

PLACE: Dobbs Building, Raleigh, North Carolina

DATE: October 23, 2008

DOCKET NO.: E-7, Subs 856

TIME IN SESSION: 9:04 A.M. TO 12:30 P.M.

BEFORE: Commissioner Lorinzo L. Joyner, Presiding
Chairman Edward S. Finley, Jr.
Commissioner Sam J. Ervin, IV
Commissioner Robert V. Owens, Jr.
Commissioner William T. Culpepper, III
Commissioner Howard N. Lee

IN THE MATTER OF:

Application for Approval of
a Solar Photovoltaic Distributed Generation Program
and for Approval of the Proposed Method of Recovery
of Associated Costs

VOLUME 1

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P R O C E E D I N G S

COMMISSIONER JOYNER: Good morning.

Let's come to order. I'm Lorinzo Joyner. With me this morning are Chairman Edward S. Finley, Jr.; Commissioners Robert B. Owens, Jr.; Sam J. Ervin, IV; Howard M. Lee; and William T. Culpepper, III.

I now call for hearing Docket Number E-7, Sub 856, which is in the matter of an application by Duke Energy Carolinas, LLC, for approval of a solar photovoltaic distributed generation program and/or approval of the method of recovery of associated costs.

On June 5, 2008, Duke Energy Carolinas filed an application for approval of the solar photovoltaic distributed generation program and for approval of its proposed method of cost recovery. On June 23, 2008, Attorney General Roy Cooper filed a Notice of Intervention. The intervention and participation of the Attorney General is recognized pursuant to 62-20.

On July 8, 2008, the Commission issued an Order Scheduling Hearing establishing procedural deadlines and requiring public notice. That Order scheduled the evidentiary hearing to begin at this

1 date and time.

2 On July 25, 2008, Duke filed the direct
3 testimony of Janice D. Hager, Jane L. McManeus,
4 Owen A. Smith, and Ellen T. Ruff. Petitions to
5 intervene were filed and have been granted to
6 Carolina Utility Customers Association, Inc. on
7 July 18, 2008; the Kroger Company on July 29, 2008;
8 Southern Alliance for Clean Energy on August 13,
9 2008; The North Carolina Sustainable Energy
10 Association on August 29, 2008; and Wal-Mart Stores
11 East and Sam's East, The Solar Alliance, and Vote
12 Solar Initiative on October 9, 2008.

13 On September 25, 2008, Duke caused to be
14 filed an Affidavit of Publication that's required
15 by the Commission's July 8, 2008, procedural order.
16 On October 8, 2008, Rosalie R. Day filed testimony
17 on behalf of the North Carolina Sustainable Energy
18 Association.

19 Pursuant to orders allowing extensions of
20 time entered by the Commission on September 30 and
21 October 8, 2008, testimony was filed on October 10
22 by Carrie Cullen Hitt on behalf of the Solar
23 Alliance, by Thomas J. Starrs on behalf of The Vote
24 Solar Initiative, by Ken Baker on behalf of Wal-

1 Mart Stores East and Sam's East, and Elise Cox and
2 James McLawhorn on behalf of the Public Staff. On
3 October 20, 2008, Duke filed revised direct
4 testimony of Ellen T. Ruff and rebuttal testimony
5 of Jane L. McManeus and Owen A. Smith.

6 In compliance with requirements of the
7 State Government Ethics Act, I remind all members
8 of the Commission of their duty to avoid conflicts
9 of interest and inquire at this time whether any
10 member has any known conflict with respect to the
11 matters coming before us today.

12 (No response.)

13 COMMISSIONER JOYNER: There appearing to
14 be none, let the -- let the record reflect that
15 there have been some additional filings, or at
16 least I think one additional filing that has not
17 been included in my procedural summary and we'll
18 take care of that at the appropriate time.

19 But first, let me get appearances of
20 counsel beginning with Duke.

21 MR. KAYLOR: Madam Chair, Members of the
22 Commission, Robert Kaylor appearing on behalf of
23 Duke Energy Carolinas.

24 MS. NICHOLS: Good morning. Lara Nichols

1 on behalf of Duke Energy Carolinas.

2 MR. FRANKLIN: Good morning. Brian
3 Franklin on behalf of Duke Energy Carolinas.

4 MR. CHAMBERLAIN: Rick Chamberlain
5 appearing on behalf of Wal-Mart Stores East, LP,
6 and Sam's East, Incorporated.

7 MR. CAVROS: Good morning. George Cavros
8 appearing on behalf of the Southern Alliance for
9 Clean Energy.

10 MR. OLSON: Good morning. I'm Kurt Olson
11 and I'm appearing on behalf of the North Carolina
12 Sustainable Energy Association.

13 MS. COMPTON: Sarah Compton. I'm
14 appearing on behalf of The Vote Solar Initiative
15 and The Solar Alliance.

16 MR. GREEN: Good morning. I'm Len Green
17 with the Attorney General's Office appearing on
18 behalf of consumers.

19 MR. GILLAM: Good morning. I'm Bob
20 Gillam with the Legal Division of the Public Staff
21 appearing on behalf of the using and consuming
22 public.

23 COMMISSIONER JOYNER: Thank you. Ladies,
24 gentlemen, are there any preliminary matters that

1 we need to discuss? Mr. Olson?

2 MR. OLSON: Ms. Joyner, we've already
3 decided on a -- as you requested, a -- the order in
4 which the intervenors are going to present their
5 witnesses and also cross examine Duke's witnesses.
6 And I think the order is generally going to follow
7 the way we're seated at the table.

8 COMMISSIONER JOYNER: Okay, thank you.
9 Any other matters?

10 (No response.)

11 COMMISSIONER JOYNER: Mr. Gillam, are you
12 going to wait until you get ready to present your
13 case to deal with the request?

14 MR. GILLAM: I'm sorry. I --

15 COMMISSIONER JOYNER: You're looking at
16 me strangely.

17 MR. GILLAM: I'm not sure what request
18 you're referring to.

19 COMMISSIONER JOYNER: Well, when I got in
20 this morning I had what I thought was filed in this
21 docket a request that was signed by Ms. Rankin, now
22 that I look at it, to substitute some -- to
23 withdraw some testimony and refile.

24 MR. GILLAM: I'm not familiar with this.

1 May I approach the bench?

2 COMMISSIONER JOYNER: Okay, yes. Let's
3 take a moment to go off record.

4 (OFF-THE-RECORD DISCUSSION)

5 COMMISSIONER JOYNER: We are on the same
6 page; we have the right docket number. So do you
7 have -- do you wish to be heard?

8 MR. GILLAM: We do request that the
9 prefiled testimony of our panel be replaced with
10 the revised prefiled testimony that was filed this
11 week. And the only difference is to designate a
12 little bit more of the testimony as confidential at
13 the request of Duke.

14 COMMISSIONER JOYNER: There appearing to
15 be no objection, that motion is allowed.

16 Mr. Gillam, are you aware of any public
17 witnesses who wish to be heard? We did provide
18 public notice of this proceeding.

19 MR. GILLAM: None have contacted me and
20 asked to be heard this morning.

21 COMMISSIONER JOYNER: Out of an abundance
22 of caution, let me inquire from the bench whether
23 there are any persons here today who wish to be
24 heard as public witnesses.

1 (No response.)

2 COMMISSIONER JOYNER: There appearing to
3 be none, and if there are no other preliminary
4 matters that we need to deal with, Duke --

5 MS. NICHOLS: None.

6 COMMISSIONER JOYNER: -- we will hear
7 from you.

8 MS. NICHOLS: Oh. We call Ellen Ruff.

9 (WHEREUPON, ELLEN RUFF WAS CALLED AS A WITNESS,
10 DULY SWORN, AND TESTIFIED AS FOLLOWS:)

11 DIRECT EXAMINATION BY MS. NICHOLS:

12 Q. Please state your name and business address.

13 A. My name is Ellen Ruff. My business address is 524
14 South Church Street, Charlotte, North Carolina.

15 Q. And what is your position?

16 A. I'm President of Duke Energy Carolinas.

17 Q. Did you cause to be prefiled in this docket direct
18 testimony consisting of nine pages?

19 A. I did.

20 Q. And after the Company's decision to reduce the size
21 of the proposed program, did you cause to be
22 prefiled revised direct -- revised direct testimony
23 of nine pages?

24 A. Yes.

1 Q. And is the purpose of the revised direct testimony
2 to update the numbers in your testimony consistent
3 with the rebuttal testimony of the Company's
4 witnesses Smith and McManeus?

5 A. Yes.

6 Q. Do you have any corrections to your revised direct
7 testimony?

8 A. No.

9 Q. If I asked you the questions contained in your
10 testimony today, would your answers be the same?

11 A. Yes.

12 MS. NICHOLS: I move that Ms. Ruff's
13 revised direct testimony be entered into the record
14 as if given orally from the stand.

15 COMMISSIONER JOYNER: That motion is
16 allowed.

17 (THE PREFILED REVISED DIRECT TESTIMONY OF
18 ELLEN RUFF WILL BE COPIED INTO THE RECORD
19 AS IF GIVEN ORALLY FROM THE WITNESS
20 STAND.)

I. INTRODUCTION AND PURPOSE

Q: PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A: My name is Ellen T. Ruff, and my business address is 526 South Church Street, Charlotte, North Carolina.

Q: WHAT IS YOUR POSITION WITH DUKE ENERGY CAROLINAS, LLC?

A: I am President of Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company"). Duke Energy Carolinas is a wholly-owned subsidiary of Duke Energy Corporation ("Duke Energy").

Q: PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL AFFILIATIONS.

A: I am a graduate of Simmons College with a Bachelor of Arts in Business. I also have a Juris Doctor degree from the University of North Carolina at Chapel Hill, and have completed the Harvard Business School's Advanced Management Program. I am a member of the North Carolina State Bar, the Mecklenburg County Bar, and the American Bar Association. I serve on the Board of Directors of Aqua America, Inc., the Board of Directors and Executive Committee of the North Carolina Chamber, and the North Carolina Economic Development Board. I also serve on the regional Board of Directors of United Way, and am serving as Chair of the United Way Regional Campaign for 2008.

Q: PLEASE DESCRIBE YOUR BUSINESS BACKGROUND AND EXPERIENCE.

A: I joined Duke Power Company (now known as Duke Energy Carolinas) in 1978 as an attorney in the Legal Department. I was named Vice President and General

1 Counsel of Electric Operations following the creation of the Duke Energy
2 Corporation in 1997. I was named Vice President and General Counsel of
3 Corporate, Gas and Electric Operations in January 1999, and Senior Vice
4 President and General Counsel in February 2001. I was appointed Senior Vice
5 President of Asset Management for Duke Power, a division of Duke Energy
6 Corporation, in August 2001. I became Senior Vice President of Power Policy
7 and Planning in February 2003, and Group Vice President of Power Policy and
8 Planning in March 2004. I became Group Vice President of Planning and
9 External Relations for Duke Power in March 2005. I assumed my current
10 position in April 2006.

11 **Q: WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT**
12 **POSITION?**

13 A: I lead Duke Energy Carolinas' regulated electric utility business in North Carolina
14 and South Carolina, which serves more than 2.3 million customers.

15 **Q: HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NORTH**
16 **CAROLINA UTILITIES COMMISSION?**

17 A: Yes, I have testified before this Commission on numerous occasions. I most
18 recently presented testimony in support of Duke Energy Carolinas' Energy
19 Efficiency Plan, Docket No. E-7, Sub 831.

20 **Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

21 A. On June 6, 2008, Duke Energy Carolinas filed an Application for Approval of a
22 Solar Photovoltaic ("PV") Distributed Generation Program and for Approval of
23 Proposed Method of Recovery of Associated Costs (the "Application"). The

1 purpose of my testimony is to discuss the importance of the requested approval
 2 and to outline some of the benefits of Duke Energy Carolinas' proposed solar PV
 3 distributed generation program (the "Program"). In addition to my testimony,
 4 Witness Smith provides a detailed discussion of the Program design and Program
 5 costs. Witness Hager describes how the proposed construction of solar generation
 6 facilities under the Program conforms to the utility's most recent annual plan.
 7 Witness McManeus explains the cost recovery proposal for the Program as well
 8 as the potential rate impacts of the Program.

9 II. PROGRAM DESCRIPTION AND RATIONALE

10 **Q: PLEASE BRIEFLY DESCRIBE THE PROGRAM.**

11 A: The Company proposes to invest \$50 million over two years to install numerous
 12 solar PV facilities throughout its service territory to generate electric energy to
 13 serve its customers. We anticipate that the total generating capacity of these
 14 facilities would be 10 megawatts direct current (MWDC). When operating at
 15 peak capacity, the facilities installed under the Program will generate enough
 16 electricity to power approximately 1300 homes in the Carolinas.

17 **Q: WHY IS DUKE ENERGY CAROLINAS PURSUING THE PROGRAM?**

18 A: The Company is pursuing this program primarily to comply with the Renewable
 19 Energy and Energy Efficiency Portfolio Standard ("REPS") established by the
 20 North Carolina General Assembly in 2007 as part of Senate Bill 3. The REPS is a
 21 set of standards specifying that electric public utilities in North Carolina must
 22 supply their retail customers with a certain amount of electricity from renewable
 23 sources or reduce consumption of electricity through energy efficiency measures

by a certain date. The Company anticipates increasing its reliance on renewable energy generation resources to serve its customers over time. Accordingly, the Company is committed to supporting the development of solar PV technology into a flourishing and self-sustaining industry that can complement more conventional technologies to supply the electricity needs of the Company's customers. The Program also will enable Duke Energy Carolinas to evaluate the impact of distributed generation of a significant scale on the Company's electric system.

III. REPS COMPLIANCE

Q: DOES SENATE BILL 3 SPECIFY A SCHEDULE FOR COMPLYING WITH THE REPS REQUIREMENTS?

A: Yes it does. Under Senate Bill 3, each electric public utility in the State must comply with the REPS requirement according to the following schedule:

<u>Calendar Year</u>	<u>REPS Requirement</u>
2012	3% of 2011 N.C. retail sales
2015	6% of 2014 N.C. retail sales
2018	10% of 2017 N.C. retail sales
2021 and thereafter	12.5% of 2020 N.C. retail sales

Q: DOES THE REPS INCLUDE "SET ASIDES" FOR ANY PARTICULAR RENEWABLE RESOURCES?

