regulation of Coal Combustion Byproducts in its IRP.
- Although Duke Energy Carolinas' CO2 base price assumption is reasonable, the Company needs to consider a wider range of scenarios of CO2 prices than +/- 15% around the base price.

1 Q. HOW DO YOU RESPOND TO MR. SCHLISSEL'S CRITICISMS ON
2 PAGE 8 OF HIS TESTIMONY REGARDING DUKE ENERGY
3 CAROLINAS' PROJECTED CO2 EMISSIONS BETWEEN 2009 AND
4 2029?

5 A. Mr. Schlissel correctly points out on page 6 of his testimony that Duke Energy
6 Corporation ("Duke Energy") is part of the US Climate Action Partnership, which
7 recommended emission reductions similar to those in the Waxman-Markey
8 proposed legislation. Duke Energy has been a vocal proponent of CO2 legislation
9 that is economy-wide, based on a cap and trade methodology, and includes an
10 appropriate level of emission allocations to protect customers from rate shock.
11 Most federal climate change legislation proposed to date has included an economy-
12 wide greenhouse gas ("GHG") cap-and-trade program to bring about reductions of
13 GHG emissions through 2050. Under a cap-and-trade program, utilities have the
14 option of reducing carbon emissions, purchasing allowances or credits, or a
15 combination of the two.

16 From the time the Company began to incorporate potential GHG regulation
17 into its resource planning process in 2006, Duke Energy Carolinas has assumed a
18 cap-and-trade program would be enacted. Under this assumption, the Company
19 has sought to develop a cost-effective portfolio of resources that meets customer
20 energy needs while complying with the assumed GHG regulation. Our results
21 consistently demonstrate that this is best achieved through a balanced portfolio that
22 includes nuclear, coal, gas, hydro and renewable energy generation, end-use
23 energy efficiency, and the purchase of GHG emission allowances. As the proposed
24 emissions cap declines over time, the price of GHG allowances will likely

1 increase. As the prices of GHG allowances increase, additional end-use energy
2 efficiency, nuclear, natural gas, and renewable generation will likely be more cost-
3 effective and, over time, will lead the Company to replace coal-fired generation
4 resources as those resources near or reach the end of its economic lives. Duke
5 Energy Carolinas' economic analyses to date, however, show that coal-fired
6 generation resources, particularly those with environmental controls (commonly
7 referred to as "scrubbed" units), will continue to be an important part of the
8 portfolio through at least 2029, over a range of potential GHG allowance prices.

9 Duke Energy Carolinas continues to believe that it is likely that federal
10 climate change legislation will be enacted. The Company is aware, however, that
11 the Environmental Protection Agency ("EPA") has proposed to regulate GHG
12 emissions. It is very unclear at this time what those regulatory requirements might
13 consist of beyond the application of prevention of significant deterioration
14 ("PSD") permitting requirements for new and modified electric generating
15 facilities that will take effect in 2011. The EPA has given some indications that it
16 wants to develop new source performance standards for GHG emissions from
17 electric generating facilities and that such standards could possibly include a cap-
18 and-trade program, but this is uncertain.

19 **Q. ON PAGE 3 OF HIS TESTIMONY, MR. SCHLISSEL TESTIFIES THAT**
20 **THE COMPANY'S CO2 EMISSIONS ARE INCREASING BETWEEN 2010**
21 **AND 2029 BECAUSE OF THE ADDITION OF CLIFFSIDE UNIT 6. DO**
22 **YOU AGREE?**

23 A. No, I do not. Mr. Schlissel compares the emissions of Cliffside Unit 6 with
24 the emissions of the cycling plants Duke Energy Carolinas will be retiring. What

1 Mr. Schlissel misses is that with the addition of the Cliffside Unit 6 unit, all other
2 coal resources are moved down in the dispatch order and will run less often than
3 they would have without the addition of Cliffside 6. Cliffside Unit 6 is critical to
4 the Company's fleet modernization program. It will be the most efficient coal
5 generating unit on Duke Energy Carolinas' system and will generate
6 approximately 25% less CO2 per megawatt-hour ("MWhr") than the 1,600
7 megawatts ("MWs") of coal generation that the 2009 IRP shows will be retired by
8 2020. As a result of the above-referenced retirements, and the additions of
9 Cliffside Unit 6, Buck and Dan River Combined Cycle plants and Lee Nuclear, the
10 system average CO2 per MWhr will decrease from actual 1.0 #CO2/MWhr in
11 2008 to a projected system average in 2029 of under 0.7 #CO2/MWhr in 2029.
12 This represents a 30% decrease in CO2/MWhr emissions.

13 The addition of Cliffside Unit 6 means the emissions from the remaining
14 coal assets will decrease. Mr. Schlissel suggests that Duke Energy Carolinas could
15 have used natural gas generation (which has a lower CO2 emission level than coal
16 generation) to reduce its CO2 emissions. What Mr. Schlissel fails to realize is that
17 adding efficient natural gas generation does not significantly alter the dispatch
18 order; where baseload coal is dispatched ahead of natural gas generations even
19 considering the value of CO2 emission allowances. Thus, the addition of natural
20 gas generation may not significantly reduce CO2 emissions.

21 The increase in emissions over the planning horizon reflected in Chart A3 (page
22 72) of the 2009 IRP is due in part to the inclusion of approximately 1800MW of
23 additional wholesale load without taking into consideration the carbon emissions
24 associated with these customers prior to being served by Duke Energy Carolinas.

1 These customers are currently being served by other energy providers that emit
2 CO2. If Chart A3 included the emissions of these customers from 2009 to 2029,
3 the chart likely would have reflected a reduction in CO2 emissions over the same
4 period as compared to Chart A3 at present.

5 [BEGIN CONFIDENTIAL]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED]

24 [REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]

4 [END CONFIDENTIAL]

5 Q. ON PAGE 11 OF HIS TESTIMONY, MR. SCHLISSEL ASKED IF THE
6 COMMISSION SHOULD BE CONCERNED BY THE COMPANY'S
7 RETIREMENT OF ADDITIONAL COAL GENERATION BEYOND THE
8 PLANNED 1,600 MWS AND REPLACING IT WITH NATURAL GAS
9 COMBINED CYCLE GENERATION. HOW DO YOU RESPOND?

10 A. Mr. Schlissel suggests that natural gas is going to be cheap and plentiful well into
11 the future, and thus less volatile over the planning horizon. I think we've all heard
12 those predictions before. Perhaps this prediction will come to fruition, perhaps
13 not. As suggested by Mr. Schlissel, there were signals in 2009 that natural gas
14 prices may drop near term due to the recession and longer term due increased
15 domestic supply. However, the long term price remains uncertain. Natural gas
16 pricing has historically been volatile and if Duke Energy Carolinas and other
17 utilities were to start to retire significant amounts of coal fired generation and to
18 invest significantly in natural gas resources, there would be almost certainly be a
19 price response.

20 Notwithstanding these concerns, the Company addressed the issue of a
21 potential reduction in gas price with its sensitivity analyses. In the 2009 IRP, the
22 "low gas price" sensitivity was based on a minus 40% price sensitivity from the
23 base fundamental gas forecast. During screening phase, when the natural gas price
24 was reduced 40%, some amount of natural gas combined cycle generation was

1 selected in lieu of combustion turbine generation in the 2025 to 2030 timeframe.
2 The capacity factor of some of the existing coal generation decreased, but in no
3 way did these sensitivities indicated that the retirement of additional coal
4 generation would be cost effective.

5 Duke Energy Carolinas welcomes the news of the potential for lower
6 natural gas prices because it would lower fuel costs to customers. However, our
7 analysis shows, at lower gas prices, that although natural gas combined cycle
8 generation may displace some of the 4,400 MWs of projected combustion turbine
9 need through 2029, it would not be cost effective to retire additional coal
10 generation.

11 **Q. ON PAGE 15 OF HIS TESTIMONY, MR. SCHLISSEL STATES THAT**
12 **ELECTRIC UTILITIES SHOULD INCLUDE THE COSTS OF NEW OR**
13 **REVISED AIR EMISSION REQUIREMENTS AND THE COSTS OF THE**
14 **PROPER DISPOSAL AND MANAGEMENT OF COAL COMBUSTION**
15 **WASTES IN THEIR RESOURCE PLANS. HOW DO YOU RESPOND?**

16 **A. First, I would like to correct Mr. Schlissel's use of the term "Coal Combustion**
17 **Waste" used on pages 15-24. The EPA and multiple state regulatory agencies**
18 **have referred to these products as Coal Combustion "Products", or "By-products",**
19 **and "Residuals" but not waste.**

20 The beneficial re-use of Coal Combustion By-Products ("CCBs") goes back more
21 than 40 years and the EPA, federal agencies, universities and other research
22 institutes have extensively studied their impact on the environment. Studies
23 associated with the use of CCBs for cement, wallboard, structural fill, road projects
24 and other similar application show that these applications pose no public health

1 risks when used properly. The EPA, as recently as 2000, reaffirmed the
2 designation of coal ash as a non-hazardous waste.

3 On page 15, lines 21 and 22, Mr. Schlissel states that fly ash and
4 desulfurization sludge are typically disposed of in a landfill without
5 acknowledging any potential reuse. All of the Flue Gas Desulfurization ("FGDs")
6 systems installed on Duke Energy Carolinas' system produce a wallboard grade
7 gypsum by-product and the majority of this by-product is, or will be, used in
8 wallboard production. Also, a large quantity of the fly ash produced is used in the
9 production of cement and structural fills.

