

1 PLACE: Dobbs Building, Raleigh, North Carolina

2 DATE: Wednesday, March 17, 2010

3 DOCKET NO.: E-100, Sub 118 & 124

4 TIME IN SESSION: 10:30 a.m. - 1:20 p.m.

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

8 Volume 3

9 IN THE MATTER OF:

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

12
13 A P P E A R A N C E S:

14 CAPITAL POWER USA, LLC

15 Gray Styers
16 Blanchard, Miller, Lewis & Styers
17 1117 Hillsborough Street
18 Raleigh, North Carolina 27604

18 USING AND CONSUMING PUBLIC

19 Robert S. Gillam
20 430 N. Salisbury Street
21 Raleigh, North Carolina 27699-4326

21 Lucy Edmondson
22 4326 Mail Service Center
23 Raleigh, North Carolina 27699-4326

23 Kendrick Fentress
24 4326 Mail Service Center
Raleigh, North Carolina 27699-4326

*Pages 69-74 are
confidential*

1 NC DEPARTMENT OF JUSTICE

2 Len Green

PO Box 629

3 Raleigh, North Carolina 27601-0629

4 DOMINION NORTH CAROLINA POWER

5 Robert W. Kaylor

Law Office of Robert W. Kaylor

6 3700 Glenwood Avenue, Suite 330

Raleigh, North Carolina 27613

7

8 DUKE ENERGY CAROLINAS

9 Robert W. Kaylor

Law Office of Robert W. Kaylor

10 3700 Glenwood Avenue, Suite 330

Raleigh, North Carolina 27613

11

12 Lara Nichols

526 South Church Street

13 Charlotte, North Carolina 28202

14 Charles A. Castle

526 South Church Street

15 Charlotte, North Carolina 28202

16

17 PROGRESS ENERGY CAROLINAS

18 Len S. Anthony

410 Fayetteville Street

19 Raleigh, North Carolina 27602

20

21 NC WARN

22 John Runkle

PO Box 3793

23 Chapel Hill, North Carolina 27515

24

1 NC SEA

2 Kurt Olson
3 1111 Haynes Street
4 Raleigh, North Carolina 27608

5 SOUTHERN ENVIRONMENTAL FUND, SOUTHERN ALLIANCE FOR CLEAN
6 ENERGY, SOUTHERN ENVIRONMENTAL CENTER AND THE SIERRA CLUB

7 Gudrun Thompson
8 200 W. Franklin Street, Suite 330
9 Chapel Hill, North Carolina 27516

10 CAROLINA INDUSTRIAL GROUPS FOR FAIR UTILITY RATES

11 Carson Carmichael
12 PO Box 1351
13 Raleigh, North Carolina 27602

14

15

16

17

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1 COMMISSIONER CULPEPPER: Good morning. Let's go
2 back on the record. We left off yesterday, I believe we
3 finished witness Schlissel's testimony. And, Ms.
4 Thompson, I believe we have six exhibits that have been
5 identified. I believe when we left off the first thing we
6 were going to do this morning is deal with those exhibits.
7 I'd like to hear from you in that regard.

8 MS. THOMPSON: Yes, sir. I would move that Mr.
9 Schlissel's six exhibits that were filed with his
10 testimony be admitted as marked. And I brought a seventh
11 exhibit, which is the errata sheet correcting the errors
12 that Mr. Schlissel alluded to on the stand, and ask that
13 that be admitted into evidence as marked as well.

14 COMMISSIONER CULPEPPER: Your Motion is allowed.
15 The six exhibits that have been previously identified
16 prior to today are admitted into evidence. The new
17 exhibit is labeled Exhibit DAS-7, it's an errata sheet to
18 Mr. Schlissel's testimony. We talked about that
19 yesterday. It's now in the form of an exhibit. And that
20 exhibit is admitted into evidence.

21 (Whereupon, Schlissel Exhibits 1-6 were
22 admitted. And DAS-7 was marked for
23 identification and admitted.)

24 I believe that concluded your direct on Mr.

1 Schlissel. Do you have one other witness?

2 MS. THOMPSON: Yes, sir.

3 COMMISSIONER CULPEPPER: We're not going to get
4 to that witness just yet.

5 I want to go with the Public Staff now. I
6 understand you want to call three of your witnesses as a
7 panel; is that correct?

8 MS. FENTRESS: We do.

9 MS. THOMPSON: Call your witnesses.

10 MS. FENTRESS: We would call Mr. Kennie Ellis,
11 Mr. Jack Floyd and Mr. John Robert Hinton to the stand.

12 KENNIE ELLIS

JACK FLOYD

13 ROBERT HINTON; Being first duly sworn,

14 testified as follows:

15 DIRECT EXAMINATION BY MS. FENTRESS:

16 Q Mr. Ellis, I will start with you. Could you
17 please state your name and business position for the
18 record?

19 A I'm Kennie D. Ellis. I'm an Engineer for the
20 Public Staff, Electric Division.

21 Q Did you prepare and cause to be filed in this
22 docket an Affidavit on February 19, 2010 consisting of two
23 pages and an Appendix?

24 A I did.

1 Q Do you have any corrections to your Affidavit?

2 A I do not.

3 Q If your Affidavit were prepared and filed today,
4 would it state the same?

5 A It would.

6 MS. FENTRESS: Mr. Chairman, due to the brevity
7 of Mr. Ellis' Affidavit, we did not prepare a summary of
8 his Affidavit or Mr. Floyd's. We will present a summary
9 of Mr. Hinton's testimony.

10 I request that Mr. Ellis' Affidavit be copied
11 into the record as filed.

12 COMMISSIONER CULPEPPER: That request is in the
13 form of a Motion, and the Motion is allowed. And the
14 Affidavit of Kennie D. Ellis is received into evidence
15 along with the Appendix A.

16 (Whereupon, the Affidavit of Kennie Ellis
17 was copied into the record and Appendix A
18 were admitted.)

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DOCKET NO. E-100, SUB 124

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

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

) **AFFIDAVIT**
) **OF**
) **KENNIE D. ELLIS**

STATE OF NORTH CAROLINA

COUNTY OF WAKE

I, Kennie D. Ellis, first being duly sworn, do depose and say:

I am an engineer with the Electric Division of the Public Staff – North Carolina Utilities Commission. A summary of my education and experience is attached to this affidavit as Appendix A.

The purpose of my affidavit is to present the results of my investigation of the Integrated Resource Plans (IRPs) filed by Progress Energy Carolinas, Inc. (PEC), Duke Energy Carolinas, LLC (Duke), and Dominion North Carolina Power (DNCP), in this docket on September 1, 2009. Duke filed an amended IRP (2009 IRP Update) on January 11, 2010.

Based upon my investigation, I determined that each company's discussion of generating facilities, reserve margin adequacy, non-utility generation, wholesale power contracts, transmission facilities, transmission planning, evaluation of resource options, and levelized busbar costs appeared to meet the requirements of R8-60. Some additional comments are included below.

On October 22, 2009, the Commission issued an Order in Docket No. E-2 Sub 960, granting a certificate of public convenience and necessity to construct a 950-megawatt (MW) natural gas fired generating plant at the Lee site in Wayne County. This certificate was subject to a condition that required PEC to submit a plan for retirement of "additional unscrubbed coal-fired generating capacity reasonably proportionate to the amount of incremental gas-fired generating capacity authorized by this certificate above 400 MW". PEC submitted a plan, which was approved by Commission Order on January 28, 2010, that identified the unscrubbed coal-fired generation capacity it intended to retire to comply with the October 22, 2009 Order. The January 28, 2010 Order also required PEC to reflect the retirements approved by such Order and its progress in retiring its unscrubbed coal units in future IRP filings, beginning with the 2010 filing.

Pursuant to the Commission's Order on Advance Notice issued on November 10, 2009, in Docket No. E-7 Sub 923, Duke filed its 2009 IRP Update to address undesignated wholesale load. The 2009 IRP filed September 1, 2009, maintained a

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reserve margin averaging 18.8% throughout the planning horizon. The 2009 IRP Update incorporates undesignated wholesale load and some changes to the capacity addition schedule which results in a reserve margin averaging 19.1% through the planning horizon. Duke witness McMurray indicates in his prefiled direct testimony filed on January 11, 2010 in this proceeding that preliminary results indicate that the inclusion of the undesignated wholesale load increases the need for additional peaking generation in the 2017 to 2026 timeframe, and increases the need for additional baseload generation in the 2018 to 2021 timeframe.¹

The Public Staff is still pursuing information with respect to Duke's reasonable expectations for serving such customers. The Public Staff and Duke have scheduled a meeting for this purpose, but, because of workload and scheduling conflicts, this meeting has not yet occurred. Depending on the outcome of those discussions, the Public Staff may request permission from the Commission to file a supplemental affidavit or testimony as appropriate.

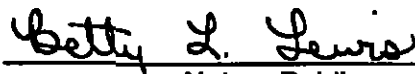
Duke witness McMurray also states in his prefiled direct testimony that estimated nuclear project cost escalation rates decreased from the 2008 IRP filing to the 2009 filing, resulting in reduced inflationary impacts on the projected nuclear costs. Responses to data requests from PEC also reflect lower escalation rates and, therefore, lower inflationary impact on the cost of new nuclear. Both companies also indicated, in response to data requests, an anticipated increase in the projected cost of combustion turbines and combined cycle generating facilities.

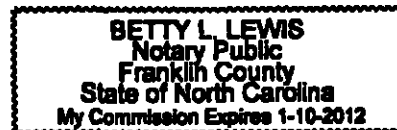
This completes my affidavit.


Kennie D. Ellis

Sworn to and subscribed before me

this the 19th day of February 2010.


Notary Public



My Commission Expires: 1-10-2012

¹ Duke's internal analysis indicated that the peaking generation will be met with combustion turbines, and the baseload generation will be met through the proposed Lee Nuclear station.

1 Q Mr. Floyd, will you state your name and business
2 position for the record?

3 A I'm Jack Floyd, Utilities Engineer for the Public
4 Staff's Electric Division.

5 Q And did you prepare and cause to be filed in this
6 docket an Affidavit on February 19, 2010, consisting of 2
7 pages and an Appendix?

8 A Yes.

9 Q Do you have any corrections to your Affidavit?

10 A No.

11 Q And if your Affidavit were prepared and filed
12 today, would it state the same?

13 A Yes.

14 MS. FENTRESS: The Public Staff requests that
15 the Affidavit be copied into the record as filed.

16 COMMISSIONER CULPEPPER: The request is allowed.
17 And the Affidavit of Jack L. Floyd previously filed in the
18 docket together with the Appendix A is admitted into
19 evidence.

20 (Whereupon, the Affidavit of Jack Floyd was
21 copied into the record and Appendix A was
22 admitted.)

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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of
Investigation of Integrated Resource Planning in)
North Carolina and REPS Compliance Plans –)
2009)

AFFIDAVIT
OF
JACK L. FLOYD

STATE OF NORTH CAROLINA

COUNTY OF WAKE

I, Jack L. Floyd, being first duly sworn, do depose and say:

I am an Engineer in the Electric Division of the Public Staff – North Carolina Utilities Commission representing the using and consuming public.

I have attached, as Appendix A, a summary of my education and experience.

The purpose of this affidavit is to summarize my investigation and to make recommendations concerning the development, evaluation, and inclusion of demand side management (DSM) and energy efficiency (EE) resources within the context of the integrated resource plans (IRPs) filed by the investor owned utilities, Progress Energy Carolinas, Inc. (PEC), Duke Energy Carolinas, LLC (Duke), and Dominion North Carolina Power (DNCP) (collectively, IOUs) in Docket No. E-100, Sub 124 (2009 IRPs). I also support the testimony of Public Staff witness John R. Hinton regarding the use of DSM by the IOUs. In preparing this affidavit, I have reviewed the 2009 IRPs and pertinent portions of the 2008 IRPs, filed by the IOUs in Docket No. E-100, Sub 118 (2008 IRPs).

With respect to the evaluation and inclusion of DSM and EE and the level of DSM and EE used in the calculations of planning reserves, the 2009 IRPs do not differ materially from the IOUs' respective 2008 IRPs. Duke, PEC, and DNCP each included in their planning horizon slightly lower impacts from DSM and EE resources than were included in their 2008 IRPs. I believe this is the result of delays in implementation of DSM and EE programs due to current economic conditions, as well as delays in the timing of development, approval, and rollout of the various programs within each portfolio. Notwithstanding these delays, the IOUs continue to incorporate DSM and EE as fundamental resources in their IRPs. In addition, the Public Staff continues to work with the IOUs regarding new DSM and EE programs, and I expect that some of these new programs will be submitted for Commission approval in the near future.

I also investigated the use of DSM by the IOUs during their respective peak periods. DNCP and PEC both indicated that they utilized their DSM resources during their August 10, 2009 peak hours. Duke's peak period occurred the same day, but Duke indicated that no DSM was utilized during that period of time.

Regarding the application and modeling of DSM and EE resources in the IOUs' IRPs, I assisted Public Staff witness Hinton with evaluating the modeling methods and inputs used by the IOUs to develop their optimal plans for capacity resources. I understand that PEC and Duke generally modeled their DSM resources consistent with their modeling of DSM resources in their individual program approval proceedings. DNCP has not yet submitted any new DSM or EE programs for approval under G.S. 62-133.9 or Commission Rule R8-68. I concur with witness Hinton that the IOUs should utilize their DSM resources to obtain the maximum system value possible. While further capacity savings may not result from increased utilization, additional energy savings, with corresponding fuel savings, could result during periods when energy prices are typically greater than the costs of operating these DSM resources.

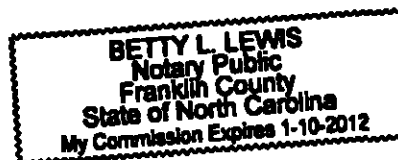
Duke and PEC both received approval in 2009 for new residential air conditioning cycling programs. Duke's program is called Power Manager; PEC's program is known as EnergyWise (collectively, "residential A/C cycling programs"). Both programs provide the capability to control central air conditioning systems on a more tactical basis than earlier versions of air conditioning load control programs that interrupted the air conditioning compressors of all participants for several hours at a time. In contrast, the residential A/C cycling programs allow the utility to selectively interrupt the air conditioning on more frequent, but shorter, intervals among targeted groups of participants at any given time. These aspects of both programs should improve the customer acceptance of the resource by minimizing any discomfort that customers experience by having their air conditioning units interrupted during extremely hot weather. These residential A/C cycling programs are relatively new to Duke's and PEC's portfolios, and, therefore, Duke and PEC should be given a sufficient opportunity to determine the optimal use of these resources. The Public Staff encourages the IOUs to maximize the value of these resources, and it will continue to review the utilization of these resources in future DSM and EE cost recovery proceedings, IRP proceedings, and annual fuel proceedings.

This completes my affidavit.


Jack L. Floyd

Sworn to and subscribed before me
on this the 19th day of February 2010.


Notary Public



My Commission Expires: 1-10-2012

1 Q Mr. Hinton, can you please state your name and
2 present position for the record?

3 A My name is John R. Hinton. I'm Financial Analyst
4 for the Public Staff's Economic Research Division.

5 Q And did you prepare and cause to be filed in this
6 docket prefiled testimony on February 19, 2010, consisting
7 of 9 pages and an Appendix?

8 A Yes.

9 Q Do you have any corrections to you testimony?

10 A No.

11 Q If you were asked those same questions today,
12 would your answers be the same?

13 A Yes.

14 MS. FENTRESS: I request that the prefiled
15 testimony of Mr. John R. Hinton be copied into the record
16 as filed.

17 COMMISSIONER CULPEPPER: That Motion is allowed,
18 and the February 19, 2010 testimony, prefiled testimony,
19 of Witness John R. Hinton is copied into the record word
20 for word as if it had been given orally under oath from
21 the witness stand, and that includes his Appendix A to
22 that testimony.

23 (Whereupon, Affidavit of John R. Hinton was
24 copied into the record. And Appendix A was

admitted.)

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DOCKET NO. E-100, SUB 124**TESTIMONY OF JOHN R. HINTON
ON BEHALF OF THE PUBLIC STAFF
NORTH CAROLINA UTILITIES COMMISSION****February 19, 2010**

1 Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS FOR
2 THE RECORD.

3 A. My name is John R. Hinton. I am a Public Utilities Financial Analyst in the
4 Economic Research Division of the Public Staff - North Carolina Utilities
5 Commission. My business address is 430 North Salisbury Street, Raleigh, North
6 Carolina 27603.

7

8 Q. PLEASE DISCUSS YOUR EDUCATIONAL BACKGROUND.

9 A. I received a Bachelor of Science degree in Economics from the University of
10 North Carolina at Wilmington in 1980 and a Master of Economics degree from
11 North Carolina State University in 1983.

12

13 Q. PLEASE DISCUSS YOUR EXPERIENCE WITH PEAK LOAD AND ENERGY
14 SALES FORECASTS.

15 A. After joining the Public Staff in May of 1985, I developed forecasts for the 1986,
16 1989, and 1992 Long Range Forecasts of Peak Demand for Electricity in North
17 Carolina that were provided to the NCUC and the Governor. Since then, I have
18 reviewed numerous peak demand and energy sales forecasts filed by Duke
19 Energy Carolinas, LLC (Duke), Progress Energy Carolinas, Inc. (PEC), and

1 Dominion North Carolina Power (DNCP) in the Integrated resource planning
2 (IRP) proceedings from 1998 to the present. I also filed testimony on Duke's and
3 PEC's peak load and energy sales forecasts in Docket No. E-100, Sub 114. I
4 have filed testimony on electricity weather normalization in Docket Nos. E-7, Sub
5 620, E-2, Sub 833, and E-7, Sub 909.

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7 I have also filed testimony on the issuance of certificates of public convenience
8 and necessity in Docket Nos. E-2, Sub 669, SP-132, Sub 0, E-7, Sub 790, and E-
9 7, Sub 791, relating to financial and planning issues for new generation. My
10 qualifications and experience are further discussed in Appendix A.

11

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

13 A. The purpose of my testimony is to present my findings regarding the
14 reasonableness of the peak load and energy forecasts of the investor owned
15 utilities (IOUs), Duke, PEC, and DNCP, and their integration of demand-side
16 management (DSM) programs in their production simulation models (models).

17

18 Q. BRIEFLY DESCRIBE YOUR REVIEW OF THE IOUS' FORECASTS.

19 A. I reviewed the compound annual growth rates of the IOUs' forecasts of their
20 annual peak demands and energy sales. In addition, given the large impact that
21 weather can have on sales, and especially on peak demands, I reviewed the
22 historical growth of weather-normalized peak demands and weather-normalized
23 energy sales. I also reviewed several of the regression equations and key

1 assumptions that underlie the forecasts, and I reviewed growth rates of forecasts
 2 for other adjoining IOUs and forecasts for the SERC Reliability Corporation
 3 (SERC).

4

5 Q. DO YOU HAVE ANY CONCERNS WITH DUKE'S FORECASTS OF PEAK
 6 DEMAND AND ENERGY SALES?

7 A. No. Duke's 15-year forecasts of its peak demand and total energy sales are
 8 reasonable. After adjusting for Duke's DSM and energy efficiency (EE)
 9 programs, the increases in the peak demand and energy sales growth rates from
 10 those in its 2008 Integrated Resource Plan (IRP) are largely due to the additional
 11 wholesale load associated with Central Electric Power Cooperative, Inc. (Central)
 12 and the additional undesignated wholesale load¹. Before these wholesale loads,
 13 the growth rate of Duke's summer peak demand from 2010 through 2024 is
 14 1.2%, and the growth rate for total energy sales is 1.1%, which is similar to the
 15 growth rates in Duke's 2008 IRP. The addition of the Central wholesale load and
 16 the undesignated load increases the growth rate of the summer peak demand to
 17 1.8% and the growth rate of its total energy sales to 1.6%.

18

19 Q. DO YOU HAVE ANY CONCERNS WITH PEC'S FORECASTS OF PEAK
 20 DEMAND AND TOTAL ENERGY SALES?

21 A. No. PEC's 15-year forecasts of its peak demand and total energy sales are
 22 reasonable. After adjusting for PEC's DSM and EE programs, the increases in

¹ At this time, the Public Staff is continuing to review Duke's undesignated wholesale loads and is in discussions with Duke. Supplemental testimony may be necessary to address this issue.

1 the peak demand and energy sales growth rates from its 2008 IRP are largely
2 due to the additional wholesale load associated with North Carolina Electric
3 Membership Corporation (NCEMC). Before these wholesale loads, the growth
4 rate of PEC's summer peak demand from 2010 through 2024 is 1.0%, and the
5 growth rate for total energy sales is 1.3%, which is similar to the growth rates in
6 PEC's 2008 IRP. The addition of the NCEMC load increases the growth rate of
7 the summer peak demand to 1.6% and the growth rate of its total energy sales to
8 1.4%.

9
10 Q. DO YOU HAVE ANY CONCERNS WITH DNCP's FORECASTS OF PEAK
11 DEMAND AND TOTAL ENERGY SALES?

12 No. DNCP's 15-year forecasts of its peak demand and total energy sales are
13 reasonable. After adjusting for DNCP's DSM and EE programs, the growth rate
14 of DNCP's summer peak demand from 2010 through 2024 is 2.0%, and the
15 growth rate for total energy sales is 2.2%. The increases in these growth rates in
16 peak demand and total energy sales as compared to DNCP's 2008 IRP are due,
17 partially, to above average economic growth in Virginia, particularly in the
18 government and housing sectors of the economy.

19

20 Q. WHAT PREDICTED GROWTH RATES FOR OTHER UTILITIES DID YOU
21 REVIEW?

1 A. I examined the 2009 IRP² filed by South Carolina Electric and Gas Company
2 (SCE&G). After adjusting for the effects of its DSM programs, SCE&G predicts a
3 2.0% long-term growth rate in its peak demand and a 1.7% long-term growth rate
4 in its energy sales. I also examined the July 2009 Informational Summary
5 published by SERC³. SERC projects a 1.8% long-term growth rate in the peak
6 demand and a 1.7% long-term growth rate in energy sales for the region.
7

8 Q. PLEASE DESCRIBE YOUR REVIEW OF THE ASSUMPTIONS USED IN THE
9 FORECASTS AND WHAT YOUR REVIEW INDICATED.

10 A. I reviewed Duke's, PEC's, and DNCP's projections of population and personal
11 income. Long-term forecasts of population and various measures of economic
12 activity typically have the largest influence on the forecasts of peak demands and
13 energy sales. I compared the forecasts used by Duke, PEC, and DNCP with
14 forecasts of population and personal income for North Carolina by Global Insight,
15 Inc., a nationally recognized provider of long-range forecasts. The comparison of
16 the forecasts indicated that the IOUs' assumptions regarding population and
17 personal income were reasonable.
18

19 Q. PLEASE DESCRIBE YOUR REVIEW OF THE ACCURACY OF THE IOUs'
20 FORECASTS AND WHAT YOUR REVIEW INDICATED.

² Public Service Commission of South Carolina, Docket No. 2009-9-E, filed February 27, 2009.

³ <http://www.serc1.org/Application/HomePageView.aspx>

1 A. My review of the IOUs' forecast accuracy entailed comparing the forecasts from
2 the 2004⁴ Annual Reports with actual loads. For the comparison, I examined the
3 forecast error⁵ between the predicted load and the actual load and the forecast
4 error between the predicted load and the weather-normalized actual load. The
5 analysis indicated that the 2004 peak and energy forecasts by Duke, PEC, and
6 DNCP had less than a five percent forecast error.

7

8 Q. WHAT DID YOU CONCLUDE FROM YOUR REVIEW OF THE FORECASTS BY
9 DUKE, PEC, AND DNCP?

10 A. Based on my review of Duke's, PEC's, and DNCP's forecasts, I believe the
11 forecasts are valid and reasonable for planning purposes.

12

13 Q. DID YOU REVIEW THE INPUTS USED IN THE IOUS' PRODUCTION COST
14 SIMULATION MODELS TO OPTIMIZE THE SUPPLY-SIDE AND DEMAND-SIDE
15 RESOURCES TO DETERMINE EXPANSION PLANS THAT OFFER RELIABLE
16 POWER AT LEAST COST?

17 A. Yes. In addition to the peak load and energy sales forecasts, I reviewed many of
18 the inputs used in the IOUs' models. The models integrate data on the operating
19 characteristics of existing generation units, such as heat rates and operating and
20 maintenance (O&M) expenses, projected capital costs of new generation and
21 their projected operating characteristics, discount rates and escalation rates, fuel
22 price forecasts, projected impacts of each IOU's DSM and EE programs, and

⁴ The 2004 forecasts were filed in Docket No. E-100, Sub 102.

⁵ The Mean Absolute Error is used to calculate the forecast error.

1 reserve margin assumptions. These models create combinations of resource
2 alternatives to find the least cost mix of resources under simulated conditions.
3 After various plans have been developed, the IOUs conduct sensitivity analyses
4 to determine the base or preferred plan that is considered least cost.

5

6 Q. DO YOU HAVE ANY CONCERNS WITH THE INPUTS USED IN THE IOUS'
7 PRODUCTION COST SIMULATION MODELS?

8 A. I do not have any concerns with the IOUs' inputs relating to the operating
9 characteristics of their existing generation units, projected capital costs, fuel price
10 forecasts, and discount rates. The assumptions used in the models are
11 comparable to the inputs that were incorporated in the IOUs' 2008 IRPs in
12 Docket No. E-100, Sub 118 and in the 2008 avoided cost proceeding in Docket
13 No. E-100, Sub 117. Furthermore, I believe that the expansion plans set forth by
14 the IOUs are reasonable for purposes of this proceeding, subject to the ongoing
15 discussions with Duke regarding undesignated load noted earlier in my
16 testimony.

17

18 Q. PLEASE DISCUSS HOW EE AND DSM ARE INCORPORATED IN THE
19 PRODUCTION COST SIMULATION MODELS.

20 A. All three IOUs have reduced their forecasted peak loads and energy sales by the
21 impacts of their DSM programs and EE programs. With respect to DSM, the
22 production simulation models used by the IOUs incorporate controls that allow
23 them to set the available run hours and the incremental cost rate for each

1 program. In general, a low number of available run hours and a high cost rate
2 relative to other supply-side resources tend to limit the activation of load control
3 to emergency or "near" emergency situations.
4

5 Q. WOULD AN INCREASE IN THE NUMBER OF PROJECTED ACTIVATIONS OF
6 LOAD CONTROL RESULT IN DEFERRING OR ELIMINATING AN ADDITIONAL
7 COMBUSTION TURBINE OR COMBINED CYCLE FACILITY IN THE IOUS'
8 EXPANSION PLANS?

9 A. No. As I previously noted, the models reflect the peak load reductions attributed
10 to the DSM programs; thus, increasing the activations of these programs should
11 not have a material effect on the IOUs' generation expansion plans.
12

13 Q. IF AN INCREASED LEVEL OF DSM ACTIVATIONS DOES NOT DEFER OR
14 ELIMINATE NEW PLANTS, THEN WHY IS DSM MODELING IMPORTANT?