A: Yes, the REPS includes "set asides" or "carve outs" for solar energy, swine waste and poultry waste resources. With respect to solar, it provides that beginning with the year 2010, each electric public utility must satisfy its REPS requirement in

1 part with a combination of new solar electric facilities and new metered solar
2 thermal energy facilities that use one or more of certain specified applications.
3 This requirement is sometimes referred to as the "Solar Set Aside" or the "Solar
4 Carve Out". The Solar Carve Out requires compliance according to the following
5 schedule:

6	<u>Calendar Year</u>	<u>Requirement for Solar Resources</u>
7	2010	0.02% N.C. retail sales
8	2012	0.07% N.C. retail sales
9	2015	0.14% N.C. retail sales
10	2018	0.20% N.C. retail sales

11 **Q: HOW MAY A UTILITY COMPLY WITH THE REPS REQUIREMENTS?**

12 **A:** Subject to certain limitations, an electric public utility may meet the REPS
13 requirements by doing one or more of the following: (1) generating electric power
14 at a new renewable energy facility; (2) using a renewable energy resource to
15 generate electric power at a generating facility (other than the generation of
16 electric power from waste heat derived from the combustion of fossil fuel); (3)
17 implementing energy efficiency measures to reduce electricity consumption; (4)
18 purchasing electric power from a new renewable energy facility; and (5)
19 purchasing renewable energy certificates derived from new renewable energy
20 facilities. Additionally, Senate Bill 3 allows a utility to carry forward renewable
21 energy generated in one year that exceeds the compliance requirements of that
22 year into a future year.

1 **Q: DOES THE COMPANY'S PROGRAM COMPLY WITH THE REPS**
2 **REQUIREMENTS IN GENERAL AND THE SOLAR CARVE OUT**
3 **PROVISIONS IN PARTICULAR?**

4 **A:** Yes, the Program complies with the REPS requirements as well as the solar carve
5 out provisions. The solar PV facilities the Company proposes to install under the
6 Program are "renewable energy facilities" as defined by Senate Bill 3 and,
7 therefore, may be used to comply with the REPS requirements. Thus, the
8 Program will enable Duke Energy Carolinas to partially fulfill its REPS
9 obligations in general and the Solar Carve Out in particular. As Company witness
10 Smith explains, the Company intends to include the Program in its REPS
11 compliance plan when such plan is filed with the Commission annually pursuant
12 to Commission Rule R8-67. The Company also will register facilities constructed
13 under the Program as required by Commission Rule R8-66.

14 **IV. PROGRAM BENEFITS**

15 **Q: WHAT ARE SOME OF THE BENEFITS OF THE PROGRAM?**

16 **A:** In addition to helping the Company meet its REPS obligations, overall, the
17 Program will promote the development of renewable energy in the State of North
18 Carolina. As Witness Smith explains, the Company proposes to invest \$50
19 million to install several hundred facilities around the Company's North Carolina
20 service territory with a generating capacity totaling approximately 10 MWDC.
21 Despite the significant federal and state tax incentives available for investments in
22 solar resources, there were, as of June 6, 2008 (the date of the Company's initial
23 application in this docket), only approximately 60 customer-installed solar

1 generation facilities in the Company's territory with a total installed capacity of
2 approximately 300 kilowatts. We believe that by getting involved on such a large
3 scale, the Company can help promote the development of solar generation
4 resources in North Carolina. Also, as explained in Ms. Hager's testimony, the
5 Program will, in a modest way, help diversify the resources the Company uses to
6 reliably meet the energy needs of its customers. Importantly, the development of
7 renewable resources and the diversification of energy supply resources are among
8 the specific goals enumerated by the General Assembly in enacting Senate Bill 3.

9 **Q: WILL THE PROGRAM BENEFIT CUSTOMERS IN OTHER WAYS?**

10 A: Yes. As Witness Smith explains, the generating facilities will be installed on both
11 customer and Company-owned property in the Company's North Carolina service
12 area. The distributed nature of the generation of electricity under the Program
13 will enable the Company to develop competency as an owner of solar renewable
14 assets, leverage volume purchases, build relationships with PV developers,
15 manufacturers, and installers, and gain invaluable experience with the installation
16 and operation of multiple types of solar distributed generation facilities.
17 Developing competencies in these areas mean that ultimately, the Company will
18 not be dependent solely on power purchases to meet the requirements of the Solar
19 Carve Out.

20 **Q: WHY DOES THE COMPANY BELIEVE THAT THIS APPLICATION IS**
21 **JUSTIFIED BY THE PUBLIC CONVENIENCE AND NECESSITY?**

22 A: Duke Energy Carolinas believes that its decision to invest in the Program is
23 justified by the public convenience and necessity for all the reasons provided in

1 my testimony and that of the other Company witnesses. In short, implementation
2 of the Program is prudent and the Company's Program is designed to serve the
3 public interest. It will enable the Company to meet its obligations under the
4 REPS, serve the electricity needs of its customers, and diversify its generation
5 resource mix as well as that of the State in general. It also will encourage
6 economic development, private investment in renewable energy, and improve the
7 air quality, among other benefits.

8 **Q: DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

9 **A:** Yes.

1 Q. Ms. Ruff, do you have a summary of your testimony?

2 A. Yes.

3 Q. Please give your summary to the Commission.

4 (THE SUMMARY OF THE REVISED PREFILED
5 DIRECT TESTIMONY OF ELLEN RUFF WILL BE
6 COPIED INTO THE RECORD AS GIVEN ORALLY
7 FROM THE WITNESS STAND.)

DUKE ENERGY CAROLINAS, LLC
Docket No. E-7, Sub 856
ELLEN RUFF DIRECT TESTIMONY SUMMARY

1 My testimony discusses the importance of the requested approval and outlines
2 some of the benefits of Duke Energy Carolinas' proposed solar PV distributed generation
3 program. Witness Smith will provide a detailed discussion of the Program design and
4 Program costs. Witness Hager will describe how the proposed construction of solar
5 generation facilities under the Program conforms to the utility's most recent annual plan.
6 Witness McManeus will explain the cost recovery proposal for the Program as well as the
7 potential rate impacts of the Program.

8 Although we originally proposed to invest \$100 million, the Company now
9 proposes to invest \$50 million over two years to install several hundred solar PV facilities
10 throughout its service territory to generate electric energy to serve its customers. We
11 anticipate that the total generating capacity of these facilities would be 10 megawatts
12 direct current. When operating at peak capacity, the facilities installed under the Program
13 will generate enough electricity to power approximately 1,300 homes in the Carolinas.

14 The Company is pursuing this program primarily to comply with the Renewable
15 Energy and Energy Efficiency Portfolio Standard established by the North Carolina
16 General Assembly in 2007 as part of Senate Bill 3. The Company anticipates increasing
17 its reliance on renewable energy generation resources to serve its customers over time.
18 The Company is committed to supporting the development of solar PV technology so that
19 it will complement more conventional technologies to supply the electricity needs of the
20 Company's customers.

1 Under Senate Bill 3, each electric public utility in the State must comply with the
2 REPS requirements. These requirements include “set asides” or “carve outs” for solar
3 energy, swine waste and poultry waste resources. With respect to solar, it provides that
4 beginning with the year 2010, each electric public utility must satisfy its REPS
5 requirement in part with a combination of new solar electric facilities and new metered
6 solar thermal energy facilities that use one or more of certain specified applications.

7 The solar PV facilities the Company proposes to install under the Program are
8 “renewable energy facilities” under Senate Bill 3 and may be used to comply with the
9 REPS requirements. The Program will enable Duke Energy Carolinas to partially fulfill
10 its REPS obligations in general and the solar carve out in particular. The Program will
11 promote the development of renewable energy in the State of North Carolina. The
12 Program will help diversify the resources the Company uses to reliably meet the energy
13 needs of its customers.

14 The generating facilities will be installed on both customer and Company-owned
15 property in the Company’s North Carolina service area. The scale of the Program will
16 leverage volume purchases and build relationships with PV developers, manufacturers,
17 and installers. The Company will gain experience with the installation, operation and
18 ownership of multiple types of solar facilities. Developing competencies in these areas
19 mean that ultimately, the Company will not be dependent solely on power purchases to
20 meet the requirements of the solar carve out. The distributed nature of the generation of
21 electricity under the Program will enable the Company to evaluate the impact of
22 distributed generation of a significant scale on the Company’s electric system. It also

1 will encourage economic development, private investment in renewable energy, and
2 improve the air quality.

3 Duke Energy Carolinas believes that its decision to invest in the Program is
4 justified by the public convenience and necessity for all the reasons provided in my
5 testimony and that of the other Company witnesses.

6 This concludes my summary.

1 MS. NICHOLS: Thank you. Ms. Ruff is
2 available for cross examination.

3 COMMISSIONER JOYNER: Intervenors, and in
4 the order that you have decided.

5 MR. CHAMBERLAIN: No questions.

6 CROSS EXAMINATION BY MR. OLSON:

7 Q. Good morning, Ms. Ruff.

8 A. Good morning.

9 Q. My name is Kurt Olson, and I'm representing the
10 North Carolina Sustainable Energy Association. I
11 just have one brief question. On page 2, lines 10
12 and 11 of your summary, you say the program will
13 promote the development of renewable energy in the
14 state of North Carolina. Can you describe how that
15 is going to occur and what development you see
16 happening as a result of this program?

17 A. Well, what we are hoping it will do over time is
18 to, number one, show our confidence, develop new
19 technology in that. We're hoping it'll bring the
20 cost down ultimately over time of investment in
21 solar technology. And also, we have had an
22 incredible response from customers that want to
23 participate in the program, more so than -- than
24 previously. We're hoping that it will incent the

1 public, improve the market, and bring the cost
2 down.

3 MR. OLSON: I have no further questions
4 at this time.

5 MS. COMPTON: I have no questions.

6 MR. GREEN: No questions.

7 CROSS EXAMINATION BY MR. GILLAM:

8 Q. Good morning. I do have a few questions, Ms. Ruff.

9 A. Good morning, Mr. Gillam.

10 Q. I'd like to ask you about page 8 of your revised
11 testimony at lines 12 and 16. You refer there, do
12 you not, to the benefits that Duke will gain from
13 the distributed nature of the generation of
14 electricity under this program?

15 A. Yes.

16 Q. And you say, do you not, that the first of these
17 benefits is that it will enable the Company to
18 develop competency as an owner of solar renewable
19 assets?

20 A. Yes.

21 Q. And second, you say it will enable you to leverage
22 volume purchases, do you not?

23 A. Yes.

24 Q. Third, it will allow you to build relationships

1 with PV developers, manufacturers, and installers.
2 Isn't that correct?

3 A. Yes.

4 Q. And the fourth benefit is that you will gain
5 invaluable experience with the installation and
6 operation of multiple types of solar distributed
7 generation facilities?

8 A. Yes.

9 Q. Now, can you help me distinguish between the first
10 and fourth benefits? It seems to me there's
11 considerable overlap.

12 A. The competency as an owner being the first one, Mr.
13 Gillam?

14 Q. Yes.

15 A. I'm counting.

16 Q. And the fourth is "gain invaluable experience
17 with," et cetera.

18 A. Well, I think -- I think you make a good point. It
19 -- it could be overlapping a little bit except that
20 the issue with being an owner is that it will be
21 our experience that we will be the owner of it, we
22 will learn how that works, and we will have
23 experience with the installation and operation.
24 You could have installation and operation that's

1 not necessarily yours as an owner, so there could
2 be a difference.

3 Q. Okay. Thank you. With regard to leveraging volume
4 purchases, that's a financial benefit, is it not?

5 A. Yes, we hope to the benefit of our customers that
6 it'll lower costs overall. Yes.

7 Q. But as far as financial benefits are concerned, you
8 could have gotten a larger financial benefit simply
9 by not having a self-build project and, instead,
10 purchasing from the second or third-place bidder in
11 your RFP, could you not?

12 A. Well, I'm not sure that would be quite the same.
13 The purpose of this testimony, Mr. Gillam, is to
14 talk about what are the benefits to having this
15 piece of a solar program, which is installing PV
16 facilities ourselves.

17 Q. So you're saying that is not really to be compared
18 with the financial benefit of taking a different
19 approach, a purchase approach?

20 A. They're just different approaches. This is
21 intended to refer to the type of financial benefit
22 you can get associated with large-scale investment
23 in PV solar.

24 Q. Okay. The third benefit is the opportunity to

1 build relationships with developers, manufacturers,
2 and installers, is it not?

3 A. Yes.

4 Q. And the reason why you need to build relationships
5 with multiple developers, manufacturers, and
6 installers is because you have chosen to deal with
7 multiple developers, manufacturers, and installers
8 instead of just two -- SunEdison and one of your
9 other bidders, isn't that right?

10 A. As in any construction sort of ownership program,
11 Mr. Gillam, there would be -- we would look for
12 suppliers, do a -- I believe we've done an RFP.
13 Mr. Smith can speak to that. But we will be
14 looking to deal with suppliers. And certainly in
15 this instance, that's what would occur. We would
16 expect to deal with multiple suppliers in order to
17 get the best arrangement.

18 Q. So it seems like the first and fourth benefits are
19 closely interrelated, and the second and third
20 benefits are things Duke could forgo if it had
21 chosen not to proceed with its self-build program,
22 is that correct?

23 A. I'm not sure, Mr. Gillam, I understand your
24 question. But certainly, the benefits that are

1 listed here are associated with pursuing a self-
2 build PV program, and they're directly associated
3 with that program that we are pursuing in order to
4 comply with the statute.

5 MR. GILLAM: Thank you, Ms. Ruff. That's
6 all the questions I have.

7 THE WITNESS: Thank you, Mr. Gillam.

8 MR. CAVROS: Southern Alliance for Clean
9 Energy has no questions.

10 COMMISSIONER JOYNER: Redirect?

11 MS. NICHOLS: Two -- two quick questions.

12 REDIRECT EXAMINATION BY MS. NICHOLS:

13 Q. Ms. Ruff, Mr. Gillam was asking you some questions
14 about why not simply just rely on purchased power
15 bids that were in the Company's renewable RFP? If
16 Duke were to rely solely on purchased power, would
17 the construction of those facilities be outside of
18 the Company's control?