10 Though not explicitly addressed in the IRP, the Company's resource
11 planning analysis accounts for the risks associated with future regulations of CCBs
12 and other pending air quality regulations. For example, the Revised 2009 IRP
13 reflects that all the Company's coal-fired units that currently do not have the
14 ability to dispose of the fly ash in a landfill will be retired by 2020. The scrubbed
15 coal units on Duke Energy Carolinas' system handle fly ash in a dry manner and
16 have the ability to dispose of the ash in on-site lined landfills. Depending on the
17 requirements of future CCB regulation, these stations could incur additional
18 compliance costs, but are positioned well to meet future requirements. These units
19 have advanced SO2 and NOx controls due in large part due to the 2002 North
20 Carolina Clean Smokestacks Act. The SO2 and NOx controls have an ancillary
21 benefit of also reducing mercury. It is too early to tell if Duke Energy Carolinas
22 will have to incur additional costs due to emerging environmental regulations; but
23 given the planned retirements, the flexibility to move up these retirements, and
24 existing air emission controls on the remaining units, the Company is positioned

1 well to meet these emerging requirements.

2 I would also like to make some clarifications to the following statements:

- 3 • Page 16, lines 7-9 – Mr. Schlissel states that North Carolina law exempts CCB
4 surface impoundments and certain new CCB landfills from solid waste
5 regulation. He is mistaken. Surface impoundments for ash are currently
6 regulated by the North Carolina Division of Water Quality.
- 7 • Page 16, line 9 – Mr. Schlissel says that a liner may not be required for CCB
8 landfills. Again, he is mistaken. Mr. Schlissel references 15A N.C.A.C.
9 13B.0503, but this regulation applies only to sanitary landfills. CCB landfill
10 designs follow the requirements at N.C.A.C. 13B .1600, which does require a
11 liner system. Although Mr. Schlissel correctly references NC Gen. Stat. §
12 130A-295.4 and correctly notes that the regulation does allow exemptions, he
13 fails to acknowledge that the statute requires a more stringent liner system in
14 exchange for being able to construct the landfill over formerly used CCB
15 storage areas. The statute is a “win-win” in that it requires more stringent
16 liners while allowing the landfill to be built on previously used areas. This
17 regulatory structure allows the landfill to cap the existing CCB material and
18 allows a landfill to be built without creating a new footprint.
- 19 • Page 16, lines 11-12 – Mr. Schlissel's reference to the statute for CCB
20 structural fill sites is incorrect. However, he is correct that liners are not
21 required for structural fills; they are exempted from landfill design type
22 requirements due to their application for beneficial re-use.

1 Q. DO YOU AGREE WITH MR. SCHLISSEL'S TESTIMONY THAT DUKE
2 SHOULD HAVE USED A WIDER RANGE OF SCENARIOS FOR CO2
3 PRICE PROJECTIONS IN ITS 2009 IRP?

4 A. No. The Company developed its CO2 price projections using the
5 Waxman/Markey CO2 legislation (House Bill - HR2454). During the
6 development of the 2009 IRP, this bill passed the House of Representatives and,
7 for purposes of the 2009 IRP, the Company presumed that something similar to the
8 regulatory scheme set forth in the bill would become law. The plus or minus 15%
9 range was developed based on a range of international offsets that were being
10 evaluated at the time.

11 There is less certainty today that CO2 legislation will become law than
12 there was in 2009. In the development of the 2010 IRP, Duke Energy Carolinas
13 may consider a broader range of CO2 prices to reflect this increase uncertainty.

14 **IV. RESPONSE TO TESTIMONY OF DR. BLACKBURN**

15 Q. WHAT ARE THE SPECIFIC ISSUES WITH REGARD TO THE
16 TESTIMONY OF DR. BLACKBURN THAT YOU WILL ADDRESS IN
17 YOUR REBUTTAL TESTIMONY?

18 A. In the testimony of Dr. Blackburn, North Carolina Waste Awareness and
19 Reduction Network ("NC WARN") presents the same arguments, albeit with more
20 aggressive assumptions, as in its comments filed in the 2006 IRP proceeding,
21 Docket No. E-100, Sub 109; 2007 IRP proceeding, Docket No. E-100, Sub 114;
22 2008 IRP Initial Comments and Request for Hearing, Docket No. E-100, Sub 118;
23 and now in the Investigation of the 2008 and 2009 IRP, Docket No. E-100, Sub
24 124.

1 Duke Energy Carolinas addressed each of NC WARN's claims in the
2 Company's reply comments filed in the Matter of Investigation of Integrated
3 Resource Planning in North Carolina 2008 (Docket No E-100, Sub 118). The
4 reply comments focused mainly on the NC WARN report entitled North Carolina's
5 Energy Future, which is Exhibit 2 to Dr. Blackburn's testimony.

6 In this filing, NC WARN added a supplement to that report entitled, North
7 Carolina's Energy Future 2010: Phasing Out the Generation of Electricity by
8 Coal. This new report is attached as Blackburn Exhibit 3. In this report, the theme
9 is the same but with much more aggressive assumptions than used in 2009. I will
10 respond to following points and claims concerning the 2010 supplement:

- 11 • Load growth is overstated
- 12 • Future energy demands can be met with:
 - 13 ○ Saving associated with energy efficiency increasing at 1.5% per
 - 14 year;
 - 15 ○ 20% generation produced with renewable energy requirement;
 - 16 ○ 18% energy produced with combined heat and power ("CHP")
 - 17 systems installed by customers;
 - 18 ○ No new nuclear (other than planned up rates);
 - 19 ○ Completion of the Buck and Dan River Combined Cycle
 - 20 facilities; and
 - 21 ○ Retirement of the existing fossil fleet and not completing
 - 22 Cliffside Unit 6.

23 Dr. Blackburn suggests that load growth is overstated in the 2009 IRP.

24 Company witness Dr. Stevie addresses this allegation by Dr. Blackburn in his

1 rebuttal testimony. Dr. Blackburn also again arbitrarily deletes new wholesale
2 load included in the Duke Energy Carolinas forecast. All of these additional
3 wholesale customers, including Central Electric Power Cooperative Inc. and those
4 that make up the undesignated wholesale load, have been historically served by
5 Duke Energy Carolinas and are located within its Balancing Authority Area. The
6 Advance Notice process established under the Regulatory Conditions adopted in
7 Docket No. E-7, Sub 795 provides the Commission and interested parties with the
8 opportunity to review in advance proposed wholesale power agreements with such
9 customers prior to Duke Energy Carolinas' provision of native load priority service
10 to these customers. Dr. Blackburn ignores the Commission's *Order on Advance*
11 *Notice* in Docket No. E-7, Sub 923 (November 10, 2009), in which the
12 Commission specifically rejected NC WARN's arguments against the Company
13 serving this customer. .

14 These wholesale customers will be served by someone; the only question is
15 by whom. The rates paid by these historically-served customers contributed to the
16 funding of Duke Energy Carolinas' existing transmission and generation
17 infrastructure and these citizens should have the opportunity to be served by an
18 efficient, low-cost electricity provider such as Duke Energy Carolinas.

19 **Q. PLEASE ADDRESS DR. BLACKBURN'S SUGGESTIONS ABOUT**
20 **RENEWABLE ENERGY.**

21 **A. Dr. Blackburn states that 20% of Duke Energy Carolinas generation needs should**
22 be and can be met with renewable generation. He suggests that this
23 recommendation is not significantly different than the current Renewable Energy
24 and Energy Efficiency Portfolio Standards ("REPS") requirement of 12.5%.

1 However, the REPS requirement includes the ability to meet 40% of the
2 Company's requirements with energy efficiency (equivalent to 5% of the 12.5%)
3 and 25% of the standard with out of state Renewable Energy Credits ("RECs")
4 (equivalent to 3.1% of the 12.5%). Assuming the Company is able to maximize
5 the use of energy efficiency and take advantage of low cost out-of-state RECs,
6 Duke Energy Carolinas would only need to use renewable energy resources for
7 approximately 4.5% of its generation needs to meet the REPS requirements.
8 Currently, renewable energy resources are typically more expensive for customers
9 than traditional generation. To the extent some renewable energy resources
10 become cost effective as compared to traditional generation, Duke Energy
11 Carolinas will include additional renewable energy resources in its portfolio
12 beyond that required by REPS. Should these resources remain more expensive,
13 going beyond the REPS requirement will result in a resource mix that is not least
14 cost to the Company's customers.

15 Dr. Blackburn generously allows a portion of his proposed 20% of
16 renewable energy to be met through the Company's existing hydroelectric
17 resources. However, if the credit for existing hydro is removed, the 20% amount
18 becomes approximately 18%, which is four times the amount of renewable energy
19 that would currently be required from Duke Energy Carolinas in terms of
20 indigenous North Carolina resources under REPS (4.5% vs. 18%). This
21 recommendation is unrealistically high and is not sustainable. To put it in
22 perspective, to achieve this level of renewable generation would exhaust all
23 biomass resources and require thousands of MWs of wind and solar resources.

1 I must also note that nowhere in NC WARN's plan did Dr. Blackburn
2 address the need for a reserve margin to assure reliable energy for Duke Energy
3 Carolinas' customers. It is simply reckless to include thousands of MWs of wind
4 and solar resources without any consideration of reserve margin when those
5 resources are not dispatchable and only contribute approximately 15 and 50%,
6 respectively, of their name plate capacity during the Company's peak energy
7 needs. In summary, Dr. Blackburn provides no support for the operational
8 feasibility of his recommendation, nor does he provide any detailed cost analysis.