15 A. If the IOUs perceive the DSM programs as only having value during times of
16 near-emergency conditions, then the full value of DSM programs will not be
17 realized. A/C cycling programs are being used by the IOUs primarily as a
18 capacity resource; however, utilization of these programs during other peak and
19 near-peak periods should assist the IOUs, not only in reducing their annual peak
20 loads as planned, but also in achieving added fuel savings during other near-
21 peak or forced outage events.

1 My review of Duke's and PEC's lambdas,⁶ and the Locational Marginal Prices⁷
2 (LMPs) in the Dominion zone for PJM, from 2006 through 2009 indicates that
3 there were numerous hours where the marginal cost of energy was very high,
4 thus suggesting that, in the future, the IOUs may have opportunities to activate
5 these DSM programs to achieve cost savings for consumers. Other reasons for
6 planning for activation of these resources under other than emergency conditions
7 are to gain operational experience, test the program infrastructure, and assess
8 customer response to more frequent power curtailments, thus assisting the IOUs
9 in refining future programs operations.

10

11 Q. WHAT IS YOUR RECOMMENDATION IN THIS REGARD?

12 A. The Public Staff recommends that the IOUs continue to investigate increased
13 reliance on A/C cycling load control as both a capacity resource and as a way of
14 lowering fuel costs. If DSM resources are not utilized optimally, consumers may
15 pay higher fuel costs than necessary, and the full value of these resources will
16 not be realized.

17

18 Q. DOES THIS COMPLETE YOUR TESTIMONY?

19 A. Yes.

⁶ Lambdas represent the variable energy cost associated with the next generation unit dispatched to serve the load.

⁷ LMPs represent the variable energy cost of generation for the next unit dispatched to serve the load measured at various points in the Dominion Zone of PJM.

1 Q Mr. Hinton, do you have a summary of your
2 testimony?

3 A Yes.

4 Q Can you please read it?

5 A Summary was read into the record.
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DOCKET NO. E-100, SUB 124
SUMMARY OF TESTIMONY
JOHN R. HINTON

The purpose of my testimony is to present my findings regarding the reasonableness of the peak load and energy forecasts of Duke Energy Carolinas, LLC (Duke), Progress Energy Carolinas, Inc. (PEC), and Dominion North Carolina Power (DNCP) (collectively, IOUs). I have also reviewed the integration of demand-side management (DSM) programs in the IOUs production simulation models.

In conducting my review of the IOUs' forecasts, I examined the compound annual growth rate of the IOUs' actual annual peak demand and annual energy sales, the weather normalized peak demand and the weather normalized energy sales, several of the regression equations and assumptions that underlie the forecasts, growth rates of forecasts for other adjoining utilities and the forecasts for the SERC Reliability Corporation, and the accuracy of the IOUs' forecasts. I determined that the peak demand and energy sales forecasts by Duke, PEC, and DNCP had less than a five percent forecast error. Based on my review of the IOUs' forecasts, I believe they are valid and reasonable for planning purposes.

I reviewed many of the inputs used in the IOUs' models. The models integrate data on the operating characteristics of existing generation units, such as heat rates and operating and maintenance (O&M) expenses, projected capital costs of new generation and their projected operating characteristics, discount rates and escalation rates, fuel price forecasts, projected impacts of each IOU's DSM and energy

efficiency programs, and reserve margin assumptions. I believe that the expansion plans set forth by the IOUs are reasonable for purposes of this proceeding.

My review of Duke's and PEC's lambdas and the Locational Marginal Prices in the Dominion zone for PJM from 2006 through 2009 indicates that there were numerous hours where the marginal cost of energy was very high, suggesting that the IOUs may have opportunities to activate A/C cycling programs in the future to achieve cost savings for consumers. The Public Staff recommends that the IOUs continue to investigate increased use of A/C cycling load control as both a capacity resource and as a way of lowering fuel costs. If DSM resources are not utilized optimally, consumers may pay higher fuel costs than necessary, and the full value of these resources will not be realized.

This concludes my summary.

1 Q (By Ms. Fentress) Thank you. The witnesses are
2 available for cross-examination.

3 COMMISSIONER CULPEPPER: All right. Is there
4 Intervener cross-examination?

5 CROSS-EXAMINATION BY MR. RUNKLE:

6 Q Mr. Floyd, in your Affidavit you talk about your
7 review analysis of the IRPs of both Progress Energy and
8 Duke Energy; is that correct?

9 A Yes, sir.

10 Q Now, in conducting your review of those IRPs, what
11 did you look at?

12 A We looked at their portfolio of programs. We had
13 a lot of conversation with both utilities over the last
14 couple of years. We looked at the trends from those
15 portfolios, and did not compare them against anything else
16 because they were all fairly brand new; and how they were
17 inputted into the forecast. I assisted Mr. Hinton with
18 that. Essentially, this being an update year, there was
19 -- I didn't find any material changes to the 2008 IRP this
20 year.

21 Q Now, when you're talking about portfolio -- you
22 used the word portfolio -- what do you mean by that?

23 A Portfolio is primarily a menu of programs that the
24 utilities offer for energy efficiency and demand response.

1 Q So you are not using the word "portfolio" to look
2 at their portfolio supply-side assets?

3 A No, sir. This is specifically efficiency and
4 demand response.

5 Q Do you look at IRPs or the equivalence in other
6 states?

7 A No, sir.

8 Q Do you look at DSM and EE Programs in other
9 states?

10 A I have, yes.

11 Q What states have you looked at?

12 A More than I care to mention. The -- I spend a lot
13 of time looking at a lot of reports that come from third
14 party groups like ACEEE. I tend to shy away from
15 individual utility reports or certain or specific state
16 reports because they tend to have some bias, in my
17 opinion, so I try to look at third party or outside
18 agencies' reviews of those states to see who's doing what.
19 I'm aware of some best practices in EE/Demand Response
20 that people are doing. That's how I prepare and get an
21 idea of really what's on the horizon with respect to
22 energy efficiency program and demand response programs.

23 Q So, if you are reviewing these third party reports
24 or what other states are doing, do you -- are any programs

1 brought to your attention that you think this is a good
2 program?

3 A There are good programs and bad programs. I
4 hesitate to suggest that any one programs is good or bad
5 for North Carolina or a particular utility. But we do
6 discuss those things with the utilities' representatives.
7 We encourage them to find whatever energy efficiency and
8 demand response programs they can find that are cost
9 effective for North Carolina for their service area. But
10 to date, I have been very reluctant to recommend a
11 specific program or specific design.

12 Q Both you and Mr. Hinton addressed both Duke's
13 Power Manager and Progress' Energy Watts on the
14 residential air conditioning cycling programs?

15 A Right.

16 Q Those are the new programs.

17 A Yes. Both Duke and Progress have fairly new
18 programs for AC cycling. Progress' is known as the
19 Energy-wise Program. It's a more detailed cycling
20 program. And Duke has a very similar program called Power
21 Manager.

22 Q What are the advantages to either the utilities or
23 to the customers for those programs?

24 A Well, the design of the programs are such that

1 they are trying to minimize customer discomfort by
2 rotating the cycling, shortening the cycles themselves so
3 that the customers don't experience a tremendous level of
4 discomfort. It remains to be seen whether that manifests
5 itself. But the cycling nature of the program given newer
6 technologies as opposed to old conventional demand
7 response, we are expecting some better results.

8 A (By Mr. Hinton) The benefits to the customer is:
9 A. the company is able to use these cycling resources for
10 meeting their capacity needs. And then we're advocating
11 that they should investigate using the cycling programs to
12 possibly lower fuel costs. When the system lambdas or
13 LMPs are at an extremely high level so the marginal cost
14 of AC and load control is naturally less than the cost of
15 providing fuel at that particular time. So they could
16 lower their fuel cost as well as meet their capacity
17 requirements.

18 Q Just for the record, you are referring the lambdas
19 and the LMPs. What are those now?

20 A (By Mr. Hinton) Lambdas for PEC and Duke, the
21 marginal cost of providing energy at a certain hour. It's
22 largely fuel cost. Variable enters into it, too. With
23 LMPs, there is large vocational marginal prices that are
24 set in Dominion's load.

1 Q .So, at certain times the fuel cost is higher
2 during peak times; is that what you're saying? Is that,
3 historically, what it is?

4 A Typically as you move up the generation stack of
5 utilities, you start with baseload plants and combined
6 cycle, coal, then combined cycle. And then you'll start
7 getting into some peakers, and you get the older
8 inefficient peakers, which is higher fuel cost for that
9 marginal set of energy. Somewhere out there in the top of
10 the stack is where we are advocating the companies
11 consider using these cycling programs. Currently they're
12 uses as a near emergency. So they are up there very high
13 at the top of the stack.

14 Q So the benefit for these residential air
15 conditioning cycling programs would both lower the peak
16 demand and also reduce fuel cost?

17 A That's the hope. But to be honest with you, as
18 Mr. Floyd indicates in his testimony, these program are
19 relatively new. And so we are cautiously recommending
20 them to investigate, you know, urging them to look at
21 that. Based on other studies I've looked at, they are
22 doing programs like that in Maryland. And they are
23 advocating these programs out West, some utilities out in
24 California and Utah.

1 Q It's my understanding that several of the EMCs,
2 the membership corporations have had an air conditioning
3 programs, cut-off programs for a number of years; is that
4 correct?

5 A Correct. The older programs I think the EMCs have
6 as well our utilities have had have been sort of the first
7 generation of AC load control where the customer is cut
8 off for several hours at one time. And as Mr. Floyd was
9 saying --

10 A (By Mr. Floyd) That's right. They're fairly
11 antiquated technology. In fact, if I recall from the
12 EMCs' IRPs for the last few years, they list the same
13 resources over and over. And they have indicated to us
14 that they can't find replacement equipment. So as they --
15 attrition takes care of them, they're getting rid of that
16 resource.

17 Q Mr. Floyd, have you compared Duke's Power Manager
18 and Energy-wise Programs with those other states or
19 jurisdictions?

20 A Yes and no. I have looked at Maryland's,
21 particularly with respect to AC load control. And
22 Progress and Duke, like I say, have very similar programs
23 in that they are having shorter cycles to try to minimize
24 the discomfort; a fixed number of hours that they can use

1 the resource, of course. But Maryland has a program that
2 provides various levels of incentives that the customers
3 can decide how much AC load control they want to give to
4 the utility. There's an opportunity there.

5 The programs that Duke and Progress have are new
6 age. I mean they involve new technology -- I didn't say
7 that appropriately, but they are utilizing newer
8 technologies with the invent of smart grid -- discussions
9 behind smart grid -- they are incorporating these newer
10 technologies to try to minimize the level of discomfort
11 customers would experience in hopes that customers would
12 be willing to sacrifice a little bit for the credits that
13 they would be paid in order to give the utility the
14 resource benefit from the program.

15 Q The same discussion, same kind of questions could
16 be asked about each one of their programs, residential,
17 industrial, commercial, could they not?

18 A Pretty much.

19 Q It's the same analysis, if it's a new program
20 comparing it to other states perhaps seeing how well they
21 intend to use it, how much money they're going to fund a
22 program?

23 A You can look at a program in another state with
24 respect to the design of the program and how they provide

1 the resource to the utility and how they impact the
2 customer's use of energy and so forth. But you have to be
3 careful about how you do that because North Carolina is
4 not a state that looks like California with respect to
5 lots of things. While it may work in California does not
6 necessarily mean that it will work in North Carolina.

7 Q Certainly.

8 A That's what I am trying to say.

9 Q But there are other programs in other states that
10 our utilities could use?

11 A Yes. And I will say firsthand knowledge I have
12 spent a lot of time talking with representatives with both
13 companies. I participate in the Duke collaborative that
14 was the result of the Save-A-Watt proceeding. I have to
15 say that throughout all this discussion, we are looking at
16 lots of things, new programs. I fully anticipate
17 continuing to do that as we move forward.

18 Q In testimony yesterday by Progress Energy
19 Witnesses looking at the end of their planning horizon,
20 the 2014 -- 2024 date, they said they were looking at 3.8%
21 energy efficiency savings by that time. Were you here
22 when they testified?

23 A Yes.

24 Q Do you think they could do better than 3.89%?

1 A I will have to say, yes. We are pushing utilities
2 to do as much as possible, whether it's 3.8% or 1% or 20%.
3 There are a lot of people North Carolina's market
4 potential. There are a lot of published studies by the
5 utilities and by others. I don't know the magic number.
6 I don't think anyone does. But we continue to push the
7 utilities to find as much cost effective energy efficiency
8 and demand response as they can possibly find. We do
9 understand that it is the cheapest resource.

10 Q And your opinion is based on your understanding of
11 both the Duke and Progress IRPs and their programs and
12 also what the other states are doing and what other third
13 party --

14 A My statement is based on the last three years
15 being buried in energy efficiency and demand response.

16 Q So we should -- Is it in your opinion or the
17 Public Staff's opinion that we should encourage as much
18 energy efficiency as we can that's marketable?

19 A I think the Public Staff is on record as doing
20 that, encouraging as much cost effective energy efficiency
21 and demand response as we can find.

22 Q Mr. Hinton, do you have anything to add to that?

23 A (By Mr. Hinton) No. I agree with that. Cost
24 effective is one of the principles we apply. I would

1 support Jack -- Mr. Floyd's testimony.

2 Q I have a couple questions for Mr. Ellis on a
3 different matter. Mr. Ellis, in your testimony you are
4 talking about the reserve margin for Duke Energy.

5 A Yes.

6 Q And what is Duke's goals for their reserve margin?

7 A They have a plan for about 17% is what they told
8 me.

9 Q And in the IRP, what is their forecasted reserve
10 margin?

11 A It varies year to year as load grows and as new
12 generation is added and the lumpiness of that new
13 generation impacts that.

14 Q Does it ever go below 17%?

15 A I believe it does in one year. I don't have those
16 figures.

17 Q Mr. Hinton, if you've got the figure --

18 A (By Mr. Hinton) Yes. According to the Summer
19 projections it's 16.9 in 2011

20 Q What is the highest with the planning horizon?

21 A (By Mr. Hinton) Subject to check I think it's
22 22.4.

23 Q Now. Mr. Ellis, what -- if you understand, what
24 is Duke's rationale for 17% reserve margin?

1 A (By Mr. Ellis) Reserve margin is based on system
2 -- varied system aspects. One of the things that's
3 considered is the size of the generators. If you have the
4 potential to lose some loads generators, schedule some of
5 your generators to be out of service for outage for
6 various maintenance that has to be done, and then make a
7 plan such if you an adequate reserve party such as if you
8 were in trouble, it would lose some of the larger
9 generators which would still supply the power that you
10 need to supply.

11 Q So for both Duke and Progress, if one of the
12 nuclear units goes down or one of the big coal plants goes
13 down, would be able to meet that generation?

14 A That's part of it. But that's not all, yes, sir.

15 Q And would it be rational to have a hundred percent
16 reserve margin so if all the units went down that you
17 would have to cover power from all these units?

18 A I don't think we planned for that, no, sir.

19 Q Would it be rational you wouldn't need that
20 because all the units aren't going down at the same time,
21 are they?

22 A It's not likely, no, sir.

23 Q Now, in fact if you hit the more different kinds
24 of generation that you had looking at one of the Duke

1 witnesses, looking at his pie charts looked like pizza
2 yesterday, the more different kinds of generation the more
3 reliable the system; is that correct?

4 A I don't know that you can say that as blanket
5 statement, but certainly diversity could help the matter.

6 Q I think it was Dr. Blackburn talking about the
7 combined heat and power yesterday looking at -- well,
8 there were 1500 megawatts of new combined heat power. You
9 are going to need to have a reserve for all 100 or 1,000
10 new facilities, would you?

11 A You wouldn't have to have a reserve for all those
12 facilities, I wouldn't say. I would say, no.

13 Q They're not all going to go down at the same time?

14 A I think that's what we checked, yes, sir.

15 Q Now, in reviewing the wholesale power contracts
16 with the utilities, are you recommending that some of the
17 wholesale power purchases in the Duke Energy IRP be
18 removed?

19 A No, sir, I did not make that recommendation.

20 Q Okay. Did you make any recommendations as opposed
21 to the wholesale power contracts?

22 A No, sir. We had had some discussions with Duke,
23 and I think I indicated in any Affidavit that we might
24 file supplemental based on the results of that meeting.

1 And based on the results, the Public Staff determined that
2 we did not need to file supplemental to address that
3 situation.

4 Q And did you make any recommendations about the
5 inclusion of the undesignated wholesale load increases and
6 the need for peaking generation?

7 A Let's see.

8 Q If I can draw your attention to the last paragraph
9 in your Affidavit --

10 A Yes, sir.

11 Q -- where you mentioned you put the undesignated
12 wholesale load in the context that both reserve margin and
13 peaking?

14 A I don't see that, sir. Oh, I see it. It's the
15 first paragraph at the top of the second page. Okay I
16 read from my Affidavit: "Duke witness, McMurry indicates
17 in his prefiled direct testimony filed on January 11, 2010
18 in this proceeding that preliminary results indicate that
19 the inclusion of the undesignated wholesale load increases
20 the need for additional peaking generation in the 2017 to
21 2026 timeframe, and increases the need for additional
22 baseload generation in the 2018 to 2021 timeframe."

23 Q Now in your opinion does the undesignated
24 wholesale load increase the need for additional peaking

1 generation in the timeframe and the additional baseload
2 generation?

3 A Mr. McMurry actually filed supplemental testimony
4 to address -- to clarify -- their position. And --

5 Q I am asking what your position is then on it?

6 A Okay. Well, the Commission concluded in the
7 Orangeburg Order, E-7, Sub 858, the inclusion of
8 undesignated load as represented of future potential
9 wholesale load is not intended to give advance approval to
10 wholesale contract like any present agreement, and that
11 the inclusion of undesignated wholesale load and IRPs does
12 not support necessarily every system costs of the
13 agreement. Therefore, we also think it's prudent to
14 include some undesignated wholesale load, but not to a
15 degree that would necessarily affect the generation
16 schedule.

17 Q Mr. Hinton, do you agree with that?

18 A (By Mr. Hinton) Yes. My review of the plans show
19 that the undesignated load did not shift the need or add
20 to the need of a plant if it didn't cause a plant to be
21 needed at any certain point in time. So for the planning
22 horizon we saw that inclusion of the undesignated load was
23 reasonable for this plant. But as Mr. Ellis said,
24 approval of this IRP does not lend support for other

1 issues regarding the wholesale cost recovery and things
2 like that.

3 Q At a certain point in perhaps other IRPs a
4 substantial amount of undesignated wholesale could
5 influence both the peak demand and the need for baseload?

6 A (By Mr. Hinton) Without a doubt, yes. If there
7 was a significant amount of undesignated wholesale load
8 that could easily move a plant to be built a year earlier
9 or a different type of plant to be needed.

10 Q I guess my final questions are for all of you if
11 you have any opinions on. You have reviewed both the Duke
12 Energy Plan and the Progress Energy Plan, how do they
13 compare to each other?

14 A (By Mr. Hinton) I ask you to be a little more
15 specific in what level comparison are we speaking of?

16 Q Looking at -- Let's look at supply side first. Do
17 they have emphasis in their plans for different kinds of
18 units of combustion turbines as opposed to coal and
19 opposed to nuclear?

20 A Yes, they do. They are comparable with that
21 regard.

22 Q Now I thought I had two difference answers there.

23 A (By Mr. Ellis) I said I believe they do.

24 Q Are they comparable at this point on their energy

1 efficiency programs?

2 A (By Mr. Ellis) Yes, sir.

3 Q Now are they comparable in at this point on their
4 energy efficiency programs?

5 A (By Mr. Floyd) Yes. They both provide energy
6 efficiency and demand response if that's what you mean by
7 comparable.

8 Q Well, looking at Progress Energy's 3.8% energy
9 efficiency by 2024 and Duke's high impact case that
10 incorporates the Save-A-Watt 1% a year after 2015, are
11 those comparable?

12 A (By Mr. Floyd) It's difficult to assess that and
13 compare utility to utility. I go back to the same
14 principle that I look at in other utilities and states
15 around the country and look at their numbers and percents
16 of potentials. We have cost recovery mechanisms for both
17 companies, the Save-A-Watt mechanism for Duke is a pilot
18 for 4 years. And they structured their IRP based on the
19 portfolio of programs that are part of Save-A-Watt. Now,
20 after 4 years, we are all going to be revisiting
21 Save-A-Watt again, and it remains to be seen what happens
22 with Save-A-Watt between now and then. But what they did
23 in the IRP was essentially take the portfolio Save-A-Watt,
24 bundled them together and project them forward. It's a

1 very static approach. But at this point, we treat
2 Save-A-Watt as a pilot.

3 MR. RUNKLE: Gentlemen, I appreciate your frank
4 answers to the questions and that's all I have.

5 COMMISSIONER CULPEPPER: Thank you, Mr. Runkle.
6 Cross-examination, Ms. Thompson?

7 MS. THOMPSON: No questions.

8 MR. ANTHONY: Thank you, Mr. Chairman. Good
9 morning, panel.

10 CROSS-EXAMINATION BY MR. ANTHONY:

11 Q Mr. Floyd, I can't help myself. You said that you
12 believe that Progress Energy Carolinas could do better
13 than 3.8% in energy efficiency savings achievements. Do
14 you have any specific recommendations to us as to what
15 else we can be doing?

16 A (By Mr. Floyd) If I couched it specifically as
17 3.8%, I was mistaken in that regard. What I'm trying to
18 say is that we want to see Progress and Duke and Dominion
19 to incorporate as much energy efficiency -- cost effective
20 energy efficiency -- as there is out there.

21 There are a lot of factors that are going into
22 cost effectiveness, and even market potential with so many
23 other factors that need to be considered. If 3.8% is the
24 number or if 20% is the number or 1% is the number, at

1 this point I do not know the answer to that.

2 But what I am saying is that the Public Staff
3 has -- and I believe our practice has been and will
4 continue to be to encourage the utilities to find as much
5 cost effective demand response and energy efficiency as
6 you can possibly find.

7 Q Has Progress Energy given you any reason to
8 believe that we are either not strenuously looking for
9 every program that may be cost effective and have a plan
10 to implement every cost-effective plan we find?

11 A No. And I said that we have spent a lot of time
12 talking with company representatives from each of the
13 companies on that.

14 Q Thank you. Mr. Ellis, just for clarity you had a
15 discussion with regard to reserve margins and capacity
16 margins and what they mean.

17 A (By Mr. Ellis) Yes.

18 Q Let me see I can get this right. Reserve margin
19 is the utility's total generating capability minus peak
20 divided by the peak?

21 A That's correct.

22 Q And capacity margin is the same numerator but the
23 denominator is the total capacity of the utility?

24 A That is correct.

1 Q If I understand it correctly as a rule, capacity
2 margin and reserve margin targets, for one of a better
3 word, are based upon an analysis where at only one day in
4 every 10 years, is it probable the utility will not have
5 sufficient resources to meet its load?

6 A That's what most utilities use, yes.

7 Q Did I accurately describe that analysis?

8 A That's correct.

9 Q Have Duke and Progress performed studies to
10 determine their appropriate reserve margins and capacity
11 margins?

12 A Yes, sir, they have.

13 Q Have you reviewed those?

14 A I have seen them in previous filings. It's not
15 been recently.

16 Q Do they appear to be reasonable to you?

17 A Yes, sir, they do.

18 Q And, Mr. Hinton, in your testimony on Page 7,
19 Lines 13 through 15 you say, "Furthermore, I believe that
20 the expansion plans set forth by the IOUs are reasonable
21 for purposes of this proceeding." Did I accurately
22 describe your testimony?

23 A (By Mr. Hinton) Yes, it is.

24 Q So, if I look at Progress Energy Carolina's 2009

1 resource plan the generation additions that are shown here
2 you find are reasonable?

3 A Yes, I do.

4 Q Should Progress Energy be adding any additional
5 capacity during this time period in order to maintain
6 reasonable capacity margins?

7 A The reserve margin and capacity margins that are
8 -- that the -- company has in its planning horizon have
9 been approved and are reasonable. So, to answer that
10 question their capacity margins are adequate.

11 MR. ANTHONY: Thank you.

12 COMMISSIONER CULPEPPER: Does that conclude your
13 cross-examination.

14 MR. ANTHONY: Yes, sir. Mr. Kaylor?

15 MR. KAYLOR: No questions.

16 COMMISSIONER CULPEPPER: Ms. Nichols?

17 MS. NICHOLS: Just a few.

18 CROSS-EXAMINATION BY MS. NICHOLS:

19 Q Mr. Floyd, I want to follow up on a couple of
20 questions you had from Mr. Runkle. He asked you if when
21 you were talking about the AC load control programs and
22 the ability to utilize those for fuel savings. I believe
23 he asked you if there could also be a program for
24 non-residential customers that might do the same thing?

1 A I'm not sure I understood the question.

2 Q Let me ask you this: You indicated that you
3 participate in the Duke collaborative --

4 A That's correct.

5 Q And I believe back in November of last year, there
6 was a meeting of the collaborative to go over some
7 proposed -- 3 -- proposed new programs that Duke was
8 working on. Did you participate in that?

9 A In conference call, yes, I did. And we've talked
10 with company representatives since the first of the year
11 with respect to those 3 programs I expect to be filed very
12 shortly.

13 Q I was going to ask you: Has Duke been working
14 with the Public Staff to answer data requests about those
15 3 programs?

16 A I've got in a file for me to take to Murphy.

17 Q And one of those programs is a new option that a
18 power share program which is Duke's non-residential demand
19 response program that would a voluntary option?

20 A Right.

21 Q And then one of the programs is a home energy
22 comparison report program?

23 A Yes.

24 Q And then thirdly, Duke is working with the Public

1 Staff to review to potential residential retrofit program?

2 A That's correct.

3 MS. NICHOLS: Thank you. Nothing further.

4 COMMISSIONER CULPEPPER: Redirect examination,
5 Ms. Fentress?

6 MS. FENTRESS: Just one or two questions.

7 REDIRECT EXAMINATION BY MS. FENTRESS:

8 Q Mr. Floyd, Mr. Runkle was asking you about your
9 review of IRPs, particularly the DSM and EE programs. And
10 he was asking you about comparing the two utilities. You
11 take into account the individual characteristics of each
12 utility when you make your recommendations in the IRP; is
13 that fair to say?

14 A Yes.

15 Q We don't make recommendations -- the Public Staff
16 would not make recommendations based solely on a
17 comparison basis between Duke and --

18 A Not at all.

19 MS. FENTRESS: That's all I have.

20 COMMISSIONER CULPEPPER: Questions by the
21 Commission?

22 EXAMINATION BY COMMISSIONER JOYNER:

23 Q Mr. Floyd, I have a question for you. You have
24 talked about your participation on behalf of the Public

1 Staff and collaboratives and that you spent the bulk of
2 the last 3 years buried in these issues and we appreciate
3 the --

4 A Maybe not literally buried, but --

5 Q Not yet. There are those who worry that we in
6 North Carolina don't get it, that we don't get the urgency
7 of now. We are not moving far enough fast enough doing as
8 much as we can to achieve the maximum results from
9 efficiency, from demand-side management. I sense that
10 when we attend public hearings, I sense it in a lot of
11 different venues and that seems to be increasing. I look
12 at the cost recovery mechanisms, I look at the
13 incentives -- you have been involved in those -- I think
14 the Commission has been fairly generous in trying to do
15 what it can to encourage deployment of cost-effective
16 programs. Is there more that we can do?