19 A. Yes. And the purpose of pursuing this type of a
20 program is to simply diversify our approach to
21 solar and meet it in a different way. As with
22 diversifying types of generation, this is
23 diversifying our approach to solar. And we are
24 more in control of the facilities if we are

1 constructing them instead of relying on someone
2 else to do so.

3 Q. And if a solar supplier that Duke had contracted
4 with did not deliver as -- as was under the
5 contract, would Duke remain obligated to meet it's
6 solar carve-out obligation?

7 A. Yes.

8 MS. NICHOLS: Thank you.

9 COMMISSIONER JOYNER: Questions from the
10 Commission?

11 (No response.)

12 COMMISSIONER JOYNER: Thank you. You are
13 excused, Ms. Ruff. Call your next witness.

14 (WITNESS EXCUSED)

15 MS. NICHOLS: Owen Smith.

16 MR. GILLAM: While Mr. Smith is coming
17 forward, could I raise a kind of procedural
18 question?

19 COMMISSIONER JOYNER: Yes, sir.

20 MR. GILLAM: I noticed that Mr. Cavros
21 had -- had said he had no questions after our
22 questions. And I had assumed that since we were
23 going in the order that we sit at the table that
24 perhaps Mr. Cavros would come first. The Public

1 Staff had requested to go last.

2 COMMISSIONER JOYNER: Your point is
3 taken. I think room is being made now.

4 (WHEREUPON, OWEN A. SMITH WAS CALLED AS A WITNESS,
5 DULY SWORN, AND TESTIFIED AS FOLLOWS:)

6 DIRECT EXAMINATION BY MS. NICHOLS:

7 Q. Please state your name and business address.

8 A. My name is Owen Smith. My business address is 400
9 South Tryon Street in Charlotte.

10 Q. And please state your position with Duke Energy.

11 A. I am Managing Director of Regulated Renewable
12 Energy and Carbon Strategy for Duke Energy.

13 Q. And can you describe briefly your responsibilities
14 as Managing Director of Regulated Renewable Energy
15 and Carbon Strategy?

16 A. Yes, I'd be happy to. I'm responsible for the
17 renewable energy activities and carbon -- carbon
18 strategy development for the regulated aspects of
19 Duke Energy, which include Duke Energy Carolinas
20 and our operating companies in the Midwest,
21 Indiana, Ohio, and Kentucky. That includes
22 compliance planning and developing customer
23 programs as they relate to renewable energy and
24 generation initiatives that would comply with

1 renewable portfolio standards.

2 Q. And Mr. Smith, is this your first time testifying?

3 A. It is.

4 MS. NICHOLS: So I'd ask the Commission
5 to be mindful of that -- and the other counsel.

6 Q. Did you cause --

7 COMMISSIONER JOYNER: I think, Ms.
8 Nichols, you need to worry about my colleagues and
9 not the presiding commissioner.

10 COMMISSIONER CULPEPPER: Might do a
11 better job.

12 COMMISSIONER ERVIN: What I want to know
13 is are you asking us to test him or are you --

14 (BRIEF PAUSE)

15 Q. (By Ms. Nichols) Mr. Smith, did you cause to be
16 prefiled direct testimony consisting of 18 pages
17 and one exhibit?

18 A. Yes, I did.

19 Q. And did you also cause to be prefiled rebuttal
20 testimony of 28 pages and one exhibit?

21 A. Yes, I did.

22 Q. And your rebuttal testimony reflects the agreement
23 by the Company to reduce the size of the proposed
24 program, correct?

1 A. That's correct.

2 Q. Therefore, does your rebuttal testimony serve to
3 update various cost and capacity figures in your
4 direct testimony?

5 A. Yes, it does.

6 Q. Other than the updates contained in your rebuttal
7 testimony, do you have any changes or corrections
8 to your direct testimony?

9 A. Yes, I do have some changes.

10 Q. What would be first change be?

11 A. The first change would be on page 2 with respect to
12 the question what is my position with Duke Energy
13 Corporation and, as I mentioned before, my title
14 and responsibilities. So the changes to the
15 testimony, I would insert between "am" and
16 "Director" the word "Managing." And after the
17 comma, I would strike the rest of that line and
18 replace it with "Regulated Renewable Energy and
19 Carbon Strategy." So it should read, "I am
20 Managing Director, Regulated Renewable Energy and
21 Carbon Strategy for Duke Energy Corporation."

22 Q. And that's page 2, lines 7 and 8?

23 A. That's right.

24 Q. And the second change, I believe, on page 3?

1 A. Yes. The second page -- second change on page 3
2 beginning with the first line is just to update my
3 responsibilities. I would strike the portion of
4 the first line through the word "first," so that it
5 should begin with "I am accountable for." And then
6 on line 6 I would strike starting with the word
7 "Second," through the end of the paragraph; and I
8 would replace that with "I also am responsible for
9 developing pre-ompliance strategies for Duke
10 Energy's regulated utilities with respect to carbon
11 emission reductions or offsets. I have held the
12 renewable energy responsibilities since November
13 2007 and became accountable for carbon strategy in
14 August 2008."

15 Q. And I believe there may be one -- one figure that
16 we did not update in your rebuttal. If you would
17 turn to page 15, line 6 of your direct testimony?

18 A. Yes. The -- on line 6 rather than where it
19 currently says "\$700,000 and \$1.3 million --

20 COMMISSIONER JOYNER: Excuse me. Can I
21 have a page reference?

22 MS. NICHOLS: Sure. Page 15, line 6.
23 The sentence, "The Company anticipates spending..."

24 A. Yes. So since we've reduced the investment that

1 we're proposing, these numbers should be cut in
2 half. So it should be "between \$350,000 and
3 \$650,000."

4 MR. OLSON: Excuse me. Is that in the
5 rebuttal testimony?

6 MS. NICHOLS: That's the direct.

7 THE WITNESS: The direct testimony.

8 MR. OLSON: Oh. You said rebuttal,
9 that's --

10 MS. NICHOLS: It's a -- it's a fact that
11 we -- it's a figure that we did not -- I don't
12 believe we updated in the direct. I mean, I'm
13 sorry, in the rebuttal so I want to make sure it's
14 clear.

15 MR. OLSON: Could I have those
16 corrections again, please?

17 THE WITNESS: Yes. The new numbers are
18 \$350,000 and \$650,000. Half of what it had.

19 MR. OLSON: Thank you.

20 Q. (By Ms. Nichols) Any other changes or corrections?

21 A. No.

22 MS. NICHOLS: I would move that the
23 direct testimony of Mr. Smith as corrected be
24 entered into the record as if given orally from the

1 stand and the exhibit be identified as marked.

2 COMMISSIONER JOYNER: That motion is
3 allowed.

4 (THE PREFILED DIRECT TESTIMONY OF OWEN A.
5 SMITH, AS CORRECTED, WILL BE COPIED INTO
6 THE RECORD AS IF GIVEN ORALLY FROM THE
7 WITNESS STAND.)

1

2

I. INTRODUCTION AND PURPOSE3 **Q: PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**4 A: My name is Owen A. Smith, and my business address is 400 South Tryon Street,
5 Charlotte, North Carolina.6 **Q: WHAT IS YOUR POSITION WITH DUKE ENERGY CORPORATION?**7 A: I am ^{Managing Regulated Renewable Energy and Carbon Strategy} Director, ~~Corporate Strategic Initiatives and Regulated Renewables Strategy~~
8 for Duke Energy Corporation ("Duke Energy").9 **Q: PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL**
10 **BACKGROUND AND PROFESSIONAL AFFILIATIONS.**11 A: I am a graduate of East Carolina University with a Bachelor of Arts in
12 Industrial/Organizational Psychology and a Minor in Business Administration. I
13 also have a Master's degree in Business Administration from Wake Forest
14 University.15 **Q: PLEASE DESCRIBE YOUR BUSINESS BACKGROUND AND**
16 **EXPERIENCE.**17 A: I joined Duke Energy Corporation in 2002 as a Commercial Associate. I have
18 held positions in Corporate Strategy, Treasury, Mergers & Acquisitions, Market
19 Research, and Renewable Energy Strategy. I assumed my current position in
20 November 2007.21 **Q: WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT**
22 **POSITION?**

1 A: ~~I have two primary sets of responsibilities.~~ First, I am accountable for the
 2 renewable energy strategy for Duke Energy's regulated businesses, including
 3 Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company") and
 4 our utility operating companies in Indiana, Ohio, and Kentucky. This includes
 5 pursuing renewable generation initiatives, customer programs, and compliance
 6 with renewable energy requirements. *I also am responsible for*
 7 *developing pre-compliance strategies for Duke Energy's*
 8 *regulated utilities with respect to carbon emission reductions*
 9 *or offsets. I have held the renewable energy responsibilities*
 10 *October of 2006, and I assumed the renewables responsibilities in November of*
 11 *since November 2007 and became accountable for*
 12 *2007 as an expansion of my role. Carbon Strategy in August 2008.*

11 Q: HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NORTH
 12 CAROLINA UTILITIES COMMISSION?

13 A: No.

14 Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY?

15 A. On June 6, 2008, Duke Energy Carolinas filed an Application for Approval of a
 16 Solar Photovoltaic ("PV") Distributed Generation Program and for Approval of
 17 Proposed Method of Recovery of Associated Costs (the "Application"). The
 18 purpose of my testimony is to provide a detailed description of Duke Energy
 19 Carolinas' proposed solar PV distributed generation program (the "Program"),
 20 including the Program design, anticipated Program costs, and expected Program
 21 benefits.

22 II. PROGRAM DESIGN AND COMPONENTS

23 Q: PLEASE BRIEFLY DESCRIBE THE PROGRAM.

1 A: Duke Energy Carolinas proposes to invest, over a two-year period, approximately
2 \$100 million to install, own and operate new solar PV distributed generation
3 facilities to produce energy to serve its customers. Specifically, the Program
4 involves installation of multiple solar PV generating facilities in the Company's
5 North Carolina service territory. The facilities are expected to have a total
6 combined capacity of approximately 20 megawatts direct current ("MWDC").
7 The generating facilities will be installed on both customer- and Company-owned
8 property in the Company's North Carolina service area. Each facility is expected
9 to have a useful life of approximately 20-25 years, and a capacity factor of 13 to
10 20 percent (based on the direct current ("DC") rated capacity of 20 MW), or 17 to
11 25 percent (based on the alternating current ("AC") rated capacity of 16-17 MW).
12 The specific capacity factor of each facility will depend largely on how it is
13 installed. For example, flat and fixed tilt roof mounts typically have lower
14 capacity factors than two-axis tracking systems that optimize production and are
15 typically ground mounted.

16 The Program will enable the Company to partially meet its obligations
17 under the recently established Renewable Energy and Energy Efficiency Portfolio
18 Standards ("REPS"), and the REPS set-aside for solar energy resources in
19 particular. The Program also will facilitate the Company's evaluation of the
20 impact of significant distributed generation on the Company's electric system. In
21 addition, the Program will allow the Company to explore the nature of solar
22 distributed generation offerings desired by customers, fill knowledge gaps to
23 enable successful, wide-scale deployment of solar PV distributed generation

1 technologies, and promote the commercialization of the solar market in North
2 Carolina through utility ownership. The Program will enable Duke Energy
3 Carolinas to serve more of its load with renewable resources and help offset the
4 use of other generation resources and potential power purchases.

5 **Q: WHY IS THE CAPACITY OF THE SOLAR PV GENERATION**
6 **FACILITIES MEASURED IN MEGAWATTS DIRECT CURRENT?**

7 A: Solar PV modules produce DC. The capacity output of the modules to be
8 installed under the Program, therefore, is measured and referred to in my
9 testimony and that of other Company witnesses in terms of DC capacity unless
10 specifically noted otherwise. This is consistent with solar industry practice. The
11 DC power produced by the modules must be converted to AC power with an
12 inverter in order to be used in the Company's distribution and transmission
13 systems. After conversion to AC power, the effective total installed capacity of
14 20 MWDC is expected to be 16 – 17 megawatt AC ("MWAC").

15 **Q: PLEASE DESCRIBE THE SOLAR PV TECHNOLOGY TO BE USED**
16 **UNDER THE PROGRAM.**

17 A: The scale of the Program allows for multiple types of installations in multiple
18 locations. Such an approach will enable the Company to thoroughly assess the
19 solar opportunities in North Carolina to determine the most cost-effective and
20 best-performing options for future deployments. There currently are several
21 competing technologies in the PV module market, including but not limited to
22 Crystalline Silicon, Concentrating Photovoltaic, and various forms of Thin Film
23 technologies. The Company plans to deploy several types of PV technologies in

1 order to compare cost, performance, and reliability data that it will use to distill
2 the true cost (\$/MWh) for each technology in its North Carolina service territory.
3 This data will enable the Company to select the best performing and/or least cost
4 options for future deployment of solar PV systems.

5 Additionally, different localities have diverse requirements for the
6 commissioning and installation of solar PV systems (e.g., engineering drawings,
7 permits, inspections, etc.). Through deployment of a substantial number of solar
8 PV distributed generation systems in the Company's North Carolina service
9 territory, the Company expects to identify, collect, and analyze varying local
10 requirements, which the Company hopes will yield benefits such as:

- 11 • Development of recommendations to simplify and standardize
12 requirements for PV system installation;
- 13 • Reduced administrative burden for utilities, local authorities, and
14 installers;
- 15 • Lower installed costs as installation efficiencies are gained; and
- 16 • Education and familiarization with solar PV facility installation for local
17 inspection authorities.

18 **Q: BRIEFLY DESCRIBE THE SOLAR PV INSTALLATIONS.**

19 **A:** Between 80-90% of the Program's installed capacity will consist of large scale
20 ground-mounted facilities and rooftop installations on large commercial or
21 industrial buildings, with individual facilities in this category ranging from 500
22 kW to 3 MW. Up to 10% of the Program's installed capacity will be medium
23 scale rooftop or ground-mounted facilities with individual facilities in this

1 category ranging in size from 15 kW to 500 kW. Structures that would fit into
2 this medium category include schools, office buildings, and multi-family
3 structures. Commercial or industrial structures that are not suitable for large scale
4 installations due to size or other factors may also be included in this medium
5 category. Small scale facilities on residential rooftops, ranging from 1.5 to 5 kW
6 in capacity will comprise the remainder of the Program up to 10% of the
7 Program's total capacity.