9 **Q. PLEASE ADDRESS DR. BLACKBURN'S SUGGESTIONS ABOUT**
10 **COMBINED HEAT AND POWER ("CHP").**

11 **A.** As noted above, Dr. Blackburn Exhibit 2 has been filed in various proceedings and
12 was addressed specifically by Duke Energy Carolinas in its Response to NC
13 WARN's motion to revoke the Cliffside Unit 6 CPCN in Docket No. E-7, Sub 790
14 as well as its Reply Comments in the 2008 IRP proceeding in Docket No. E-100,
15 Sub 118. In Exhibit 2, Dr. Blackburn included an additional 800 MWs of CHP. In
16 its 2008 IRP Reply Comments¹, Duke Energy Carolinas noted that although
17 cogeneration or CHP has been available to customers since 1978, the Company
18 only has about 200 MWs of cogeneration on its system. Based upon historical
19 participation, the economics simply do not appear to be favorable for customers to
20 construct CHP facilities on a large scale. Despite these facts, in the updated
21 analysis (Blackburn Exhibit 3), Dr. Blackburn includes an incredible 3,000 MWs

¹ *Duke Energy Carolinas, LLC Reply Comments*, Docket No. E-100, Sub 118 (May 29, 2009) at pages 17-18. These Reply Comments are incorporated into this testimony by reference.

1 of cogeneration to meet Duke Energy Carolinas' customers' energy needs. This is
2 clearly unrealistic.

3 **Q. WHAT POSITION DOES DR. BLACKBURN TAKE WITH REGARD TO**
4 **NUCLEAR GENERATION?**

5 **A.** Dr. Blackburn does not include any new nuclear generation beyond the nuclear
6 uprates. The 2008 and 2009 Duke Energy Carolinas IRPs focused on a carbon
7 constrained future. Both of these plans clearly demonstrate the need for additional
8 nuclear generation when meeting future energy needs in a carbon constrained
9 future.

10 **Q. HAVING REVIEWED DR. BLACKBURN'S EXHIBIT 3, DO YOU AGREE**
11 **WITH HIS CONCLUSION THAT ALL EXISTING COAL CAN BE**
12 **RETIRED AND THAT CLIFFSIDE UNIT 6 IS NOT NEEDED?**

13 **A.** No. Both the 2008 and 2009 IRPs clearly demonstrate that coal generation will be
14 an important part of the Company's generation resources over the next 20 years.
15 This conclusion is best illustrated by reviewing how these units are projected to
16 operate. For example, in 2029, even when incorporating the impacts of carbon,
17 Duke Energy Carolinas' scrubbed base load coal assets will still operate at a
18 capacity factor of 70% and above. If these units were not cost effective in a carbon
19 constrained future, the capacity factors for coal units would have been depressed
20 and the capacity factors for natural gas generation would have been much higher.
21 This was simply not the case. Also, Cliffside Unit 6 is the most efficient coal
22 resource on the system and has the most flexibility to burn a variety of coals and
23 lead the way for the Company's fossil fleet.

1 Dr. Blackburn's plan is so flawed as to be completely unreliable. NC
2 WARN has developed a plan that is not realistic and would result in a higher cost
3 and decreased reliability for customers, which is counter to the cornerstone of
4 resource planning.

5 V. CONCLUSION

6 Q. DOES THIS CONCLUDE YOUR PRE-FILED REBUTTAL TESTIMONY?

7 A. Yes, it does.

1 BY MS. NICHOLS:

2 Q. And Mr. McMurry, do you have a summary of your
3 rebuttal testimony?

4 A. Yes, I do.

5 Q. Please provide that to the Commission.

6 A. Good afternoon. The purpose of my rebuttal
7 testimony is to clarify one statement in the affidavit of
8 Mr. Ellis and to respond to several issues raised in the
9 testimony of Mr. Schlissel and Dr. Blackburn.

10 In response to Mr. Ellis' Affidavit, I have
11 clarified my original testimony in order to eliminate any
12 misunderstanding as to both the need for peaking and
13 baseload resource needs during the listed timeframes.
14 Duke Energy Carolinas needs Lee Nuclear with or without
15 the inclusion of the undesignated wholesale load in the
16 IRP. The inclusion of the undesignated load does further
17 support that need, but the need for Lee Nuclear is not
18 dependent on the addition of the undesignated load.

19 My rebuttal testimony also responds to certain
20 claims raised by Mr. Schlissel on behalf of the
21 Environmental Intervenors and Dr. Blackburn on behalf of
22 NC WARN. With respect to Mr. Schlissel's testimony, I
23 have responded to his criticisms of the Company's
24 projected carbon dioxide emissions during the planning

1 period; the Company's coal unit retirement strategy and
2 consideration of natural gas resources; the Company's
3 incorporation of the impact of revised air emission and
4 coal combustion byproduct requirements; and the Company's
5 sensitivity range for possible allowance -- carbon
6 allowance prices.

7 Mr. Schlissel incorrectly attributes the Company's
8 future CO2 emissions to Cliffside Unit 6. He also
9 overstates the need to retire additional coal units in
10 favor of natural gas generation. He fails to acknowledge
11 that Duke Energy Carolinas' resource planning analysis
12 already accounts for the risks associated with future
13 environmental regulations. And finally -- finally, the
14 Company's range for its consideration of potential carbon
15 allowance prices was appropriately based on the framework
16 of Waxman -- Waxman-Markey proposed legislation.

17 With respect to the testimony of Dr. Blackburn, he
18 presents the same arguments, albeit with more aggressive
19 assumptions, as in NC WARN's comments filed in 2006 IRP
20 proceeding, the 2007 IRP proceeding and in the 2008 IRP
21 proceeding. Duke Energy Carolinas addresses each of NC
22 WARN's claims, most recently in the Company's replied
23 comments filed in Docket No. E-100, Sub 118.

24 Dr. Blackburn's plan is so flawed as to be

1 completely unreliable. Dr. Blackburn provides no support
2 for the operational feasibility of his recommendations nor
3 does he provide any detailed cost analysis. NC WARN has
4 developed a plan that is not realistic and would result in
5 higher cost and decreased reliability for customers, which
6 is counter to the cornerstone of sound resource planning.

7 This concludes the summary of my prefiled rebuttal
8 testimony.

9 MS. NICHOLS: Thank you. Mr. McMurry is
10 available for cross-examination.

11 COMMISSIONER CULPEPPER: Is there
12 cross-examination of the witness by Progress or Dominion?

13 MR. KAYLOR: No.

14 MR. ANTHONY: No.

15 COMMISSIONER CULPEPPER: Intervenor
16 cross-examination, Mr. Runkle?

17 MR. RUNKLE: Thank you, sir.

18 CROSS-EXAMINATION BY MR. RUNKLE:

19 Q. Mr. McMurry, in -- in looking at -- you're looking
20 at Dr. Blackburn's testimony of -- for NC WARN, and filed
21 his comments in earlier IRP proceedings and also in the
22 Cliffside proceeding and also in the Save-a-Watt
23 proceeding. Are you familiar with those testimonies?

24 A. I reviewed the -- I reviewed that they were filed,

1 that comments were filed in those proceedings. I'm not
2 familiar with the details of those.

3 Q. Now, in 2008, Dr. Blackburn in the Save-a-Watt
4 proceeding said one percent annual growth. And Jim Rogers
5 sitting in that same seat pooh-poohed the idea. He just
6 thought it was unrealistic to look at that kind of
7 one percent growth. And the -- later on in the
8 Save-a-Watt proceeding Duke itself said one percent energy
9 efficiency starting in the year 2015.

10 Are you familiar with --

11 MS. NICHOLS: I'm going to -- I just want to
12 object for the record to any mischaracterization of
13 Mr. Roger's testimony.

14 COMMISSIONER CULPEPPER: Well, your objection is
15 noted, but overruled. Continue with your questioning,
16 Mr. Runkle.

17 MR. RUNKLE: Yeah.

18 Q. Now, is there -- you know, in looking at what
19 Save-a-Watt is and what Dr. Blackburn testified, is there
20 that much difference?

21 A. I don't really understand your question.

22 Q. If Dr. Blackburn in 2008 said one percent and the
23 Save-a-Watt came in at one percent, is there any
24 different [sic] there?

1 A. Do you mean one percent of energy efficiency per
2 year?

3 Q. Yes.

4 A. Okay.

5 Q. Okay.

6 A. We've had a lot of percentages around the last
7 couple of days.

8 Q. Certainly.

9 A. The one percent is representative in our high
10 energy efficiency case.

11 Q. Yeah.

12 A. That was not selected as our base.

13 Q. Now, in 2008, do you feel that it was unrealistic
14 for some of the -- of -- like Dr. Blackburn, an expert in
15 the field, to be recommending a one percent energy
16 efficiency savings?

17 A. The one percent was not recommended by Duke. I
18 would like to make that clear. That was our high energy
19 efficiency case that we ran. When you run it as a full
20 bundle, it was cost-effective when we went through our
21 screening models. However, it -- as I stated yesterday,
22 it assumes equal participation of industrial and
23 residential customers coming along at the same rate.

24 If you had that one percent requirement, you know,

1 up to I think it was around 15 percent -- I -- I might be
2 wrong on what the final amount was -- and the industrials
3 opt out or one -- one section was not as effective in
4 getting the reductions they required and the other
5 sections had to meet that, then that would be -- that
6 would be not very cost-effective.

7 Q. Are you saying then at this point that Duke is not
8 going to live up to its aspirational goals in the
9 Save-a-Watt proceeding?