17 A There are a lot of things going on in the world
18 around us with respect to energy efficiency and demand
19 response. This Commission has the authority to regulate
20 the utilities participation in efficiency and demand
21 response. As I understand it you don't have a whole lot
22 of say so in things like building codes and other
23 government subsidies that may come down the pipe with
24 respect to rebates or programs that are offered to the

1 population. And it doesn't have jurisdiction on how
2 people spend their own money.

3 The first witness Monday night that we heard
4 from was Mr. Cherin. And he indicated that he had saved
5 about 40 percent on his energy bill. As I understand from
6 Monday night, he did not participate in one utility
7 program to do it. He did that on his own. What caused
8 him to move down that path, I don't really know other than
9 to benefit his bottom line and to try to reduce emissions
10 from generating facilities.

11 This debate is never going to be settled in my
12 mind. There are people that are on one end want to see
13 little to none done because it's going to cost them more
14 money. And then there are other people who would love to
15 get rid of every generating station that spews out any
16 type of pollution.

17 At some point through the General Assembly's
18 policy statements and laws, through your rules, somewhere
19 somehow we have got to come together and decide how we're
20 going to approach this. I think Senate Bill 3 and the
21 rules that you adopted to implement Senate Bill 3 are a
22 great start. We are not there. We are not going to get
23 there any time soon. The utilities have just started
24 doing their share of trying to implement energy

1 efficiency. But there are a lot of other things that are
2 going on around them that will influence their ability to
3 achieve a certain target that people have promoted in
4 these proceedings.

5 But all said and done, I believe that we as a
6 population are moving in the direction of using energy
7 more efficiently. Whether it shows up in the utilities
8 saved kilowatt hours or if it shows up embedded in their
9 load forecast -- which is something we won't never be able
10 to fully quantify -- one way or another, both of those
11 pieces add up to energy efficiency overall. And I think
12 as a trend that is where we are going. The market is
13 being moved. It's being transformed, but it has not been
14 transformed as of yet.

15 You asked is there anything else we can do? I
16 don't know at this point. I think the path we have chosen
17 to go down is a good path. We are looking at, we are
18 talking about cost-effective energy efficiency and demand-
19 response programs. I do not believe that it is being
20 talked about in a vacuum. There are things that are going
21 on that will eventually come to this Commission. It has
22 not yet. I don't feel at liberty to go into a lot of
23 that. We just started down this path. And I would like
24 an opportunity to be able to figure out whether this is

1 the right path. It's too early to tell. So to answer
2 your question in nutshell, I think what we are doing is
3 good. There is probably something we could do better, but
4 I am not at the point that I can answer that definitively
5 for you.

6 Q This is more in the nature of a comment,
7 Mr. Chairman, than question, but it is the view of one
8 Commissioner, and it is that we have in this room around
9 this table people who are in positions to influence the
10 behaviors of consumers. And the roll out of the best
11 plans in the world unless we can get consumers to buy into
12 them to modify their behavior to accomplish that good that
13 we need, we are going to fall short. So as you have these
14 discussions and the collaboratives, I would encourage you
15 all to look at that both in terms of your planning and
16 implementation and that is the way we will get these
17 programs to consumers who will benefit them.

18 COMMISSIONER CULPEPPER: Commissioner Beatty?

19 EXAMINATION BY COMMISSIONER BEATTY:

20 Q Mr. Floyd, in another docket I asked you about the
21 cost-effectiveness test, and asked whether or not the
22 incentives that the Commission is authorized to pay to the
23 utilities for efficiency programs are considered in those
24 cost-effectiveness test, and you indicated it was not.

1 A That's correct.

2 Q I'd like to follow up on that and ask you: Should
3 it be? And why or why not in your opinion?

4 A I knew I would eventually get this question. It's
5 been a long week. I don't think it should be. It is not
6 a direct cost of the program. And to include them in the
7 cost-effectiveness test would be to alter the cost-
8 effectiveness test. And to be honest with you, I am not
9 expert enough to decide how to change some very widely and
10 broadly accepted test for cost effectiveness.

11 I have encouraged in Monday morning Staff
12 Conferences that we utilize the four tests that California
13 pretty much has written. Duke's witness in the
14 Save-A-Watt proceeding was one authors of the protocols
15 that are used. Those tests are fairly conventional,
16 widely accepted tests that have been around for years as
17 far as I can tell. To alter that is the beyond the scope
18 of my ability to suggest anything else.

19 Q Do you know whether California and some of the
20 other states that use those four tests offer the same type
21 of incentives that North Carolina is authorized to use?

22 A Directly, no, sir. I do -- I am aware and
23 unfortunately I can't tell you which jurisdictions do
24 this. I am sitting here trying to rack my brain to get

1 it -- but there are other jurisdictions that have altered
2 or manipulated or changed, whatever word you want to use,
3 the standard cost-effectiveness test. But I cannot recite
4 for you one of those jurisdictions at this point. I've
5 seen those different tests.

6 COMMISSIONER BEATTY: Thank you for your answer.

7 COMMISSIONER CULPEPPER: Chairman Finley?

8 EXAMINATION BY CHAIRMAN FINLEY:

9 Q As I recall the testimony of the Duke and Progress
10 witnesses, I would characterize them as being cautiously
11 optimistic about their chances of complying with the REPs
12 standard in Senate Bill 3 both in the short term and the
13 long term by recognizing that 2021 is some years off.
14 What is your assessment of their ability to meet the
15 standard without exceeding the price -- the cost caps.

16 A (By Mr. Ellis) I will try to answer that, but we
17 have a witness coming up to specifically address that
18 later. Isn't Jay coming up next?

19 MS. FENTRESS: It is my understanding that Mr.
20 Lucas is going to be stipulated into the record.

21 A (By Mr. Ellis) I understand I'm it. In the short
22 term it certainly appears they can meet their goals for
23 this planning through 2011, which is always required to be
24 in this compliance plan. Beyond that it looks to me like

1 it could get challenging as far as -- unless the price of
2 RECs drops considerably that they would hit the caps some
3 time in the near future.

4 Q What do you view to be the primary obstacles that
5 prevent us from complying with the requirements of Senate
6 Bill 3? Is it the set-asides? What would you say are the
7 primary obstacles?

8 A Certainly the most expensive type is solar and
9 that represents a large portion of the cost that they
10 spend for trying to meet their requirements. And in
11 general each one of the types of technologies has a
12 different price for that type of REC. And the cheaper
13 ones do not have set-asides, that is true.

14 Q Has the Public Staff in terms of deliberations
15 tried to identify things that they may recommend that need
16 to be changed for Senate Bill 3 to make it more feasible
17 to accomplish the goals in Senate Bill 3?

18 A We have had some discussions internal, but have
19 not come to any definite conclusions or anything that we
20 have to share at this time.

21 CHAIRMAN FINLEY: Thank you.

22 COMMISSIONER CULPEPPER: Questions based on the
23 Commission's questions, Ms. Fentress?

24 MS. FENTRESS: No, thank you.

1 COMMISSIONER CULPEPPER: Other Interveners? Mr.
2 Olson?

3 CROSS-EXAMINATION BY MR. OLSON:

4 Q I would like to follow up on Chairman Finley's
5 question about the REPs and complying with the REPs. Have
6 you reviewed the compliance plans that have been submitted
7 by Duke and Progress Energy?

8 A (By Mr. Ellis) Yes, sir, I have.

9 Q And based on those compliance plans, is it -- it's
10 your opinion that the cost cap is going to be an obstacle
11 at some point in the future in terms of meeting the REPs
12 requirements?

13 A I said without some drop in the price of the RECs,
14 I believe that to be true, yes, sir.

15 Q Do you have any sense of timeframe when that may
16 start to occur?

17 A It depends on the flexibility that they have to
18 include the RECs that they have already banked in their
19 compliance report and what they're seeking cost recovery
20 for. Each one of the utilities has RECs they have banked
21 at recorded prices, and as new contracts come online,
22 those prices, if indeed we have some that drop, they may
23 be able to use that flexibility to put these RECs --
24 retire these RECs -- and put them in the cost recovery to

1 help manage their cost. And exactly when they would put a
2 cap, I can't speculate, not based on their plans and not
3 knowing what the future brings.

4 Q My recollection of yesterday's testimony from both
5 the witnesses for Duke and Progress Energy were that they
6 were more than just cautiously optimistic about meeting
7 the requirements. They both seemed to say they would meet
8 the requirements. Where is the difference in that
9 testimony and their opinion and yours?

10 A I think both of them said in short term and
11 midterm. They didn't say long term. As the requirements
12 ramp up and the cap changes a little, it doesn't change
13 very much until about 2015, if I remember that correctly.
14 I see it getting challenging before that time to meet that
15 requirement.

16 MR. OLSON: Thank you. That's all I have.

17 COMMISSIONER CULPEPPER: Mr. Styers?

18 CROSS-EXAMINATION BY MR. STYERS:

19 Q I just want to follow up on Commissioner(sic)
20 Finley's questions and Mr. Olson's regarding REPs
21 compliance. Has the Public Staff itself in light of
22 what's been filed by each of the utilities in the IRP
23 projected the availability of RECs and projected
24 compliance with the REPs requirements in Senate Bill 3.

1 MS. FENTRESS: If I might just briefly, if Mr.
2 Ellis feels comfortable answering the question, I
3 certainly don't object. We had talked before the hearing
4 about stipulating Mr. Lucas in. He truly is our expert on
5 this. And if it's more helpful to the parties, we don't
6 have to do that.

7 COMMISSIONER CULPEPPER: Well, y'all are the
8 parties, and y'all are the ones that come up with the
9 stipulation. I will leave that to him. He has asked Mr.
10 Ellis a question, and if Mr. Ellis knows the answer, he
11 can answer it. If he doesn't know it, the correct answer
12 would be, I don't know. Then we will decide what y'all
13 want to do with Mr. Lucas after panel is finished.

14 A (By Mr. Ellis) Yes, sir. I will answer to the
15 best of my ability which is that the compliance plan that
16 is filed goes through 2011. And that is all the utilities
17 are required to file. Pass that point everything that we
18 seen is speculation, we've looked at some future things,
19 but we don't have true data.

20 Q Have you had a chance to look at Page D13, which
21 was admitted as CPI Cross-examination Exhibit 1 yesterday
22 and Cross-examination of Progress' reports, this is Page
23 D13 of Progress Energy's IRP. If you haven't, I will be
24 happy to pass that up to you, Mr. Ellis.

1 A I have it. Let me find it. Yes, sir, I have it.

2 Q Let me re-state my question earlier which wasn't,
3 obviously, very clear: Has the Public Staff itself
4 developed any projections internally of the likelihood of
5 REPs compliance by the utilities in the short, mid, and
6 long range with information such as what has been provided
7 on D13 of Progress' IRP?

8 A Only short term and maybe just briefly midterm,
9 but certainly not long term. And as I said, based on
10 testimony that we heard yesterday, I don't have any data
11 that would refute that.

12 Q So the Public Staff itself has not looked itself
13 independently analyzed the likelihood of REPs compliance
14 pass 2013?

15 A No, sir, that's correct.

16 Q There was testimony yesterday regarding this --
17 and this also goes to the REPs compliance question about
18 their need to have one, two, or three-year development
19 lead time for development of new renewable facilities in
20 order to generate RECs. Would you agree that there is
21 several years of lead time that would necessary to develop
22 a renewable capacity?

23 A Depending on the type of technology, that could be
24 possible.

1 Q Let me just follow up on that answer: What types
2 of technology could be developed in a short period of
3 time, and what types of technology would take a longer
4 period of time?

5 A Well, obviously small solar and all the -- doesn't
6 take very long to plan and implement. Something like a
7 large facility or a large biomass burner that needs to
8 secure financing and have more extensive project review,
9 they could take longer.

10 Q So larger facilities that would generate more RECs
11 than greater capacity would take longer development time
12 generally?

13 A Potentially.

14 MR. STYERS: No further questions. Thank you.

15 COMMISSIONER CULPEPPER: Any questions from the
16 utilities?

17 (No response.)

18 All right. That appears that would conclude
19 your testimony, gentlemen. You may stand down from the
20 witness chair.

21 We don't have any exhibits that I've seen.

22 MS. FENTRESS: We do not have any exhibits.

23 COMMISSIONER CULPEPPER: Ms. Fentress, what do
24 you want to do about the next witness?

1 MS. FENTRESS: I would like for Mr. Gillam to
2 handle that.

3 MR. GILLAM: We will call Mr. Lucas. There was
4 at one point discussion of stipulating him in. I do not
5 know whether that remains the prospect or not.

6 COMMISSIONER CULPEPPER: Mr. Lucas is here, I
7 believe, let's let him come forward.

8 MR. GILLAM: He does not have a summary.

9 JAY LUCAS; Being first duly sworn,
10 testified as follows:

11 DIRECT EXAMINATION BY MR. GILLAM:

12 Q Did you -- Well, first of all, please state your
13 name and business address?

14 A I'm Jay Lucas. My business address is 430 North
15 Salisbury Street, Raleigh, North Carolina.

16 Q What is your employment position?

17 A I am a Utilities Engineer with the Public Staff.

18 Q Did you cause to be filed in this proceeding an
19 Affidavit consisting of approximately 8 pages plus an
20 Appendix in both confidential and redacted form?

21 A Yes, I did.

22 Q It is -- I understand that there is one correction
23 to that Affidavit. Do you have that with you?

24 A Yes, I do.

1 Q Can you please describe that correction to the
2 Affidavit?

3 A On Page 3 of the Affidavit --

4 COMMISSIONER CULPEPPER: Let me interrupt you
5 for just a minute. Mr. Gillam, I need for you to kind of
6 help me out a little bit. There's an Affidavit of
7 Mr. Lucas that was filed on February 19. Then there was
8 an Affidavit that was filed on March 2. I understand that
9 the March 2 filing contains some changes or amendments to
10 the earlier filed Affidavit. And the March Affidavit
11 appears to be quite comprehensive in and of itself. I
12 guess I'm wanting to know when you talk about amending the
13 Affidavit, which Affidavit are we talking about?

14 Q Would you describe the nature of the changes from
15 the February 19 Affidavit to the March 2 Affidavit, Mr.
16 Lucas?

17 A There are two changes. The first one regarded
18 some numbers that I had incorrect regarding Dominion North
19 Carolina Power. That was my first change. The second
20 change, I believe, totally changed the way the
21 confidential information was presented. It didn't change
22 any material items in my Affidavit. It made it more clear
23 what was confidential and what wasn't.

24 Q Mr. Lucas, looking at the discussion of Dominion

1 North Carolina Power -- and I'm sorry, my version of the
2 Affidavit is the early version and the page number might
3 not be correct -- but looking at the 4th paragraph in the
4 discussion of Dominion North Carolina Power, can you turn
5 to that? It's approximately Page 6.

6 A Okay.

7 Q Looking at the 2nd sentence of that paragraph, did
8 you change some numbers in that paragraph at the request
9 of Dominion North Carolina Power?

10 A Yes, I did.

11 Q Those were the numbers of megawatt hours?

12 A Number of megawatt hours and there's an add -- I
13 added an extra line to the table.

14 Q That was in the table headed Annualized Capacity
15 and Energy Rates, the next to the last table in that
16 section on Dominion North Carolina Power, was it not?

17 A That's correct.

18 Q And that was approximately on Page 7, was it not?
19 It may be a different page on your version.

20 A Second to the last table.

21 Q And that table originally had two lines and one
22 line was inadvertently omitted?

23 A That's correct.

24 Q Those were the only changes in the Affidavit that

1 was filed on March 2, the only substitution --

2 A Yes.

3 Q Only changes of any kind, were they not?

4 A I believe, yes.

5 Q Then after that at the request of the Clerk's
6 Office, we revised the redacted version to indicate the
7 redactions in a different manner, did we not?

8 A That's correct.

9 Q We indicated them by blacking them out rather than
10 by putting it the word confidential with asterisks before
11 and after? We blacked them out so that people could see
12 more clearly where the redactions were?

13 A That's correct.

14 Q Okay. And those -- And aside from the correction
15 that we were prepared to present here today, those were
16 the only changes in your Affidavit, were they not?

17 A Yes.

18 Q Now was a correction requested by Duke Energy?

19 A Yes.

20 Q Would you describe that correction, please?

21 A About in the middle of my discussion of Duke
22 Energy -- depending on what version, my version is on Page
23 3 -- there is a paragraph that starts out, Duke is
24 contractually obligated to secure resources to meet all

1 REPs requirements. In the last sentence of that
2 paragraph, I stated, Duke will secure resources to meet a
3 portion of the REPs requirements of Blue Ridge EMC and
4 Piedmont EMC. That should be corrected, Duke may secure
5 the resources. I stated Duke "will" and it should be Duke
6 "may" secure those resources.

7 COMMISSIONER CULPEPPER: Let me make sure we are
8 all on the same page. I'm looking at your March 2
9 Affidavit. Is that the one you are looking at?

10 MR. LUCAS: Yes.

11 COMMISSIONER CULPEPPER: Aren't you talking
12 about towards the bottom of Page 3?

13 MR. LUCAS: That's correct.

14 COMMISSIONER CULPEPPER: And aren't you talking
15 about the second line from the bottom where the word,
16 "will" begins at the first?

17 MR. LUCAS: It's that first word right there.

18 COMMISSIONER CULPEPPER: You want to take the
19 word "will" out and make it "may"?

20 MR. LUCAS: That's correct.

21 COMMISSIONER CULPEPPER: All right. We are
22 going to do that.

23 Q (By Mr. Gillam) Do you have any other changes or
24 additions to your Affidavit?

1 A No, I don't.

2 Q With the changes that we've discussed, if you
3 prepared it today, would it be the same?

4 A Yes.

5 MR. GILLAM: I would request that the Affidavit
6 with those changes be entered into the record.

7 COMMISSIONER CULPEPPER: That request is
8 allowed.

9 (Whereupon, Mr. Lucas' Affidavit was
10 admitted.)
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DOCKET NO. E-100, SUB 124

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

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

)
)

AFFIDAVIT OF
JAY B. LUCAS

STATE OF NORTH CAROLINA

COUNTY OF WAKE

I, Jay B. Lucas, first being duly sworn, do depose and say:

I am an engineer with the Electric Division of the Public Staff – North Carolina Utilities Commission. A summary of my education and experience is attached to this affidavit as Appendix A.

The purpose of my affidavit is to present the Public Staff's position on the alternative supply-side energy resources assessments filed by Carolina Power & Light Company, d/b/a Progress Energy Carolinas, Inc. (PEC); Duke Energy Carolinas, LLC (Duke); and Virginia Electric and Power Company, d/b/a Dominion North Carolina Power (DNCP) as part of their Integrated Resource Planning (IRP) filings in the above docket. My affidavit also presents the Public Staff's position on all three utilities' Renewable Energy Portfolio Standard (REPS) Compliance Plans.

Commission Rule R8-60(i)(7) requires each utility to file an assessment of existing and potential alternative supply-side energy resources. Each utility is also required to provide general information on any changes to the methods and assumptions used in its assessment since its most recent biennial or annual report. Commission Rule R8-60(e) states that alternative supply side energy resources include but are not limited to hydro, wind, geothermal, solar thermal, solar photovoltaic, municipal solid waste, fuel cells, and biomass. All of these resources can be used to meet a utility's REPS requirements.

G.S. 62-133.8 requires all electric power suppliers to provide specified percentages of their retail sales using renewable energy resources or reduce energy consumption through implementation of EE measures. Commission Rule R8-67(b) requires electric power suppliers to file a plan on or before September 1 of each year explaining how they will meet the requirements of G.S. 62-133.8(b), (c), (d), (e), and (f). The plans must cover the current year and the next two calendar years, or in this case 2009, 2010, and 2011. The only compliance requirement covered by this planning period is found in G.S. 62-133.8(d) for solar energy resources. Electric power suppliers

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must meet 0.02 percent of their retail sales in 2010 and 2011 using solar photovoltaic or solar thermal energy.¹

Each of the three utilities provided an assessment of alternative supply-side energy resources and a REPS Compliance Plan. A discussion of the actions proposed by each utility and associated concerns is found below.

Duke Energy Carolinas, LLC

Duke is considering bids for the following alternative supply-side energy resources: offshore wind, biomass (wood, poultry, and swine waste), solar photovoltaic (PV), and landfill gas. With respect to offshore wind, Duke has entered the planning phase for one to three large wind turbines in the Pamlico Sound. This project is a result of a study on North Carolina coastal wind energy feasibility by the University of North Carolina at Chapel Hill.

Duke has tested the co-firing of coal mixed with sawdust and wood chips at its Buck Steam Station near Salisbury, but remains concerned that the Department of Environment and Natural Resources (DENR) will regulate sawdust and wood chips as a solid waste. DENR has ruled that many types of wood waste should not be regulated as solid waste, but has reserved the right to evaluate wood wastes on a case-by-case basis. Any additional regulatory oversight of this nature would likely increase the costs of generation. Duke has also tested co-firing of other forestry products mixed with coal at its Lee Steam Station near Williamston, South Carolina. This test was hampered by a mild summer and lower than expected electricity demand, resulting in fewer opportunities for the Lee Station to operate. While these tests have provided valuable information on co-firing, Duke has yet to make a final conclusion or decision on proceeding based upon the results.

Duke is confident that it will meet the 2010 and 2011 solar set-aside requirements by implementing the following projects:

- A 20-year agreement for a large solar farm in Davidson County to be built and operated by SunEdison.
- A Distributed Generation Solar PV Program for which Duke has received Commission approval.
- Long-term agreements to purchase solar renewable energy certificates (RECs) from FLS Energy and Vanir Energy.

For Duke, 0.02 percent of anticipated sales for the solar set-aside equates to 11,142 megawatt-hours (MWh) in 2010 and 11,246 MWh in 2011. Duke projects the following results from its efforts to meet the requirements:

¹ For 2010, the utilities must supply 0.02% of their 2009 retail sales using solar energy resources. In 2011, they must supply 0.02% of their 2010 retail sales using solar energy resources.

1 MR. GILLAM: I think now is the time to ask
2 whether the parties are willing to stipulate Mr. Lucas'
3 Affidavit in or whether they would prefer to have the
4 opportunity for cross-examination.

5 COMMISSIONER CULPEPPER: Well, it's just been
6 admitted into evidence. So it's already in the evidence.
7 So that's all you can do. Let's find out if somebody else
8 wants to ask some questions. Do you have any other
9 questions?

10 MR. GILLAM: I have no other questions. He is
11 available.

12 COMMISSIONER CULPEPPER: Any of the Interveners
13 have any questions of this witness? Mr. Olson?

14 CROSS-EXAMINATION BY MR. OLSON:

15 Q Good morning, Mr. Lucas?

16 A Morning.

17 Q I am just going to paraphrase, but in several
18 locations in your Affidavit you make a statement that
19 based on the activities that the energy or electric
20 suppliers are conducting, they will meet their REPs
21 obligations for 2010 and 2011; is that correct?

22 A That's correct.

23 Q So it is your opinion that the IOUs that Progress,
24 Duke and Dominion -- based on your review of their

1 compliance plans -- will meet their obligations for
2 2010/2011?

3 A Yes.

4 Q Did your analysis look at any time period after
5 2011?

6 A No, I didn't.

7 MR. OLSON: I don't have any further questions.

8 CROSS-EXAMINATION BY MR. STYERS:

9 Q I was going to ask that question. The compliance
10 in 2010/2011 -- I will just use Progress Energy as an
11 example -- included the utilization of what I will refer
12 to as banked RECs that have been previously purchased; is
13 that correct?

14 A Let me check and make sure I got the years
15 correct. They intend to use banked RECs in the years 2015
16 and 2016.

17 Q So according to your testimony your understanding
18 is they are not planning to use banked RECs, but you
19 haven't yourself analyzed pass 2011 the compliance with
20 REPs requirements pursuant to your answer to Mr. Olson?

21 A That's correct.

22 Q So you have not done an analysis pass 2011 as to
23 the year or pace in which they would be using banked RECs
24 at this point?

1 A That's correct.

2 MR. STYERS: No further questions.

3 COMMISSIONER CULPEPPER: Any other Interveners?

4 (No response.)

5 Utilities have any cross-examination of the
6 witness?

7 (No response.)

8 Questions by the Commission? Chairman Finley?

9 EXAMINATION BY CHAIRMAN FINLEY:

10 Q I asked the panel some questions about the time
11 period with regards to REPs compliance beyond 2011.

12 A Yes.

13 Q And Mr. Ellis gave me some answers.

14 A Yes.

15 Q My assumption would be that you don't have any
16 trouble with Mr. Ellis' answers?

17 A That's correct. I agree with Mr. Ellis' answers.

18 CHAIRMAN FINLEY: Thank you.

19 COMMISSIONER CULPEPPER: Questions based on
20 Chairman Finley's questions?

21 RECROSS-EXAMINATION BY MR. OLSON:

22 Q What is the basis for your opinion or your
23 agreement with Mr. Ellis if you haven't conducted an
24 analysis beyond 2011?

1 A I did conduct an analysis. Any specific questions
2 about Mr. Ellis?

3 Q As I understood what Mr. Ellis said is that
4 notwithstanding what the utilities are saying, he
5 perceives a problem perhaps in the mid to long range with
6 the cost cap; is that where you say you agree with Mr.
7 Ellis?

8 A Yes. We haven't done a financial analysis or made
9 any calculations. Mr. Ellis pointed out the fact that the
10 cost cap grows slightly, but some of the requirements for
11 REPs grow more greatly. That could create a situation
12 where the utilities meet the cost caps before they meet
13 the compliance requirements.

14 Q So beyond that analysis you just said, was there
15 anything else you looked into or any other data?

16 A Just reading -- some of the utilities made
17 projections beyond 2011. But I didn't do a financial
18 analysis on those.

19 Q Were you here yesterday when they -- both the
20 representative from Duke and Progress Energy -- stated
21 call cautiously as Chairman Finley points out, they will
22 meet the obligations in the long term?

23 A I was here.

24 Q Do you disagree with that?

1 A No, I don't disagree with it. But there is
2 potential they could hit the cost caps.

3 MR. OLSON: Thank you very much.

4 COMMISSIONER CULPEPPER: Other questions? Mr.
5 Gillam?

6 REDIRECT EXAMINATION BY MR. GILLAM:

7 Q Mr. Lucas, is it your perception as you that
8 either the witnesses for Duke or Progress made a flat
9 statement that they committed to reach compliance with the
10 REPs requirements through 2021 without hitting the cost
11 caps?

12 A No, they didn't make any such statement. They
13 would definitely meet the requirements without hitting the
14 cost caps.

15 MR. GILLAM: That's all I have.

16 COMMISSIONER CULPEPPER: Any other questions
17 from the Intervener side?

18 (No response.)

19 Questions based on Chairman Finley's question
20 from the utilities?

21 (No response.)