8 **Q: PLEASE LIST THE VARIOUS COMPONENTS OF THE SOLAR PV**
9 **GENERATION FACILITIES.**

10 A: Each solar PV generating facility will consist of the following basic components
11 which are necessary to produce electricity: (1) PV modules, (2) one or more
12 inverters, (3) AC and DC disconnects, (4) interconnection equipment, and (5)
13 racking and mounting equipment and electrical conduit.

14 **Q: PLEASE DESCRIBE THE FUNCTION OF A PV MODULE.**

15 A: PV modules consist of photovoltaic cells which convert sunlight into direct
16 current and are arranged and packaged to produce a desired voltage and current
17 appropriate for an inverter. The modules are typically connected in series in a
18 "string" to achieve the desired voltage. Two or more "strings" are then connected
19 in parallel to form an "array," which provides the desired voltage and current to
20 the inverter. The PV modules generate DC power, which must be converted to
21 AC power for use in the Company's distribution or transmission system.

22 **Q: PLEASE DESCRIBE THE FUNCTION OF AN INVERTER.**

1 A: The inverter is an electronic device that converts the DC power produced by the
2 solar array into AC power suitable for use on the transmission or distribution grid.
3 Inverters also typically contain an automatic disconnect function that serves to
4 isolate the PV facility from the grid in the event of a grid outage. This is a safety
5 feature that prevents the PV facility from back feeding energy into the grid during
6 outages when power lines may be down or utility personnel may be working to
7 restore electric service.

8 **Q: WHAT ARE AC AND DC DISCONNECTS?**

9 A: Disconnects provide a means of isolating the DC or AC power from other
10 components of the solar PV facility or the grid in order to conduct maintenance or
11 repair to the PV system, other interconnection facilities, or the grid.

12 **Q: WHAT IS THE PURPOSE OF INTERCONNECTION EQUIPMENT?**

13 A: Interconnection equipment, such as metering, transformers, circuit breakers,
14 fuses, and switches serve to connect the PV system to the electric grid and to
15 disconnect the PV system from the electric grid when required for maintenance or
16 repair.

17 **Q: DESCRIBE THE FUNCTION OF RACKING OR MOUNTING**
18 **EQUIPMENT AND ELECTRICAL CONDUIT AS THEY RELATE TO**
19 **THE GENERATING FACILITIES.**

20 A: Racking or mounting equipment and electrical conduit are used as necessary to
21 securely connect, align, and protect the PV modules, inverters, disconnects, and
22 interconnection wiring.

1 **Q: WILL THE SOLAR PV FACILITIES CONTAIN TECHNOLOGY THAT**
2 **MINIMIZES THE REFLECTION OF SOLAR RAYS?**

3 A: Yes. As a general rule, PV facilities are designed to minimize reflective glare, as
4 the principal purpose of solar PV panels is to absorb as much sunlight as possible.
5 This is generally accomplished through an anti-reflective coating on the PV
6 module. Concentrating PV ("CPV") technology, however, is somewhat of an
7 exception to this generality. CPV technology utilizes mirrors or lenses to
8 concentrate sunlight onto a smaller solar PV cell. In applications where mirrors
9 are used, the mirrors intentionally reflect sunlight, and that sunlight is directed
10 with precision at a specific point in close proximity to the mirrors themselves.
11 CPV technology is most commonly used in ground-mounted applications. It is
12 the Company's intention to utilize CPV technology in a small number of ground-
13 mounted projects if the Company receives credible and reasonably priced
14 proposals to do so. The majority of installed capacity under the Program will be
15 flat panel PV modules that will include the anti-reflective features described
16 above.

17 **Q: HOW DOES THE COMPANY PLAN TO INTEGRATE THE PROGRAM**
18 **INTO ITS EXISTING POWER GRID?**

19 A: Each PV facility that is installed under the Program will follow the Company's
20 interconnection standards that are required for any distributed generators
21 connecting to the grid. System impact studies will be performed for PV
22 installations when deemed necessary to determine the appropriate level of
23 interconnection. These studies will determine if the installation is better served

1 by interconnecting to transmission or distribution facilities, and if additional
2 modifications are required. Factors used in determining the appropriate level of
3 interconnection will include the cost of interconnection, the impact of the PV
4 facility on the performance of the power grid, and the impact to customers.

5 **Q: HOW WOULD THE COMPANY DETERMINE WHERE FACILITIES**
6 **ARE INSTALLED UNDER THE PROGRAM?**

7 A: The Company will seek customers who own large warehouses, commercial and
8 industrial establishments, office buildings, single family homes, multi-family
9 structures (such as apartment or condominium buildings), subdivisions, schools,
10 or other property to participate in the Program. Upon approval of the Program,
11 customers who desire to offer their property as host sites for solar PV installations
12 can contact Duke Energy Carolinas directly to request inclusion in the Program.
13 Smith Exhibit 1 (a copy of which is Attachment A to the Company's Application)
14 represents a form of the tariff ("Solar Photovoltaic Distributed Generation
15 Program (NC)") setting forth the terms and conditions that the Company intends
16 to offer to customers with businesses, homes, and other property that may be
17 suitable for the installation of a solar PV facility. As described in the Program
18 Tariff, the Program will be available on a limited and voluntary basis, at the
19 Company's option, to customers in owner-occupied individually metered single-
20 family residences, or owners of other property, suitable for the installation of a
21 solar PV system. The Company will work with customers to determine whether a
22 solar PV generating facility is a viable option for their home, business, or land.
23 Factors that the Company will consider in making that determination include, but

1 are not limited to, the age of the roof in question, the angle and orientation of the
2 roof or the slope and orientation of the land, the presence of trees and other solar
3 obstructions, and whether the roof in question can support the weight of the solar
4 PV generating facility. To date, the Company has been contacted by more than
5 200 customers seeking to be host sites for the Program. Additionally, more than
6 30 solar PV entities (including installers, manufacturers, and other suppliers of
7 PV services or products) have contacted the Company to express their desire to be
8 selected for Program fulfillment.

9 The Company also will evaluate siting one or more facilities on Company-
10 owned property. In these cases, the Company will consider the same site
11 characteristics noted above, but the customer tariff would not apply.

12 **Q: DESCRIBE THE GENERAL PROVISIONS OF SMITH EXHIBIT 1, THE**
13 **TARIFF THAT WOULD GOVERN CUSTOMERS' PARTICIPATION IN**
14 **THE PROGRAM?**

15 **A:** The general provisions of the tariff are as follows:

- 16 • The Company will install a solar PV system on the owner's property under
17 a separate lease agreement with the owner;
- 18 • The maximum number of customers served under the Program will be the
19 number required to achieve approximately 20 MWDC of installed PV
20 capacity, of which up to 10% will be installed on single-family residences
21 and the remainder will be installed on nonresidential establishments,
22 multi-family structures, or other property;

- 1 • The maximum installed capacity of the PV systems will be 5 kW for
- 2 single family residences and 3000 kW for nonresidential establishments or
- 3 other property; and
- 4 • The Company reserves the right to limit the total installed PV capacity
- 5 and/or the number of customers served under this Program on the same
- 6 retail distribution circuit.

7 The terms of the agreement between the Company and each individual customer

8 will be set forth in the lease agreement.

9 **Q: ARE THERE ANY EXPECTED ENVIRONMENTAL IMPACTS OF THE**

10 **SOLAR PV FACILITIES?**

11 **A:** The environmental impacts of the Program are positive in nature. The

12 Company's generation of electricity from the solar PV facilities will not produce

13 any emissions such as NOx, SOx, Hg, particulates, or CO2. For example, the

14 clean energy that the Program is expected to deliver will help avoid at least

15 15,600 tons of CO2 emissions each year. Additionally, solar PV facilities are

16 quiet and, accordingly, noise pollution is not an issue.

17 **Q: PLEASE DESCRIBE HOW PRINCIPAL CONTRACTORS AND**

18 **SUPPLIERS FOR THE CONSTRUCTION OF THE SOLAR PV**

19 **FACILITIES WILL BE SELECTED.**

20 **A:** At this time, contractors and suppliers for the Program have not been selected.

21 The Company is preparing a request for proposals ("RFP") that will be initiated in

22 August 2008. This RFP will provide a competitive bidding process from which

23 the Company will be able to select the best proposals to fulfill the needs of the

1 Program. Through this RFP, the Company will seek to establish agreements with
 2 reputable parties that have proven capabilities with respect to sourcing or
 3 manufacturing the required PV components, installation, and maintenance
 4 services. Ideally, the Company will establish agreements with a select number of
 5 entities that can provide "turnkey" services that could include site assessments,
 6 installation of PV systems, and maintenance agreements. The Company also will
 7 consider arrangements where a particular party may offer to perform only some of
 8 these functions.

9 III. PROGRAM SCHEDULE AND COSTS

10 **Q: WHAT ARE THE COMPANY'S ESTIMATES OF THE CONSTRUCTION**
 11 **COSTS FOR THE SOLAR PV FACILITIES?**

12 **A:** As specified in the Application, the Company will spend an estimated \$100
 13 million over a two-year period to construct approximately 20 MWDC of
 14 distributed generation solar PV facilities.

15 **Q: WHAT IS THE PROJECTED COST OF EACH MAJOR COMPONENT**
 16 **OF THE SOLAR PV FACILITIES?**

17 **A:** Based upon the Company's review of research from public and private sources,
 18 we estimate the current cost of each major component of a typical residential PV
 19 facility is as follows:

20	PV Modules	\$4.75 / DC watt
21	Inverter	\$0.75 / DC watt
22	Balance of System (wiring, conduit, racking, etc.)	\$0.50 / DC watt
23	Labor	\$1.25 / DC watt

1 General & Administrative\$1.25 / DC watt
 2 Total\$8.50 / DC watt

3 For larger system sizes, volume efficiencies are gained and lower \$ / watt
 4 costs are achieved, particularly in the areas of General & Administrative (which is
 5 primarily a fixed cost), Balance of System, and Labor, but also, to a lesser extent
 6 in Modules and Inverters. For example, for installations of approximately 250kW
 7 to 500kW, research indicates current total costs are approximately \$6.50 / watt.
 8 For large systems (>1 MW), research indicates current total costs of
 9 approximately \$5.00 / watt are being achieved.

10 The costs illustrated above are indicative of current pricing. Our research
 11 indicates, and we expect, a downward trend in PV system component pricing
 12 during the period of implementation of the Program. The RFP referenced earlier,
 13 however, is the method by which the Company will obtain firm pricing
 14 commitments from suppliers.

15 **Q: WHAT IS THE PROJECTED SCHEDULE FOR INCURRING THESE**
 16 **COMPONENT AND FACILITY COSTS?**

17 **A:** The Company intends to incur the costs of the Program over a 2-year period
 18 following approval from the Commission. For planning purposes, the Company
 19 assumes that it will spend 40% (\$40 million) of the capital in 2009 and spend the
 20 remaining 60% (\$60 million) in 2010. The Company projects that the installed
 21 capacity would be proportionate with the dollars spent (i.e., approximately 8 MW
 22 of capacity would be installed in 2009 and the remaining 12 MW would be
 23 installed in 2010).

1 Q: WHAT ARE THE ANTICIPATED FUTURE OPERATING COSTS,
2 INCLUDING THE ANTICIPATED IN-SERVICE EXPENSES
3 ASSOCIATED WITH THE GENERATING FACILITIES FOR THE 12-
4 MONTH PERIOD OF TIME FOLLOWING COMMENCEMENT OF
5 COMMERCIAL OPERATIONS OF THE SOLAR PV FACILITIES?

6 A: The Company anticipates spending between \$700,000 and \$1.3 million annually
7 to operate and maintain the facilities and to compensate host sites for use of their
8 property.

9 IV. ELIGIBILITY OF THE PROGRAM FOR TAX BENEFITS

10 Q: WHAT TAX BENEFITS ARE AVAILABLE FOR THE PROGRAM?

11 A: The Company expects the Program to be eligible for certain State and Federal tax
12 benefits that collectively will reduce the Program's overall costs substantially.
13 One tax benefit comes from the North Carolina renewable energy investment tax
14 credit of 35% on the amount of the investment. A second tax benefit comes from
15 the Federal five-year accelerated tax depreciation benefit. These tax benefits are
16 substantial and already available to the Company today. Additionally, North
17 Carolina Senate Bill 1878 has passed both chambers and now awaits the
18 Governor's signature. It is the Company's understanding that the Governor
19 intends to sign this bill, which will modify a number of property tax provisions,
20 including an exclusion from property tax for 80% of the appraised value of an
21 installed solar electric system, which would further reduce the costs of the
22 Program. Another potential future tax benefit is a federal investment tax credit of
23 30%. This benefit is currently available to non-utilities and is due to decrease

1 from 30% to 10% at the end of 2008 unless extended by Congress. Proposed
2 legislation in Congress would extend the duration of this tax credit at the 30%
3 level and also make it available to utilities. This potential statutory change would
4 provide additional benefits to the Program.

5 **Q: PLEASE SUMMARIZE THE BENEFITS OF THE PROGRAM.**

6 **A:** There are many benefits of this program and they include the following:

- 7 • The Program will result in the production of renewable energy that will
8 help enable Duke Energy Carolinas to comply with its REPS obligations
9 and, along with the power to be purchased from Sun Edison pursuant to a
10 recent purchase power agreement, will specifically help the Company
11 meet its obligations under the solar carve out of the REPS for the next few
12 years.
- 13 • The Program will enable the Company to understand the impact of
14 distributed generation on its system. The Company believes that solar PV
15 distributed generation will become much more prevalent in the future, and
16 this Program will enable the Company to better understand any concerns
17 and opportunities that can arise with the introduction of distributed
18 generation.
- 19 • The Program will enable the Company to develop and enhance
20 competencies as owners and operators of renewable generation facilities.
21 This competency will benefit customers because the Company will
22 become capable of building and owning renewable resources rather than
23 relying solely on power purchase agreements. In cases where there may

1 be no viable or attractively priced power purchase options available to the
2 Company, this competency will be especially beneficial.

- 3 • The distributed nature of this program promotes energy security.
- 4 • The electricity produced under this Program is emission free.
- 5 • The Program will promote economic development in North Carolina by
6 attracting investment and creating jobs in the growing solar industry.
- 7 • The Program can drive down the cost of solar PV installations in North
8 Carolina through standardizing inspection requirements and leveraging
9 volume purchases.
- 10 • The Program enables the Company's customers to directly participate in
11 the development of renewable resources in North Carolina.