10 A. I think it's too early to tell. I think we're
11 going to try. But it's too early to tell that we'll live
12 up to those goals. There will be -- as I mentioned
13 before, there's plenty of things -- you know, the adoption
14 rate that Dr. Stevie just got through -- just got through
15 going over, it's kind of weak right now, so we -- we don't
16 know what the sustained adoption rate is. We don't know
17 what the final opt-out provisions are for industrials.

18 It's -- it's our goal and we're going to try it.
19 I think we're making good faith efforts in our -- in our
20 planning collaboratives. And I sat through the one two
21 weeks ago and it -- I think we're making a very -- we're
22 trying the best we can, but right now it's too early to
23 tell that you can -- that we'll be able to sustain that.

24 That's the reason we didn't pick that as the

1 base. We feel fairly confident in the base case energy
2 efficiency, the Save-a-Watt and three bundles, that when
3 you look at what programs incorporates that, that we think
4 we can meet that. That might be aggressive. But looking
5 throughout, we think we can meet that, so we're planning
6 to that.

7 It's very important when you put something in this
8 resource plan that you think you can meet it. So that's
9 -- just wanted to make those couple of distinctions.

10 Q. Now -- and I think I fairly characterized what Mr.
11 Rogers said sitting in that same seat, is that he had a
12 national -- a commitment to the National Energy Efficiency
13 organizations of a one percent energy efficiency savings
14 per year starting in 2015.

15 How -- how -- I guess my question is how far from
16 that goal is Duke willing to back away from it?

17 MS. NICHOLS: If we're representing Mr. Rogers'
18 testimony, I would just like to respond that it's sub --
19 that one percent goal is subject to there being available
20 cost-effective energy efficiency.

21 COMMISSIONER CULPEPPER: All right. That's
22 noted. Go ahead, Mr. Runkle.

23 Q. How -- how far -- how far backwards is Duke
24 willing to go backing away from that one percent a year

1 growth -- one percent a year annual energy efficiency?

2 A. I've tried to answer this before. You've answered
3 -- you've asked the same question again. We -- we really
4 don't know. I mean, hopefully we don't back down. I
5 mean, we -- hopefully we have the planning collaboratives
6 and -- collaboratives and we get the participation we're
7 incorp -- we're wanting, but right now everything I hear,
8 especially with the current partic -- participation rate,
9 that it's just too early to tell.

10 I mean, we -- we hope we don't back down. I mean,
11 if energy efficiency is cost-effective, we want to support
12 it, absolutely. And if it's one percent or even if it's
13 greater. I mean, but it's -- it's just too early to tell
14 right now what to commit to. But we feel -- we feel
15 fairly confident about the base case Save-a-Watt bundles
16 times three, that that could be achieved.

17 Q. In your -- in your rebuttal testimony, do you
18 assume that Dr. Blackburn's recommendation of one and a
19 half percent energy efficiency per year is just the
20 programs that the utilities have to undertake?

21 A. I really don't know. I think Dr. Stevie addressed
22 this previous to me. And -- and if -- he's our -- he's
23 our expert and if he says that one and a half percent is
24 unreasonable, I'll have to agree with him. So, I mean, I

1 am not the expert of the programs of what's the
2 reasonableness of it or not. I take the information from
3 Dr. Stevie, I run it through our models and I determine if
4 those programs were cost-effective.

5 Sorry, but Dr. Stevie I don't think is here right
6 now. If we had been on a panel, maybe we could ask those
7 questions, but that's -- I'm just kind of going on what
8 Dr. Stevie's testimony he just gave was.

9 Q. No. I'm looking at your rebuttal testimony and
10 you say that the one and a half percent is unreasonable.
11 Now, I'm asking you whether in making that statement that
12 you assume that that one -- one and a half percent energy
13 efficiency rate was utility controlled programs or was it
14 energy efficiency across the board?

15 MS. NICHOLS: Where are you referring to in
16 Mr. McMurry's rebuttal?

17 THE WITNESS: You got the page and number -- and
18 line number?

19 Q. In the criticism on page 14, in looking at the
20 bullets, and then at the bottom of 114 [sic] and the top
21 of 115 [sic], this witnesses [sic] addresses
22 Dr. Blackburn's one and a half percent.

23 A. Could you recite the page number and line number,
24 please?

1 Q. Look at -- look at page 14.

2 A. Okay. Okay. I see it.

3 Q. And I understand that if in a panel you might be
4 able to move this back and forth, but I'm asking you in
5 making your testimony --

6 A. Right.

7 Q. -- did you assume that Dr. Blackburn's one and a
8 half percent savings associated with energy efficiency was
9 solely utility controlled programs?

10 A. I really didn't make that distinction. Again, the
11 expert was Dr. Stevie before. I think he addressed this
12 question. I can address it in how we evaluated it. We
13 didn't evaluate the one and a half percent, but when we
14 evaluated the one percent per year out through time, the
15 cost -- and we started looking at one percent
16 incriminates, the cost-effectiveness of going up one
17 percent each year till we met our potential, it came real
18 close to not being cost-effective in that last year.

19 This far exceeds -- this is like 20 -- one and a
20 half percent per year, a three-year planning period, is
21 like 24 percent energy efficiency. That far exceeds
22 any -- anything that we've had, any analysis that our
23 group has done that has seemed to be cost-effective. The
24 first -- so the percent might be cost-effective, but as

1 you reach a threshold, that would not -- and not -- based
2 on the results and the cost that we've obtained from the
3 market potential study.

4 Q. And in the market potential study that you were
5 using as a screen for this, was it just utility controlled
6 programs or was it energy efficiency across the board?

7 A. Really that -- that -- it would have been utility
8 controlled programs, but it could have been the -- the
9 market potential was based on -- the cost-effectiveness
10 was based on utility controlled programs, but the amount
11 from the market potential study was not necessarily
12 limited to utilities controlling every megawatt of it..

13 Q. And there might be other competitors that might be
14 over -- might be able to offer energy efficiency programs
15 for less cost than what Duke could offer those programs?

16 A. I don't know.

17 Q. Would you -- have you -- has Duke looked at
18 possible competition in providing energy efficiency
19 services?

20 A. I don't really know the answer to that question.
21 I mean, it's like you're referring to me as like -- as I'm
22 the expert on energy efficiency. I've run numbers and
23 looked at the cost-effectiveness, but as far as -- as --
24 as the details of our energy efficiency program, I --

1 Q. And have you -- have you -- you have run numbers
2 only as if Duke would be running these energy efficiency
3 programs?

4 A. That's correct.

5 Q. Okay. Now, in your critique of Dr. Blackburn's
6 recommendations, did you assume that all the renewable
7 energy requirements were utility operated or utility
8 controlled programs?

9 A. I really wouldn't -- what -- I looked at the
10 renewable energy requirements and I -- and he didn't
11 really give any -- or Dr. Blackburn didn't give any
12 specific information with regards to what made up that
13 whole 20 percent other than two percent being backed out
14 for hydro.

15 I looked at the La Capra study that was performed
16 several years ago; I looked at the amount of biomass that
17 was available. Within -- and what we found within Duke,
18 when you're looking at biomass, you -- you -- you don't
19 look too far away or it's kind of very not cost-effective
20 real quick because the big -- one of the biggest cost in
21 biomass is transportation cost from the forest to the --
22 to the mill.

23 So anyway, I looked at biomass, I looked at the
24 number of landfill gas projects, you know, that could be

1 achieved and kind of maxed out all that. And -- and then
2 I said, well, how many more megawatts is it going to take
3 to come up to, you know, 18 percent renewables. And it
4 was literally thousands of megawatts of wind and thousands
5 of megawatts of solar.

6 I think Dr. Blackburn last night almost attested
7 to that it was thousands of megawatts of both.

8 Q. Well, in -- did you assume in criticizing his
9 recommendations that all of the solar that he recommended
10 was solar photovoltaic?

11 A. That -- I'm trying to think back to the La Capra.
12 I didn't bring the study with me, but the majority of it,
13 it would have been solar photovoltaic.

14 Q. And now, could some of the solar part of the
15 renewable energy recommendation by Dr. Blackburn be backed
16 by solar hot water, so other forms of solar thermal?

17 A. I suppose it could, yes.

18 Q. Have you looked at how much solar hot water
19 heaters could be placed in North Carolina or in Duke's
20 service territory?

21 A. No.

22 Q. Do you know what would be the impact of solar hot
23 water heaters on a hundred thousand residences in Duke's
24 service territory?

1 A. No, I don't know that. I do know the reliability
2 of that solar hot water heater. You know, we've had a
3 very cloudy -- cloudy winter. You would have to have
4 backup for that. That's not your stand-alone -- I
5 wouldn't think that could be your stand -- I have two
6 teenagers. You drain the -- you drain the hot water tank
7 and it's not sunny outside, I -- you would have to have
8 some backup for that.

9 So, I mean, to say -- I know that that -- that
10 should be a good -- good way of utilizing solar
11 electricity, but it's not the panacea.

12 Q. And would you need 100 percent reserve for all
13 solar projects in North Carolina?

14 A. Even if we give it a 50 percent capacity value for
15 each nameplate capacity, a AC installed, no, it wouldn't
16 be 100 percent, it would be 50 percent.

17 Q. Okay. And would you need a -- would you need --
18 for all the solar projects you would need 50 percent
19 additional capacity for those?

20 A. That's -- that's a contribution to peak, that
21 would be correct.

22 Q. Now, you further characterize Dr. Blackburn as
23 reckless on page -- top of page 17 of your testimony for
24 not including a analysis of reserve margin?

1 A. That's correct. I mean, I think reserves are
2 critical in resource planning. I mean, that's the very --
3 very first -- I don't know if I -- did I use the word
4 reckless?