22 All right. That would appear to conclude your
23 testimony, Mr. Lucas. Thank you very much for coming
24 today.

1 Mr. Gillam, best I can tell, that concludes the
2 Public Staff's case on direct.

3 MR. GILLAM: It does.

4 COMMISSIONER CULPEPPER: Let's see. Ms.
5 Thompson, do you have another witness?

6 MS. THOMPSON: I call John Wilson to the stand.

7 JOHN WILSON; Being first duly sworn,
8 testified as follows:

9 DIRECT EXAMINATION BY MS. THOMPSON:

10 Q Mr. Wilson, would you please state your name,
11 title and business address for the record?

12 A Sure. My name is John D. Wilson. I'm the
13 Director of Research for the Southern Alliance for Clean
14 Energy. And my business address is 1810 16th Street NW,
15 third floor, Washington, D.C.

16 Q And, Mr. Wilson, did you cause to be prefiled
17 direct testimony in both a confidential and public version
18 in Docket E-100, Sub 124?

19 A I did.

20 Q Do you have any changes or corrections to your
21 testimony?

22 A Yes. I have several minor corrections.

23 Q Would you please walk us through those?

24 A Yes. On Page 31, Line 2, I need to insert the

1 acronym "HVAC." It should read, to cost-effective HVAC
2 measures at the end of that line.

3 Q What's your next correction?

4 A The remainder of my corrections are numbering
5 corrections in the exhibits. On Exhibit 8 at the very
6 bottom of the table there, there's a reference to Wilson
7 Exhibit 2 and that should instead be a reference to Wilson
8 Exhibit 7. Then on Exhibit 9, the table at the bottom is
9 mis-numbered. Instead of Table 8b, it should be 9b. I
10 thought I had one more, but I guess that's it.

11 Q So, if the questions that are asked of you in your
12 prefiled testimony were asked of you today on the stand,
13 would your answers be the same?

14 A Yes, ma'am.

15 MS. THOMPSON: I would move that Mr. Wilson's
16 direct prefiled testimony be copied into the record as
17 though given orally from the stand.

18 COMMISSIONER CULPEPPER: That Motion is allowed.
19 And his prefiled testimony is admitted into evidence as if
20 it had been given orally under oath from the witness stand
21 as amended by his testimony here at this proceeding. And
22 the exhibits attached to that testimony are identified for
23 purposes of the proceeding as they were marked when filed.
24 And the amendments thereto that have been cited by the

1 witness here this morning are incorporated into those
2 exhibits.

3 (Whereupon, Mr. Wilson's prefiled testimony
4 was copied into the record and exhibits
5 marked for identification.)
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PUBLIC VERSION

1 **Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.**

2 **A.** My name is John D. Wilson. I am Director of Research for Southern Alliance for Clean
3 Energy ("SACE"), and my business address is 1810 16th Street, NW, 3rd Floor,
4 Washington, DC 20009.

5 **Q. PLEASE STATE BRIEFLY YOUR EDUCATION, BACKGROUND AND**
6 **EXPERIENCE.**

7 **A.** I graduated from Rice University in 1990 with a Bachelor of Arts degree in physics and
8 history. I received a Masters in Public Policy Degree from the John F. Kennedy School
9 of Government at Harvard University in 1992 with an emphasis in energy and
10 environmental policy and economic and analytic methods. Since 1992, I have worked in
11 the private, non-profit and public sectors on a wide range of public policy issues, usually
12 related to energy, environmental and planning topics.

13 I became the Director of Research for SACE in 2007. I am the senior staff
14 member responsible for our energy efficiency program advocacy, as well as being
15 responsible for work in other program areas.

16 I have testified before the North Carolina Utilities Commission (Docket E-7 Sub
17 831) and before the South Carolina Public Service Commission (Dockets 2007-358-E
18 and 2009-226-E). I have testified and presented before the Florida Public Service
19 Commission (including Dockets 080407 – 080413) and presented to the Board of the
20 Tennessee Valley Authority regarding energy efficiency and renewable energy.

21 I have also testified before the legislatures of Florida, North Carolina and Texas,
22 the Texas Natural Resource Conservation Commission, and the U.S. Environmental
23 Protection Agency on numerous occasions. I have participated in North Carolina Climate
24 Action Plan Advisory Group and the South Carolina Climate, Energy & Commerce

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1 Advisory Committee as an alternate for Dr. Stephen A. Smith, Executive Director of
2 SACE. I have also served as a member of various technical work groups dealing with
3 energy supply and efficiency issues. I have served on numerous state and local
4 government advisory committees dealing with environmental regulation and local
5 planning issues in Texas. I have been an invited speaker to a wide variety of academic,
6 industry and government conferences on a number of energy, environmental and
7 planning related topics.

8 A copy of my resume is attached as Wilson Exhibit 1.

9 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?**

10 A. I am testifying on behalf of SACE, Environmental Defense Fund ("EDF"), North
11 Carolina Sierra Club ("NCSC"), and the Southern Environmental Law Center ("SELC")
12 (collectively, the "Environmental Intervenors").

13 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

14 A. The purpose of my testimony is to present my evaluation of the Integrated Resource
15 Plans ("IRPs" or "resource plans") filed by Duke Energy Carolinas ("Duke ") and
16 Progress Energy Carolinas ("Progress").¹ Specifically, I focus on whether Duke and
17 Progress adequately incorporate energy efficiency² resources into their IRPs.

¹ Although the IRP of Dominion North Carolina Power ("Dominion") is also at issue in this docket, my testimony focuses on the Duke and Progress IRPs because they are the major utilities in the state.

² I note that throughout my testimony, I generally refer to energy efficiency as a general term encompassing demand response and energy conservation programs, as well as using the term "demand-side resources" to refer to energy efficiency as North Carolina rules require it to be considered in resource planning.

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1 **Q. WHAT IS THE BASIS FOR YOUR TESTIMONY?**

2 A. In preparing my testimony, I evaluated the resource plans and REPS Compliance Plans
3 reports of Duke³ and Progress,⁴ as well as those utilities' responses to data requests.⁵ My
4 review focused on the 2009 plan submissions, but also included review of material
5 submitted for the 2008 docket to confirm my conclusions.

6 **Q. WHAT IS THE PURPOSE OF ELECTRIC UTILITY RESOURCE PLANNING?**

7 A. As the Commission recognized in its October 16, 2009 Order in this docket, the
8 Integrated Resource Planning process is intended to identify the least cost electric utility
9 resource options, consistent with adequate, reliable service and other legal obligations. In
10 selecting resource options, utilities must consider demand-side options such as
11 conservation, efficiency and load management, as well as supply-side resources.

12 **Q. WHAT ARE YOUR OVERALL CONCLUSIONS?**

13 A. North Carolina's electric utilities are offering substantial energy efficiency programs for
14 the first time. For 2010, the utilities forecast reducing system sales by 0.3% through
15 energy efficiency programs.

16 While these efforts are a good start, energy efficiency is still treated as a second-
17 class resource by North Carolina utilities. Even as North Carolina utilities have given
18 greater consideration to energy efficiency in selecting near-term resource options, they

³ The Duke Energy Carolinas Integrated Resource Plan (Annual Report) Rev 1 (Jan. 11, 2010) ("Duke IRP").

⁴ Progress Energy Carolinas Integrated Resource Plan (Sept. 1, 2009) ("Progress IRP").

⁵ For comparative purposes, I also reviewed the plans or reports of Dominion North Carolina Power ("Dominion"), EnergyUnited Electric Membership Corporation ("EnergyUnited"), North Carolina Electric Membership Corporation ("NCEMC"), Haywood Electric Membership Corporation ("Haywood"), Piedmont Electric Membership Corporation ("Piedmont"), Rutherford Electric Membership Corporation ("Rutherford"), and the utilities represented by GreenCo Solutions.

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1 are not making long-term resource decisions with full consideration of energy efficiency.
2 The forecasts of energy efficiency during the 15-year resource planning horizon are based
3 on a process which fails to consider potential demand-side resource options on an
4 equivalent basis to supply-side resource options. As a result, the IRP process conducted
5 by North Carolina utilities does not result in the "least-cost mix of resource options." In
6 fact, utilities are only forecasting cumulative energy savings of 3.1% over the next fifteen
7 years, which is less than the two-year goals of some leading utilities.

8 North Carolina utilities should evaluate demand-side resources on an equivalent
9 basis to supply-side resources, considering a comprehensive set of options and evaluating
10 them in a systematic basis, particularly over the long term.

11 **Q. PLEASE DESCRIBE THE INTEGRATED RESOURCE PLANNING**
12 **REQUIREMENTS IN NORTH CAROLINA RELATED TO ENERGY**
13 **EFFICIENCY.**

14
15 **A.** N.C. Gen. Stat. § 62-2(3a) establishes a state policy that utility resources include "use of
16 the entire spectrum of demand-side options, including but not limited to conservation,
17 load management and efficiency programs." The statute also requires energy planning to
18 result in "the least cost mix of generation and demand-reduction measures which is
19 achievable" Consistent with this policy, the Commission is required to "develop,
20 publicize and keep current an analysis of the long-range needs" for electricity in the state,
21 and to consider this analysis in ruling upon an application for construction of a new
22 power plant. N.C. Gen. Stat. § 62-110.1.

23 Commission Rule R8-60 requires each utility to file a biennial report of its integrated
24 resource planning process, with updates filed in the off years. Commission Rules R8-60

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1 and R8-61 provide a framework for the evaluation of energy efficiency in each utility's
2 IRP.

- 3 • Rule R8-60(c)(1) requires each utility to offer a 15-year forecast of demand-side
4 resources.
- 5 • Rule R8-60(c)(2) and (f) requires each utility to conduct a "comprehensive analysis"
6 of demand-side resource options. Rule R8-60(i)(6) further requires each utility to
7 "provide the results of its overall assessment of existing and potential demand-side
8 management programs, including a descriptive summary of each analysis performed
9 or used by the utility in the assessment" as well as "general information on any
10 changes to the methods and assumptions used in the assessment . . ." Among the
11 specific requirements of this rule is the direction to discuss programs "evaluated but
12 rejected" by the utility.
- 13 • Rule R8-60(g) requires each utility to "consider and compare . . . both demand-side
14 and supply side [resource options] to determine an integrated resource plan that offers
15 the least cost combination (on a long-term basis) of reliable resource options and
16 combinations of resource options to serve its system needs." Rule R8-60(i)(8)
17 requires the utility to describe and summarize "its analyses of potential resource
18 options and combinations of resource options performed by it . . . to determine its
19 integrated resource plan."

20 • Commission Rule R8-67 requires a REPS compliance plan and compliance report
21 to be filed with the utility's IRP.

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1 Each of these numbers tells a rich story in itself. Saving the national economy
2 \$1.2 trillion frees up capital and gives greater budget flexibility to ratepayers. If we fail
3 to pursue available savings aggressively, we will instead build expensive, unnecessary
4 power plants. Efficiency also helps reduce the impact of energy price spikes on the
5 bottom line or family budget – a tool that helps prevent account defaults and even
6 business closures.

7 Spending \$520 billion to achieve those savings will also create jobs. Today,
8 nearly 2 million jobs are “supported by efficiency-related investments,” according to a
9 study by the American Council for an Energy-Efficient Economy (“ACEEE”).⁸

10 The prospect of using cost-effective energy efficiency measures to cut electricity
11 demand by 23 percent represents a transformative opportunity. Those states and utilities
12 leading the country with strong programs are experiencing fundamental shifts in load
13 growth and characteristics.⁹

14 Finally, energy efficiency’s potential to abate up to 1.1 gigatons of greenhouse
15 gases annually will allow utilities and their customers to avoid the very significant cost of
16 compliance with impending greenhouse gas regulations. The North Carolina Climate
17 Action Plan Advisory Group found that energy efficiency programs at a “top ten states”
18 investment level would reduce North Carolina greenhouse gas emissions by 12 million

⁸ Ehrhardt-Martinez, K. and J.A. Laitner, “The Size of the U.S. Energy Efficiency Market,” American Council for an Energy-Efficient Economy, Report E083, May 2008.

⁹ Kushler, M., et al., “Meeting Aggressive New State Goals for Utility-Sector Energy Efficiency: Examining Key Factors Associated with High Savings,” American Council for an Energy-Efficient Economy, Report U091, March 2009.

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1 metric tons in 2020, accounting for roughly 10% of all potential mitigation measure
2 savings.¹⁰

3 **Q. DOES ENERGY EFFICIENCY REDUCE CUSTOMER ENERGY BILLS?**

4 A. Yes. A frequent, but misplaced, criticism about energy efficiency programs is that they
5 have an adverse effect on some or even all customers. In fact, historical evidence and
6 utility rate simulations show precisely the opposite – that customer energy bills are
7 reduced over the long term by aggressive energy efficiency programs. *Customer savings*
8 *occur even though rates may increase slightly, even at aggressive levels of energy*
9 *efficiency*, as demonstrated in a recent study by Lawrence Berkeley National Laboratory
10 (“LBNL”).¹¹ In Wilson Exhibit 2, I have summarized LBNL’s findings relating rate
11 increases of less than ½ cent per kilowatt hour to *net customer bill savings of up to 6%*.

12 State program impacts also demonstrate that energy efficiency programs do not
13 automatically drive rates upward. This is illustrated in Wilson Exhibit 3, a comparison of
14 rate and energy efficiency trends of Iowa to North Carolina.

15 **Q. HOW DOES NORTH CAROLINA COMPARE TO OTHER STATES ON**
16 **ENERGY EFFICIENCY?**

17
18 A. North Carolina trails far behind the top-performing states. According to “The 2009 State
19 Energy Efficiency Scorecard,” North Carolina ranks 26th overall on energy efficiency and
20 26th on its utility and public benefits programs and policies. In 2007, North Carolina’s
21 annual savings from energy efficiency programs were 40th in the country, less than 0.01%

¹⁰ North Carolina Climate Action Plan Advisory Group, “Recommended Mitigation Options for Controlling Greenhouse Gas Emissions,” North Carolina Department of Environment and Natural Resources, October 2008.

¹¹ Cappers et al., “Financial Analysis of Incentive Mechanisms to Promote Energy Efficiency: Case Study of a Prototypical Southwest Utility,” LBNL-1598E, March 2009.

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1 of retail sales.¹² To put this in perspective, LBNL estimated that energy efficiency
2 programs resulted in savings equivalent to 0.34% of total national retail electricity sales
3 in 2008, an average dragged down due to about half of the states (including North
4 Carolina) reporting insignificant energy savings.¹³ North Carolina can and should do
5 better.

6 **Q. ARE STATES WITH LEADING ENERGY EFFICIENCY PROGRAMS THOSE**
7 **WITH HIGH ELECTRIC RATES?**

8 A. No, several states with electricity rates comparable to, even lower than, North Carolina
9 have demonstrated much higher rates of energy savings. This is illustrated in Wilson
10 Exhibit 4, which presents a comparison of average state electricity rates to annual energy
11 savings reported by energy efficiency programs. Low electricity rates are simply *not* a
12 barrier to investment in energy efficiency.

13 An ACEEE report reached the same conclusion: although the relationship
14 between higher rates and higher energy efficiency savings is "intuitively logical," the
15 actual "magnitude of the relationship is slight."¹⁴ While low rates are not a barrier to
16 energy efficiency, Wilson Exhibit 5 describes a number of well-recognized barriers that
17 must be addressed through sound policies and best practice program design.

18 **Q. WHAT IS NEEDED TO PROVIDE THE BENEFITS OF ENERGY EFFICIENCY**
19 **TO CUSTOMERS IN NORTH CAROLINA?**
20

21 A. The NAPEE report, a widely accepted strategy to take action on energy efficiency, makes
22 the following five recommendations:

¹² American Council for an Energy-Efficient Economy (ACEEE), "The 2009 State Energy Efficiency Scorecard," Report Number E097, October 2009.

¹³ Barbose, G., C. Goldman and J. Schlegel, "The Shifting Landscape of Ratepayer-Funded Energy Efficiency in the U.S.," Lawrence Berkeley National Laboratory, LBNL-2258E, October 2009.

¹⁴ Kushler (2009).

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1. Recognize energy efficiency as a high-priority energy resource.
2. Make a strong, long-term commitment to implement cost-effective energy efficiency as a resource.
3. Broadly communicate the benefits of and opportunities for energy efficiency.
4. Promote sufficient, timely, and stable program funding to deliver energy efficiency where cost-effective.
5. Modify policies to align utility incentives with the delivery of cost-effective energy efficiency and modify ratemaking practices to promote energy efficiency investments.

The NAPEE report identified two challenges to incorporating energy efficiency into resource planning: "determining the value of energy efficiency in the resource planning," and "setting energy efficiency targets and allocating budgets, which are guided by resource planning, as well as regulatory and policy decisions."

Q. ARE NORTH CAROLINA UTILITIES EFFECTIVELY IMPLEMENTING THE NAPEE RECOMMENDATIONS ?

A. Duke and Progress are investing in energy efficiency at meaningful levels in the near-term, and all three investor-owned utilities have committed to sustain meaningful energy efficiency programs. With these large-scale utility efficiency programs, North Carolina is stepping forward as the energy efficiency leader in the Southeast.

Nevertheless, energy efficiency remains confined to a second-class status in the Duke and Progress resource plans. The IRPs neither "recognize energy efficiency as a high-priority energy resource" nor have they made "a strong, long-term commitment to implement cost-effective energy efficiency as a resource." Duke and Progress must improve their resource planning practices to fulfill the NAPEE recommendations.

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1 On a more positive note, recent decisions by the Commission to approve new rate
2 structures for Duke and Progress are consistent with the NAPEE recommendations to
3 "promote sufficient, timely, and stable program funding to deliver energy efficiency
4 where cost-effective" and to "align utility incentives with the delivery of cost-effective
5 energy efficiency and modify[ing] ratemaking practices to promote energy efficiency
6 investments."¹⁵

7 **Q. HOW SHOULD THE BENEFITS OF ENERGY EFFICIENCY BE REFLECTED**
8 **IN RESOURCE PLANNING?**

9
10 **A. Utilities and states use a variety of methods to ensure that the benefits of energy**
11 **efficiency are reflected in the resource planning process. As the NAPEE report points**
12 **out, there are "no standard approaches on how to appropriately quantify and incorporate**
13 **[the] benefits [of energy efficiency] into utility resource planning." One challenge to**
14 **standardization is that some planners consider only the simplest energy and capacity**
15 **related benefits of energy efficiency, while others consider a wider range of benefits,**
16 **such as those summarized from the NAPEE report earlier in my testimony.**

17 The role of energy efficiency in a utility resource plan is often quantified through
18 either a performance targets or a program budget. North Carolina rules call for these
19 targets or budgets to be established in a least-cost integrated resource planning process,
20 with further consideration in other regulatory proceedings. Alternatives to use of a
21 resource planning process to establish energy efficiency targets or budgets include public

¹⁵ With the exception of non-intervenor NCSC, the organizations that I am testifying on behalf of supported the approved Duke Energy save-a-watt cost recovery mechanism. However, we opposed the lack of a performance-based incentive mechanism and the overall incentive level in the approved Progress Energy cost recovery mechanism.

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1 goods funding budgets, market-based resource allocation, and resource loading order
2 considerations.

3 Some states use public goods-funded charges to deliver energy efficiency,
4 through either a utility or, more often, a third party administrator. Changes in funding
5 levels are the primary drivers of program impact, and the forecast impacts of this
6 spending are reflected in the resource plans of utilities as an input.

7 Another approach is to evaluate energy efficiency as a market resource rather than
8 using a cost-effectiveness test approach. This can be quite literal, in the sense that the
9 deregulated New England region includes demand-side resources in an annual capacity
10 "market." A market resource approach to energy efficiency requires a rigorous
11 evaluation, measurement and verification process.¹⁶ Or it may be a portfolio modeling
12 exercise, such as that used in the Pacific Northwest, in which supply-and-demand-side
13 resources compete with each other in an optimization model that both allocates and
14 schedules resources to reduce both energy cost and energy price risk.¹⁷

15 Placing energy efficiency programs first in the "loading order" is another
16 alternative. California's principal energy agencies adopted a loading order in the 2003
17 *Energy Action Plan* as a foundation for policies and decisions. The "loading order calls
18 for (1) decreasing electricity consumption by increasing energy efficiency and
19 conservation, (2) reducing demand during peak periods through demand response and (3)
20 meeting new generation needs first with renewable and distributed generation and then

¹⁶ ISO New England Inc., "ISO New England Manual for Measurement and Verification of Demand Reduction Value from Demand Resources Manual M-MVDR," October 1, 2007.

¹⁷ Northwest Power and Conservation Council, "Chapter 9: Developing a Resource Strategy," *Sixth Northwest Power Plan*, January 2010.

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1 with clean fossil-fueled generation." This approach has turned out to be quite successful
2 due to strong regulatory oversight.

3 While it is not a "loading order" in the sense used in California, Commission Rule
4 R8-61(b)(13) requires utilities to demonstrate that energy efficiency measures and other
5 resources "would not establish or maintain a more cost-effective and reliable generation
6 system" prior to being certified to construct a generating facility. Rather, the practice in
7 North Carolina is to look to the resource plan for evidence that alternatives to new
8 generation have already been considered and rejected in a methodical process. For this
9 reason, it is critical for North Carolina to ensure that a comprehensive analysis of energy
10 efficiency resource opportunities is a foundation for a least cost strategy to provide
11 reliable electric utility service.

12 The diversity of policies that are used to reflect the benefits of energy efficiency
13 in resource planning is a result of the substantial differences between demand-side and
14 supply-side energy efficiency resources, as described in Wilson Exhibit 5.

15 **Q. PLEASE DESCRIBE HOW ENERGY EFFICIENCY SHOULD BE**
16 **INCORPORATED INTO A LEAST COST INTEGRATED RESOURCE**
17 **PLANNING PROCESS.**

18
19 **A.** There are two common approaches to ensure that energy efficiency is fully utilized in a
20 least cost integrated resource planning process. States or utilities may either determine
21 the potential for energy efficiency in a utility's service territory, or they may set a
22 performance target, which may be revisited based on experience.

23 In many circumstances, a "bottom-up" efficiency potential study is the basis for
24 determining how much energy efficiency should be included in resource plans. Often,
25 this process is a result of a utility or state authority policy to achieve "all cost-effective

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1 energy efficiency." Iowa, Colorado, California and Florida are among the states that use
2 this approach. This is also the approach favored by NAPEE in its "Guide to Resource
3 Planning with Energy Efficiency," (November 2007). Another approach to setting an
4 energy efficiency target is to rely on industry experience to set energy efficiency goals.
5 The Tennessee Valley Authority and Minnesota are examples of this approach. After
6 energy efficiency goals are established, either by administrative direction or through
7 legislation, a detailed efficiency study is typically commissioned. However, this study
8 may differ from a "potential study" because of a strong focus on program scope, scale
9 and design rather than on identifying a total potential.¹⁸

10 **Q. WHAT ADDITIONAL BENEFITS COULD IMPROVED PLANNING**
11 **PRACTICES OFFER?**

12 **A.** Beyond long-term cost savings, an additional benefit of energy efficiency is a reduction
13 in the risk of rate spikes driven by factors such as fuel costs, extreme weather events, or
14 demand growth. Energy efficiency is a resource that delivers energy savings benefits to
15 customers under virtually any scenario; while the benefits vary somewhat among
16 different "futures" that may be studied, even if benefits are not twice the cost (a typical
17 utility program estimate), the benefits still outweigh the costs. In contrast, an idled or
18 underutilized power plant is a cost to the system that benefits no one.

19 Northwest Power and Conservation Council, the planning body for the Bonneville
20 Power Administration, explicitly considers the "insurance" or "hedging" value of risk
21 reduction due to energy efficiency in its formal planning process. The results of this

¹⁸ Neither a potential study nor industry experience can provide a precise measure of "cost-effective energy efficiency" in the same way that a supply-side generation plan can anticipate generation capacity with reasonable accuracy. These methods may either under- or overstate the potential for energy efficiency to meet system resource needs in much the same way that a system load forecast is unable to provide an accurate prediction of future energy demand and use.

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1 analysis are illustrated in Wilson Exhibit 6, an annotated version of a figure produced for
2 the council's fifth plan.

3 The council has recently released the "Sixth Northwest Power Plan." The plan
4 *"seeks an electrical resource strategy that minimizes the expected cost and risk of the*
5 *regional power system over the next 20 years. Across multiple scenarios considered in*
6 *the development of the Sixth Power plan, one conclusion was constant: the most cost-*
7 *effective and least risky resource for the region is improved efficiency of electricity*
8 *use."*¹⁹

9 North Carolina utilities have not adopted resource planning practices that quantify
10 the risk and cost implications of different choices. The current practice of using scenarios
11 and sensitivities does provide some directional guidance on these topics; however, as
12 some utilities are using only two resource options for energy efficiency (existing
13 programs vs. no programs), it is not realistic to expect those analytic methods to offer
14 even a directional estimate of the price spike risk of different resource mixes.

15 **II: Adequacy of 15-year Demand-Side Resource Forecast**

16 **Q. PLEASE SUMMARIZE THE 15-YEAR FORECAST OF DEMAND-SIDE**
17 **RESOURCES EXPECTED TO CONTRIBUTE TOWARDS SATISFACTION OF**
18 **NATIVE LOAD REQUIREMENTS FOR EACH UTILITY.**

19 **A.** As described earlier in my testimony, each utility is required to provide a 15-year forecast
20 of demand-side resources which are expected to contribute towards satisfaction of native
21 load requirements for each utility. A summary of demand-side resource plan data from
22 seven North Carolina utilities is presented in Wilson Exhibit 7. I have included four

¹⁹ Northwest Power and Conservation Council, *Sixth Northwest Power Plan*, pre-publication version, February 10, 2010.

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1 cooperatives in addition to the three investor-owned utilities in this exhibit for
2 comparative purposes.

3 For each utility, I calculated the forecast energy and capacity savings due to
4 energy efficiency programs and summarized those results in terms of the percent
5 impact.²⁰ I have also calculated a North Carolina total, weighted by in-state energy use
6 for each investor-owned utility. In 2015, for example, forecast energy savings are 1.8%
7 of annual energy, and forecast capacity savings are 6.9% of load.²¹ However, after 2015,
8 forecast energy efficiency program growth rates decline. This disturbing trend is one
9 reason that I do not believe North Carolina utilities have demonstrated "a strong, long-
10 term commitment to implement cost-effective energy efficiency as a resource," as
11 recommended in the NAPEE report.

12 In comparison, at least twenty-three states have established targets, mandates or
13 other forms of energy efficiency goals that exceed those indicated in the utility resource
14 plans. As illustrated in Wilson Exhibit 8, North Carolina's forecast energy savings of
15 0.3% per year over the next decade is among the lowest in the country.

16 **Q. HAS DUKE PROVIDED AN ADEQUATE AND ACCURATE 15-YEAR**
17 **FORECAST OF PROGRAM IMPACTS?**

18 **A.** In general, Duke's demand-side resource forecast demonstrates its commitment to ramp
19 up its energy efficiency offerings in the Carolinas to levels that will make it a leader in
20 the industry. The "High Case" included in Duke's resource plan is a reasonable

²⁰ In my evaluation of each utility, I have limited the peak load analysis to the summer peak. In some instances, the summer peak is less than the winter peak but limiting the analysis to summer peak provides a consistent framework in which to compare utilities.