12 V. APPROVALS

13 **Q: WHY IS THE COMPANY REQUESTING A BLANKET CERTIFICATE**
14 **OF PUBLIC CONVENIENCE AND NECESSITY ("CPCN") AS OPPOSED**
15 **TO A CPCN FOR EACH SOLAR PV FACILITY?**

16 **A:** The Company requests a blanket CPCN in this Application because the precise
17 location of the facilities cannot be specified at this time and waiting to determine
18 such locations before filing multiple applications for individual CPCNs would
19 unduly delay and raise the costs of the Program. In short, the Company believes
20 that approval of a "blanket" CPCN will ensure that the Program is implemented
21 efficiently and without delay. It also will ensure that the benefits of the Program
22 are realized in a timely fashion.

1 Q: OTHER THAN APPROVAL FROM THIS COMMISSION, ARE THERE
2 OTHER APPROVALS REQUIRED BEFORE THE PROGRAM MAY BE
3 IMPLEMENTED?

4 A: Each PV installation will be subject to various permitting and inspection
5 requirements. These requirements vary at the local level based on location. The
6 Company will comply with all such requirements for all PV installations.

7 VI. REPS COMPLIANCE FILINGS

8 Q: DOES THE COMPANY INTEND TO INCLUDE THE ELECTRICITY TO
9 BE PRODUCED UNDER THE PROGRAM IN ITS REPS COMPLIANCE
10 PLAN WHEN IT SUBMITS ITS PLAN ANNUALLY TO THE
11 COMMISSION?

12 A: Yes.

13 Q: WILL THE COMPANY REGISTER FACILITIES CONSTRUCTED
14 UNDER THE PROGRAM AS REQUIRED BY COMMISSION RULE R8-
15 66?

16 A: Yes.

17 Q: DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

18 A: Yes.

1 (SMITH DIRECT EXHIBIT NO. 1
2 WAS MARKED FOR IDENTIFICATION.)

3 Q. (By Ms. Nichols) And Mr. Smith, do you have a
4 summary of your direct testimony?

5 A. I do.

6 Q. Please give that summary.

7 (THE SUMMARY OF THE PREFILED DIRECT
8 TESTIMONY OF OWEN A. SMITH WILL BE COPIED
9 INTO THE RECORD AS GIVEN ORALLY FROM THE
10 WITNESS STAND.)

DUKE ENERGY CAROLINAS, LLC
Docket No. E-7, Sub 856
OWEN A. SMITH DIRECT TESTIMONY SUMMARY

1 My direct testimony describes Duke Energy Carolinas' proposed solar PV distributed
2 generation program, including the design and anticipated costs and benefits.

3 Duke Energy Carolinas proposes to install, own and operate multiple new solar PV
4 distributed generation facilities in the Company's North Carolina service area. The facilities
5 are expected to have a total combined capacity of approximately 10 megawatts direct current
6 and will be installed on both customer- and Company-owned property.

7 The scale of the Program allows for multiple types of installations in multiple
8 locations. Between 80-90% of the Program's installed capacity will consist of large scale
9 ground-mounted facilities and rooftop installations on large commercial or industrial
10 buildings. Up to 10% of the Program's installed capacity will be medium scale rooftop or
11 ground-mounted facilities. Structures that would fit into this medium category include
12 schools, office buildings, and multi-family structures. Small scale facilities on residential
13 rooftops will comprise the remainder of the Program up to 10% of the Program's total
14 capacity. This approach allows us to thoroughly assess the solar opportunities in North
15 Carolina to determine the most cost-effective and best-performing options.

16 Each solar PV generating facility will consist of the following basic components: (1)
17 PV modules, (2) one or more inverters, (3) AC and DC disconnects, (4) interconnection
18 equipment, and (5) racking and mounting equipment and electrical conduit.

19 Upon approval of the Program, customers who desire to offer their property as host
20 sites for solar PV installations can contact us directly to request inclusion in the Program.
21 The Program will be available on a limited and voluntary basis to customers in owner-

occupied individually metered single-family residences, or owners of other property, suitable for the installation of a solar PV system. We will install a solar PV system on the owner's property under a separate lease agreement with the owner.

Duke Energy Carolinas proposes to spend an estimated \$50 million over a two-year period. For planning purposes, the Company assumes that we will spend 40% of the capital in 2009 and spend the remaining 60% in 2010. We project that the installed capacity would be proportionate with the dollars spent. For the 12-month period of time following commencement of commercial operations of the solar PV facilities, we anticipate spending between \$350,000 and \$650,000 annually to operate and maintain the facilities and to compensate host sites for use of their property.

There are many benefits of this Program and they include the following:

- we expect the Program to be eligible for certain State and Federal tax benefits that collectively will reduce the Program's overall costs;
- we will become capable of building and owning renewable resources rather than relying solely on third parties to meet our compliance obligations;
- the distributed nature of this Program promotes energy security;
- the electricity produced under this Program is emission free;
- solar PV facilities are quiet and, accordingly, noise pollution is not an issue;
- the Program will promote economic development in North Carolina by attracting investment and creating jobs in the growing solar industry;
- the Program can drive down the cost of solar PV installations in North Carolina through standardizing inspection requirements and leveraging volume purchases; and
- the Program enables our customers to directly participate in the development of renewable resources in North Carolina.

Duke Energy Carolinas requests a blanket CPCN in this Application because the precise location of the facilities cannot be specified at this time and waiting to determine

1 such locations before filing multiple applications for individual CPCNs would unduly delay
2 and raise the costs of the Program.

3 This concludes the summary of my pre-filed direct testimony.

1 Q. And Mr. Smith, do you have any changes to your
2 prefiled rebuttal testimony?

3 A. No, I do not.

4 MS. NICHOLS: I move that Mr. Smith's
5 rebuttal testimony be entered into the record as if
6 given orally from the stand and his exhibit be
7 identified as marked.

8 COMMISSIONER JOYNER: Without objection
9 that is allowed.

10 (THE PREFILED REBUTTAL TESTIMONY OF OWEN
11 A. SMITH WILL BE COPIED INTO THE RECORD
12 AS IF GIVEN ORALLY FROM THE WITNESS
13 STAND.)

I. **INTRODUCTION AND PURPOSE**

2 **Q: PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A: My name is Owen A. Smith, and my business address is 400 South Tryon Street,
4 Charlotte, North Carolina.

5 **Q: WHAT IS YOUR POSITION WITH DUKE ENERGY CORPORATION?**

6 A. I am Managing Director, Regulated Renewable Energy and Carbon Strategy for
7 Duke Energy Corporation ("Duke Energy").

8 **Q. HAVE YOU PREVIOUSLY FILED DIRECT TESTIMONY IN SUPPORT**
9 **OF DUKE ENERGY CAROLINAS' APPLICATION IN THIS**
10 **PROCEEDING?**

11 A. Yes.

12 **Q: WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

13 A. The purpose of my testimony is to address concerns and questions raised by
14 intervenors in testimony filed on or before October 10, 2008, regarding Duke
15 Energy Carolinas' proposed solar photovoltaic ("PV") distributed generation
16 program (the "Program") described in the Company's Application for Approval
17 of a Solar Photovoltaic Distributed Generation Program and for Approval of
18 Proposed Method of Recovery of Associated Costs (the "Application") and in my
19 direct testimony. Specifically, I will address: (1) Duke Energy Carolinas'
20 agreement to reduce the size of the Program from a \$100 million investment, over
21 a two-year period, to install, own and operate new solar PV distributed generation
22 facilities expected to have a total combined capacity of approximately 20
23 megawatts direct current ("MWDC") to a \$50 million investment to install, own

1 and operate new solar PV distributed generation facilities expected to have a total
2 combined capacity of approximately 10 MWDC; (2) the Public Staff's erroneous
3 comparisons of the estimated cost of the Program and the bids received in
4 response to the Company's renewable request for proposal ("RFP"); (3) the
5 reasons the concerns raised by the North Carolina Sustainable Energy Association
6 ("NCSEA"), the Vote Solar Initiative ("Vote Solar") and the Solar Alliance
7 (collectively "Solar Intervenors") regarding competitiveness in the solar market
8 are unwarranted; (4) the recommendation by the NCSEA, Vote Solar and Solar
9 Alliance that the Company be required to develop a standard offer for solar
10 renewable energy certificate ("RECs"); (5) Vote Solar's attempt to compare the
11 benefits of the Company's proposal and its standard offer proposal; and (6) the
12 questions raised by Wal-Mart Stores East, LP ("Wal-Mart") regarding the terms
13 and conditions of the Program.

14 **Q. WHAT FACTORS WOULD YOU URGE THE COMMISSION TO KEEP**
15 **IN MIND IN CONSIDERING THE PUBLIC STAFF AND INTERVENOR**
16 **TESTIMONY?**

17 **A.** In considering the issues raised by Public Staff and intervenor witnesses it is
18 important to keep in mind a few key facts regarding the Program: (1) The
19 Program is a part of a portfolio approach to compliance with Duke Energy
20 Carolinas' obligations under the solar carve-out requirements of the North
21 Carolina Renewable Energy and Energy Efficiency Portfolio Standard ("REPS")
22 that is intended to serve the best interests of all customers. We consider purchased
23 power agreements and the purchase of RECs from customer-owned resources, as

1 well as utility-owned resources to be appropriate resources within the portfolio.

2 (2) As I describe below, by agreeing to size the Program more modestly it should
3 be clear that Duke Energy Carolinas supports a market for a variety of solar
4 technologies and ownership structures. (3) Timely approval of the Program is of
5 utmost importance. The Company faces a solar energy carve-out requirement in
6 2010 of over 11,000 MWH. Other alternatives to procuring solar resources entail
7 either too much lead time in project development or cannot be counted on to meet
8 the full level of this near-term requirement. Furthermore, the Program can benefit
9 from the North Carolina solar investment tax credit of 35% of the amount
10 invested, one of the best state tax credits available nationally. However, this tax
11 credit expires at the end of 2010 and the Company cannot project whether that tax
12 credit will be extended or altered beyond that date. (4) The Program arises out of
13 the REPS solar obligations, yet it provides the opportunity for the Company to
14 achieve not merely compliance, but a host of other benefits for our customers and
15 State. As such the Program is prudent, within the public interest and the costs
16 appropriately recoverable through the REPS rider.

17 **II. PROGRAM SIZE**

18 **Q. HOW DOES DUKE ENERGY CAROLINAS RESPOND TO THE PUBLIC**
19 **STAFF'S RECOMMENDATION THAT THE PROGRAM AND**
20 **ASSOCIATED BLANKET CERTIFICATE OF PUBLIC CONVENIENCE**
21 **AND NECESSITY ("CPCN") BE LIMITED TO 10 MWDC?**

22 **A.** Public Staff witnesses Cox and McLawhorn expressed concern regarding the size
23 of the Program as proposed compared to Duke Energy Carolinas' obligations

1 under the REPS solar carve-out requirements. Ms. Cox and Mr. McLawhorn
2 calculated that in combination with the purchased power agreement between the
3 Company and SunE DEC1, LLC ("Sun Edison") the Program will result in
4 sufficient RECs that would satisfy Duke Energy Carolinas' obligations under the
5 solar carve-out requirements from 2010 through 2014. The combination of these
6 resources also would produce additional RECs that the Company would bank
7 towards its obligations from 2015 through 2018. Additionally, the Public Staff
8 witnesses expressed concern that because the amounts utilities may collect from
9 retail customers for REPS compliance is capped on a customer account basis, the
10 size of the Program as proposed could result in the Company prematurely
11 reaching the utility-wide cost ceiling.

12 In order to address these concerns, Duke Energy Carolinas agrees to
13 reduce the size of the proposed Program such that it would invest, over a two-year
14 period, approximately \$50 million to install, own and operate new solar PV
15 distributed generation facilities to produce energy to serve its customers.
16 Specifically, the Program involves installation of multiple solar PV generating
17 facilities in the Company's North Carolina service territory. The facilities are
18 expected to have a total combined capacity of approximately 10 megawatts direct
19 current ("MWDC"). Therefore, the Company revises its request for a blanket
20 CPCN to 10 MWDC. Smith Rebuttal Exhibit 1 sets forth the revised form of the
21 tariff ("Solar Photovoltaic Distributed Generation Program (NC)") setting forth
22 the terms and conditions that the Company intends to offer to customers with

1 businesses, homes, and other property that may be suitable for the installation of a
2 solar PV facility.

3 **Q. DOES THIS CHANGE ALSO ADDRESS CONCERNS RAISED BY THE**
4 **SOLAR INTERVENORS?**

5 A. Yes. This change addresses concerns raised by the witnesses for NCSEA, Vote
6 Solar and the Solar Alliance that the size of the Program as originally proposed,
7 when compared to the Company's solar REPS requirements, could limit the
8 viability of other solar business models. Given NCSEA witness Day's statement
9 that, "We would be artificially limiting the NC solar market ... if Duke is not
10 allowed to pursue some of the small projects it is proposing" (p. 6, lines 10-12), it
11 appears NCSEA supports of the Company's efforts to pursue some of the small
12 projects that it originally proposed in its Application, provided that opportunities
13 are available for other solar ownership models as well.

14 This Program is the Company's only effort to pursue utility ownership of
15 solar resources, whereas the Company already has demonstrated its commitment
16 to the other two models proposed through (1) its announcement of a power
17 purchase agreement with Sun Edison, and (2) a variety of net metering offerings
18 including REC payments offered through NC GreenPower whereby customers
19 can sell their solar RECs for \$0.15/kwh, as well as its efforts to develop a
20 standard offer for RECS from customer-generators (although with important
21 differences from the REC purchase proposals of the Solar Intervenors as I discuss
22 below).