5 Q. Let me suggest that you did. Look at line 3 of
6 page --

7 A. Sure. Right.

8 Q. But Dr. Blackburn may be many of things, but --

9 A. "It is simply reckless" is not -- it's not a
10 direct reflection of Dr. Blackburn.

11 Q. I understand. I apologize for that. But -- now,
12 did you look at Dr. Blackburn's Exhibit No. 2 when he
13 addresses capacity as opposed to generation?

14 A. That was in his -- the report last year?

15 Q. Yes.

16 A. Yes. Yes, I did.

17 Q. And that was part of his testimony. And he
18 assumed the 17 percent or more as a reserve capacity for
19 Duke.

20 A. He also backed out all wholesale sales. He -- he
21 made a lot of adjustments to the table. Our comments was
22 filed on that last year and I just thought -- I could
23 bring up the comments, but -- if you like, but it's -- the
24 reserve margins -- and in that case he didn't -- he didn't

1 retire 100 percent of our coal in that analysis last year
2 either.

3 Q. But, you know -- but you're saying that there was
4 no consideration of the reserve margin?

5 A. There was no consideration of the reserve margin
6 in this -- in the -- what was the name of the report?

7 Q. There was a -- there was a -- Exhibit 2 was one
8 report and Exhibit 3 was a subsequent report.

9 A. The phasing out of coal -- the phasing out of
10 generation of electricity by coal in Exhibit 3, no, there
11 was not a reserve margin analysis. And I saw very little
12 cost analysis either. So I mean, it was almost like -- it
13 was almost like this was a vision plan. This was like of
14 what could be done, but it wasn't a resource plan.

15 And that -- that's -- I might have been strong in
16 my language, but that's -- that's really what I'm trying
17 to say, that what was stated here was -- was -- it was not
18 a resource plan. It was --

19 Q. But would -- Exhibit 3 looked at generation as
20 opposed to looking at capacity and they're two different
21 things.

22 A. Right. But with no regards to cost and no regards
23 to a reserve margin and adding -- adding thousands of
24 megawatts of wind that have the contribution to peak of

1 around 15 percent. That's being lowered in the MISO
2 region down to 10, so now you're going -- you're
3 delivering all this energy with wind in this -- in Exhibit
4 3 and -- and you -- and from what I could tell, not a lot
5 of -- not a lot of additional gas resources were added and
6 then a contribution of peak is only 10 percent. So in
7 that regard, I mean, it's impossible to tell from a
8 resource plan that this is a reliable plan and -- much
9 less cost-effective.

10 Q. Now, in looking at generation, do you look at
11 reserve margins in a generation plan or is that capacity?

12 A. We look at it in -- I mean, reserve margins are
13 one of the first things you consider when you develop your
14 portfolios to make sure that capacity of the -- the system
15 -- our system optimizing model or our screening model, it
16 screens to a -- we give it a reserve margin. So it would
17 not give a whole lot of energy that -- that -- unless it
18 was meeting a capacity, our reserve margin.

19 Q. And just briefly on the -- on the -- what I happen
20 to have before me is the September 1st, 2009, but it has
21 the list of the annual incremental additions on the table.

22 I'm not sure what page it is on the revised
23 section.

24 A. You don't have the revised IRP?

1 Q. I've got it on my computer, so...

2 A. I didn't bring that.

3 Q. My question is have the dates for -- of the
4 operation of the Lee Nuclear changed in the most recent
5 revision to the IRP?

6 A. We reflected it changing in the model, but we ran
7 two analyses of Lee Nuclear from '18 and '21 to show that
8 it was -- and not to show, but it was cost -- it was
9 cost-effective it was -- if it was going to be operational
10 in 2018; it was cost-effective if it was going to be
11 installed in 2021 either on the both units or only one of
12 the two-unit plan. Kind of the regional concept.

13 Q. Do you think it's realistic to -- that the Lee
14 Nuclear Plant will be in operation in 2021?

15 A. That is our current plan, so yes, absolutely. I
16 think it's realistic.

17 Q. I think that's reckless, then. I have no further
18 questions.

19 A. Okay.

20 MS. NICHOLS: Move to strike.

21 COMMISSIONER CULPEPPER: Well, we're going to --
22 the motion is allowed.

23 MR. RUNKLE: I'm sorry, sir.

24 COMMISSIONER CULPEPPER: Does that conclude your

1 cross-examination?

2 MR. RUNKLE: Yes, sir. I apologize.

3 COMMISSIONER CULPEPPER: That's all right.

4 MR. RUNKLE: I'm getting hungry.

5 COMMISSIONER CULPEPPER: I know. I know. All
6 right. Ms. Thompson, cross-examination of the witness?

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

8 CROSS-EXAMINATION BY MS. THOMPSON:

9 Q. Good afternoon, Mr. McMurry. Let's turn to page
10 72 of the revised 2009 IRP. Do you have a copy of that?

11 MS. NICHOLS: I'm sorry. What page?

12 MS. THOMPSON: 72.

13 THE WITNESS: Okay.

14 MS. THOMPSON: It's part A-3.

15 Q. Do you have that in front of you?

16 A. I sure do.

17 Q. And can you tell me what's depicted in chart A-3?

18 A. Sure. Hopefully it's labeled properly. But the
19 blue line -- I actually like this chart. I mean, so --

20 Q. Uh-oh.

21 A. It's one of my favorite charts to present. And it
22 -- and -- but if you look at the blue line, and that's our
23 current plan, this includes the energy efficiency and --
24 and the -- and renewable plan.

1 Actually, our renewables, you'll notice -- if
2 you -- if you look carefully in our plan, we also assume
3 that South Carolina would also achieve approximately four
4 or five percent renewables long-term also, so, I mean,
5 it -- so it's a little more aggressive than just a North
6 Carolina renewable portfolio standard than -- than maybe
7 some of the others has projected.

8 But you go across and then as Lee Nuclear comes
9 online in 2021, you can see a drop of about 5 million tons
10 in CO2. And then if you follow the green line along when
11 Lee 2 comes along -- online, you see about another 5
12 million tons of reduction in CO2.

13 Q. And so --

14 A. And then -- I'll get there. So if -- so if you
15 follow the blue line all the way up, that is if you met
16 future generation with combined-cycled generation. In
17 other words, you implemented Save-a-Watt, you implemented
18 our renewable energy portfolio standard and you did not
19 install any new nuclear, it kind of shows how much higher
20 CO2 emissions would be if you don't have nuclear or if you
21 did have nuclear.

22 Q. Okay. So do you have a copy of David Schlissel's
23 testimony with you?

24 A. Yes.

1 Q. Would you turn to page 7 of his testimony and take
2 a look at Figure 2?

3 A. Let's see now. Figure 2. Yes, I'm there.

4 Q. And that chart also shows the Company's projected
5 CO2 emissions over the same timeframe, correct?

6 A. That's correct.

7 Q. And Mr. Schlissel also added a line in their
8 showing the emissions reduction -- it's the X hashed
9 line -- showing the emissions reductions that would be
10 consistent with the CO2 emissions reductions that would be
11 required by the Waxman-Markey Bill provoted -- promoted by
12 the U.S. Climate Action Partnership or US -- USCAP. Do
13 you see that?

14 A. Excuse me, yes.

15 Q. And Duke Energy is a member of USCAP, correct?

16 Oh, I'm sorry.

17 A. I should have did this before I started. Yes.

18 Q. Now, on page 4 of your rebuttal you take issue
19 with Dr. Schlissel's statement that the Company's CO2
20 emissions are going in the wrong direction. Do you recall
21 that?

22 A. Yes. Yes, I do.

23 Q. And -- so is it your testimony that the Company's
24 emissions are going in the right direction, i.e. up?

1 A. My testimony, referring to the figure A-3 that
2 you're referring to, it's a little misleading when you see
3 the -- the emissions continue to rise after we've included
4 the nuclear generation. That's in -- that's -- we're
5 including over 2,500 megawatts of wholesale generation
6 from the baseline year that's currently not -- that's not
7 -- that -- which would be stepping into this.

8 So it would flatten out, this growth, this
9 increase, the way it looks here, if you accounted for the
10 CO2 emissions. Someone's serving their load now and
11 someone -- and they emit CO2 also. So I don't know the
12 details of who's serving them --

13 Q. Um-hum.

14 A. -- but -- so -- but if you included those in the
15 baseline, the overall emissions would have gone down.

16 Also, in my testimony I think it's kind of
17 interesting that, you know, how many pounds of CO2 per
18 megawatt hour do you produce in 2008 versus how many
19 pounds of CO2 per megawatt hour you'll be producing in
20 2029. And when you add Cliffside 6, Buck and Dan River
21 combined cycles and Lee Nuclear along with the energy
22 efficiency and renewables, we have about a 30 percent
23 reduction in our carbon pounds of CO2 per megawatt hour.

24 So the chart's misleading. The reason I like the

1 chart is it shows if you try to meet your future
2 generation with gas without nuclear, it's about 10 million
3 tons higher.

4 Q. Well, you've actually anticipated a couple of
5 things I was going to ask about. So you've stated that
6 Cliff -- the addition of Cliffside Unit 6 to the Company's
7 system is not the reason why CO2 emissions are increasing
8 and you've just made the point that Cliffside Unit 6 is --
9 Cliffside Unit 6 would generate less CO2 per megawatt hour
10 than the coal units that are scheduled for retirement,
11 correct?

12 A. And also it is the most efficient on our system.
13 So -- and it run -- it will run the most, so it also will
14 displace some of our existing coal-fired stations in
15 addition to the ones that we'll be retiring.