²¹ This result, incidentally, reflects the higher degree of utility interest in peak reduction than in energy savings, in spite of recent Commission action to authorize lost revenue recovery mechanisms.

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1 representation of its commitments and aspirational goals included in the "modified save-
2 a-watt" proposal approved by the Commission in Docket E-7, Sub 831.

3 However, there are two problems with Duke's forecast. First, the IRP includes
4 descriptions of each program, but it does not describe the capacity, energy, number of
5 customers and other required information for each program over the 15-year period. This
6 information is likely available in other dockets, but not necessarily in a manner that
7 corresponds to the assumptions used to develop this resource plan.

8 Second, there are important technical defects in the Duke forecast. Both the "Base
9 Case" and the "High Case" appear to have been developed in a manner that does not
10 reflect the program design principles and intent of the approved programs. I have
11 calculated the annual incremental impact of Duke's forecast energy efficiency programs
12 and presented those data in Figure 9A of Wilson Exhibit 9.

13 In the "Base Case," the annual program impacts peak in 2012, 2016 and 2020. It
14 appears that this irregular trend in program development is due to the method by which
15 the conservation impacts were assumed. According to Duke Witness McMurry, "The
16 projected load impacts from the conservation programs were based upon three bundles of
17 the save-a-watt portfolio of programs. This was accomplished by allowing a new bundle
18 to enter every four years." McMurry Direct Testimony at 15. Each "new bundle"
19 represents what amounts to an effective "restart" of program development. In my
20 opinion, Duke's use of the "new bundle" approach understates the likely impact of its
21 energy efficiency programs.

22 The trend illustrated for the "High Case" also illustrates an irregular, albeit less
23 severe, pattern. There is a two-year dip in 2013-14, and an irregular increase in 2021.

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1 In order to illustrate a more typical straight-line forecast of program development,
2 I have created adjusted "base" and "high" cases as illustrated by the dashed lines in
3 Figure 9A of Wilson Exhibit 9. I believe my adjusted cases are a more accurate forecast
4 of energy savings from Duke's programs because there is no reason to believe that
5 program performance will suddenly drop off and then pick back up on a four-year cycle.
6 The adjustments I suggest smooth out the irregularities in the forecast program impacts
7 without assuming a different level of effort.

8 In Table 9B of Wilson Exhibit 9, I provide the cumulative energy efficiency
9 program impacts associated with Duke's cases and the adjusted cases. By 2024, the
10 adjusted base case represents an increase of 73% over the Duke Energy base case.
11 However, the adjustment for the high case represents an increase of only 5%.

12 Even with these adjustments, the high case falls slightly short of Duke's goals for
13 its modified save-a-watt programs. Meeting the targets set out in the agreement approved
14 by the Commission would result in about 6,784 GWh of energy savings by 2020, which
15 is about 776 GWh more than the "High Case" as adjusted above.

16 It is not necessarily the case that Duke's resource plan should assume full
17 achievement of the performance target established in the approved save-a-watt financial
18 mechanism. As I discussed earlier in my testimony, the actual capacity of a demand-side
19 resource is only discovered through effective program execution. Yet it should be noted
20 that a resource plan which directs investment to energy efficiency should not also direct
21 investment to supply-side resources to meet the same forecast energy demand. To the
22 extent that Duke is uncertain that it will achieve its targets, its alternative plans should

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1 have a resource delivery schedule that is consistent with updated efficiency program
2 impact forecasts.

3 **Q. WHAT SPECIFIC RECOMMENDATIONS DO YOU HAVE REGARDING**
4 **DUKE'S FORECAST OF PROGRAM IMPACTS?**

5 A. I recommend that Duke should revise its resource plan to reflect a consistent trend in
6 energy efficiency program growth consistent with available energy efficiency potential
7 and opportunities for reasonable program growth. With these adjustments, I believe that
8 the Duke resource plan would adequately reflect the terms of the approved save-a-watt
9 program.

10 **Q. HAS PROGRESS ENERGY PROVIDED AN ADEQUATE AND ACCURATE 15-**
11 **YEAR FORECAST OF PROGRAM IMPACTS?**

12 A. In general, the Progress resource plan provides a useful description of its energy
13 efficiency offerings in the Carolinas. However, there are two problems with Progress's
14 forecast.

15 First, as in Duke's plan, the Progress IRP includes descriptions of each program,
16 but it does not describe the capacity, energy, number of customers and other required
17 information for each program over the 15-year period. Second, the Progress plan includes
18 confusing or inconsistent data describing the capacity and energy impacts of its demand-
19 side resource forecast. According to Table 1 of the resource plan, Progress forecasts a
20 system summer peak load of 12,731 MW without DSM and 12,230 MW with DSM in
21 2010. Thus, Table 1 suggests demand-side resources contribute a total of 501 MW in
22 2010.

23 According to the table on page E-5 of the Progress resource plan, new programs
24 are expected to contribute 150 MW to meeting system summer peak demand in 2010.

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1 According to the table on page E-8, existing demand-side resources contributed 883 MW
2 (not specified as to summer or winter peak) in 2008. Based on the data in Table 1,
3 however, it appears that Progress has only accounted for 351 MW of existing demand-
4 side resources for 2010. The contribution of existing demand-side resources to summer
5 system peak demand grows slightly to 360 MW, 366 MW and 373 MW in 2015, 2020,
6 and 2024 respectively.

7 For this reason, I conclude that Appendix E is not clearly reconciled with Table 1
8 in presentation of demand-side resources.

9 I made certain assumptions regarding the data presented by Progress in order to
10 estimate the total impact of energy efficiency programs on the Progress forecast. I
11 assumed that the forecast of annual system energy in Table 1 is the "with" energy
12 efficiency forecast. To calculate the "without" forecast, I adjusted this estimate using the
13 energy savings forecast for new programs and the single-point estimate of energy savings
14 attributed to one existing energy savings, as presented in Appendix E.

15 I was unable to be certain that my calculations are accurate for three reasons.
16 First, although Appendix E specifies that the energy savings are forecast "at generator"
17 for new programs, it is not clear whether these savings are directly comparable to the
18 annual system energy as presented in Table 1. Second, I have assumed 100% of 2008
19 energy savings for the 2007 CFL Buy-Down Pilot in 2010 and 2015, then no energy
20 savings thereafter. A better approach would be to use a program-specific forecast. Third,
21 any other reasons that capacity forecasts in Appendix E are not reconciled with Table 1
22 likely apply to system energy forecasts as well.
23

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1 Q. WHAT SPECIFIC RECOMMENDATIONS DO YOU HAVE REGARDING
2 PROGRESS'S FORECAST OF PROGRAM IMPACTS?

3 A. I recommend that Progress should revise its resource plan to provide a clear "with" and
4 "without" energy efficiency forecast that reconciles the information in Appendix E with
5 Table 1.

6 Q. YOU MENTIONED THAT YOU REVIEWED THE DOMINION IRP FOR
7 COMPARATIVE PURPOSES. DO YOU HAVE ANY COMMENTS ON
8 DOMINION'S 15-YEAR FORECAST OF PROGRAM IMPACTS?

9 A. Yes. Dominion has not proposed to offer new demand-side resource programs in
10 North Carolina. Its demand-side resource forecast is based on programs filed in Virginia
11 on July 28, 2009 (over six months ago) and Dominion indicates that it "plans to file for
12 NCUC approval of a portfolio of energy efficiency programs at the appropriate time."
13 Dominion should file its proposed programs expeditiously so that its North Carolina
14 customers may have access to the opportunity to save energy and lower their electric bills
15 as early as practicable.

16 In general, the Dominion demand-side resource plan provides a useful description
17 of energy efficiency programs it hopes to offer in Virginia and North Carolina. However,
18 there are two problems with Dominion's forecast.

19 First, as with the Duke and Progress IRPs, although the Dominion resource plan
20 includes descriptions and cost-effectiveness estimates for each program that it has
21 proposed in Virginia, it does not describe the capacity, energy, number of customers and
22 other required information for each program over the 15-year period, other than what
23 appears to be cumulative impacts in 2024. This information is likely available in its
24 Virginia program plans, but not necessarily in a manner that corresponds to the
25 assumptions used to develop this resource plan.

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1 Second, its demand-side resource plan appears to include a program that appears
2 to be a supply-side resource program. Dominion's proposed Commercial Distributed
3 Generation Program provides for customers to enroll with a contractor to install a
4 generator on customer property that may be dispatched by Dominion for up to 120 hours
5 of dispatch during the year. The proposed distributed generation program described by
6 Dominion is more properly characterized as a supply-side resource since the contractor
7 will be providing the resource as either "owned/leased generation capacity" or "firm
8 purchased power arrangements," as described in Rule R8-60(c)(1).

9 **Q. WHAT RECOMMENDATIONS DO YOU HAVE TO CORRECT SYSTEMATIC**
10 **DEFICIENCIES IN THE UTILITIES' 15-YEAR FORECASTS OF ENERGY**
11 **EFFICIENCY PROGRAM IMPACTS?**

12 **A. I recommend that the Commission direct the investor-owned utilities to describe the**
13 **capacity, energy, number of customers and other required information for each program**
14 **over the 15-year period. These elements of the annual plans and reports are described in**
15 **Commission Rule R8-60(c)(1), (h) and (i). I found only a few, partial instances where**
16 **these data were provided in the resource plans of the investor-owned utilities.**

17 Descriptive data for demand-side resources are important in order for the
18 Commission to determine whether demand-side resources are considered on an equal
19 basis with supply-side resources. For example, Rule R8-60(i)(6)(i) and (ii) require each
20 utility to provide "information for each resource" for "demand-side programs." This is
21 similar to the language in Rule R8-60(i)(2)(i) and (ii) that requires each utility to provide
22 data for "each listed unit" and "each listed generation addition."

23 In contrast to the full and orderly data describing existing and planned supply-side
24 resources required by Rule R8-60, existing and planned demand-side resources are

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1 incompletely described and what data are made available are fragmentary and
2 inconsistently treated. In addition to giving second-class treatment to demand-side
3 resources, it is impossible to determine from these resource plans if they were developed
4 using reasonable and internally consistent practices.

5 **III. Adequacy of Analysis of Demand-Side Resource Options**

6 **Q. DID DUKE AND PROGRESS RELY UPON A COMPREHENSIVE ANALYSIS**
7 **OF DEMAND-SIDE RESOURCE OPTIONS IN DEVELOPING THEIR**
8 **RESOURCE PLANS?**

9 **A.** No. Neither Duke nor Progress has performed a comprehensive analysis of demand-side
10 resource options. Although Duke and Progress have each conducted some analysis of
11 demand-side resource options, these analyses vary in their adequacy. Neither utility has
12 performed a comprehensive energy efficiency potential study, as discussed earlier in my
13 testimony. Notably, the entire analysis conducted by Progress is being treated as
14 confidential and is not even mentioned in its resource plan.

15 **Q. PLEASE DESCRIBE YOUR REVIEW OF THE DUKE AND PROGRESS**
16 **ANALYSES OF DSM OPTIONS.**

17 **A.** I reviewed each utility's plans and reports to determine whether they evaluated demand-
18 side resource options as thoroughly as Rule R8-60(g) requires, while recognizing that the
19 rule does not prescribe any single evaluation method. I expected to find that each utility
20 clearly explained and justified its methods and assumptions, included a comprehensive
21 scope of study, and had results that were either consistent with the results of similar
22 studies for other states or utilities, or included an explanation of unusual circumstances
23 that resulted in distinctive findings.

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1 **Q. HOW CAN YOU TELL WHETHER A UTILITY'S SCOPE OF STUDY IS**
2 **COMPREHENSIVE?**

3 **A.** There are several indicators of a comprehensive scope of study. One simple indicator is
4 the number of efficiency measures considered.²² For example, the study completed for
5 Duke by Forefront Economics, Inc. ("Forefront"),²³ while a useful indication of energy
6 efficiency opportunities, covers only 40 residential and 31 non-residential efficiency
7 measures. In contrast, a recent assessment of energy efficiency potential for Florida
8 (including Progress Energy Florida and six other utilities) included 276 unique measures:
9 70 residential, 92 commercial and 114 industrial measures.²⁴

10 Another indicator is the degree to which all key areas of energy use are
11 represented in the findings. For example, some efficiency studies have failed to consider
12 energy savings opportunities from outdoor and street lighting, traffic signal, wastewater
13 utility, and water supply utility end-use sectors, even though there are widely used energy
14 efficiency measures applicable to these sectors.

15 **Q. IS A NON-COMPREHENSIVE ENERGY EFFICIENCY STUDY ADEQUATE?**

16 **A.** No, a non-comprehensive energy efficiency potential study can result in a substantial
17 underestimate of energy efficiency potential. To demonstrate this point, I conducted a
18 comparative analysis of the residential energy efficiency potential from three studies
19 conducted for North Carolina: the 2007 Forefront study for Duke, a study by
20 Appalachian State University ("ASU"), and a study by GDS Associates for this
21 Commission. I adjusted the ASU and GDS study findings to correspond to the energy use

²² It should be noted that while they are a useful indicator, measure counts may be misleading, since some may be overlapping technologies (e.g., LED and CFL lighting options).

²³ Forefront Economics, Inc., H. Gil Peach & Associates LLC, and PA Consulting Group, "Duke Energy Carolinas DSM Action Plan: North Carolina Report," prepared for Duke Energy Carolinas (August 2007) (hereinafter the "Forefront Study").

²⁴ Itron, Inc., "Technical Potential for Electric Energy and Peak Demand Savings in Florida," March 12, 2009.

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1 of residential customers served by Duke in order to ensure that the comparison was on an
2 equal scale.²⁵

3 The similarity in the three studies' findings is striking at first glance. Forefront
4 found 5,500 GWh potential at 6 c/kWh by 2026, GDS found 4,805 GWh potential at 5
5 c/kWh, and ASU found 5,241 GWh potential in its "moderate" scenario. However, at the
6 measure level, the results are quite different. I summarized the cost-effective potential
7 estimates from each study into thirty-one measure categories. Notably, only six of the
8 thirty-one measure categories are represented in all three studies. I selected the maximum
9 study result for each measure category and found that the estimated cost-effective energy
10 efficiency potential approximately doubled to 11,934 GWh. This finding suggests that
11 each of these studies may have missed approximately half of the cost-effective energy
12 efficiency potential for residential customers in North Carolina.

13 The main reason that these studies appeared to miss large amounts of cost-
14 effective energy efficiency potential is that they did not include a comprehensive scope of
15 study. They may also have differed based on different assumptions about the cost of
16 individual measures, customer adoption rates, or cost-effectiveness thresholds.

17 These are important factors, and can also skew the results of a potential study. For
18 example, Florida utilities chose to exclude about four-fifths of otherwise achievable, cost-
19 effective energy efficiency potential opportunities from their recommended goals because
20 they felt that it was unfair for ratepayers to cross-subsidize each other to take steps that
21 were in the customer's financial self-interest.²⁶ Mixing arguments about fairness and

²⁵ I have not conducted a similar analysis of the study performed for Progress because I would not be permitted to make these data public under the confidentiality agreement required by Progress.

²⁶ Florida Public Service Commission, Order No. PSC-09-0855-FOF-EG (Dec. 30, 2009).

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1 program design with the question of whether or not energy efficiency potential exists can
2 confuse the discussion about the opportunity to save energy at a lower long-term cost
3 than to meet demand with supply-side resources.

4 **Q. IS THERE AN ALTERNATIVE TO A COMPREHENSIVE ENERGY**
5 **EFFICIENCY STUDY?**

6 **A.** Another approach to setting an energy efficiency target is to rely on industry experience.
7 Based on the perspective of highly regarded experts and the review of a number of
8 programs, I recommend that utilities should be encouraged to strive to meet an annual
9 energy savings goal of 1%. This goal is consistent with the actual achievements in
10 leading states,²⁷ as eight states now exceed 0.8% in average savings as a percent of
11 energy sales.²⁸ A large number of individual utilities have exceeded this threshold,
12 including two in the Southeast.²⁹ Duke Energy adopted this goal in a non-binding
13 agreement with a number of national energy efficiency advocacy organizations, and later
14 formalized it as part of its modified save-a-watt proposal that has been approved by the
15 Commission. Industry experience strongly suggests that an annual energy savings goal
16 of 1% is a reasonable estimate of what an aggressive, cost-effective energy efficiency
17 program can deliver.

18 A 1% annual energy savings goal is also consistent with the findings of a recent
19 Georgia Tech meta-analysis of several potential studies, which found that *"the*

²⁷ Kushler (2009).

²⁸ ACEEE (2009).

²⁹ Wilson, J., "Energy Efficiency Program Impacts and Policies in the Southeast," Southern Alliance for Clean Energy, May 2009.

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1 *achievable electric efficiency potential for the South ranges from 7.2 to 13.6% after 10*
2 *years.*³⁰

3 Utilities that claim to have conducted a comprehensive analysis of energy
4 efficiency program options and suggest a substantially lower (or higher) program scale
5 should be expected to make a convincing case for unusual circumstances that resulted in
6 distinctive findings. Comparing a utility's assumptions and methods to that of other
7 utilities is a recognized technique used by resource planning experts.³¹

8 **Q. DID DUKE AND PROGRESS PERFORM COMPREHENSIVE ENERGY**
9 **EFFICIENCY POTENTIAL STUDIES?**

10 **A.** No, it does not appear that either utility's study was comprehensive. I note that neither
11 utility has filed its study in this docket. The Forefront study for Duke has been in public
12 circulation since its completion. Progress disclosed in a prior proceeding that it had
13 commissioned a market potential study, and provided a confidential copy in response to a
14 data request.

15 The first problem with both studies is that their findings suggest a substantially
16 lower achievable energy efficiency potential than similar studies at the national or
17 regional level without describing any unusual circumstances that may explain the results.
18 In my review of the available documentation, neither utility nor its consultants explored
19 any possible reasons for the unusually low energy efficiency potential found in these two
20 studies.

³⁰ Chandler, S. and M.A. Brown, "Meta-Review of Efficiency Potential Studies and Their Implications for the South," Working Paper # 51 (August 2009).

³¹ See, for example, testimony of Duke Energy Witness Riddle, p. 15.

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1 Progress's potential study indicates that the findings
2 However, the results of that are not discussed in the report
3 or any other material I had the opportunity to review.

4 Duke's potential study included only a brief comparison of its findings and
5 recommendations to programs operated by utilities serving 500,000 to 2,000,000
6 customers. However, the comparison in Duke's study focuses on spending, not energy
7 savings impacts. (The study indicates that the recommended spending levels are
8 somewhat above average, but within the range of typical programs.) The Forefront study
9 does compare its five-year potential of 1.9% energy savings to other utility DSM program
10 savings, but the comparison is so cursory that the reported impact of 2.9% for other
11 utility DSM programs is not clearly represented as to whether it refers to cumulative or
12 annual program impacts.³² Even though this average 2.9% impact is more than 50%
13 higher than the recommended five-year program, the report does not provide any
14 explanation for this substantial deviation, let alone justify a 1.9% five-year savings
15 potential in comparison to the 7.2 to 13.6% ten year savings potential discussed above.

16 The lack of a comparison to findings by comparable utilities is of concern because
17 the assumptions and methods selected may result in an inaccurate estimate of energy
18 efficiency potential. For these studies to be considered credible and comprehensive, a
19 thorough and convincing explanation for the unusually low potential estimates in these
20 studies should be provided.

21 The second problem with both the Duke and Progress potential studies is that the
22 measures studied exclude substantial energy savings opportunities. As discussed above,

³² Forefront Study at 94.

11/

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1 the Duke study included too few measures to be considered comprehensive. For example,
2 its residential sector analysis only identified two cost-effective measures, programmable
3 thermostats and "set back HVAC," omitting commonly considered measures such as heat
4 pump upgrades.

5 The Progress study does include . However, the
6 measure count is somewhat . For example, over
7 the measures are .

8 The measure list used by Progress Energy appears to
9 I made a cursory comparison to the measure list for
10 the Florida potential study conducted for Progress Energy Florida and other utilities.
11 Among the residential measures not found in the North Carolina study are
12

13 The study also omits

14 **Q. DID THE STUDIES ADDRESS ALL SECTORS AND MEASURES THAT**
15 **WOULD YIELD SIGNIFICANT ENERGY SAVINGS?**

16 **A. No. I identified three substantial measures or practices that are missing from the Duke**
17 **studies: a Home Energy Comparison Report, a building**
18 **re/retro/commissioning program, and various energy recycling technologies, including**
19 **combined heat and power. As described in Wilson Exhibits 10-12, these three energy**
20 **efficiency measures or practices alone could double the energy savings impact forecast**
21 **by North Carolina Utilities.**

22 Furthermore, several end use sectors, including the transportation,
23 communications and utilities sector, appear to be omitted from the Duke
24 studies. This is a significant omission, as this sector has highly energy-intensive customer

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1 applications that likely have substantial opportunities for energy savings. In the Florida
2 energy efficiency potential study, for example, the transportation, communications, and
3 utilities end-use sector represented 7% of total retail electric sales.³³

4 **Q. DOES THE DUKE RESOURCE PLAN INCLUDE A COMPREHENSIVE**
5 **ANALYSIS OF DEMAND-SIDE RESOURCE OPTIONS?**

6 **A.** No, there are three important problems with its analysis of demand-side resource options.
7 Although Duke did analyze more than one demand-side resource option, it did so without
8 a comprehensive analysis of energy efficiency options. Furthermore, the linkage between
9 its market potential study and the options it considered in its resource plan is not well
10 explained. Finally, Duke failed to explain how it selected its preferred demand-side
11 resource portfolio.

12 As discussed above, Duke's market potential study is not comprehensive. In my
13 review the Duke IRP, there was not any other discussion or analysis that compensated for
14 the shortcomings of the study. Duke's commitment to a long-term goal of 1% annual
15 energy savings is not backed up by a comprehensive analysis of energy efficiency and
16 other demand-side options in its resource plan.

17 Duke's resource plan did analyze two demand-side resource portfolios, a base
18 case and a high case. In its base case, "conservation impacts were assumed 85% of the
19 target impacts" from the approved save-a-watt portfolio of programs. In its high case,
20 Duke analyzed the "full target impacts of the save-a-watt bundle of programs for the first
21 five years and then increased the load impacts at 1% of retail sales every year after that

³³ Itron (2009).

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1 until the load impacts reach the economic potential identified by the 2007 market
2 potential study.”³⁴

3 Although Duke states that the high case scenario is capped by the “economic
4 potential identified by the 2007 market potential study,” the high case does not appear to
5 reach this cap. In its high case, Duke estimates its conservation program load impacts to
6 be 10,621 GWh in 2026. Duke IRP, Table 4.2. In contrast, the Forefront study found that
7 the cost-effective potential for energy efficiency was about 13,200 GWh through 2026.
8 There is no alternative explanation in the resource plan or testimony that explains why
9 the high case was limited to 10,621 GWh in 2026.

10 Moreover, Duke’s resource plan does not describe why the base case was
11 selected. First of all, it is not clear that the high case was analyzed as a demand-side
12 resource option. The high case appears to be one of the “sensitivities evaluated in each
13 scenario” during the portfolio analysis. Duke IRP at 67. However, Duke concluded that
14 “In every scenario and sensitivity, the portfolios with the new EE and DSM were lower
15 cost than the portfolios with the existing EE and DSM.” Thus, although the plan seemed
16 to imply that the portfolio analysis would compare the base case and high case, the
17 conclusion refers to a comparison between the “new” and “existing” EE and DSM. The
18 term “new” appears to refer to the base case and not the high case since the “483 MW of
19 new energy efficiency” in the selected portfolio (Duke IRP at 73) corresponds to the
20 value in the base case (Duke IRP at 49). If the portfolio analysis included consideration
21 of the high case, the results of such a sensitivity analysis do not appear to be included in
22 the report.

³⁴ Duke IRP at 48.

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1 Second, even if the high case was analyzed, the IRP does not explain why the
2 base case was the preferred option.

3 If Duke had selected the high case for its resource plan, its supply-side resource
4 plan would be adjusted to delay or avoid additional generation capacity. Duke should
5 explain why it selected a particular demand-side resource option, just as it carefully
6 explains why it selected a particular supply-side resource option.

7 Over the long-term, none of the demand-side resource options considered by
8 Duke are likely to represent what would be suggested by a comprehensive analysis of
9 energy efficiency potential. As indicated in Table 9B of Wilson Exhibit 9, the adjusted
10 high case suggests that Duke Energy would achieve 5,286 GWh in energy savings after
11 ten years, or about 5.3% cumulative energy savings impacts.

12 Even this adjusted high case estimate of 5.3% over ten years does not come close
13 to fully utilizing the market potential of 7.2 to 13.6% suggested by the Georgia Tech
14 study. Thus, in no respect is it reasonable to conclude that the Duke Energy resource
15 plan relies upon a comprehensive analysis of demand-side resource options over the long
16 term.

17 **Q. WHAT STEPS SHOULD DUKE TAKE TO DEVELOP A COMPREHENSIVE**
18 **ANALYSIS OF DEMAND SIDE OPTIONS?**

19 **A. Duke Energy should develop a comprehensive analysis of demand-side resource options,**
20 **using one of the methods described above. It should correct the technical errors I have**
21 **pointed out in my testimony to the extent that they remain relevant to a revised plan. It**
22 **should develop several demand-side resource options for evaluation in its resource plan.**
23 **It should evaluate each of those options in its resource plan until it determines that it has**

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1 identified the maximum amount of cost-effective demand-side resources that are suitable
2 to meet the various goals of a resource plan, as discussed earlier in my testimony.

3 The Duke resource plan would reduce annual energy use by 3.4% in 2024 (see
4 Table 7B of Wilson Exhibit 7). If Duke were to adopt the suggested adjustments to its
5 high case and incorporate those into its plan, it would reduce annual energy by 8.8% by
6 2024 (see Table 9B of Wilson Exhibit 9). Energy savings of 8.8% would be on the low
7 end of the achievable potential range identified in the Georgia Tech study and would be
8 consistent with a moderately aggressive long-term energy efficiency effort. Considering
9 the goals and demonstrated energy savings of other utilities around the country, *Duke*
10 *Energy could consider resource plans with savings of up to 15% by 2024.*

11 **Q. DOES THE PROGRESS ENERGY RESOURCE PLAN INCLUDE A**
12 **COMPREHENSIVE ANALYSIS OF DEMAND-SIDE RESOURCE OPTIONS?**

13 **A.** No. In fact, the Progress IRP fails to disclose and explain its analysis of demand-side
14 resource options, as required by Commission Rule R8-60. The discussion of demand-
15 side resources in Progress's resource plan is limited to its existing energy efficiency and
16 demand response programs (including new programs). In both the 2008 and 2009
17 resource plans, Progress indicates that it "has not rejected any evaluated energy
18 efficiency or demand side management resources since the last Resource Plan filing."