1 **Q. WILL THE PROGRAM CONTINUE TO PROVIDE THE BENEFITS**
2 **OUTLINED IN THE APPLICATION AND IN THE COMPANY'S DIRECT**
3 **TESTIMONY AT THIS SIZE?**

4 **A. Yes. The Program will continue to provide many benefits, including the**
5 **following:**

- 6 • The Program will continue to provide renewable energy that the Company
7 can use towards its solar energy REPS requirements. Assuming timely
8 approval, this Program will enable Duke Energy Carolinas to meet its
9 2010 solar energy requirement of over 11,000 MWH. The Program will
10 add to the diversity of solar resources available to the Company for REPS
11 compliance.
- 12 • The Program will continue to enable the Company to understand the
13 impact of distributed generation on its system. While the reduced CPCN
14 request obviously will reduce the number of sites where the Company
15 would install solar PV facilities, the program is still significant in size,
16 particularly in comparison to the existing installed solar PV capacity in
17 North Carolina. The Company will seek to locate the solar PV facilities
18 under this Program in a manner that will facilitate learning with respect to
19 distributed generation impacts.
- 20 • The Program will continue to enable the Company to develop and enhance
21 its competencies as owners and operators of renewable generation
22 facilities so that it is not reliant solely on third parties to meet the REPS

1 compliance requirements (through either purchased power or REC
2 purchases).

- 3 • The Program will also continue to promote energy security through its
4 distributed nature; to produce electricity that is emission free; to advance
5 the state of the solar industry in North Carolina; to drive towards
6 standardization of inspection requirements; and to enable the Company's
7 customers to directly participate in the development of renewable
8 resources in North Carolina.

9 Further, as noted by the Public Staff, after obtaining experience with the Program,
10 the Company will have the option to seek Commission approval to expand the
11 Program and the blanket CPCN at a later date.

12 **Q. PLEASE DESCRIBE HOW THE REDUCED SIZE OF THE PROGRAM**
13 **IMPACTS THE PROGRAM DESIGN, COMPONENTS, AND COSTS.**

14 **A.** The Program design, components, and costs will remain consistent with the
15 Company's original Application except for the total expected investment and the
16 total expected installed capacity. The Company estimates that it will spend \$50
17 million (rather than \$100 million), and that this investment will yield a total of 10
18 MWDC (rather than 20 MWDC). The Company still proposes to undertake the
19 Program over the course of two years following approval by the Commission.
20 For planning purposes the Company still assumes that it would spend 40% of the
21 capital in 2009 and 60% in 2010. Further, the Company still proposes that 80-
22 90% of the total installed capacity would come in the form of "large scale"
23 installations (herein defined as projects between 500kw and 3 MW in size; that up

1 to 10% of the total installed capacity would come in the form of "medium scale"
2 installations (herein defined as projects between 15kw and 500kw in size); and
3 that up to 10% would come in the form of "small scale" installations of 1.5kw to
4 5kw apiece. The reduced investment will reduce the costs to be recovered
5 through the REPS rider. These impacts are discussed by Company witness
6 McManeus.

7 **Q. HOW WILL THE REDUCED SIZE OF THE PROGRAM IMPACT THE**
8 **COMPANY'S ESTIMATE OF RECS PRODUCED BY THE PROGRAM**
9 **FOR COMPLIANCE WITH THE REPS REQUIREMENTS?**

10 A. Previously, the Company had estimated that the Program would result in an
11 estimated 30,000 MWH annually once the Program was fully implemented. At
12 the reduced size, the Company now estimates that the Program would result in
13 approximately 15,000 MWH annually once it is fully implemented.

14 **III. COMPETITIVE BENEFITS OF THE PROGRAM**

15 **Q. WHAT HAS BEEN THE CUSTOMER REACTION TO THE PROGRAM**
16 **PROPOSAL?**

17 A. The customer reaction to the Program has been remarkable. Since we filed our
18 Application on June 6, 2008, we have had more than 460 customers contact us to
19 express their interest in hosting a project on their premises. Many of these
20 customers have multiple sites so the actual number of sites represented by this
21 group is much larger. The Company has made no efforts to market or promote
22 this Program to customers. Instead, the level of customer interest has come

1 completely as a result of numerous news stories that were generated beginning
2 when the Company filed its Application on June 6, 2008.

3 **Q. DOES THE PROGRAM CREATE MARKET OPPORTUNITIES FOR**
4 **SOLAR SUPPLIERS?**

5 A. Yes. Duke Energy Carolinas intends to enter into agreements with solar suppliers
6 to fulfill the Program. The Company issued a RFP in August 2008 to request
7 turn-key proposals from solar suppliers to fulfill the variety of installation types
8 and sizes described in the Application. The response has been tremendous, with
9 over 70 firms submitting a notice of intent to bid and over 90 people participating
10 in a bidder's conference that was held on October 3, 2008. We believe that our
11 Program creates a market opportunity that otherwise would not exist in North
12 Carolina. In absence of this Program, we believe that there would be no
13 mechanism to give this many solar suppliers a reason to consider initiating or
14 expanding their business operations in North Carolina.

15 In addition to the firms that have registered to participate in this RFP,
16 several solar module manufacturers have contacted the Company to express their
17 interest in constructing a manufacturing site within Duke Energy Carolinas'
18 service territory. We believe that a key reason for their interest is the Company's
19 commitment to and enthusiasm for solar energy as expressed by this Program.

20 **Q. NCSEA WITNESS DAY CLAIMS THAT "THE BULK PURCHASES AT**
21 **REDUCED COST OF SOLAR EQUIPMENT THAT DUKE TOUTS DID**
22 **NOT COME TO FRUITION IN THE RECENT REQUEST FOR**

**PROPOSAL FOR TURNKEY PROJECTS” (P. 4, LINES 29-31). HOW DO
YOU RESPOND?**

A. This is not true. This is either a misunderstanding by witness Day or a misrepresentation of the facts. Duke Energy Carolinas has an RFP underway for turnkey projects to fulfill the Program, but the due date for receiving proposals has not yet arrived. As such, since the Company has not received the proposals yet, Ms. Day’s claim that the Company’s projected costs have not come to fruition simply is not accurate. Until the Company receives and evaluates the proposals through the RFP, it stands by the cost estimates it has put forth in the Application and testimony.

**Q. HOW IS THE PROGRAM CONSISTENT WITH THE COMPANY’S
CORE BUSINESS?**

A. NCSEA witness Day argues that distributed generation does not comport with the utility model and that Duke Energy Carolinas should stick to its core business and be limited to large scale solar investments. However, the Company’s position is that our core business includes the operation of our electrical transmission and distribution system. As such, we believe that understanding the impacts of distributed generation on our system operations is of the utmost importance, and in order to achieve this understanding we should not eliminate small scale PV systems from the Program.

**Q. NCSEA WITNESS DAY STATES THAT THIS “...PROPOSAL AND ITS
PRECEDENT... WOULD MAKE THE REGULATED UTILITIES**

**MONOPOLY PROVIDERS OF SMALL SCALE PV SYSTEMS IN NORTH
CAROLINA" (P. 5, LINE 1-2). HOW DO YOU RESPOND?**

A. This is simply not true. Currently a number of small scale PV systems have been installed by customers or other third parties in the Company's North Carolina service territory. The Program in question represents the Company's first efforts at utility-owned solar in the State, which would hardly qualify it as a monopoly provider of these types of projects given the presence of other PV systems that were not provided by the Company.

**Q. NCSEA WITNESS DAY ALSO STATES THAT "A CERTAIN AMOUNT
OF MARKET SHARE SHOULD BE RESERVED FOR PRIVATE
INVESTMENT TO FULFILL THE LEGISLATIVE GOALS OF THE
REPS LAW..." (P. 5, LINES 29-30). HOW DO YOU RESPOND?**

A. Duke Energy Carolinas is supportive of solar investments by customers and other third parties, but does not believe it is reasonable to set aside a specific amount of its compliance obligation to be met through this mechanism. As I will explain in more detail below in response to Vote Solar witness Starrs' analysis, these so called "private investments"¹ by customers cannot be counted on to occur at any given level or frequency because they are beyond the control of the Company. As such, requiring the Company to set aside some portion of its compliance requirements to be met through these kinds of arrangements is unreasonable and

¹ Use of the term "private investment" by NCSEA witness Day and Solar Alliance witness Hitt suggests that investments made by Duke Energy Carolinas are not private investments. The attempt to distinguish between customer-owned solar generation and utility-owned solar generation on this basis is erroneous given that as an investor owned corporation, the Company's investment in generation is likewise "private investment."

1 could expose the Company to the risk that it would fail to meet its compliance
2 obligations.

3 **Q. ON PAGES 4 AND 5 OF HER TESTIMONY, SOLAR ALLIANCE**
4 **WITNESS HITT ARGUES THAT DUKE ENERGY CAROLINAS IS**
5 **PROMOTING ONLY UTILITY-OWNED SOLAR TO THE EXCLUSION**
6 **OF OTHER MODELS. HOW DO YOU RESPOND?**

7 **A.** This is not true. While the Program in question is a utility-owned model, it is not
8 the only model that Duke Energy Carolinas is pursuing. In fact, without this
9 Program, the only models that would take hold would be third party ownership
10 models, which the Company believes is detrimental to the development of the
11 solar industry and poses risks that compliance obligations may not be met. This
12 Program is part of a portfolio approach to renewables that the Company is
13 pursuing. Duke Energy Carolinas already has announced a power purchase
14 agreement with Sun Edison. Further, the Company has a number of solutions to
15 accommodate customer-owned solar generation, and later in my testimony I
16 describe our efforts to develop a standard offer that would enable customer-
17 generators to sell RECS to the Company, although our approach has several
18 important differences from the recommendations of the Solar Intervenors.

19 **Q. SOLAR ALLIANCE WITNESS HITT CITES EXAMPLES OF LARGE**
20 **RETAILERS PURSUING SOLAR PV INVESTMENTS THAT WOULD BE**
21 **FORECLOSED BY THE PROGRAM. HOW DO YOU RESPOND TO**
22 **THESE CONCERNS?**

1 A. As discussed above, the Company's decision to revise the Program to reduce the
2 size will result in the need for additional resources to meet the REPS solar carve-
3 out requirements. Even given this opportunity, however, it is unlikely that, absent
4 the Program, initiatives such as those by Kohl's, Macy's, Wal-Mart, and Safeway
5 Stores to work directly with solar suppliers that install, own, and operate solar PV
6 panels on their rooftops (cited by Ms. Hitt on pages 9 through 10 of her
7 testimony) will materialize in this scope and size in the Company's service
8 territory. It is critical to be aware that all of these installations referenced by Ms.
9 Hitt are in California or Hawaii. The average retail rates in California and Hawaii
10 are at least two to three times higher than Duke Energy Carolinas' average retail
11 rates, which significantly impacts a customer's investment decision with regards
12 to solar PV. Further, many of these installations are structured such that the solar
13 supplier owns the PV systems and sells the power to the customer-host under a
14 purchased power agreement. It is my understanding that North Carolina law
15 would not permit this type of contractual structure in this State. Thus, these
16 examples of customer activity in California and Hawaii should not be considered
17 relevant for North Carolina.

18 Q. SOLAR ALLIANCE WITNESS HITT ALSO CITES EXAMPLES OF
19 SIGNIFICANT RESIDENTIAL INSTALLATIONS THAT ARE
20 BECOMING COMMONPLACE THROUGH PARTNERSHIPS BETWEEN
21 SOLAR SUPPLIERS AND PRODUCTION HOMEBUILDERS. IS IT
22 LIKELY THAT THESE KINDS OF ARRANGEMENTS WOULD TAKE
23 HOLD IN NORTH CAROLINA WITHIN THE FORESEEABLE FUTURE?

1 A. No. The examples of residential installations provided by Ms. Hitt are also all in
2 California where, again, the cost of energy and the legislative and regulatory
3 framework is quite different than it is in North Carolina.

4 Q. SOLAR ALLIANCE WITNESS HITT RECOMMENDS THAT
5 "APPROVAL OF DUKE'S PROPOSAL SHOULD BE ACCOMPANIED
6 WITH A NCUC DIRECTIVE THAT DUKE CONTINUE TO EXPAND ITS
7 EXPLORATION OF VARIOUS BUSINESS MODELS BEYOND THE
8 UTILITY OWNERSHIP [SIC] IN THE DISTRIBUTED SOLAR
9 MARKET" (P. 12, LINES 224-226). HOW DO YOU RESPOND?

10 A. A Commission directive along these lines is unnecessary, as Duke Energy
11 Carolinas has already demonstrated its commitment to other business models,
12 including power purchase agreements and programs to promote customer
13 investments in solar energy.

14 IV. PROGRAM COSTS

15 Q. PLEASE EXPLAIN THE BASIS FOR THE COST ESTIMATE PROVIDED
16 IN THE APPLICATION AND YOUR DIRECT TESTIMONY.

17 A. The cost estimates provided in the Application and my direct testimony were
18 derived from a number of public and private sources including various research
19 reports and conversations with a number of solar suppliers. As Wal-Mart witness
20 Baker points out in his testimony, the implied cost/watt of the Company's
21 Program is \$5/watt (or \$5,000/kw). This cost estimate is derived by dividing the
22 original total cost of the Program of \$100M by the installed capacity estimate of

1 20 MWDC. Under the revised Program size, the cost per watt estimate is
2 unchanged.

3 This cost estimate is for the cost of installation and does not account for
4 the numerous tax benefits that will result in a reduction of the net cost of the
5 Program. There are four main categories of tax benefits that will reduce the
6 overall costs of the Program. These are: (1) the federal investment tax credit of
7 30% of the amount invested, (2) the North Carolina investment tax credit of 35%
8 of the amount invested, (3) federal five-year accelerated tax depreciation, and (4)
9 the North Carolina property tax exclusion of 80% of the property taxes. As an
10 update to my direct testimony filed on July 25, 2008, the North Carolina property
11 tax exclusion has now been signed into law. Also, the federal investment tax
12 credit has now been extended to utilities and thus will also be available to the
13 Company.

14 The RFP that is in process currently will serve as the Company's basis for
15 reaching agreements with solar suppliers and will determine actual Program costs.
16 Wal-Mart's proposal to cap the costs of the Program at the estimated level of
17 \$5,000/kw is unreasonable. The Company will comply with the requirements
18 under N.C. Gen. Stat. § 6-110.1 and Commission Rule R8-61 to provide the
19 Commission with progress reports and any revision to this cost estimate during
20 construction.