16 Q. So that was actually my -- I was going to ask
17 about the capacity factor. Is -- Cliffside Unit 6 will be
18 a baseload unit, correct?

19 A. The lowest -- the lowest -- the most efficient and
20 lowest cost fuel in the system, it will be the top of our
21 fossil stack, that's correct.

22 Q. And what -- so about what capacity factor do you
23 expect it to run at?

24 A. You know, it varies by year, but on average well

1 over 80 percent.

2 Q. Over 80 percent. And then the units that are
3 planned for retirement, not just Cliffside Units 1 through
4 4, but other units scheduled for retirement, are those all
5 cycling units?

6 A. Not all of them. Cliffside 1 through 4, we -- we
7 have some that's called non-reheat units. It would be
8 Cliffside 1 through 4, Dan River 1 and 2 and Buck 3 and 4,
9 those units are not very efficient and they're -- and
10 those are what I would deem cycling units.

11 Q. So they run -- what are -- what's the capacity
12 factor that they --

13 A. 2009 is really not a good measure. It was one of
14 the lowest fossil generations we've had due to the
15 recession and due to mild weather. But historically that
16 they may run 20 to 30 percent capacity factor.

17 Q. Twenty to 30 percent.

18 A. Right.

19 Q. And --

20 A. As compared to Riverbend 4 through 7, those are
21 fairly efficient units that are scheduled to be retired
22 and they would be more in the 40 or 50 percent capacity
23 factor.

24 Q. So we're talking about -- I think that -- or

1 talking about a 20 to 50 percent capacity factor range?

2 A. That would be fair, yes.

3 Q. Now -- so Cliffside Unit 6 is going to run more
4 often than these existing coal units, so it may emit less
5 carbon per megawatt hour, but it is going to run more
6 often and therefore emit more CO2 than the older cycle
7 units, correct?

8 A. Could you repeat your question?

9 Q. I understand that your -- that Cliffside Unit 6
10 will emit less carbon per -- less carbon dioxide per
11 megawatt hour.

12 A. That's correct.

13 Q. But it will run more, it will be running at a
14 higher capacity factor than the existing, less efficient
15 units?

16 A. The ones that we're retiring?

17 Q. Yes.

18 A. It would more than -- yes, it would emit more than
19 those units, but then you've got to take into account the
20 other fossil units that we have that won't be retired that
21 will be running less because of this is at the top of the
22 stack.

23 For example, of the remaining units, Plant Allen
24 would probably be at the lower end of the -- after we

1 retire all -- it will not run as much because we have
2 Cliffside 6. And it's -- and Cliffside 6 will emit, you
3 know, probably 50 percent less CO2 per megawatt hour
4 than -- than Plant Allen.

5 So I mean, that's just -- I don't know if I
6 quantified the exact emissions, but -- but to say that
7 that increase in the future is due to Cliffside 6 is not
8 an accurate statement.

9 Q. Okay. Well, let's talk about the reason that you
10 suggest those emissions will increase. And you say that
11 it's -- in your rebuttal that -- and I think you just
12 alluded to it here -- that it's because of the inclusion
13 of approximately 1,800 megawatts of additional wholesale
14 load. I think that was on page 7 of your testimony, of
15 your rebuttal.

16 A. That's correct, yes.

17 Q. Now, isn't it correct that those additional
18 wholesale loads are going to start lower and then just
19 build up to approximately 1,800 megawatts by 2028 or so?

20 A. That's correct.

21 Q. Is that right?

22 Now, you -- you make the point that these
23 customers have been being served by some utility and there
24 were carbon emissions associated with serving those

1 customers prior to their moving over to being served by
2 Duke?

3 A. That's correct.

4 Q. Now, some portion -- is it accurate that some
5 portion of that wholesale load is attributable to a power
6 purchase agreement with the Central Electric Power Co-Op
7 -- Cooperative in South Carolina?

8 A. Some portion.

9 Q. And, in fact, it's under that power purchase
10 agreement Duke is -- has agreed to serve the co-op's --
11 the co-op's protected load starting with 130 megawatts in
12 2013 and then increasing to a thousand megawatts by 2019
13 and then two percent annually thereafter? Does that sound
14 right to you?

15 A. I mean, it sounds pretty close.

16 Q. So up to a thousand megawatts of that 1,800
17 megawatts of additional wholesale load would be
18 attributable to the Central -- the Duke/Central PPA?

19 A. Yes.

20 Q. Now, those customers are currently served by the
21 South Carolina Public Service Authority, also known as
22 Santee Cooper, are they not?

23 A. Yes.

24 Q. Has Duke done any analysis of the current carbon

1 emissions that are associated with the Central Co-Op
2 customers?

3 A. I have not.

4 Q. Now, some of that load has historically been
5 served by -- sorry. Santee Cooper, some of that load has
6 been served by a nuclear plant on Santee Cooper's system,
7 has it not?

8 A. It has. I mean, so has Duke's. I mean, when you
9 look at our system average, that reduction, we have a lot
10 of nuclear too already, so I mean it's a system mix.

11 Q. But you have not done any analysis of what carbon
12 emissions are currently associated with those whole --
13 with those wholesale customers?

14 A. No, I have not.

15 MS. THOMPSON: Now, Mr. Chairman, I have some
16 questions that are going to get into some documents that
17 Duke provided pursuant to a confidentiality agreement, but
18 I have pre-cleared these questions with counsel for Duke
19 and Ms. Nichols has agreed to just remind me if I start
20 getting into anything that's confidential so we don't have
21 to clear the room.

22 COMMISSIONER CULPEPPER: All right. Well, you
23 proceed and I'm sure Ms. Nichols will let us know if we
24 need to do something to protect the confidentiality of the

1 questions that you're wanting -- wish to ask.

2 Q. Now, in response to a data request, Duke stated it
3 does not have a definitive plan to reduce its CO2
4 emissions, correct?

5 A. Could you repeat your question, please?

6 Q. Does Duke have a plan to reduce -- to actually
7 reduce its CO2 emissions rather than purchasing emissions
8 allowances, for example?

9 A. I don't know if I would call it a plan, but we
10 have analyzed what it would take to reduce emissions
11 versus rely on a cap and trade allowance program.

12 Q. And, in fact, Duke provided documents pursuant to
13 a data request reflecting two confidential studies, did it
14 not?

15 A. Yes, we did.

16 Q. And I would like to talk about these studies
17 without getting into anything confidential. And just to
18 clarify, I think this won't get confidential, they were --
19 they were Duke -- performed for Duke Energy rather than
20 specifically --

21 MS. NICHOLS: You can ask him that.

22 Q. -- Duke Energy Carolinas just to be clear?

23 A. Both of the studies that you're referring to
24 looked at all jurisdictions within Duke Energy, including

1 the Carolinas.

2 Q. And -- let's see here. One of the studies
3 examined several different scenarios; is that correct?

4 A. That's correct.

5 Q. And in your testimony you testified that -- now,
6 one of the scenarios is based on assumptions that may or
7 may not play out?

8 A. I think there was plenty assumptions in the study
9 that may or may not play out.

10 Q. And that's true -- that's true of all scenarios in
11 general, correct, they're based on assumptions that may or
12 may not play out?

13 A. Some are more -- some are more firm than others,
14 but I wouldn't -- I wouldn't consider all scenario
15 planning the same. I mean, the probability in one is not
16 necessarily the probability in another, so...

17 Q. And would you agree that with respect to scenarios
18 that are analyzed in an IRP, assumptions that go into --
19 assumptions associated with those scenarios, there's some
20 uncertainty with regard to those assumptions and they may
21 or may not always play out?

22 A. I would agree with that.

23 Q. And you testified -- and this was actually going
24 back to your direct testimony, which I think we talked

1 about earlier, that the planning process considers a wide
2 range of assumptions and uncertainties to account for the
3 uncertainty about scenarios playing out the way you
4 anticipate?

5 A. I believe the answer is yes.

6 Q. Thank you. And for these -- all of these
7 uncertainties, you just have to use the best information
8 that you have available to you at the time, correct?

9 A. I mean, there's a lot of work that goes into
10 developing the sensitivities. I mean, we've got a
11 fundamental fuels group that -- that surveys a lot of
12 industry papers, you know, on the -- and the sensitivity
13 of that, of the fuel, coal and gas energy, CO2 prices. I
14 mean, we've got -- we've got a regulatory group that's --
15 that's constantly looking at the legislation of the day.

16 And -- I mean, I don't want to -- I just want to
17 make sure that these sensitivities that were there, even
18 though they are -- there are some uncertainty in the
19 sensitivities, but there's a lot of work that goes into
20 developing those sensitivities.

21 Q. Now, just without getting into the substance of
22 one of the confidential studies, you note in your rebuttal
23 that the analysis was not conducted in the same manner as
24 the IRP.

1 A. That's correct. I mean, we really -- the cost was
2 really not a consideration. I mean, I think we looked at
3 some cost -- high level cost. It was very expensive. But
4 the -- but really the exercise was all about what would it
5 look like if we -- if we reduced down to that level. You
6 know, what -- what would a snapshot be like. And so -- so
7 kind of looking at what a plan would be like was
8 informative.

9 Q. And did you -- so it was informative. Did you
10 analyze any of the scenarios analyzed in the confidential
11 study in the IRP?

12 A. No. I mean, these studies were being performed as
13 we were developing the IRP. I don't know that we would
14 have picked this analysis because we use a screening model
15 of which we input, you know, our reserve margin
16 requirements, the capital cost of demand and supply-side
17 options, the carbon price assumption and run all these
18 sensitivities. And I really doubt that this would have
19 came out of a -- when we're developing our portfolio, this
20 would have came out as one option that we would have --
21 that would have been cost-effective in any scenario.