19 The existence of the potential study demonstrates that Progress has not accurately
20 represented its evaluation process. This study is not mentioned in its resource plan or
21 supporting testimony, and Progress has marked the entire study (rather than only those
22 portions containing sensitive business information) confidential, making it impossible for
23 interested parties to evaluate and comment on its scope and findings.

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1 Rather than being driven by a "bottom-up" analysis of options, the scale of the
2 Progress demand response and energy efficiency programs appear to be driven by a May
3 2007 goal to double "the amount of peak load reduction capability available through
4 DSM and EE programs, about 1,000 megawatts (MW)." Progress IRP at 17. No basis for
5 this goal is explained in the IRP. It is perhaps no coincidence that its year 15 portfolio
6 would save almost exactly 1,000 MW, the amount of the goal announced by Progress in
7 2007. While the expansion of its program is laudable, Progress has not associated this
8 target with a completion date nor an energy savings target.³⁵ It would be just as
9 incomplete if Progress announced a supply-side resource development program without a
10 timeline or anticipated level of resource use.

11 Progress does appear to be actively moving forward with its energy efficiency
12 programs. According to Progress Witness Edge, Progress "is investigating the potential
13 for new DSM/EE program opportunities on an on-going basis . . ." The company is
14 seeking approval of new residential programs, and is considering "a residential
15 behavioral change initiative and other DSM/EE research and development pilots." Direct
16 Testimony of David Christian Edge at 8-9. These programs are also briefly described as
17 "prospective program opportunities" in the resource plan. (p. E-5) While it is
18 encouraging to learn that Progress is considering new unspecified programs, it is unclear
19 whether their program development is informed by the type of comprehensive analysis
20 required by Rule R8-60(g).

³⁵ In the testimony of Progress Energy Witness B. Mitchell Williams, he testified that PEC is "relying upon achieving a approximately 1,000 megawatt reduction in peak load by 2014" (transcript volume 4, p. 143, line 19); the 2009 IRP indicates 1,000 MW of peak load reduction would be achieved in 2019; and the potential study prepared by indicates that

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1 An examination of the potential study demonstrates that Progress has not fully
2 disclosed in its IRP its consideration of energy efficiency resources. examples of
3 programs that Progress has considered but did not discuss in its resource plan
4

5
6 is not included in any of the energy efficiency programs discussed in the
7 Progress IRP. For example, Progress's Residential Home Energy Improvement Program
8 does not include Neither does the Progress resource plan explain why
9 Progress may have rejected an program.

10 Progress's potential study also recommends
11

12 The Progress resource plan does include the Commercial, Industrial, and Governmental
13 (CIG) Energy Efficiency Program, which is "available to all CIG customers interested in
14 improving the energy efficiency of their new construction projects or within their existing
15 facilities." The program offers both prescriptive incentives that appear to cover a broad
16 range of end-use categories as well as custom incentives available for "opportunities not
17 covered by the prescriptive measures." However, during the first two months of the
18 program, Progress reported only one transaction. If Progress is making effective use of
19 the opportunities in the CIG sectors, it is
20 not evident in either the resource plan or its supporting testimony.

21 Even if Progress had incorporated its potential study into its resource plan, the
22 resource plan would still lack a comprehensive analysis of demand-side resource options.
23 Furthermore, Progress appears to have considered only one alternative demand-side

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1 resource portfolio in its analysis. In contrast, there is an entire section of its report
2 discussing "Screening of Generation Alternatives." These systematic shortcomings
3 demonstrate that energy efficiency resources are a second-class resource in Progress's
4 plan.

5 **Q. WHAT STEPS SHOULD PROGRESS TAKE TO PROVIDE A**
6 **COMPREHENSIVE ANALYSIS OF DEMAND SIDE OPTIONS?**

7 **A.** Progress should publicly disclose those portions of its potential study that do not include
8 sensitive business information, and any other related research or materials, and discuss
9 the implications of its research in a revised resource plan. That plan should be based on a
10 comprehensive analysis of demand-side resource options, using one of the methods
11 described above. It should correct the technical errors I have pointed out in my testimony
12 to the extent that they remain relevant to a revised plan. It should develop several
13 demand-side resource options for evaluation in its resource plan. It should evaluate each
14 of those options in its resource plan until it determines that it has identified the maximum
15 amount of cost-effective demand-side resources that are suitable to meet the various goals
16 of a resource plan, as discussed earlier in my testimony.

17 The Progress resource plan would reduce annual energy use by 2.7% in 2024 (see
18 Table 7B of Wilson Exhibit 7). This forecast is far below the achievable potential range
19 identified in the Georgia Tech study and does not appear to represent even the full
20 amount of energy efficiency allowed for REPS compliance purposes. Considering the
21 goals and demonstrated energy savings of other utilities around the country, *Progress*
22 *Energy could consider resource plans with savings of up to 15% by 2024.*

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1 **Q. DO YOU HAVE ANY OVERALL RECOMMENDATIONS FOR IMPROVING**
2 **THE ANALYSIS OF DEMAND-SIDE RESOURCE OPTIONS IN DEVELOPING**
3 **THE RESOURCE PLANS OF NORTH CAROLINA UTILITIES?**

4 **A. Yes. First, I recommend that the Commission reject the simplistic approach of offering**
5 **only one or two options regarding demand-side resources and direct utilities to explain**
6 **how it selected its preferred portfolio. The current treatment of demand-side resources is**
7 **fundamentally inferior to the degree of variation and specificity allowed for supply-side**
8 **resources. Among the best practices recommended in a Lawrence Berkeley National**
9 **Laboratory review of resource planning practices in the West are that utilities should**
10 **"construct candidate portfolios with the maximum achievable EE potential" and use a**
11 **transparent process for "selecting the preferred portfolio."³⁶**

12 **Second, the Commission should direct North Carolina utilities to adopt resource**
13 **planning practices that include consideration of risks that can cause short-term rate**
14 **spikes. As discussed above, this practice has been used by the Northwest Power and**
15 **Conservation Council and helped utilities in that region reduce the risk of short-term rate**
16 **increases. The current practice of using scenarios and sensitivities does provide some**
17 **directional guidance on these topics; however, considering that some utilities are using**
18 **only two resource options for energy efficiency (existing programs vs no programs), this**
19 **practice is not useful in helping select lower-risk plans.**

20 **Third, in support of strong energy efficiency resource analysis and program**
21 **development, I would also recommend the creation of a regional energy efficiency**
22 **database and collaboration process. Three widely used models exist. The Northwest**

³⁶ Barbose, G., "Valuing Energy Efficiency as a Hedge Against Carbon Regulatory Risk: Current Resource Planning Practices in the West," Lawrence Berkeley National Laboratory, EMP Group Meeting Presentation, September 21, 2007.

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1 Power and Conservation Council's Regional Technical Forum is a regional advisory
2 committee established to develop standards to verify and evaluate conservation savings;
3 it is currently updating its measure database, which is available to the public. The
4 California Energy Commission maintains the widely used Database for Energy
5 Efficiency Resources (DEER). The New York State Energy Research and Development
6 Authority (NYSERDA) maintains the widely-used Deemed Savings Database. These
7 three existing energy efficiency databases and forums are widely utilized by consultants
8 and utilities in other parts of the country for design and initial verification.

9 A useful starting point for a Southeast regional database would be the North
10 Carolina Measures Database, prepared by Morgan Marketing Partners for several North
11 Carolina utilities. I note that this database is not disclosed or discussed in any utility filing
12 in this proceeding, even though it is an essential part of the analysis of potential demand-
13 side resource programs. I learned of the existence of this database in the process of
14 reviewing a Progress response to a data request. The database itself is considered
15 confidential.

16 Establishing a regional energy efficiency database and collaboration process
17 would be a useful step for three reasons. First, it would provide a process and repository
18 for the development of authoritative regional energy efficiency performance
19 benchmarking. Second, a regional energy efficiency database would also help to
20 minimize overall program evaluation costs of utilities, thereby maximizing more of the
21 program budget that could be directed towards incentives, generating greater energy
22 savings and benefits to customers. Third, it would provide an opportunity for business

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1 and program partners to engage with utility and government staffs to improve and expand
2 energy efficiency programs.

3 As noted above, the need for collaboration between utilities and their business and
4 program partners is substantively different for demand-side resources than for supply-
5 side resources. Many of the services provided by business and program partners are not
6 designed to exclusively meet the utility's needs, but also designed to respond to diverse
7 customer interests. Building a regional database and collaboration process creates the
8 opportunity for effective dialogue through the process of ensuring performance
9 accountability.

10 **IV. Adequacy of Energy Efficiency Compliance Reporting.**

11 **Q. ARE NORTH CAROLINA'S INVESTOR OWNED UTILITIES PROVIDING**
12 **ADEQUATE REPORTING OF ENERGY EFFICIENCY IMPACTS FOR**
13 **PURPOSES OF REPS COMPLIANCE?**

14 **A.** Neither Progress nor Dominion submitted any documentation that indicates they intend to
15 report energy efficiency impacts from 2007 or 2008 for purposes of REPS compliance.
16 Duke commented regarding its interest in banking energy efficiency impacts beginning in
17 2008, but did not indicate what impacts occurred in 2008. This would only become a
18 concern if the utilities submit five years worth of energy efficiency program results in a
19 single filing to demonstrate REPS compliance for the 2012 compliance year. I do not
20 have any reason to believe this will occur, but point out the lack of compliance filings to
21 date in order to suggest that compliance filings should begin next year in order to avoid
22 unnecessary challenges.

23 **Q. DOES THAT CONCLUDE YOUR TESTIMONY?**

24 **A.** Yes, it does.

1 MS. THOMPSON: Thank you. Mr. Wilson, have you
2 prepared a summary of your testimony?

3 A I have.

4 Q Would you please read that summary -- and I passed
5 that out earlier -- would you, please, read your summary
6 to the Commission?

7 A I will. And I will note that the version that was
8 printed out inadvertently did not include a couple of
9 edits, and I will just read those into the testimony.
10 They are not substantial in nature.

11 Mr. Chairman, Members of the Commission, good
12 morning. And thank you for the chance to testify.

13 My name is John D. Wilson, and I am Director of
14 Research for Southern Alliance for Clean Energy. I am
15 very pleased to testify today on behalf of Environmental
16 Defense Fund, the Sierra Club, Southern Alliance for Clean
17 Energy, and the Southern Environmental Law Center. The
18 purpose of my testimony is to present my evaluation of the
19 Integrated Resource Plans filed by Duke Energy Carolinas
20 and Progress Energy Carolinas.

21 Overall, North Carolina's electric utilities,
22 including Duke and Progress, are offering substantial
23 energy efficiency programs for the first time. For
24 2020(sic) the utilities forecast reducing system sales by

1 0.3% through energy efficiency programs. With these
2 large-scale utility efficiency programs, North Carolina is
3 stepping forward as the energy efficiency leader in the
4 Southeast. Nevertheless, energy efficiency remains
5 confined to a second-class status in the utility resource
6 plans. North Carolina's utilities are only forecasting
7 cumulative energy savings of 3.1% over the next 15 years,
8 which is less than the 2-year goal of leading utilities.

9 The Duke and Progress resource plans fail to
10 consider potential demand-side resource options on an
11 equivalent basis to supply-side resource options and, as a
12 result, do not result in the least-cost mix of resource
13 options.

14 I will highlight three conclusions with respect
15 to Duke's and Progress' resource planning. First, neither
16 utility provided an adequate and accurate 15-year forecast
17 of demand-side program impacts in its resource plan. The
18 Duke forecast is an inadequately explained, uneven pattern
19 of incremental impacts from its energy efficiency program,
20 diminished the long-term resource potential of Duke's
21 energy efficiency program for planning purposes. The
22 Progress forecast suffers from different issues related to
23 confusing or inconsistent data, as described in my
24 testimony.

1 Second, neither Duke or Progress has performed a
2 comprehensive analysis of demand-side resource options.

3 In its analysis, Duke failed to examine all energy
4 efficiency options; failed to explain how it selected its
5 preferred demand-side resource portfolio, even though the
6 high energy efficiency scenario was determined to be
7 considered cost-effective; and failed to explain
8 adequately the linkage between its market potential study
9 and the options it considered in its resource plan. I do
10 note that the analysis of the high efficiency scenario in
11 the Duke resource plan is a step towards considering a
12 long-term plan that reflects the leadership it has shown
13 with its recent near-term program development.

14 In its IRP, Progress failed to disclose and
15 explain its analysis of demand-side resource options as
16 required by Commission Rule R8-60. The discussion of
17 demand-side resources in Progress's resource plan is
18 limited to its existing energy efficiency and demand
19 response programs, including new programs. Even though
20 Progress indicates that it has not rejected any evaluated
21 energy efficiency or demand-side management resources
22 since the last Resource Plan filing, evidence indicates
23 otherwise.

24 Finally, neither utility has performed a

1 comprehensive energy efficiency potential study. The
2 findings of both potential studies suggest a substantially
3 lower achievable energy efficiency potential than similar
4 studies at the national or regional level without
5 exploring or discussing any unusual circumstances that may
6 explain the results. Both studies missed substantial
7 energy savings opportunities. Measures such as heat pump
8 upgrades and low-flow water fixtures on the residential
9 side, and roof insulation and duct sealing on the
10 commercial side were omitted by at least one of the
11 studies. Both studies omitted several end-use sectors,
12 including the transportation, communications and utilities
13 sectors. Until the utilities conduct a comprehensive
14 long-term analysis of demand-side resource options, they
15 should consider plans with savings of up to 15% by 2024,
16 which is consistent with the goals and demonstrated energy
17 savings of other utilities around the country.

18 My testimony describes three overall
19 recommendations regarding ways in which the Commission
20 could improve the analysis of energy efficiency in utility
21 resource plans.

22 First, the Commission should reject the
23 simplistic approach of offering only one or two options
24 regarding demand-side resources. Utilities should

1 consider the maximum achievable energy efficiency
2 potential in their planning process, and use a transparent
3 process for selecting the preferred level of demand-side
4 resources.

5 Second, the Commission should direct North
6 Carolina Utilities to adopt resource planning practices
7 that include the consideration of risks that can cause
8 short term rate spikes. This practice has been used by
9 the Northwest Power and Conservation Council and has
10 helped utilities in that region reduce the risk of short
11 term rate increases.

12 Finally, in support of strong energy efficiency
13 resource analysis and program development, I also
14 recommend the creation of a regional energy efficiency
15 database and collaboration process. I describe several
16 examples from across the country in my testimony.

17 Thank you for the opportunity to testify in this
18 proceeding.

19 MS. THOMPSON: Thank you. Mr. Wilson is
20 available for cross-examination.

21 COMMISSIONER CULPEPPER: All right. Ms.
22 Thompson and other parties, this appears to be a good time
23 for us to take our morning break. We will stand in recess
24 for ten minutes and resume the clock reads 35 minutes til

1 12:00.

2 (Whereupon, off the record.)

3 (Whereupon, a recess was taken.)

4 (Whereupon, back on the record.)

5 COMMISSIONER CULPEPPER: Mr. Wilson has been
6 tendered for cross-examination. Is there any
7 cross-examination of Mr. Wilson by any of the Interveners?
8 Mr. Runkle?

9 CROSS-EXAMINATION BY MR. RUNKLE:

10 Q Mr. Wilson, in an earlier question from
11 Commissioner Beatty to Public Staff Witness Floyd talking
12 about the cost-effectiveness test, were you here for that?

13 A I was here, yes.

14 Q Do you have any opinions whether the incentives to
15 the utilities should be part of that cost-effective test
16 or is that something that should be considered separately?

17 A I'm in general agreement with Mr. Floyd on that.
18 I would have a couple of comments that would be little
19 different than his on some of the details.

20 First of all, Mr. Floyd made the comment that
21 all the states in the country or many of the states in the
22 country use the California Standard Practice Manual
23 approach. And that's correct. However, in trying to use
24 a lot data from other states, what I have found is that

1 some of the terms in the equations are interpreted
2 differently from state to state. So for instance the cost
3 of a program may include certain things in one state and
4 different things in another. As a result it becomes
5 somewhat difficult to do perfect apples-to-apples
6 comparison across the states in the use of those tests.

7 The second thing I would say is that while I
8 agree generally that it's correct that the incentive
9 should not included in the measure or program level cost-
10 effectiveness evaluation. It's sort of like a power
11 plant, sort of on a day-to-day basis the decision to
12 dispatch a plan is based on its fuel cost and its variable
13 operating and maintenance cost. But your decision to
14 retire that plant is also going to take into consideration
15 a number of costs that wouldn't be taken into account on a
16 day-to-day cost.

17 And so at the highest level, I would agree that
18 a financial incentive should be rolled into the bottom
19 line looking at the whole program. So if you were going
20 to say: Is energy efficiency cost effective? A
21 shareholder incentive for energy efficiency is part of the
22 cost of energy efficiency generically. But what would be
23 inappropriate is to roll that in on a measure evaluation
24 test. So, for example, if a utility program is out at a

1 site and they are about to do a heat pump installation and
2 the question is should we also do some work on the ducts
3 while we are there, the cost-effectiveness evaluation for
4 that measure installation should take into account any
5 cost other than the immediate cost of that additional
6 service, because you want to do that service while you're
7 out there in a cost-effective manner. You want to make
8 sure that it's efficient. But you don't want to sit there
9 and add a bunch of overhead that's already built into the
10 program -- the cost of the program separately. If you
11 were to do that, then you might make an inefficient
12 decision at that point. So it's a question of where do
13 you apply those incentive costs?

14 MR. RUNKLE: Okay. Thank you. No further
15 questions.

16 COMMISSIONER CULPEPPER: All right. Other
17 questions of Mr. Wilson by other Interveners?

18 (No response.)

19 Cross-examination by the utilities?

20 MR. ANTHONY: Mr. Chairman, yesterday I passed
21 out as a redirect exhibit, some power point pages that
22 describe the test.

23 COMMISSIONER CULPEPPER: You did. That's PEC
24 Redirect Examination Exhibit No. 1.

1 MR. ANTHONY: Due to operator error, I did not
2 copy the last page. Well, today, I have the entire
3 package. I have shared it with the witness, and he has no
4 objection to me using him, so to speak, as a tool to
5 discuss those tests and get the complete package into the
6 record. If it pleases the Commission, I will distribute
7 the correct package marked as Cross-Examination Exhibit --
8 PEC Cross Exhibit No. 1.

9 COMMISSIONER CULPEPPER: That is allowed.
10 You're asking to amend your exhibit, and that is allowed.
11 You want to label this Amended PEC Redirect Examination
12 Exhibit No. 1. Let it so be identified.

13 (Whereupon, Amended PEC Redirect
14 Examination Exhibit No. 1 was marked for
15 identification.)

16 CROSS-EXAMINATION BY MR. ANTHONY:

17 Q Good morning, Mr. Wilson. How are you?

18 A Fine, thank you. Thanks for the courtesy of
19 sharing this in advance.

20 Q Thank you for working with us on this. Our goal
21 is really through this cross-examination to explore
22 exactly what Commissioner Joyner raised a moment ago and
23 that is the debate continues as to whether utilities are
24 doing enough DSM and EE. And we'd like to explore exactly

1 what it is we need to be doing more of and what it's going
2 to cost and what are the assumptions. These tests which
3 are sort of critical to whether a program should be
4 offered or not are pretty important.

5 So let me begin with -- as I understand from
6 reading your testimony, we all agree that utilities should
7 offer all programs measures that are cost effective. Are
8 we in agreement on that?

9 A Yes.

10 Q That takes us to the first question: How do we
11 determine cost effectiveness? That seem reasonable?

12 A Okay.

13 Q Let's move to the exhibit I just passed out, and I
14 believe in any discussion with you, you said these charts
15 were basically correct, but maybe needed some further
16 explanation. Is that fair?

17 A Okay.

18 Q Let's walk through, if you don't mind, each one
19 and describe for the Commission what they do, what that
20 test is supposed to demonstrate. And then if these charts
21 need to be explained, would you please do that? So we are
22 going to start Participant Test.

23 A Okay.

24 Q If you will look at that chart, does this chart

1 accurately depict how the Participant Test is supposed to
2 be calculated?

3 A Well, first I comment that in preparing my
4 testimony in preparing to testify today, I did not go back
5 and review the literature on cost-effectiveness tests. So
6 I do not necessarily have in the front of my mind all the
7 details I'd like to have to go through this discussion.

8 But looking at this, this looks, to the best of
9 my recollection, like the Participant Test.

10 Q Fundamentally, the Participant Test is looking at
11 solely from the actual customer's perspective, what am I
12 actually out of pocket? And what are the actual benefits
13 to me? Is that fair?

14 A Yes. Your characterization is fair. However, I
15 would say that it's usually done in a fairly simplistic
16 manner looking at it from a sort of pure economics point
17 of view. It does not consider a lot of the other issues
18 that participants face that might be barriers to their
19 implementing a measure. So while it predicts the cost
20 effectiveness of the measure from the participant's point
21 of view, for example, if you've got a split incentive
22 situation where you've got a landlord/tenant situation,
23 the Participants Test provides no information to explain
24 how the tenant would view the cost effectiveness of the

1 measure or the landlord would view the cost effectiveness.

2 Q The next slide is Rate Impact Measure Test.

3 A Yes.

4 Q Generally what this one looks at -- First, let me
5 ask you: Does this accurately depict how that test is
6 supposed to be administered?

7 A To the best of my recollection this looks roughly
8 accurate, yes.

9 Q So this is the beginning of sort of a fundamental
10 concept here with all these tests and that is the benefits
11 of the program are the cost that utilities avoids by
12 implementing the program. Is that fair?

13 A That's what this describes, yes.

14 Q The cost of the program are the actual cost the
15 utility incurs in order to offer the program and the RIM
16 Test, as its known, that includes both the actual
17 incentives paid as well as some determination of the
18 revenues it loses as a result of offering the program?

19 A Right. So for example with the loss revenue
20 component of this, that depends on the systems generation
21 profile. So a utility, for example, in the Northeast that
22 is primarily a load-serving entity -- it only sells
23 electricity, it doesn't generate it -- it would have very
24 low loss revenues whereas a utility that has a very

1 capital intensive generation structure such as a
2 hypothetically an all-nuclear utility, it would have a
3 very high loss revenue number. So some of these costs of
4 DSM are functions of the utility system and not a cost of
5 the DSM or the energy efficiency program.

6 Q And it's also impacted by the utility's rate
7 design. For instance if the utility's rates were based on
8 a straight fixed variable rate design then it would
9 probably experience less revenues -- net revenues -- that
10 would otherwise be the case because, at least in theory,
11 its variable revenues recover nothing but variable costs?

12 A Right or for example decoupling approach -- I'd be
13 hesitant to speak affirmatively of a strange-fixed
14 variable rate design in the context of an electricity
15 proceeding. So if you will allow me to amend your comment
16 to that, yes, exactly the rate structure would also be
17 there as well.

18 Q Let's jump to the last page and then we will come
19 back to TRC because as I understand the Utility Cost Test,
20 which is the last page of this handout, is basically a RIM
21 Test except loss revenues are considered?

22 A Yes. I think that is generally the case.
23 Sometimes some other minor differences depending on the
24 state and how the terms are defined.

1 Q And then let's focus on the Total Resource Cost
2 Test, which shorthanded is basically the Utility Cost
3 Test, but it's leaving out the incentives actually paid to
4 the participant because it's on both sides of the equation
5 and it they cancel each other out?

6 A I guess I have a different opinion of that. I
7 think that the TRC Test -- first, it depends on what you
8 are measuring with the TRC Test, exactly how it relates to
9 the incentive question. So, for example, if you're just
10 simply measuring a measure and you are looking at the
11 installation cost of that measure and you know that the
12 program cost of installing it are a certain amount and you
13 are expecting the participant to pay a certain cost, then
14 I would agree with your characterization.

15 But where you get into a more complex area is
16 when you get into an achievable potential estimate which
17 assumes a certain level of effort on behalf of the
18 utility. And that level of effort or market penetration
19 that is being analyzed is going to depend on the incentive
20 payment. So even though you're correct in that the
21 incentives are canceled out from both sides of the
22 equation, the level of market penetration that you are
23 assuming at that program cost and at that participant cost
24 and so forth, is dependent upon the incentive payment

1 level. So there's -- while it doesn't appear in the
2 equation because it can cancel out, it's a part of the
3 equation. It's a necessary variable.

4 Q Thank you. And TRC also considers as a cost the
5 cost to the participant out-of-pocket --

6 A Yes.

7 Q -- to participate in that program measure?

8 A Yes. That's the other thing that's also in this
9 test.

10 Q Now, I believe yesterday either the Duke or
11 Progress witnesses said fundamentally we use the TRC Test
12 to determine cost effectiveness with a watchful eye on the
13 RIM Test.

14 A I think that was the Progress witness. I think
15 Duke, if my interpretation is correct, tends to rely a
16 little bit more on the Utility Cost Test as their
17 preferred test.

18 Q What would be your recommendation as to which test
19 should drive the decision making whether to offer a
20 measure or not?

21 A At the measure level or at the program level?

22 Q Give us both, please. And explain why there's a
23 distinction.

24 A Well, at the measure level, I think it makes a lot

1 of sense to look at the Total Resource Cost Test because
2 the participant cost is a significant factor. And you --
3 I mean, one of the things I kind of smile every time it's
4 said in the room is cost-effective energy efficiency.
5 It's sort of a redundant statement. It would be
6 inefficient to be not cost effective. So I think that it
7 doesn't make sense to be able to spend \$20 to save a
8 dollar in energy. That's inefficient.

9 So from that perspective, I think the TRC Test
10 is favored. I think when you look at it more at the
11 program level or at the, really the whole portfolio level
12 where you're looking at all the programs together, then I
13 think it makes more sense to also look at the Utility Cost
14 Test either equally or maybe even as the more favored
15 cost-effectiveness test. At that point you are starting
16 to move into resource planning. You are starting to look
17 at what is the best decision for the utility to meet the
18 needs of its customers as a whole. In that case, the
19 participant costs, I think, become a little bit less
20 important a factor because for one thing, they are not as
21 -- they are pretty well specified when you're down at the
22 measure level. Once you start to aggregate it there's a
23 lot of questions that come in. I can give some examples
24 if you'd like to explore that or just leave it at that.

1 Q I understand what you're saying. And let me see
2 if I understand what you mean when you say at the global
3 level, if you will, the Utility Cost Test may be more
4 constructive; is that what you're suggesting?

5 A Yes. I wouldn't suggest an absolute rule, but I'm
6 saying that the Utility Cost Test makes more sense at the
7 global level than it does at the measure planning level.

8 Q As I have also thought shorthand of the Utility
9 Cost Test is basically a minimize a revenue requirement
10 test; does that seem reasonable to you?

11 A That is probably reasonable. I'd want to think
12 about that some more before I endorse that statement. But
13 certainly in kind of casual conversation, it wouldn't be
14 something that would trouble me.

15 Q So, we now agree that we should only offer these
16 programs that are cost effective; we will screen at the
17 measure level on TRC with some acknowledgment of what is
18 going on at the RIM; and then as we bundle measures into
19 programs and then have a complete portfolio, we will still
20 focus on that TRC, but also look at the Utility Cost Test
21 as it applies to the entire portfolio of programs; is that
22 where we are at this point in the discussion?