21 **Q. THE PUBLIC STAFF SEEKS TO COMPARE THE ESTIMATED COST**
22 **OF THE PROGRAM TO THE BIDS RECEIVED IN THE COMPANY'S**

1 **2007 REQUEST FOR PROPOSAL FOR RENEWABLE ENERGY. IS**
2 **THIS COMPARISON APPROPRIATE?**

3 A. No. The Program is intended to serve multiple purposes that are in the best
4 interests of Duke Energy Carolinas' customers and the communities we serve,
5 which could not be said for the bids received in the Company's renewable energy
6 RFP. Specifically, this Program is designed to broaden the Company's
7 competencies as owners and operators of a variety of sizes and types of renewable
8 assets so that it is not reliant solely on power purchase agreements to meet the
9 renewable energy requirements that will account for a growing percentage of its
10 resource mix in the coming years. Additionally, it is of the utmost importance
11 that Duke Energy Carolinas determine the impacts of distributed generation on its
12 system and the Program provides the Company with the scale and siting control to
13 do so. The bids received in the RFP were not designed with these objectives in
14 mind. For these reasons it is not appropriate to make a comparison between those
15 bids and this Program.

16 **Q. HOW DOES THE COMPANY RESPOND TO THE PUBLIC STAFF'S**
17 **RECOMMENDATION THAT WOULD LIMIT THE AMOUNT OF**
18 **PROGRAM COSTS THAT MAY BE RECOVERED THROUGH THE**
19 **REPS RIDER?**

20 A. Prior to filing the Application for this Program on June 6, 2008, Duke Energy
21 Carolinas initially did consider if it would be reasonable and appropriate to
22 attempt to divide the costs of the Program between different recovery mechanisms
23 based upon the multiple benefits of the Program. As discussed by Duke Energy

1 Carolinas' witness McManeus, however, the Company ultimately determined not
2 to pursue this approach because all generation resulting from the installations
3 under the Program will serve to meet the REPS requirements. Therefore, if the
4 Commission finds the Program to be reasonable and prudent, the appropriate
5 recovery mechanism for all costs in excess of avoided costs is through the REPS
6 rider.

7 **V. RECS STANDARD OFFER**

8 **Q. IS DUKE ENERGY CAROLINAS CONSIDERING A RECS STANDARD**
9 **OFFER?**

10 **A.** Yes. The Company is developing a standard REC offer which it would make
11 available to customer-generators for RECs for general and carve-out compliance
12 based upon current market prices. Pricing of the standard offer would be updated
13 on a periodic basis. Although the interval for updating pricing of the offer has not
14 been finalized, a reasonable approach that the Company is considering is one
15 where pricing would be updated quarterly. The offer would be at the Company's
16 discretion on an as needed basis, meaning that we will evaluate our requirements
17 in relation to resources the Company already has under contract, and will reserve
18 the right to not enter into an agreement with a seller if the RECs are deemed to be
19 unneeded or would expose the Company to incurring costs that would be in
20 excess of the REPS cost caps.

21 A key purpose of the standard offer is to create a streamlined approach to
22 interacting with owners of small generators that produce relatively small
23 quantities of RECs. In these cases, it would likely not serve anyone's interests to

Q. VOTE SOLAR WITNESS STARRS ARGUES THAT A STANDARD REC OFFER PROVIDES MORE CERTAINTY THAN A UTILITY INVESTMENT IN SOLAR PROJECTS DOES (P. 6, LINES 1-9). HOW DO YOU RESPOND?

A. Dr. Starrs' claim of greater certainty fails to recognize that the magnitude and timing of customer investments in solar projects is outside the control of the utility, and, as such, Duke Energy Carolinas cannot rely on these kinds of third party investments to meet its compliance obligations. Although Duke Energy Carolinas is supportive of such investments, it cannot depend on them to meet a certain percentage of its compliance requirements.

Q. PLEASE COMMENT ON THE EXAMPLES OF OTHER UTILITIES THAT OFFER A STANDARD REC OFFER TO CUSTOMERS CITED BY VOTE SOLAR WITNESS STARRS (P. 9, LINES 4-22).

A. None of the utility programs referenced by Dr. Starrs are in North Carolina, and it is not appropriate to conclude that similar programs in other states should be mandated for Duke Energy Carolinas or any other utility serving North Carolina customers. The design of any REC offer program must take into consideration things such as: the nature of cost recovery mechanisms associated with renewable requirements; the prevailing electricity rates; the specifics regarding the magnitude and timing of solar energy requirements; and the quality of solar resources available in the area.

1 Q. DO YOU AGREE WITH VOTE SOLAR WITNESS STARRS
2 REGARDING HIS CALCULATIONS AND CONCLUSIONS AS THEY
3 PERTAIN TO HIS EXHIBIT 2?

4 A. No. Dr. Starrs claims that REC payments of \$0.17/kwh or higher would drive
5 investment in customer-owned PV systems, but his analysis does not sufficiently
6 support this. One assumption that Dr. Starrs makes with which Duke Energy
7 Carolinas does not agree is the assumption that electricity prices will rise at a 6%
8 annual rate for the next 15 years. This rate of escalation would result in electricity
9 prices at the end of the period that are 2.3 times what they are today. This is not a
10 reasonable assumption. Further, the Company does not believe that it is
11 reasonable to expect that the private investors to whom Dr. Starrs refers would
12 make this assumption either. If private investors believe the escalation of
13 electricity rates will be less than the 6% that Dr. Starrs assumes, a REC payment
14 of \$0.17/kwh would not provide enough incentive for them to make an investment
15 in a PV system.

16 Additionally, NC GreenPower already provides a program in North
17 Carolina where customers can obtain REC payments comparable to the levels that
18 Dr. Starrs recommends (NC GreenPower's rate is currently \$0.15/kwh, and was
19 \$0.18/kwh prior to March 2008). To require utilities to purchase RECs at
20 comparable rates would not result in any new incentives to customers that are not
21 already available in a practical sense. NC GreenPower serves a valuable role in
22 the development of renewable energy in North Carolina; however, the amount of
23 customer-owned solar generation that exists in North Carolina today is evidence

1 that this model of paying for RECs at the levels Dr. Starrs recommends cannot be
2 counted on to drive the level of investment that would be required to meet the
3 objectives of the State with respect to solar energy production, and could not be
4 relied upon by Duke Energy Carolinas to assure the Company could meet its
5 REPS requirements.

6 **Q. DO YOU AGREE WITH VOTE SOLAR WITNESS STARRS**
7 **REGARDING HIS CALCULATIONS AND CONCLUSIONS REGARDING**
8 **HIS EXHIBIT 3?**

9 A. No. Dr. Starrs utilizes his Exhibit 3 to conclude that a model of paying \$0.18/kwh
10 for RECs would result in nearly 50% more solar PV installed capacity than Duke
11 Energy Carolinas projects to install at the same cost; however, this conclusion is
12 based on several flawed assumptions.

13 First, Dr. Starrs uses a lower capacity factor for customer generators than
14 the capacity factor used by the Company for the Program. Specifically, Dr. Starrs
15 Exhibit 2 shows every kilowatt of installed capacity would produce 1,191 kwh
16 annually. Duke Energy Carolinas has assumed 1,500 kwh annually for each
17 kilowatt installed. The point here is not whether 1,191 is a more or less
18 reasonable assumption than 1,500, but instead it is to highlight that if one assumes
19 a lower capacity factor in this calculation (as Dr. Starrs has), the formula will
20 indicate that one would need substantially more installed capacity to generate a
21 comparable amount of energy. Dr. Starrs' exhibits do not provide enough
22 information to determine what his installed capacity figure would have been if he
23 had assumed the same capacity factor that Duke Energy Carolinas has assumed,

1 but it is clear that if he had not utilized a different capacity factor he could not
2 have reached the conclusion that he did.

3 Second, even if Dr. Starrs had not made the flawed assumption described
4 above, it would still be inappropriate to conclude that his proposed REC purchase
5 program is superior to Duke Energy Carolinas' Program. Dr. Starrs Exhibit 3 is
6 based on a 15 year REC purchase agreement, whereas Duke Energy Carolinas
7 believes the economic life of solar PV facilities is generally considered to be
8 approximately 25 years. Dr. Starrs' approach leads to the conclusion that \$100
9 million would buy 555,556 RECs if RECS are priced at \$0.18/kwh. However, the
10 investment of \$100 million under the Program would generate 750,000 RECs
11 (30,000 RECs annually for 25 years) because the investment would enable the
12 Company to generate RECs over the full economic life of the project of
13 approximately 25 years, rather than only procure them over the 15 years of a
14 contractual agreement.

15 Third, Dr. Starrs' proposed method of expending \$100 million does not
16 allocate any costs to energy produced and, instead, it goes entirely towards buying
17 only RECs. Under Duke Energy Carolinas' proposed Program the \$100 million
18 investment results in both the production of energy and the generation of RECS.

19 Fourth, Dr. Starrs' analysis is based on the flawed assumption that a REC
20 payment of \$0.18/kwh would be sufficient to drive investment in solar PV. As
21 indicated earlier in this testimony, it is not reasonable to assume that customers
22 believe electricity rates will rise at a 6% annualized rate for the next 15 years, and

1 as such a payment of \$0.18/kwh would not provide enough incentive to get
2 customers to invest in PV².

3 **Q. WILL A SOLAR REC STANDARD OFFER AS PROPOSED BY NCSEA,**
4 **VOTE SOLAR AND THE SOLAR ALLIANCE RESULT IN LOWER**
5 **COSTS TO CUSTOMERS AS COMPARED TO THE COMPANY'S**
6 **PROGRAM?**

7 A. No. NCSEA witness Day, Vote Solar witness Starrs and Solar Alliance witness
8 Hitt all argue that requiring Duke Energy Carolinas to provide a long-term
9 standard offer for solar RECs at a price equal to the cost of the Program to the
10 Company will potentially lower costs to customers. Dr. Starrs also maintains that
11 this price should also permit a customer generator to recover its full investment
12 and earn an internal rate of return of 9-12%. Thus, it appears that the Solar
13 Intervenor's position is that Duke Energy Carolinas should be required to
14 purchase RECs from any solar customer-generator at a price that is the higher of
15 the Company's cost to implement the Program, or the amount needed for the
16 customer-generator to earn an internal rate of return of 9-12% on its investment.
17 The supposition that a "must take" obligation at this price would result in lower
18 costs to customers is not tenable.

19 **Q. WHAT OTHER CONCLUSIONS CAN BE DRAWN FROM THE**
20 **ANALYSIS PROVIDED BY VOTE SOLAR WITNESS STARRS?**

² Duke Energy Carolinas realizes that Dr. Starrs' assumption of a 6% escalation rate resulted in a REC payment calculation of \$0.17/kwh, rather than the \$0.18/kwh that he referenced in Exhibit 3. Dr. Starrs' exhibits do not provide enough information to determine the precise escalation rate that would be associated with a REC payment of \$0.18/kwh, but Duke Energy Carolinas assumes that it would still be approximately 6%.

1 A. The analysis provided by Dr. Starrs can be used to show that the form of REC
2 purchase agreement that the Solar Intervenors recommend would exceed the cost
3 of Duke Energy Carolinas' Program. To illustrate this, I will utilize Dr. Starrs'
4 assumption that retail electricity prices will rise over the long term at a 3% annual
5 rate, rather than his more extreme scenario where prices rise at 6%. Further, I will
6 utilize Dr. Starrs' assumption that many investors would require a 12% return on
7 their investment in a PV system, rather than relying on the 9% level, which is the
8 absolute minimum return that Dr. Starrs believes is acceptable.

9 Using these assumptions, Dr. Starrs' Exhibit 2 shows that a price of
10 approximately \$0.23-\$0.32/kwh or more per REC would be required to provide
11 the needed return to customers in order to motivate them to invest in a PV system.
12 This cost covers only the RECs and does not include any value associated with
13 the energy from the PV system. Under these assumptions it is clear that the REC
14 purchase model recommended by the Solar Intervenors would exceed the cost of
15 the Program proposed by Duke Energy Carolinas. Furthermore, the REC
16 purchase model offers no certainty with regards to how many customers would
17 choose to install PV systems at any given REC price.

18 Duke Energy Carolinas is not opposed to a REC purchase offer for
19 customer-generators, and as stated above, the Company is pursuing that in
20 addition to this Program. The parameters offered by the Solar Intervenors,
21 however, are not acceptable. If too few customers acted on this incentive, and the
22 Company had relied on it for compliance, it would not be able to comply with the
23 REPS requirements. Alternatively, if a large number of customers acted on this

1 incentive and the Company had no way to limit customer participants, the
2 Company could exceed its REPS cost caps.

3 **VI. PROGRAM TERMS AND CONDITIONS**

4 **Q. PLEASE DESCRIBE THE METHOD DUKE ENERGY CAROLINAS**
5 **WILL USE TO DEVELOP THE TERMS AND CONDITIONS OF THE**
6 **LEASE AGREEMENT BETWEEN THE COMPANY AND PROGRAM**
7 **PARTICIPANTS.**

8 **A.** Duke Energy Carolinas is undertaking market research efforts with customers to
9 assure that the terms and conditions of the lease agreement meet the needs and
10 expectations of customers, while still enabling the Company to meet its
11 objectives. This research is not complete yet, and, as such, the terms and
12 conditions of the lease agreement remain subject to change. In its agreements
13 with host customers, Duke Energy Carolinas will address the kinds of questions
14 raised by Wal-Mart witness Baker in his testimony. However, Duke Energy
15 Carolinas intends to structure the lease agreement in a manner that will meet the
16 needs of a set of customers that is large enough and diverse enough to fulfill the
17 Program. Whether the final terms and conditions of the lease agreement will be
18 acceptable to Wal-Mart or not is not known, and the Company's intent is not to
19 satisfy the needs of one particular customer to the exclusion of others.

20 The Company views the lease agreement in this case similarly to other real
21 estate-related agreements with customers, such as those to procure rights-of-way.
22 It is my understanding that neither the terms and conditions of such agreements
23 nor the compensation amount paid to customers are approved by the Commission.