22 But, I mean, we did that and it didn't look
23 anything like that. It -- it -- you know, the system
24 optimizer model, our screening model, it -- it relies on a

1 cap and trade program. I mean, that was -- that was the
2 basis of our analysis for the 2009 IRP. Not that you
3 wouldn't have the ability to buy allowances from the
4 market.

5 You know, we developed an allowance forecast. I
6 think Dr. -- I think Mr. Schlissel agreed with our
7 fundamental forecast of that. And at those prices it said
8 it was better to buy allowances and -- and have a balanced
9 portfolio as we presented in our 2009 IRP.

10 Q. Now, that leads to something I wanted to ask you
11 about in your rebuttal. You state that there's less
12 certainty today that CO2 legislation will become law than
13 there was in 2009.

14 A. That's correct.

15 Q. And in the absence of congressional action on
16 greenhouse gases, you understand that EPA has prepared to,
17 and I think will be required, to regulate CO2 and other
18 greenhouse gases, correct?

19 A. That's correct. I mean, but in their proposals to
20 date I also included in my -- in my -- I think I did. Go
21 ahead. Go ahead.

22 MS. NICHOLS: You might want to look at page 6.

23 THE WITNESS: Okay.

24 MS. THOMPSON: And this is page 6 of

1 Mr. McMurry's rebuttal?

2 THE WITNESS: Right.

3 A. Page 6, lines 9 through 18 I address our
4 understanding to date of what an EPA regulation may look
5 like.

6 Q. I'm sorry, what line?

7 A. It's page 6, lines -- and it's really the para --
8 second paragraph -- 9 through 18. I'll be glad to read.

9 Q. Oh, yes. Thank you. And so have you -- is Duke
10 -- has Duke evaluated -- if -- if instead of a cap and
11 trade scheme, if we're looking at direct regulation of
12 greenhouse gas emissions through new source performance
13 standard or something to that effect, has Duke evaluated
14 that as a -- that type of EPA regulation of CO2 as a
15 sensitivity or have you evaluated that in your IRP?

16 A. No. In the 2009 IRP we thought we would have
17 legislation passed by now. The Waxman-Markey Bill had
18 passed the House of Representatives. It's the closest we
19 had ever seen it in -- you know, since 2006 since we
20 started considering carbon policies.

21 And -- and -- and so we -- we had our
22 regulatory -- carbon regulatory group really get some
23 additional analysis to see based on international offsets
24 if we got more than what they -- we thought we would or if

1 we got less, that seemed like that was one of the pivotal
2 points in Wackman -- Waxman-Markey and that's how we came
3 up with our price sensitivity.

4 And the reason it was as narrow as it was was
5 because we were look -- we thought this legislation was
6 going to be passed and we were look -- we was looking at
7 specific legislation.

8 In 2010, it doesn't look very likely that that
9 legislation is going to get passed and you've got the EPA
10 threat to regulate. We'll -- we'll be looking at a lot of
11 different carbon analyses going forward. And it will
12 probably be a different -- it might be a wider range than
13 what we considered in 2009, but it'll most likely be a
14 different range just because of all the assumptions that
15 are changing.

16 Q. So you'll -- you're saying that your -- that Duke
17 will be looking at a wider range of assumptions with
18 regard to carbon prices for purposes of the 2010 IRP?

19 A. We may. And -- and -- and just more uncertainty
20 -- we think there's more uncertainty today than there was
21 a year ago.

22 And -- but I would like to draw attention to that.
23 It won't be around -- a broader range around the
24 Waxman-Markey base case. The -- there's a lot of new

1 assumptions for 2010 we'll be looking at, so, you know,
2 the range could be higher or lower, but it would probably
3 be wider than it was in 2009 given that the -- that the
4 Waxman-Markey Bill did not pass.

5 Q. And given what you said, the greater uncertainty
6 about legislation being passed, are you -- what sorts of
7 compliance costs will be -- will you be looking at
8 compliance costs or compliance with EPA regulation, direct
9 regulation of CO2?

10 A. Well, in lines 9 through 16 on page 6, we really
11 think the first thing, the first -- of what they've kind
12 of given us, a little bit of what it may look like, on
13 lines -- let's see -- lines 13 -- well, I'll just read
14 from line 10. "The Company's aware, however, that the
15 Environmental Protection Agency has proposed to regulate
16 greenhouse gas emissions. It is very unclear at this time
17 what those regulations might consist of beyond the
18 application of prevention of significant deterioration of
19 PSD permitting requirements and new, modified electric
20 generating facilities will take effect in 2011."

21 It goes on, it says, the EPA has given some
22 indication that it wants to develop new source performance
23 standards for greenhouse gas emissions that could possibly
24 include a cap and trade system.

1 But from a PSD purpose, that's really for new
2 generation going forward. That's not really affecting our
3 existing generation unless -- unless they're modified.
4 And we will have procedures in place to try to assure that
5 our units wouldn't be modified.

6 But -- so it's just way too early to tell what the
7 impact of it will be. Maybe we'll have some clarity this
8 year.

9 Q. Okay. Going back to -- let's talk about -- I
10 guess just to tie up our discussion of the confidential
11 study, you state that it was -- one of the studies was
12 valuable and informative for your future IRP work.

13 Are you planning to analyze any of the -- how are
14 you planning to -- without getting into anything
15 confidential, how are you -- I'd ask you just to expand on
16 the ways that it was informative and how you might
17 incorporate it into future --

18 A. Well, it gave us various amounts of resources that
19 we could consider of the kind of -- it might help bound
20 your range of how much you're willing to evaluate. It
21 kind of gave you an idea of -- I don't know how much I can
22 say -- how much -- I mean, I can name renewable resources
23 -- how much energy efficiency may be required; how much
24 renewables may be required; how much nuclear may be

1 required; how much natural gas may be required. It's --
2 it gives you a -- like doing that exercise, it kind of
3 helps you bound what you may need to do.

4 Q. Thank you. I'd like to just move on and talk a
5 little bit about natural gas. In your testimony on page 9
6 you state that the -- in the 2009 IRP the Company ran a
7 low gas price sensitivity based on a gas price that was
8 40 percent below the base gas price. Does that sound
9 right?

10 A. Yes, we did.

11 Q. And is that what is discussed -- I know I have it
12 somewhere. Is that what is discussed on page 67 of the
13 revised 2009 IRP? If you go to -- it's page 67, which is
14 part of Appendix A. Close to the middle of the page,
15 there's a bullet with fuel price variability.

16 A. That's correct.

17 Q. So that's the sensitivity that -- to which you
18 were referring in your testimony?

19 A. That's correct.

20 Q. So I see -- it says fuel price variability and
21 then there's the lower fuel prices, whole prices,
22 25 percent lower; natural gas prices 40 percent lower?

23 A. Yes.

24 Q. So did you run a sensitivity where only the gas

1 price was lower?

2 A. I talked -- I spoke to our fundamentals group and
3 they said over a long term -- you might get a short term
4 spike of natural gas being lower than coal, but if gas
5 remains lower long term, there will be a response from
6 coal.

7 And so -- so -- but the response was not as great
8 as the funda -- that we -- the range that we got from our
9 fundamental fuels group, that -- so we said coal would go
10 down plus/minus 25 percent, but gas could go down 40
11 percent.

12 Q. Okay. So the -- so the -- in that sensitivity,
13 the lower gas price was tied to a lower coal price?

14 A. Not as low, but yes.

15 Q. But lower. Twenty-five percent lower. Did you
16 model -- so as I think I'm understanding, you didn't model
17 a lower natural gas price as an independent variable?

18 A. We ran a low fuel case and a high fuel case, but
19 not independently, that's correct.

20 Q. So the low fuel case was -- was coal 25 percent
21 lower and gas 40 percent lower?

22 A. That's correct.

23 Q. Okay.

24 A. And by the way, I mean current market coal prices

1 are down. Where gas is, it's -- it's a lot lower than it
2 was a year and a half ago. Coal prices are down about 25
3 percent, so when something happens that you actually
4 predicted, it's kind of interesting.

5 Q. So sometimes the assumptions are borne out in --

6 A. Yes.

7 Q. -- reality?

8 Okay. Now, also in your rebuttal you state that
9 the capacity factor of some of your existing coal
10 generation decreased. And that is on page -- page 10 of
11 your rebuttal. Are you there?

12 A. I am.

13 Q. Oh, you're there before I am. Was that discussed
14 in the IRP?

15 A. I don't think explicitly. It was -- it was
16 reflected in the -- in the total present value of revenue
17 requirements. It was -- it was represented in the total
18 cost that coal was running more and gas was -- coal was
19 running less, the marginal coal, and the gas was running
20 more. But it -- I didn't exclusively show that in the
21 IRP.

22 Q. And you also state that the modeling didn't
23 indicate that it would be cost-effective to retire
24 additional coal units. Did you run a modeling scenario

1 that included additional retirements, coal retirements?

2 A. The screening model that we use, if it would have
3 been cost-effective to retire those units when we ran the
4 plus or minus, you know, the sensitivities, it would have
5 shown that we -- you know, that we should have retired
6 units.

7 Q. So the model would allow -- would have allowed you
8 to retire additional units?

9 A. Yes. But -- but even if all the coal units still
10 ran at a -- our baseload coal units still ran above 80
11 percent, now the new intermediate load units, they did
12 drop some, but they were still well above 50 percent, so
13 it's not like -- you know, usually when a unit looks like
14 it's going to retire, you start seeing capacity factors
15 below 10 percent.