23 A We talked about all those things. And I assume we
24 are just talking about a cost-effectiveness evaluation and

1 not a program planning evaluation.

2 Q Exactly. What I'm trying to get straight in my
3 mind and hoping as we engage in this discussion about what
4 is enough, what are the steps the utility and the
5 Commission need to go through in order to make that
6 determination of whether we are doing enough, the right
7 amount, what we should be doing, et cetera, however you
8 want to characterize the goal. To me, the next step is
9 identifying all the potential measures and bundled
10 programs that would be cost effective. Is that the
11 correct next step?

12 A I'm happy to proceed down that area. I think
13 there's other approaches you can take to assemble an
14 energy efficiency program.

15 Q Program or portfolio?

16 A Yes, all of that. I think there is -- what you
17 are suggesting is sort of the way you would proceed next
18 in an intellectual sort of planning process is to start
19 with this list of measures. And there are approaches that
20 are used in the industry as far as what order of steps to
21 go through. So I am happy to proceed with your question
22 in this direction. I'm just saying that I don't accept
23 that that is conclusively the next thing you would do
24 necessarily.

1 Q But is the ultimate goal of whatever strategy is
2 pursued, to identify and ultimately implement all
3 cost-effective measures/programs?

4 A Yes.

5 Q Then once those are identified and there is a
6 strategy for implementing all cost effective, we have to
7 make assumptions about what is the penetration rate, what
8 is the adoption level that the utility can realistically
9 hope to achieve; is that a way to put it?

10 A That's one way to do it.

11 Q One way to do what?

12 A One way to determine what a utility can
13 realistically achieve.

14 Q What other ways are there to determine what we can
15 realistically achieve?

16 A You can look at program achievement rates that
17 have been done by similar programs in relatively similar
18 circumstance elsewhere in the country, that sort of thing.

19 Q I was not suggesting that was not part of the
20 determination of what is realistic that we have to figure
21 out. At some point, how many megawatts and megawatt hours
22 do we think these demand-side energy efficient resources
23 are going to produce?

24 A It's just if you do that specific measure level as

1 opposed to at the program level, you may need sort of --
2 this gets into a lot of technical detail. But it's my
3 understanding that, for example, there may be three of
4 four measures that accomplish the same thing. So you
5 would not install all three or four measures because they
6 will all cut the same energy use. And the mix of those
7 measures and their penetration rate in one part of the
8 country may be different than in another part of the
9 country due to the climate or marketing characteristics in
10 that area of the country. So if you're doing the work you
11 just described at the measure level, then the -- then you
12 could introduce some false limitations into your results
13 in Carolina that would not be appropriate. So it would be
14 -- it's sort of how you characterize that. In a good
15 DSM/EE consulting firm understands how to do that. If
16 they're not unreasonably constrained by the process that
17 the utility puts forward to analyze the measures, then
18 we'll handle that appropriately.

19 Q Now, I want to somewhat going on a tangent for
20 illustrious purposes here before we go any further and
21 just take a particular program in order to get sense of
22 what is really involved in changing customer behavior.
23 Let me use a heat pump or an air-conditioning high
24 efficiency program. That is where the utility is going to

1 offer a customer, say a residential customer as a whole,
2 an incentive -- monetary incentive -- to replace an
3 existing HVAC system with a system that is substantially
4 higher than what otherwise is required by code. As I
5 understand it, there's a range of incentives that could be
6 offered. One was they could offer an incentive that
7 covers the entire cost of the new system, all \$12,000 or
8 so to put in a 16 seer variable speed heat pump. That
9 would be one thing that could be done to encourage that
10 replacement; right?

11 A Witness nods.

12 Q Would you recommend that level of incentive to
13 encourage customer behavior?

14 A Not as a general rule, no.

15 Q The next step would be to cover either a hundred
16 percent or some portion of the difference between 12 seers
17 code, that's all they could buy if they wanted to replace
18 it. And 16 seer is what we like to see installed. The
19 utility offers an incentive that covers a hundred percent
20 of the difference between the 12 seer and 16 seer. That's
21 sort of the next opportunity; right?

22 A Right.

23 Q Would you recommend that as a general rule, that
24 level of incentive?

1 A Not as a general rule, but there may be
2 circumstances that would be appropriate.

3 Q And generally if you reviewed our programs, and
4 we'll go into Progress' in more detail later, but I think
5 you will see we assume a 2-year payback is what customers
6 demand on the incremental cost, which in my example the
7 utility would be paying for 50% of the incremental cost of
8 one 12 to 16. Is that an incentive level you would
9 generally think is appropriate?

10 A No.

11 Q Where would you be between a hundred percent of
12 the incremental cost and none of the incremental cost?

13 A I think it depends very much on the customer and
14 the nature of the program. I think that a 2-year payback
15 or any other arbitrary rule like that is a very clumsy and
16 ineffective way to design your incentive structure.

17 Q Would you share with us how you believe the
18 incentive structure should be designed?

19 A Sure. I think you need to look at the particular
20 market, and you need to look at the number of what factors
21 are actually the true barriers in that particular
22 circumstance to a customer adopting the efficiency
23 measure. It may be, for example, that the financial issue
24 is very minor. For example in a commercial setting where

1 you've got small business center that pays the light bill,
2 they may not own the HVAC system. It may belong to the
3 landlord. So offering the customer an incentive to
4 replace that HVAC system may be ineffective. If you go to
5 the landlord and offer the landlord a hundred percent of
6 the cost, the difference between the 12 and 16 seer, they
7 may not care because they don't pay the bill at all.

8 So you may need to develop an entire different
9 program structure than the simplistic incentive payment.
10 There may be an incentive component to it, but it may be
11 about dealing with the issues between the landlord and the
12 tenant.

13 In the residential setting you were talking
14 about -- I'm actually dealing with this issue right now in
15 my own life -- I'm trying to buy and renovate a house and
16 we've got an inefficient HVAC system and we're looking at
17 replacing it. And one of the issues we are running into
18 is that the number of things we need to do to that house
19 runs up against an incentive cap that's available. And in
20 order to make some of the thing cost effective, we are
21 deferring some of those actions until next year when we
22 will be eligible for a second round of incentives. So
23 there's some program structure issues there. So I think
24 that an arbitrary incentive level needs to be set in the

1 context of the overall program design.

2 Q I apologize for prying, but you brought up your
3 personal experience, when you say the incentive is not
4 high enough to be cost effective, what do you mean by
5 that? Is the payback is how long? What are you looking
6 at?

7 A Well, one of the things we are looking at is, for
8 example, in Asheville where I did an efficiency
9 renovation, we were forced out of our house, not
10 financially but due to my wife's professional
11 circumstances, and we had to move. And we were not in the
12 house long enough to get the recovery to ourselves in
13 energy savings that a lot of those investments would have
14 incurred. And the way the market works in a real estate
15 market is people buy a lot of houses on a price per square
16 foot level. And the efficiency investments are not fully
17 recognized in the market place.

18 So in sort of the payback kind of construct is
19 somewhat relevant there. But it also has to do with
20 different items are valued differently in the market
21 place. So some of the things that are sort of seen by the
22 buyer of a new house or house on the market are valued in
23 that way. But other things they can care less about; they
24 just don't understand the benefits of those technologies.

1 There's not time when you're buying a house to do a
2 comprehensive energy audit and that sort of thing and
3 understand all that. So I think there is just a lot of
4 market challenges to value energy efficiency in this sort
5 of economist idealized view of the world. I mean very few
6 people who buy and sell house or make investments under
7 the energy efficiency are economists.

8 Q And one more question on this sort of tangent what
9 I would hope is a more substantiative discussion, you
10 mentioned that the incentive levels of payback may need to
11 be different depending upon whether in a commercial
12 setting the building owner occupied versus
13 landlord/tenant.

14 A Uh-huh.

15 Q So in that situation are you suggesting the
16 utility should determine whether a different level of
17 incentive is required for that, those two different
18 markets?

19 A It's probably just an entirely different
20 structure. This is something I have not explored in a lot
21 of detail. But it is my general understanding that in
22 California they are moving away from the incentive model
23 and more to a direct install model for those kinds of
24 markets for the landlord/tenant circumstances where

1 utilities paying the full cost of the installation of
2 certain technologies. I'm not in a lot of detail familiar
3 with exactly how that's working. But there is a lot of
4 debate about incentives versus direct install and that
5 sort of thing going on in that context. Beyond that I'm
6 not able shed any further light on that.

7 Q Then, let's get back to a what I'm going to
8 consider a gut reactions to what level of customer
9 behavior we believe can be achieved. If a customer has --
10 residential customer with an existing heat pump, and the
11 heat pump is functioning in my example I am going to give
12 you, the heat pump is working --

13 A Right.

14 Q It may not be the most efficient heat pump in the
15 world, but it's still working. Just speaking from my own
16 experience and maybe lack of economic savvy is I' m not --
17 the utility would have to offer me a hundred percent of
18 the replacement cost to get me to pull out a perfectly
19 functioning 12 seer HVAC and put in a 16 seer. Simply
20 offering me the difference between the 12 and 16 is not
21 going to prompt me to pull out a perfectly fine working
22 unit. Do you think I am, just looking at that one aspect
23 of my character not anything else, am I unusual?

24 A You have asked me a real difficult question, I

1 mean the part about leaving out the rest of your
2 character.

3 Q I appreciate that.

4 A But, no, I don't think you are unusual. I think
5 though there are, and this is one of the things I sort of
6 like at least about Duke's marketing span is that their
7 overall approach to the program is that they constantly
8 further the comfort and convenience of the customers being
9 a focal point of their program design. I think that there
10 are other ways to get a customer interested in a heat pump
11 upgrade beyond just simply the economic savings that might
12 occur as a result of the pulling out a perfectly -- what
13 seems to the customer -- to be a perfectly good system and
14 putting a new one there. Other advantages, for example,
15 there are in the area of hot water, there are these new
16 high heat pump hot water systems, you may or may not be
17 familiar with those, but one of the things they do is the
18 ancillary benefit is they dehumidify the air around the
19 heat pump. So if you've got a basement like I had in
20 Asheville and now will probably have up in the D.C. area,
21 then you can put the heat pump in the basement and
22 dehumidify your basement while you're heating the hot
23 water.

24 So there are things that you could do with the

1 marketing program to appeal to other aspects of the system
2 beyond just simply the air-conditioning and economic
3 characteristics of the system you are talking about.

4 Q In general in attempting to determine likely
5 penetration adoption rates, is it reasonable for the
6 utility to assume that either most of the replacements
7 occur at the end of the appliances' life or as you were
8 suggesting maybe if the customer is educated enough, they
9 will replace that perfectly fine 12 seer heat pump before
10 the end of its operating life?

11 A I think there's a lot of evidence to show that
12 utilities have been successful -- utilities in other
13 efficiency program advocate administration -- have been
14 successful in getting people to do things before the end
15 of their useful program life. But a very critical
16 component of the program is its ability to meet a very
17 high percentage of what's known in the trade as the
18 replace on burnout opportunities.

19 Q I'm sorry, what does that mean?

20 A That's basically what you just said, when it
21 reaches the end of its life and you need to replace the
22 unit, that is obviously a very important moment in the
23 heat pumps life or whatever the particular circumstance
24 is. If somebody is about to preplace a heat pump and

1 they go out and replace with the cheapest one on the
2 market, it's probably not the most efficient. So that's a
3 very critical part of the program design, but it's not the
4 only opportunity utilities and other program
5 administrators have also succeeded in getting people to do
6 upgrades.

7 Q But it would seem that 9 out of 10, 90 out of 100,
8 whatever of the replacements are going to occur at that
9 point in time?

10 A I wouldn't know that specifically. But I think it
11 would vary a lot from measure to measure. For example,
12 windows are probably very unlikely to only be replaced at
13 the end of their useful life. Most people don't just sort
14 of wait until the baseball breaks the window before they
15 fix it. You know, if it's having trouble sticking, if its
16 leaking, it's uncomfortable, that's going to be the point
17 at which they consider replacing it. If a window salesman
18 comes by and makes a really good case that their house
19 could look a lot better and be a lot more comfortable with
20 some new windows, they are going to consider it.

21 So I think it varies a lot, again, from measure
22 to measure. So to use an arbitrary set of rules to
23 determine cost effectiveness doesn't match up with the
24 best practices in program implementation.

1 Q And I wasn't suggesting, tell me where I'm wrong
2 in what I'm about to say -- I wasn't suggesting that the
3 cost effectiveness was impacted by the penetration, it was
4 once a measure is determined to be cost effective using
5 whatever test we decide is appropriate. Then there has to
6 be some assumptions about how successful the break was
7 going to be as far as the impact of reducing megawatts and
8 megawatt hours. I was trying to get some sense from you
9 as to what you perceived to be the realistic opportunities
10 for that to occur, and how much money has to be spent to
11 consent the behavior? Am I wrong that cost effectiveness
12 is really not that big a piece of penetration assumption?

13 A It's a factor in the penetration assumption, but
14 there's a lot of other program design aspects in terms of
15 overall customer awareness, in terms of the market
16 penetration rate, and in terms of the other aspects of the
17 program design. I am talking real world here. Obviously,
18 in any achievable potential model they are highly
19 simplified and failed to take into consideration some of
20 these factors.

21 Q That's my goal here is to talk real world.

22 A Right.

23 Q Have you reviewed the 9 DSM/EE programs that
24 Progress Energy Carolinas has filed with this Commission

1 for approval?

2 A I have looked at portions of those programs, but I
3 can't say that I -- I did not review them in preparation
4 for this testimony. Most of my focus was on the way in
5 which the efficiency programs were being -- or the concept
6 and the resource opportunity of energy efficiency was
7 being used -- throughout the life of the resource plan.
8 I was not as focused on the near term program design
9 characteristics.

10 Q And I'm sorry to be slow. Tell me again what your
11 primary focus has been on.

12 A On the overall use of energy efficiency resource
13 options in the Integrated Resource Plans as opposed to the
14 particular program design characteristics for the near
15 term.

16 Q Does that mean you're focused upon how much of a
17 megawatt or megawatt hour reduction is reflected in the
18 plan resulting from EE and DSM?

19 A Well, no. For instance, one of my major concerns
20 was the way in which the opportunity to do energy
21 efficiency was represented was that, for example, Progress
22 took primarily its existing programs plus the ones it's
23 planning on offering in the next couple of years and just
24 simply said, once we achieved a level of market

1 penetration we think will result from those in the next
2 few years is pretty much appear to be almost flat from
3 there on out in terms of program impacts. And that's
4 contrary to what I'm seeing when I review materials in
5 other parts of the country where utilities are saying
6 basically after we get those programs rolled out, we are
7 gonna have a lot more programs. They may not have the
8 specifics of that exactly worked out at this point, but
9 they are able to sort of present those as generic
10 resources. And the same way that you handle supply-side
11 generation you may say, we are thinking about putting in a
12 nuclear or gas unit in 2019. We're not sure where that
13 will be exactly, how big it will be or what size it will
14 be, but we can put that in as a generic unit. That's the
15 way I think that energy efficiency should also be
16 considered. And that was my major concern with the
17 testimony, not the specifics of the programs that Progress
18 is offering right now.

19 Q I'm sorry, but I think we just said the same thing
20 and that is your primary concern was if you look at our
21 resource plan, there was not what I'm calling enough of
22 the impacts of the programs, the actual megawatt or
23 megawatt hour reductions, reflected through the planning
24 horizon that's captured in the resource plan?

1 A That was my conclusion. But that wasn't the
2 reason for my conclusion.

3 Q But that is the main thing that concerns you?

4 A That's the concern I drew from it. You were
5 asking about the purpose of my testimony is the
6 conclusion.

7 Q So am I safe to say with the programs we are
8 offering now -- when I say you, I am referring to the
9 authority you are here testifying on behalf of -- you
10 don't have any criticisms or problems with the programs we
11 are offering?

12 A We have not invested enormous resources in
13 reviewing those programs and tracking every change in
14 them. So I really can't answer that question. We haven't
15 brought forth any concerns or criticisms. But we have a
16 limited resources in our organization to review everything
17 in detail..

18 Q Are you at all familiar with Progress Energy
19 Carolina's commercial, industrial and governmental energy
20 efficiency programs?

21 A I've read the program over, yes.

22 Q Do you understand that it has both prescriptive
23 aspects to it, which by that I mean if the customer will
24 do a certain thing they get a certain amount of money.

1 Then there's a custom aspect to it where the customer and
2 the utility and the customers, architect, engineers or
3 whatever work together to see what else we can do or
4 should do to this entire building to make it more energy
5 efficient?

6 A Yes.

7 Q And you understand that would capture combined
8 heat and power opportunities that may be advantageous for
9 that building?

10 A I understand that in concept of combined heat and
11 power opportunity could be included under that program,
12 yes. But I don't think that it necessarily would be in
13 practice because of the other issues that arise that I
14 think were discussed in the cross-examination of
15 Dr. Blackburn yesterday.

16 Q In your testimony you referenced some measures
17 that we, Progress Energy Carolinas, are not offering that
18 you think we should be looking at. The first one was
19 window air conditioner program. Do you remember that?

20 A I referenced that that measure was not one of the
21 measures evaluated in the potential study.

22 Q Isn't it you believe that's one we should
23 evaluate?

24 A The point of that testimony was that is was a

1 trivial exercise identifying a number of measures that
2 other utilities have considered in their potential
3 estimates and that were not in the one we looked at.

4 Q

5 A If you are going to use the approach of saying we
6 have evaluated a comprehensive list of measures and there
7 are not real measures that are widely offered elsewhere in
8 the country that might be appropriate in your service
9 territory, then I would expect to see that measure on the
10 list.

11 Q And would the same be true for heater blankets,
12 faulted aerators, and low-flow shower heads?

13 A Yes.

14 Q Now with regards to your observation of the
15 program on the non-residential side beginning back to our
16 commercial, industrial and governmental program that has
17 been prescriptive and the customer design features any
18 measure program that could in any way relate to a non-
19 residential building could be captured under this program,
20 would you agree?

21 A Sure. Then again that comment was in the context
22 of discussing what could have been put forward by the
23 utilities had it chosen to do as a comprehensive analysis.

24 Q Violating every rule of cross-examination,

1 fundamentally if I's understanding our discussion for the
2 past 45 minutes, it's what you would like to see Progress
3 Energy Carolinas do is a more comprehensive potential
4 study, one that captures every measure that is possible
5 for evaluation. That would be item one?

6 A That would be one way that Progress Energy could
7 approach it. But that is not -- I think my testimony
8 makes it clear that there are other ways to approach
9 building up a large scale energy efficiency program. It's
10 just that when you put it in the context of saying we have
11 done a comprehensive analysis, it should be comprehensive.

12 But if you choose instead to build up your
13 program in another approach by, for example, identifying a
14 number of programs that cover the entire sort of universe
15 if you will of energy efficiency opportunities and then
16 say, how do we then make sure that we are being flexible
17 and incorporating all of those. And benchmark those
18 against the leading efforts around the country and here's
19 what we think they can achieve. That would be another
20 way. There's sort of a top-down way to build a program
21 portfolio and bottom up with. Both are used around the
22 country in different places and they both have their value
23 and I don't recommend one over the other. I don't really
24 wish to micromanage the planning process of Progress

1 Energy here.

2 Q To summarize the bottom line, one concern is to be
3 sure all measures that should be evaluated are evaluated?

4 A I think the bottom line is all potential that is
5 out there should be captured if you are going to say this
6 is the potential. If you're going to say the recovery in
7 the analysis or this is how we have determined that you
8 say the maximum is 4%, you shouldn't be saying maximum is
9 4%, and then when you go to check your work find you have
10 excluded sectors of the energy -- end-use sectors --
11 you've excluded measures that are commonly available et
12 cetera.

13 If your method is another method where you've
14 basically said, here are the program, these should cover
15 every opportunity to save energy, appliances, buildings,
16 et cetera, and we've established that the market potential
17 is this number and it's based on a evaluating these
18 programs in other parts of the country and here's how they
19 work. As long as you've done that in a comprehensive way,
20 that would be another valid way.

21 The point is if you say it's comprehensive and
22 there's holes in it, then it's not comprehensive. So
23 however you approach it, I don't want to be pinned down to
24 one method or the other because both those methods are

1 both used in the industry and your questions are going to
2 presume only one approach.

3 Q I apologize for that. I was under the impression
4 from reading your testimony that for states like North
5 Carolina that follow the Integrated Resource Planning
6 process that embedded in that is the least-cost resource
7 mix giving due consideration to both supply side and
8 demand side. The bottom's up approach was, I thought your
9 testimony said was preferred.

10 A No. Would you like me to direct you to where I
11 for --

12 Q Sure.

13 A I've got to find it. For example, on Page 13
14 where I answer that question, how should the benefits in
15 energy efficiency be reflected in resource planning?

16 My first sentence is that utilities and states
17 use a variety of methods to insure that the benefits in
18 energy efficiency are reflected in the resource planning
19 process. That should have been an immediate tip off that
20 I wasn't talking about a single approach.

21 The next paragraph, first sentence talks about
22 either performance targets or programs budget being a
23 method for building that up. Then I talk about the North
24 Carolina Rules in that paragraph.

1 Then I diverge and talk about some approaches
2 that are not quite as consistent with North Carolina's
3 approach.

4 In the next "Q" and "A" I talk about the
5 least-cost Integrated Resource Planning process and I say
6 there that there are two common approaches, not a single
7 one. They may either determine the potential for energy
8 efficiency in a utility's service territory, which is what
9 you and I have been talking about here, where they may set
10 a performance target which may be revisited based on
11 experience. And that's an alternative approach, which is
12 what I was pointing out as sort of more a top-down
13 approach. And either approach is, I think, a valid
14 approach that is used in the industry and can have a very
15 empirical basis, but it's a different type of empirical
16 basis.

17 Q Just to defend my honor, if you continue reading
18 the very next paragraph, the circumstance of a bottom-up
19 efficiency potential study is the basis for determining
20 how much inefficiency should be included in a resource
21 plan. Then on the top of the next page it says, NADEE is
22 an advocate of that methodology.

23 A Yes. In that particular document it's the
24 approach favored by that particular document. They talk

1 about both approaches in the actual NAPEE, I believe. But
2 this is the one that they have talked about in the
3 resource planning guide.

4 Q And I don't mean to put words in your mouth, but I
5 will do it anyway: Your second concern we have already
6 discussed, which is in the resource plan of Progress
7 Energy Carolinas, the level of megawatt and megawatt hour
8 savings is not continued on or maybe even escalated to
9 reflect additional programs that would suggest that they
10 either static or phase out.

11 A That's one way to characterize it. I think the
12 way I came at it was built up a little bit differently.
13 But I'm not sure we need to go there.

14 Q You are aware that with regards to PEC's resource
15 plan with the exceptions of the Richmond County Combined
16 Cycle and the Wayne County Combined Cycle, the resource
17 need as identified are all, "undesignated". Are you aware
18 of that?

19 A Probably so, yes. I can't from recollection
20 recite the generation plan side. I focused on the
21 efficiency side.

22 Q Such that the door is completely wide open for
23 that resource plan and the forecasted peak demand and
24 energy forecast to be revised to reflect further Energy

1 Efficiency programs and DSM programs that are going to be
2 rolled out if you believe Mr. Edge over the coming years.

3 A Can I give you an amen for that promise?

4 Q Yes, sir. I'm waiting.

5 A I just did.

6 MR. ANTHONY: Okay. Thank you. That's all I
7 have.

8 COMMISSIONER CULPEPPER: Cross-examination
9 Dominion?

10 MR. KAYLOR: Thank you, Mr. Chairman. I do have
11 a couple of questions.

12 CROSS-EXAMINATION BY MR. KAYLOR:

13 Q Mr. Wilson, Bob Kaylor appearing for Dominion, not
14 Duke right now.

15 A Okay.

16 Q I'm a little confused by your summary where you
17 state that Duke and Progress' Resource Plans still
18 consider potential demand-side resource. Then you later
19 use that again. I think of demand side as a little
20 different from energy efficiency. Do you use those
21 interchangeably?

22 A Generally, I use them interchangeably. The North
23 Carolina Rules are a little tricky in the language in that
24 there's a term demand-side management. I think it's used

1 differently in two different rules. And some of the
2 language has just been a little difficult when you are
3 drafting testimony.

4 As a general rule, I prefer to use the term
5 "energy efficiency" to be sort of encompassing in the
6 sense it was described in the NAPEE report. And I tried
7 to use the term "demand-side resources" when I was
8 speaking specifically of the North Carolina Rules in
9 governing this proceeding. But it's very possible I sort
10 of slipped up.

11 Q That is my concern because like some of us in the
12 room, I was in, I think, every stakeholder meeting leading
13 up to Senate Bill 3. And I recall that some of the
14 clients I believe you represent were very adamant that
15 utilities not get credit towards demand-side reductions.
16 But the REEPs Plan would not take credit for demand side,
17 it had to be energy efficiency. I just wanted to make
18 sure I was understanding what you were talking about when
19 you talk about demand side versus energy efficiency.

20 A Right. When I talk about demand-side resource
21 that particular phrase, I am referring to, as it's used in
22 the context of Rule R8-60(c)(1), which requires each
23 utility to offer a 15-year forecast of demand-side
24 resources.

1 When I'm talking about energy savings or energy
2 conservation, that would be gigawatt hours saved, which
3 would be the relevant concept for Senate Bill 3 compliance
4 purposes. So those would be different requirements and
5 different aspects.

6 Q We know that a demand program or reducing demand
7 compared with energy efficiency both require the
8 participation of the customers.

9 A And as I am interpreting your question, you are
10 talking about demand-response programs as opposed to
11 energy savings and energy conservation programs, both of
12 which are considered within the broader concept of energy
13 efficiency. And I would agree that both of them require
14 the participation of the customer.

15 Q For example, would programs that control load such
16 as air conditioning controls and other controls, the
17 customer definitely have to participate. If they don't
18 like it, then they opt out.

19 A Yes.

20 Q And I think you know I've been sitting at this
21 table since 1981 in these cases. And some of the other
22 people in this room have been here that long. And during
23 the Senate Bill 3 negotiations when I would point out
24 things we did in the 80s, I was accused of no forest,

1 don't go there. I was there for every one of these. But
2 we have gone through these cycles. We did load controls
3 in the 80s. We did things like dual fuel rates. And
4 people didn't stay on it. They were gradually phased out
5 or they weren't utilized by the utilities. So now we are
6 at a new cycle where we have very local advocates coming
7 forward and saying because of climate change, we have to
8 do these things for energy efficiency.

9 But doesn't it still come down to participation
10 of the customers and being involved and wanting to be
11 involved?

12 A While I am not sure what -- or how to respond to
13 your commentary, but I can say I agree with your question,
14 it does come down the participants.

15 Q And in your degree or in physics, history, energy
16 and environmental policy, I assume you have a fairly good
17 working knowledge of economics also?

18 A Yes. I took a number of economics courses, and
19 I've applied it throughout my career.

20 Q And I am of the opinion, and it may be wrong, that
21 people basically do things that are in their economic
22 interest?