16 Q. Now -- okay. Now, the sensitivities that you ran
17 are listed on page -- going back to page 67 of the IRP,
18 you ran sensitivities for emissions allowance, price
19 variability. That's the bullet right under "Fuel Price
20 Variability" for NOx, SO2 and CO2; is that right?

21 A. That's correct. I'll elaborate a little bit on
22 NOx and SO2. What we found longer term, now that we have
23 advanced scrubbers on all of our remaining plants due to
24 the Clean Smokestack and Advance NOx controls, the

1 emission rates are so low that it's -- the variable -- you
2 know, doing a range of NOx and SOx values are just not as
3 telling as they used to be when you didn't have as many
4 controls on your plants. So -- so we did not concentrate
5 that -- as much on that, but we did look at the CO2.

6 Q. And then there's some pollutants that are not --
7 well, for one, you note that mercury allowance values were
8 removed from the analysis because of the vacatur of the
9 Clean Air Mercury Rule, correct?

10 A. That's correct. We think --

11 Q. Sorry.

12 A. Go ahead.

13 Q. Please.

14 A. No. We think that that will be a commanding
15 control type requirement now for mercury.

16 Q. And that's exactly what my next question was going
17 to be, the maximum achievable control technology
18 requirement will probably be -- or is -- will be in
19 effect?

20 A. Yes.

21 Q. And does the Company expect that there will be a
22 cost associated with compliance with those MACT
23 requirements?

24 A. The cost may be in -- is that we may have to

1 accelerate the retirements of Buck 5 and 6 and Lee 1
2 through 3. We currently show those retiring in 2020. And
3 we -- it's my understanding that the MACT requirements,
4 the mercury requirements is going to be in the 2015
5 timeframe. So there will be a cost of accelerating the
6 retirements of those units.

7 The remaining units on our system has -- all have
8 advanced SO2 control and -- and -- and advanced NOx
9 controls and then there's a co-benefit with the two put
10 together that -- I'm not saying we won't have to spend any
11 -- any dollars to meet a mercury/MACT standard on the
12 remaining units, but I really don't think it will be
13 exorbitant.

14 Q. Finally, the -- on page 11 of your rebuttal you
15 mention that Duke has the flexibility to move up planned
16 retirements.

17 A. That's kind of what I was referring to before.

18 Q. So those additional units that might be -- you're
19 suggesting that as environmental regulations become more
20 stringent, it may become cost-effective in the future to
21 retire additional coal units sooner?

22 A. You know, and I've used the word retirement -- I
23 mean, the -- I should use the word retirement on --
24 especially for -- on the Cliffside unit because that was a

1 commitment, but on Buck 5 and 6 and Lee, you know, we most
2 likely won't control those units and they will be retired
3 or there is a potential that you could convert one of the
4 units to burn biomass if there was enough wood supply in
5 the area or -- but I guess it would be retired, but it
6 could come back as something else like that. But that
7 would have to be repermited and vetted to the whole
8 process. But I'm not saying that that cycle will not be
9 used again.

10 Q. I think that's all the questions I have. Thank
11 you, Mr. McMurry.

12 COMMISSIONER CULPEPPER: Further
13 cross-examination of the witness, Mr. Olson?

14 MR. OLSON: I have no questions. Thank you.

15 COMMISSIONER CULPEPPER: Mr. Carmichael?

16 MR. CARMICHAEL: No.

17 COMMISSIONER CULPEPPER: Ms. Edmondson?

18 MS. EDMONDSON: No. And Mr. Green has
19 authorized me to say he does not as well.

20 COMMISSIONER CULPEPPER: All right. Redirect
21 examination of the witness --

22 REDIRECT EXAMINATION BY MS. NICHOLS:

23 Q. Just a --

24 COMMISSIONER CULPEPPER: -- Ms. Nichols?

1 Q. -- few questions Mr. McMurry. I just want to make
2 sure it was clear when you were talking about your
3 concerns about the high EE case, did -- was it your
4 testimony that if Duke cannot get equal participation from
5 both non-residential and residential customers in energy
6 efficiency programs that the high case would become --
7 would no longer be cost-effective?

8 A. I stated that yesterday, yes.

9 Q. And was your rebuttal testimony regarding
10 Dr. Blackburn based on Dr. Blackburn's Exhibit 3?

11 A. Yes.

12 Q. And were you here yesterday when Dr. Blackburn
13 testified?

14 A. Yes, I was.

15 Q. Did you hear him in response to questions from Mr.
16 Castle talk about the need to change state policy to
17 implement his resource plan?

18 A. Yes.

19 Q. Would it be prudent for Duke to create a resource
20 plan that would be predicated on a vision for what state
21 policy might be?

22 A. I don't think so. No.

23 Q. And you were talking about the impact of Cliffside
24 6 on the CO2 emissions of the Company's fleet. You talked

1 to Ms. Thompson about the capacity factors of our -- of
2 the current baseload coal units would go down after
3 Cliffside 6 comes online and you used Plant Allen as an
4 example?

5 A. That's correct.

6 Q. What's a typical current capacity factor for Plant
7 Allen?

8 A. I would present -- project the capacity factor for
9 Plant Allen. Plant Allen operates in the -- out in the
10 future in the -- anywhere between 55 and 70 percent. And
11 that 15 percent range is an example of kind of where you
12 would -- it could drop 10 percent in any year by Cliffside
13 6 coming online. Actually, it does drop if you look at
14 balance capacity factors over time.

15 And the reason I use Allen, it's the last unit in
16 the stack after we've retired all of our other generation.
17 It's the reason I'm using that as an example. But its
18 capacity factor drops about 10 percent when Cliffside 6
19 comes online.

20 Q. And it operates as a baseload unit today?

21 A. It's a -- it's a high intermedit -- intermediate.
22 I would not consider --

23 Q. Okay.

24 A. I consider baseload intermediate, so...

1 Q. Let's see. And again, without getting into any of
2 the confidential information, why wouldn't the Company use
3 its carbon reduction planning work as the basis for your
4 resource plan?

5 A. Again, I mean, it did not incorporate any
6 allowance -- a cap and trade system. And that was the
7 basis of the 2009 IRP, which showed up to 2029 that it was
8 cost-effective to buy allowances.

9 Q. So the -- the carbon plan was not cost-effective
10 -- was not least cost?

11 A. Well, cost really was not the emphasis of -- of
12 that study. I mean, I'm not -- is -- the emphasis of --
13 the emphasis of the study was to see what types of things
14 would be required to meet a firm target, no cap and trade.

15 Q. You referred to Dr. Blackburn's plan more as a
16 visionary plan than a resource plan. Would you make the
17 same characterization of the Company's carbon strategy
18 work?

19 A. Yes. I mean, and -- and as I was reading my
20 testimony again and listening to Dr. Blackburn yesterday
21 afternoon, that's really what I see that is, is a -- that
22 was his vision. You know, it's going to require laws to
23 be changed and cost was not the emphasis, but, you know,
24 that was his vision of something that -- one way to get

1 there.

2 MS. NICHOLS: Thank you. Nothing further.

3 COMMISSIONER CULPEPPER: Questions by the
4 Commission of the witness?

5 (No response.)

6 All right. There appear to be done.

7 Mr. McMurry, that would conclude your rebuttal testimony
8 and you may stand down from the witness chair.

9 (Whereupon, the witness was dismissed.)

10 All right. By my calculations, we have three
11 other rebuttal witnesses. I told you I've got to leave at
12 4:00. Other Commissioners have business tomorrow morning.
13 I just have a vibration that I don't believe that we can
14 finish this case today and let all the lawyers -- by 4:00
15 that is -- and let all the lawyers best serve their
16 clients with respect to not being pressed on the time for
17 cross-examination or -- and/or the direct examination for
18 that matter. There may be some additional questions of
19 Mr. Fonvielle and other witnesses based on the redirect
20 examination exhibit earlier.

21 I'll give y'all a chance to tell me I'm wrong
22 right now if you want to.

23 MS. NICHOLS: We have no questions.

24 MR. KAYLOR: No questions.

1 COMMISSIONER CULPEPPER: Well, I understand
2 that. But, I mean, the intervenors probably got some
3 cross-examination and it's going to take a while for
4 Progress to put on their direct case.

5 MR. ANTHONY: Well, we were going to propose to
6 pass out the summaries and either see if anyone would --
7 would object to not reading them into the record, just
8 accepting them or a paraphrasing methodology like the CPI
9 witness did to streamline that.

10 COMMISSIONER CULPEPPER: All right. Let me go
11 across to the other room here. How -- how much
12 cross-examination did you anticipate, Mr. Runkle, for the
13 Progress witnesses?

14 MR. RUNKLE: I have about three minutes for Mr.
15 Fonvielle and that's all.

16 COMMISSIONER CULPEPPER: How about you, Ms.
17 Thompson?

18 MS. THOMPSON: I have about maybe 10 or 15
19 minutes for Mr. Edge and non for anybody else.

20 COMMISSIONER CULPEPPER: How about you?

21 MR. OLSON: I don't anticipate having much at
22 all.

23 MR. STYERS: And to represent my client, I think
24 I've probably got 20 minutes of Mr. Fonvielle.

1 COMMISSIONER CULPEPPER: That's fine. I want
2 you to represent your client. I want all of you to
3 represent your clients. And, therefore, these proceedings
4 are adjourned for today and we will reconvene tomorrow at
5 1:00 p.m. Good evening.

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Whereupon, the hearing was recessed.

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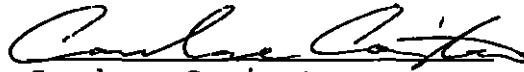
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CERTIFICATE

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

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APR 05 2010

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