23 A The studies I see in behavioral economics suggests
24 that people are often actually against their own self

1 economic interest.

2 Q Well, for example, when we had very high gas
3 prices like we had a couple years ago, people started
4 adjusting and doing different things in terms of the type
5 vehicles they purchased; is that correct?

6 A Exactly. Sometimes people do act in their
7 economic interest, but often they don't.

8 Q So with regard to these programs, do you think
9 people will act in their own economic interest and do
10 things that are best for themselves in terms of what they
11 consume and how they pay for it?

12 A Again, I think it's a complex mix of behavior and
13 economics. People sometimes make some -- economist would
14 like to consult a cost-benefit analysis every time they
15 make a decision. I think my wife sometimes accuses me of
16 doing that. But I know that like Mr. Anthony, probably a
17 little bit unusual.

18 Q With respect to low-income customers and houses
19 that or dwellings that are very inefficient, we can only
20 go so far in the utility, can we not, in terms of
21 correcting those problems with regards to those dwelling?

22 A Well, I think low-income programs are actually one
23 of the biggest opportunities for energy efficiency
24 programs. We've reviewed those in a number of states and

1 found that utilities can often be very effective in
2 reaching low-income customers. Often they are not as
3 well, so I think you have to look at the program
4 management and leadership to see why that is the case. I
5 have not gone that far. But just to complete my answer, I
6 think that the challenge to a utility is working
7 effectively with non-utility partners to make those
8 programs work.

9 And, for example, in the case the Mr. Anthony
10 brought up of heat pump failing, if a utility is not
11 already working a landlord or a housing authority or
12 whoever may be the actual owner of that equipment in
13 advance of its failure, then when it fails that
14 institution, whatever it may be that is responsible for
15 replacing it, is going to do business as usual. And they
16 are not going to start calling the utility and say, hey,
17 what units do you have. Unit 42's heat pump just failed.

18 Q I agree. I think that's where I was trying to go
19 is that utilities if they were to actually make the
20 investment at some of these dwellings, it might be
21 voiceful(sic) because they might not have the correct
22 insulation. They might have roofing problems and other
23 things. But would you agree that utilities need to act in
24 concert with others?

1 A Absolutely. I would hope that they would both
2 want to and to the extent that the Utility Commission and
3 others need to get involved to make that more likely to
4 happen, I think that that action should be taken.

5 Q One other small point. I get occasionally by
6 those of us not associated with utilities to other states
7 and what they've done. I hear references to California.
8 You mentioned California. I think you recognize that
9 rates are quite different in California compared to North
10 Carolina. The State of California, as I understand it, is
11 essentially in bankruptcy. Is that the best example for
12 us to use that we should have here in North Carolina?

13 A Well, I certainly think it's very unlikely that
14 California's bankruptcy has anything in the world to do
15 this energy efficiency programs. I've certainly seen no
16 evidence of that. I certainly do not present California
17 as the only or even the ideal model for North Carolina to
18 adopt from.

19 For example, I think -- let's see which exhibit
20 is that? Exhibit 3 provides a comparison of Iowa with
21 North Carolina, which is an interesting situation. Two of
22 the things that we advocate for that I think are widely
23 used tools to help improve energy programs are actually
24 not present in Iowa. So it just goes to show the

1 complexity of the programs, but yet Iowa has had a
2 tremendous energy efficiency impact that has been very
3 beneficial to its customers. And yet they have done it
4 while maintaining rates that are similar to North
5 Carolina.

6 Q But in California the rates that are very high
7 would have some impact on businesses, as I understand it,
8 are leaving California. That is probably one of the
9 reasons that they're in the situation they are in with
10 regards to their revenues that are coming in and the taxes
11 they collect for businesses that are no longer there.

12 A Well, if your proposition is that energy
13 efficiency causes high energy rates that causes business
14 to leave California, I see no evidence to suggest that
15 would cause it.

16 Q I'm not suggesting energy efficiency, I'm just
17 talking about the whole regulatory scheme with regards to
18 rates.

19 A Again, I see no evidence that that is a cause and
20 effect relationship. But I'd be happy to look at it in a
21 future proceeding.

22 MR. KAYLOR: Thank you.

23 COMMISSIONER CULPEPPER: Cross-examination Duke?

24

1 CROSS-EXAMINATION BY MS. NICHOLS:

2 Q Mr. Wilson, you've testified before this
3 Commission on a number of occasions addressing energy
4 efficiency. Welcome back. And was your most recent
5 appearance before this one when you appeared in August of
6 2009 in support of a settlement of Duke Energy/Save-A-Watt
7 Recovery Mechanism?

8 A Yes. And I think that may be my only appearance
9 before this Commission to testify.

10 Q Well, I apologize then, but I do remember that
11 one?

12 A Yes. It was a pleasure to be involved in that
13 proceeding.

14 Q Well, I may be mixing up some in South Carolina.

15 A Yes, exactly.

16 Q I brought with me -- I'm not going to tender this
17 in evidence -- but I did bring with me your testimony from
18 that proceeding in August.

19 A Okay.

20 Q And I can hand it to you if you don't have that.

21 A No, I did not bring that.

22 MS. NICHOLS: May I approach?

23 COMMISSIONER CULPEPPER: You may.

24 Q If you would, look at what's marked as Page 10 of

1 the transcript and it's Page 4 of your prefiled settlement
2 supporting testimony.

3 A Okay.

4 Q And on Line 5 through 7, you indicated that the
5 energy savings target contained in the settlement
6 agreement represented a commitment by Duke to ramp up its
7 energy efficiency offerings in the Carolinas to levels
8 that makes the company a leader in the industry.

9 A Yes.

10 Q And is that still your testimony?

11 A I believe that over the 4-year term of this
12 settlement agreement, that is where the company is headed
13 and the commitment that was made I think represents that
14 kind of commitment, yes. .

15 Q And then going down to Line 11 through 13, these
16 higher targets have the potential to achieve accumulative
17 reduction in annual energy consumption of over 8% over 10
18 years?

19 A Yes. The targets that were laid out have that
20 potential.

21 Q Is it your understanding that Duke began offering
22 its energy efficiency programs beginning in June of 2009?

23 A Yes.

24 Q So between the time the company -- let's me --

1 strike that.. Let me ask you another question: And the
2 recovery mechanism that your testimony supported in August
3 of 2009 was not approved until December of 2009?

4 A Yes. I'd like to thank the Commission for
5 approving it.

6 Q And so in the 3 months since that recovery
7 mechanism was approved, you're here today testifying, if I
8 may look at Page 35 of you testimony in this case, Lines 8
9 through 10, saying that now Duke should be considering a
10 resource plan with savings of up to 15% by 2024?

11 A Yes.

12 Q And so in all of the progress we have made in
13 three months since the energy efficiency mechanism was
14 approved, you have increased the expectations for Duke
15 from 8% to 15%?

16 A No. Because there is different baselines there.
17 First of all, that was 10 years and this is a 15-year
18 plan. So that is a significant difference.

19 Second of all, I would expect that once you get
20 to the latter portion of the resource plan, that like
21 other utilities that have ramped up their efforts, the
22 biggest savings are at the back end. So you would see an
23 actual higher per-year savings rate during the last 5
24 years than you would during the first 5 years. So I think

1 those two recommendations are roughly consistent with each
2 other. But again, what I described in my testimony for
3 Save-A-Watt was what the targets were and what that could
4 achieve. What I am saying here is this is what market
5 potential could be based on my review of various potential
6 studies and various utility achievements and resource
7 plans.

8 Q So we're just getting started?

9 A Oh, yes. And, again, with -- my major concern in
10 this testimony was with the longer term aspects of the
11 resource plan in the way in which energy efficiency was
12 reflected in it. I'm pleased -- I have provided your
13 staff with some comments and the advisory group and that
14 sort of thing about some details about the programs being
15 developed. But I'm certainly not here to say that Duke is
16 off track in the way it's operating its programs.

17 My concern here is with the resource planning
18 process in the way efficiency has been used in the
19 resource planning process.

20 Q One of the other reasons you supported the
21 settlement in the Save-A-Watt case was that the agreement
22 included provisions for a strong stakeholders advisory
23 group to insure and encourage new ideas?

24 A Uh-huh. We just had the first formal meeting with

1 that group a few weeks ago. And there was some previous
2 consultations as well.

3 Q And you participate as a member of that group?

4 A Yes.

5 Q I believe you heard at that meeting that Duke will
6 be incorporating into its resource planning process an
7 inclusion of involvement of that group?

8 A Uh-huh. Yes, I look forward to seeing how that
9 plays out.

10 Q And did you -- you also participated -- you said
11 the first meeting was earlier this year, but did you also
12 participate in the November 2009 meeting which Duke
13 presented new programs it was developing?

14 A Yes, I did. That was a phone conversation call,
15 yes.

16 Q That's where the company talked about developing a
17 new option for power share?

18 A Uh-huh.

19 Q And a home-energy comparison report program?

20 A Right.

21 Q And then also a residential-retrofit program?

22 A Yes.

23 Q And like Progress Energy are you also aware that
24 the company's existing newly implemented Non-residential

1 Smart Saver Program has a custom-incentive option which
2 allows the utility to work with its customer and other --
3 like Mr. Anthony said -- architects or engineers to come
4 up with any design of potential incentive for their
5 structure?

6 A Yes. And, again, I think the same commentary
7 would also occur if we went through the whole line of
8 questioning with Mr. Anthony that my critique was of the
9 basis for the statements in the plan, that there was a
10 limit to the potential. And clearly with the new programs
11 you all have offered that if they're not represented
12 within the potential that's in the forefront study, the
13 market-potential study that was done for you, that is a
14 perfect example of why that potential study can't be
15 relied upon to provide a sort of a sealing for your
16 resource planning process because you're already
17 developing programs that are going beyond that study's
18 identified potential.

19 Q And is your testimony that the company is not
20 including the development of new programs in its resource
21 planning?

22 A It's my testimony that the, for example, that Dr.
23 Stevie described a high case as being limited to the
24 potential that came out of the market-potential study for

1 forefront. And so given that these new programs you are
2 talking about are not part of that potential, that in that
3 particular respect, they are not included in your resource
4 planning process.

5 Q And I believe in your settlement testimony,
6 looking at Page 12 of the prefiled testimony, Lines 6
7 through 10 you talk about the importance of financial
8 incentives for utilities to pursue energy efficiency?

9 A Yes.

10 Q You state there that without -- with no financial
11 incentives both absolute earnings and ROB are lower than
12 they would be without energy efficiency illustrating the
13 classic disincentives energy efficiency facing a
14 vertically integrated utility?

15 A That sounds familiar, yes; actually went to the
16 wrong page.

17 Q I'm sorry.

18 A That's okay. Yes.

19 Q And then a couple lines down, in short, the model
20 results demonstrate how important a fair and properly
21 structured utility incentive structure is to energy
22 efficiency?

23 A Yes.

24 Q And even though your -- the text of your testimony

1 doesn't indicate that Duke is working on a home-energy
2 comparison report program, if you look down in the
3 footnotes on your Exhibit 10, you acknowledge that Duke
4 is, in fact, working to develop such a program?

5 A Yes. I wasn't sure how extensive it -- At the
6 time I developed my testimony, I wasn't exactly sure how
7 appropriate it was to discuss that in detail given that
8 was developmental material. But, yes, I am pleased that
9 Duke is pursuing that concept. And I've offered some
10 specific comments to your program staff on this.

11 Q Are you aware that Duke's working with the Public
12 Staff now to answer their questions about the program
13 before presenting it to the Commission?

14 A Generally aware that that's always done. I'm not
15 up to date on exactly what the give and take is on that
16 conversation.

17 Q Let me ask you one other thing about your
18 settlement testimony. When we were talking about
19 effective incentives for the shareholder or utility
20 incentives going down to the bottom of that Page 12, you
21 recognize that the combination of the shareholder
22 incentive mechanism is a fixed cost recover mechanism
23 decoupling or loss revenue recovery putting energy
24 efficiency on the positive side of the balance sheet

1 compared to business as usual?

2 A Yes.

3 Q So part of having an adequate financial incentive
4 for the utility includes addressing that loss revenue
5 issue?

6 A Yes. But I think I would also bring you back to
7 the earlier conversation I had with Mr. Anthony about the
8 fact that the loss revenue issue is in part a function of
9 the system that is in place.

10 So, for example, if you had an over-built system
11 with too many resources that had been built or in
12 operation, then an energy efficiency program would have
13 higher loss revenues because the utility would claim that
14 it needed to recover the full fixed cost of that
15 over-built system. So there's -- I just would point out
16 that the loss revenue is not simply a function of the
17 efficiency program, but it's also a function of the
18 utility's system. In fact, I would view loss revenues not
19 as an incentive for energy efficiency, but as an
20 alternative way for the utility to recover its fixed
21 costs.

22 Q So you view loss revenues as a cost?

23 A I view loss revenues not as a cost to the utility,
24 but as an -- Well, I view the impact of energy efficiency

1 on a utility rate structure as having a negative impact on
2 its ability to incur its fixed costs. And so that creates
3 loss revenue. So those are basically unrecovered fixed
4 costs. That's how I would define it.

5 Q So there needs to be some mechanism to address the
6 unrecovered costs --

7 A Yes.

8 Q -- in order to for the utility to want to engage
9 in energy efficiency programs?

10 A Exactly. And that is why we supported that
11 concept..

12 Q And now let me turn back to the home-energy
13 comparison report program. As I understand the way that
14 type program -- Let me back up. And that's one of the
15 programs that you mention in your testimony that the
16 utilities in North Carolina should be looking to develop?

17 A Yes.

18 Q And the way I understand that program to work
19 essentially it's providing consumers with information
20 about how their energy use rates compared to their
21 neighbors in similar size houses?

22 A Yes.

23 Q And it's goal is to educate them and maybe spark
24 some competitive strand in us to say, I want to do as well

1 if not better than my neighbor in how I use my energy?

2 A Yes.

3 Q And you also indicated that there have been in
4 these studies these types of programs?

5 A Yes.

6 Q And they have demonstrated that such programs
7 result in customers taking action to review their
8 consumption of energy?

9 A Yes.

10 Q So that reduced consumption would produce loss
11 revenues for the utility?

12 A I see where you're going with this. I've read
13 briefly, but have not had a chance to examine in detail
14 the Motion you filed with the Commission regarding changes
15 to the rules regarding loss revenues. And so I will give
16 a very qualified answer to your question, which is that I
17 think that the concept that you're describing is
18 appropriate. But the specifics of the proposal that you
19 all are making in that Motion, I think I would want to
20 have some more time to review. And just simply haven't
21 had time to review it.

22 Q You are assuming what my next question may be.
23 Let me ask you my question which is: If a customer gets a
24 comparison report and they are educated and inspired to

1 reduce their consumption, that is going to produce loss
2 revenues for the utility?

3 A It is going to have the impact of reducing the
4 utilities recovery of its fixed cost, yes.

5 Q Now here is my question: Are you aware that in
6 the Commission's approval of the Save-A-Watt settlement,
7 that the Commission added a condition prohibiting the
8 recovery of net-loss revenues for what it termed general
9 awareness and education program?

10 A Yes.

11 Q Would you agree that if such a restriction were
12 applied to a home-energy comparison report program, that
13 is a restriction that prohibited Duke from recovering
14 net-loss revenues such a condition would create a
15 disincentive for Duke to pursue that program?

16 A As a general matter, I would agree with you. I
17 think -- a very quick commentary, I think the Commission's
18 ruling with that Order was appropriate in the sense that
19 they were probably thinking about general education and
20 awareness programs as for instance the marketing of energy
21 efficiency as a value or concept. But I think there is
22 strong distinction between that and home-energy
23 comparison.

24 Q That is -- just to let you know in case you're or

1 their group that you represent are interested, we do also
2 have a pending Motion for clarification --

3 A Yes.

4 Q -- of that point.

5 A And that's what I was referring earlier and I just
6 wanted to be clear that my comments are general in nature
7 and non-specific to the language in that pending Motion.

8 Q Back in the Save-A-Watt settlement case you were
9 asked a question by Mr. Runkle, and this is reflected at
10 the top of Page 27 of that transcript, about whether you
11 believed that Duke would stay on target and as a financial
12 incentive structure in the settlement would align its
13 interest for those with customers to achieve high levels
14 of energy efficiency?

15 MS. THOMPSON: I'm sorry. Which page are you
16 on?

17 MS. NICHOLS: This is the actual transcript Page
18 No. 26.

19 Q So you were asked a question by Mr. Runkle about
20 whether you thought Duke would stay on target and you
21 responded essentially by, if I could paraphrase, that you
22 thought that Duke would and that the financial incentive
23 structure in the settlement agreement would encourage the
24 company to do so?

1 A Yes, that is exactly the reason I would hope that
2 the high levels of efficiency in the settlement would be
3 reflected in a resource plan because I think that that's
4 what Duke should do and Duke is likely to do.

5 Q It's an incentive to do that?

6 A Yes, it's an incentive to do that.

7 Q But it has to also be at the part of its resource
8 planning aware of the potential limitations so that it can
9 assure reliability for its customers as well?

10 A Well, I think there's been some discussion on
11 that. And I think that concerns about reliability on
12 energy efficiency are maybe not so much in Duke's
13 testimony but are sometimes over estimated or over
14 emphasized. For example, I know that the Public Staff's
15 evaluation of the uncertainty of load forecast is around
16 5%. And one of the utilities, might have been Progress,
17 I'm not sure, talked about 9%. And when you compare that
18 to the 5-year efficiency goals of the utilities, they're
19 much lower than that. So if you miss your goal by a
20 little bit, you know, instead of 3% savings you get a 4%
21 or 2%, that's only a 1% error in your total system demand
22 whereas your system forecast or load forecast error is 5%
23 or even higher. So I think that reliability concerns,
24 especially when you are talking about from one year to the

1 next, are pretty minimal.

2 I think the other point that is relevant is that
3 with a lot of efficiency program, the effect on peak
4 demand is actually relevantly modest. And I think that
5 cuts both ways. If you're saying, energy efficiency
6 doesn't really help you much with your peak demand, then
7 you can't say that failure to achieve those energy
8 efficiency goals is going to need a problem for meeting
9 peak demand.

10 Q Ultimately the resource planner has a lot of
11 different factors they have to juggle?

12 A That's why they're paid the big bucks.

13 Q I know. We just might get Mr. McMurry back up
14 here to answer that question. And this energy efficiency
15 is just one of many factors that they have to include into
16 their resource plan and maintain flexibility as to what
17 the future may bring?

18 A Yes.

19 MS. NICHOLS: Thank you. Nothing further.

20 COMMISSIONER CULPEPPER: Redirect examination,
21 Ms. Thompson?

22 MS. THOMPSON: Yes, Mr. Chairman, just a few
23 questions.

24

1 REDIRECT EXAMINATION BY MS. THOMPSON:

2 Q Mr. Wilson, Mr. Anthony, I think was trying to --
3 I think you said you didn't want to be pinned down -- he
4 was trying to get a sense, I think, of what the main
5 thrust of your recommendations was. Could you very
6 briefly summarize what you would like to see the utilities
7 do in their 2010 Resource Plans to address the
8 deficiencies that you identified in your testimony? If
9 you could briefly tell that to, you know, two or three
10 main points.

11 A First of all, I think I would like to see Progress
12 and Duke utilize a comprehensive analysis potential for
13 energy efficiency in their resource planning process,
14 something that includes all available energy efficiency
15 resources, however they derive that from bottom study or
16 top down study or whatever other reasonable industry
17 approach is provided. That's not done in these resource
18 plans.

19 Second, I'd like to see those resources
20 evaluated in a way that is comparable to a level and
21 sophistication that they provide for their supply-side
22 resources. So those would be sort of the two major
23 thrusts. And I provide some more detail on that in any
24 testimony. But I think those are the high level

1 take-aways.

2 And then I think the one thing I suggest to the
3 Commission is the consideration of sort of more regional
4 planning support process and a database and appropriate
5 stakeholder advisory group type of process is done perhaps
6 in a multi-state process that looks at -- it helps to
7 build sort of the supporting infrastructure for innovation
8 and program development over the long term.

9 Q And Mr. Kaylor for Dominion asked you about the
10 correlation between rates and efficiency potential or
11 efficiency -- cost-effective efficiency potential. Do you
12 any comments on the relationship between the rates and
13 efficiency?

14 A I've seen very little evidence that rates limit
15 the ability of utilities or other programs to achieve high
16 levels of energy efficiency. And I provide a lot of
17 detail supporting evidence for that in my testimony. I've
18 yet to see substantive counterclaims that would alter my
19 opinion on that.

20 Q Mr. Kaylor also mentioned California and
21 questioned whether California was a good example. You
22 gave Iowa as one example of a state that had some
23 similarity to North Carolina in terms of its rates and a
24 state that was doing much better on efficiency. Are there

1 any other examples that you would like to proved?

2 A I can just mention a few off the top of my head:
3 Arizona has had a very rapid ramp up of energy efficiency
4 programs, a state with a lot of air-conditioning load and
5 that sort of thing. Different humidity, obviously; Let's
6 see, the whole Northeast is doing a lot of energy
7 efficiency programs. There have been varying ambitious
8 goals set, you know in Hawaii, Ohio, Illinois. The upper
9 Midwest, most of those states have strong energy
10 efficiency programs like Minnesota and so forth. So
11 there's -- Really the only region of the country without
12 -- or several major utilities that are doing major --
13 really effective energy emissions programs is the
14 Southeast. And I think that's starting to change with
15 North Carolina and potentially if Florida starts really
16 ramping up its programs.

17 Q So when you say it's starting the change North
18 Carolina, do you see North Carolina as on the cutting edge
19 in the Southeast?

20 A Cutting edge in the Southeast? In sort of some of
21 the national conversations that I have, that would be sort
22 of kind of -- unfortunately for the situation kind of a
23 joke because historically no one has really looked to the
24 Southeast for strong leadership in this area. But I think

1 North Carolina is doing more than any other Southeastern
2 state to push for increased energy efficiency programs.
3 The tenor of this conversation here in North Carolina is
4 substantially different than that of other states. I am
5 very pleased by that.

6 Q Finally, Mr. Nichols asked you a couple of
7 questions related to you settlement supporting testimony
8 in the Save-A-Watt Docket E-7, Sub 831. And she was
9 asking you about on Page 26 at the top of the Page 26 of
10 the transcript where you say the reasons that we agree
11 with the settlement is we believe they will stay on
12 target?

13 A Uh-huh.

14 Q Can I direct you to Page 27 of the transcript just
15 to flush that out a little bit. There's discussion
16 starting on Line 10 on Page 27 of the national commitment.

17 A Uh-huh.

18 Q Can you explain what that is?

19 A Yes. I think that is helpful testimony to point
20 to and I'd forgotten about that. Yes, the Save-A-Watt
21 settlement included two components: The first was a
22 target that was related to how much of a financial
23 incentive Duke would receive for each energy efficiency
24 performance. So that was a hard number, but it's not a

1 hard number in the sense that Duke has to achieve it.
2 It's that Duke will receive a certain amount of
3 stakeholder compensation if they do achieve that target.
4 I think that's very appropriate.

5 The second target that was described in the
6 settlement was a 1% per-year commitment by Duke beginning
7 in 2015. And that was described exclusively as a
8 non-binding aspirational goal. That's what we discussed
9 in this part of the testimony. And what I stated and if
10 you look down at Line 21 through 23 that is it not as
11 binding as other portions of the agreement, but I believe
12 it is a good faith commitment by Duke. I still hold to
13 that testimony today.

14 Q Could you just continue on at the bottom of that
15 page, the sentence beginning on Line 23 and carrying over
16 to the very top of Page 29?

17 A When we return to review this program in 4 years,
18 I expect to hold them at least accountable to that level,
19 if not a higher level.

20 MS. THOMPSON: Okay. Thank you. That's all the
21 questions I have.

22 COMMISSIONER CULPEPPER: Questions by the
23 Commission?

24 (No response.)

1 That would appear to conclude your testimony.

2 Thank you. You may stand down from the witness chair.

3 Ms. Thompson, let's go ahead and deal with Mr.
4 Wilson's exhibits.

5 MS. THOMPSON: Yes. I'd like to move Mr.
6 Wilson's exhibits 1 - 12 as attached to his prefiled
7 testimony into evidence.

8 COMMISSIONER CULPEPPER: Motion is allowed.

9 (Whereupon, Mr. Wilson's Exhibits 1-12 were
10 admitted.)

11 Mr. Anthony, let's go ahead and admit Amended
12 PEC Redirect Examination Exhibit No. 1. That Motion is
13 allowed.

14 (Whereupon, PEC Redirect Examination
15 Exhibit No. 1 was admitted.)

16 Ladies and gentlemen, it's a little after 1:00,
17 we know that. One thing you don't know is come 4:00
18 today, if we're not finished, I'm going to adjourn the
19 proceedings and we will have to come back tomorrow. By my
20 calculations we have left the Case in Chief by CPI USA and
21 Rebuttal Witnesses of Duke and Progress. I was alerted
22 earlier today that there may be some airplane travel time
23 restraints with respect to Dr. Stevie; is that correct?

24 MR. KAYLOR: That's correct, Mr. Chairman. If

1 we could bring him back when we reconvene at 2, we would
2 offer to put him up. He is not rebutting the CPI, so we
3 would be glad to put him on.

4 COMMISSIONER CULPEPPER: That's what I was going
5 to get into. Is that correct, Mr. Styers?

6 MR. STYERS: I'm sorry, I was trying to reach
7 the microphone and I did not hear Mr. Kaylor.

8 COMMISSIONER CULPEPPER: Mr. Styers, I'm under
9 the impression that neither of Duke's rebuttal witnesses
10 get involved with your witnesses testimony.

11 MR. STYERS: That is correct.

12 COMMISSIONER CULPEPPER: Okay. It wouldn't
13 impact your case for us to call Duke's Rebuttal Witnesses
14 say out of order?

15 MR. STYERS: That is correct. But
16 unfortunately, Mr. Reading also has flight plans this
17 afternoon.

18 COMMISSIONER CULPEPPER: Tell me something about
19 your client's -- I mean, your witness' flight plans.

20 MR. STYERS: I believe that he was hoping to be
21 able to leave around 3:00 this afternoon from here in
22 order to catch his flight back to Idaho.

23 COMMISSIONER CULPEPPER: So he needs to be gone
24 here by 3:00?

1 MR. STYERS: Okay. All right.

2 COMMISSIONER CULPEPPER: Well, call Dr. Stevie.

3 MS. NICHOLS: We're happy to put both Mr.
4 McMurry and Dr. Stevie or Dr. Stevie alone.

5 COMMISSIONER CULPEPPER: Call Dr. Stevie.

6 We are going to stand in recess for five minutes
7 to allow our court reporter a break and anybody else.

8

9 Whereupon, the hearing was adjourned.

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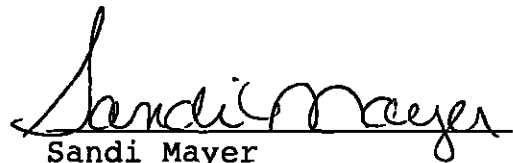
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CERTIFICATE

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.



Sandi Mayer
Court Reporter II

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