1 **Q. HOW DO YOU RESPOND TO WAL-MART'S RECOMMENDATION**
2 **THAT CUSTOMERS PARTICIPATING IN THE PROGRAM BE**
3 **PERMITTED TO RETAIN A PORTION OF THE RECS GENERATED?**

4 A. This recommendation is something that the Company has considered and it may
5 be a feature that the Company makes available to customers; however Duke
6 Energy Carolinas should not be required to structure the lease agreement in this
7 manner. Until the Company finalizes its market research studies it should retain
8 the flexibility to structure the lease agreements in a manner that meets customer
9 needs, minimizes complexity, and enables the Company to meet its objectives. At
10 present, Duke Energy Carolinas prefers to structure lease agreements to
11 compensate hosts with cash rather than RECs, because the primary benefit of the
12 Program is to produce solar RECs needed for REPS compliance and we believe
13 that the majority of customers would rather be compensated with cash. If the
14 compensation structure includes RECs it would likely need to be a very small
15 portion of the amount of RECs generated from the systems so as not to materially
16 alter the compliance benefits of the Program.

17 **Q. HOW DO YOU RESPOND TO WAL-MART'S RECOMMENDATION**
18 **THAT CUSTOMERS PARTICIPATING IN THE PROGRAM BE**
19 **PERMITTED TO USE SOME PORTION OF THE POWER GENERATED**
20 **TO SUPPLY ITS POWER NEEDS.**

21 A. This is also an interesting recommendation and one that the Company has
22 considered. It should be noted that the electricity produced by the PV systems
23 under this Program may very well be consumed by the host of the project in many

1 instances. This is due to the physics of electricity. Because the customer site is a
2 load center located in close proximity to a generation resource it is reasonable to
3 assume that the electricity produced by that particular PV system will indeed
4 flow, in many instances, into that host location. However, I do not believe this is
5 the point that Wal-Mart witness Baker is trying to make with his
6 recommendation. Instead, I believe he is asking that that PV system be metered
7 in such a way that some portion of the electricity produced by the PV system
8 serve to directly reduce the host's utility bill. Duke Energy Carolinas believes
9 that such an arrangement is not practical as it introduces unnecessary complexities
10 with respect to the metering interconnection and billing processes. At present, we
11 would prefer to structure the lease agreement in a manner where the host
12 customer receives cash compensation for use of their premises, which can
13 effectively result in the same outcome for the host from a financial perspective
14 with much less complexity. It is our belief that the majority of potential hosts will
15 find this arrangement to be at least as attractive as Mr. Baker's suggestion,
16 although we would prefer to retain the flexibility to finalize such decisions related
17 to the lease agreement until after its market research studies have concluded.

18 Furthermore, if a Wal-Mart store wants to retain RECS or use solar PV
19 equipment to supply its own power needs it has the option of making its own
20 investment in a solar PV system itself as an alternative to this Program.

21 **VII. CONCLUSION**

22 **Q. IS THE PROGRAM AS MODIFIED JUSTIFIED BY THE PUBLIC**
23 **CONVENIENCE AND NECESSITY?**

1 A. Yes. The Program is a part of a portfolio approach to provide a diversity of
2 resources to meet Duke Energy Carolinas' REPS requirements. It is necessary for
3 compliance with the 2010 and 2011 solar carve out obligations. Over time it will
4 continue to produce RECs needed for compliance as well as provide the
5 opportunity for the numerous other benefits described in the Company's
6 Application and testimony. These benefits include enabling the Company to
7 understand the impact of distributed generation on its system; enhancing the
8 Company's competencies as owners and operators of renewable generation
9 facilities so that it is not solely reliant on third parties; advancing the state of the
10 solar industry in North Carolina; and providing additional opportunities for
11 customers to directly participate in the development of renewable resources in
12 North Carolina. As my rebuttal testimony makes clear, the reduction in the size
13 of the Program addresses the concerns raised by the Public Staff and Solar
14 Intervenors without compromising these benefits.

15 **Q: DOES THIS CONCLUDE YOUR PRE-FILED REBUTTAL TESTIMONY?**

16 A: Yes.

1 (SMITH REBUTTAL EXHIBIT NO. 1
2 WAS MARKED FOR IDENTIFICATION.)

3 Q. (By Ms. Nichols) And Mr. Smith, do you have a
4 summary of your rebuttal testimony?

5 A. Yes, I do.

6 Q. Please give that summary.

7 (THE SUMMARY OF THE PREFILED REBUTTAL
8 TESTIMONY OF OWEN A. SMITH WILL BE COPIED
9 INTO THE RECORD AS GIVEN ORALLY FROM THE
10 WITNESS STAND.)

DUKE ENERGY CAROLINAS, LLC
Docket No. E-7, Sub 856
OWEN A. SMITH REBUTTAL TESTIMONY SUMMARY

1 My rebuttal testimony addresses concerns and questions raised by intervenors
2 regarding Duke Energy Carolinas' proposed solar photovoltaic distributed generation
3 program and updates my direct testimony in light of our agreement to reduce the size of the
4 Program.

5 In considering the issues raised by Public Staff and intervenor witnesses it is
6 important to keep in mind a few key facts regarding the Program:

7 First, the Program is a part of a portfolio approach to compliance with Duke Energy
8 Carolinas' obligations under the REPS solar carve-out requirements that is intended to serve
9 the best interests of all customers. We consider purchased power agreements and the
10 purchase of RECs from customer-owned resources, as well as utility-owned resources to be
11 appropriate resources within the portfolio.

12 Second, by agreeing to size the Program more modestly it should be clear that Duke
13 Energy Carolinas supports a market for a variety of solar technologies and ownership
14 structures.

15 Third, timely approval of the Program is critical to meeting the solar carve-out
16 requirement in 2010 of over 11,000 MWH and to ensure that the Program can benefit from
17 the North Carolina solar investment tax credit.

18 Fourth, the Program arises out of the REPS solar obligations, yet it provides the
19 opportunity for the Company to achieve not merely compliance, but numerous other benefits.

20 Public Staff and Solar Intervenor witnesses expressed concern regarding the size of
21 the Program as proposed compared to Duke Energy Carolinas' obligations under the solar

1 REPS requirements. In order to address the intervenor concerns, Duke Energy Carolinas
2 agrees to reduce the size of the proposed Program. The Program design, components, and
3 costs will remain consistent with the Company's original Application except for the total
4 expected investment and the total expected installed capacity. The Company estimates that it
5 will spend \$50 million (rather than \$100 million), and that this investment will yield a total
6 of 10 MWDC (rather than 20 MWDC).

7 The Public Staff's comparison of the estimated costs of the program to the bids
8 received in the Company's 2007 RFP for renewable energy is inappropriate. The Program is
9 intended to serve multiple purposes that are in the best interests of Duke Energy Carolinas'
10 customers and the communities we serve, which could not be said for the bids received in the
11 Company's renewable energy RFP. The bids received in the RFP were not designed with
12 these objectives in mind.

13 Contrary to the assertions of NCSEA witness Day and Solar Alliance witness Hitt,
14 Duke Energy Carolinas is not promoting only utility-owned solar to the exclusion of other
15 models. Currently a number of small scale PV systems have been installed by customers or
16 other third parties in the Company's North Carolina service territory. Without this Program,
17 the only models that would take hold would be third party ownership models, which the
18 Company believes is detrimental to the development of the solar industry and poses risks that
19 compliance obligations may not be met.

20 Witness Day also states that a certain amount of market share should be reserved for
21 private investment to fulfill the legislative goals of the REPS law. Duke Energy Carolinas is
22 supportive of solar investments by customers and other third parties, but does not believe it is
23 reasonable to set aside a specific amount of its compliance obligation to be met through this

1 mechanism. The magnitude and timing of customer investments in solar projects are outside
 2 the control of the utility, and, as such, Duke Energy Carolinas cannot rely on these kinds of
 3 third party investments to meet its compliance obligations.

4 The Company is developing a standard REC offer which it would make available to
 5 customer-generators for RECs for general and carve-out compliance based upon current
 6 market prices. The offer would be at the Company's discretion on an as needed basis,
 7 meaning that we will evaluate our requirements in relation to resources the Company already
 8 has under contract, and will reserve the right to not enter into an agreement with a seller if
 9 the RECs are deemed to be unneeded or would expose the Company to incurring costs that
 10 would be in excess of the REPS cost caps.

11 NC GreenPower already provides a program in North Carolina where customers can
 12 obtain REC payments comparable to the levels that Vote Solar Witness Starrs recommends.
 13 To require utilities to purchase RECs at comparable rates would not result in any new
 14 incentives to customers that are not already available in a practical sense. NC GreenPower
 15 serves a valuable role in the development of renewable energy in North Carolina; however,
 16 the amount of customer-owned solar generation that exists in North Carolina today is
 17 evidence that this model of paying for RECs at the levels Dr. Starrs recommends cannot be
 18 counted on to drive the level of investment that would be required to meet the objectives of
 19 the State with respect to solar energy production, and could not be relied upon by Duke
 20 Energy Carolinas to assure the Company could meet its REPS requirements.

21 Further, my rebuttal testimony demonstrates that Dr. Starrs' analysis of the PV
 22 installed capacity likely to result from the Program as compared to his REC purchase
 23 proposal is based upon several flawed assumptions.

- 3 -

1 A solar REC standard offer as proposed by the Solar Intervenors will not result in
 2 lower costs to customers as compared to the Company's program. Indeed, the analysis
 3 provided by Dr. Starrs can be used to show that the form of REC purchase agreement that the
 4 Solar Intervenors recommend would exceed the cost of Duke Energy Carolinas' Program.

5 The Program as modified is justified by the public convenience and necessity. It is
 6 necessary for compliance with the 2010 and 2011 solar carve out obligations. Over time it

1 A solar REC standard offer as proposed by the Solar Intervenors will not result in
2 lower costs to customers as compared to the Company's program. Indeed, the analysis
3 provided by Dr. Starrs can be used to show that the form of REC purchase agreement that the
4 Solar Intervenors recommend would exceed the cost of Duke Energy Carolinas' Program.

5 The Program as modified is justified by the public convenience and necessity. It is
6 necessary for compliance with the 2010 and 2011 solar carve out obligations. Over time it
7 will continue to produce RECs needed for compliance as well as provide the opportunity for
8 the numerous other benefits described in the Company's Application and testimony. The
9 reduction in the size of the Program addresses the concerns raised by the Public Staff and
10 Solar Intervenors without compromising these benefits.

11 This concludes the summary of my pre-filed rebuttal testimony.

1 MS. NICHOLS: This witness is available
2 for cross examination.

3 COMMISSIONER JOYNER: Mr. Olson, you're
4 leaning forward? Mr. Cavros?

5 MR. OLSON: Well, you are first in line.

6 CROSS EXAMINATION BY MR. CAVROS:

7 Q. Good morning, Mr. Smith. Can you hear me?

8 A. Yes.

9 Q. Okay, great. You referred to the Duke approach as
10 a portfolio approach, correct?

11 A. The Duke approach is part of a portfolio approach.

12 Q. Could you explain what you mean by that?

13 A. Yes. Probably, we consider and we've seen in the
14 testimony filed by all the parties that there's
15 generally speaking three models for a solar
16 investment. The first, or one, being purchased
17 power agreements with a solar developer; another
18 being arrangements to purchase RECs from customer-
19 owned generation; and the third being utility-owned
20 investments in solar generation. So this program
21 would represent the third that I mentioned.

22 Q. Very good. And I wanted to draw your attention to
23 page or line -- page 9, line 15 of your rebuttal
24 testimony.

1 COMMISSIONER JOYNER: Gentlemen, could
2 you each pull the mics a little bit closer to you?
3 Mr. Smith, if you'll move yours around?

4 THE WITNESS: Sure.

5 COMMISSIONER JOYNER: Since you're
6 looking at the intervenor table, I'm not hearing
7 you -- your voice very distinctly. Thank you.

8 Q. I just want to direct your attention to page line
9 -- page 9, line 15 where you state that Duke has
10 demonstrated commitment to NC GreenPower and has
11 another model for promoting solar?

12 A. Are you in --

13 Q. I'm sorry. I'm in your rebuttal -- no, I'm
14 actually in the -- I'm not in the summary but
15 actually in the testimony.

16 A. Page 9 -- my page 9 line 15 says, "What has been
17 the customer reaction to the program proposal?"

18 Q. I apologize. It's page 6, line -- starting on line
19 14 with -- starting with, "This Program is the
20 Company's only effort to pursue utility ownership
21 of solar resources."

22 A. Okay.

23 Q. And could you describe to the best of your
24 knowledge the -- the success of NC Green --

1 GreenPower in terms of direct -- the number of
2 customers that have signed up for REC payments or
3 are receiving REC payments through NC GreenPower?

4 A. The -- the number of customers as of the last
5 information that I received, which is I believe
6 maybe in August, the report that was currently
7 posted -- was posted on NC GreenPower's website --
8 I don't recall the specific number, but I believe
9 it was between 100 and 200 customers that are
10 signed up to sell RECs to NC GreenPower. And that
11 would include not only Duke Energy Carolinas
12 customers but other customers in the state.

13 Q. So it would be also customers outside of your
14 service area?

15 A. That's correct.

16 Q. And the reason I raise that is because there is a
17 lot of differing views on the ownership model
18 that's best equipped to drive solar energy
19 investment in -- in North Carolina. And I'm just
20 trying to get a sense of the, you know, how
21 effectively these REC programs to private non-
22 utility generators have -- have worked.

23 You had mentioned in your rebuttal
24 testimony that approximately 460 customers

1 contacted you about your program? That would be --
2 that would be page 9 of your rebuttal testimony,
3 line 18.

4 A. That's correct.

5 Q. That's more participants than the NC GreenPower
6 program, is that correct?

7 A. That's correct.

8 Q. Why do you think that is?

9 A. I think there is a lot of interest in the program,
10 and I would say that this number -- the number of
11 customers, 460, is growing every day. We've had
12 even more customers that have signed up since we
13 filed this. I think it would be safe to say that
14 at this point the number is at least over 470.

15 However -- and we have not made any
16 efforts to actually promote this program directly
17 to customers directly through marketing or -- or
18 promotional efforts. This has come just out of the
19 program being in the news from a result of our
20 application. I think there's just a lot of -- a
21 tremendous amount of interest, and this offers a
22 different type of approach or method for customers
23 to have a hands-on opportunity to enable solar
24 energy in North Carolina.

1 Q. And to follow up to that question, there seems to
2 be considerably more customers that have contacted
3 you at least about your program than are currently
4 involved in the NC Green program, customers that
5 receive REC payments. And I was wondering if you
6 would offer an opinion as to the discrepancy in the
7 numbers?

8 A. As to why more customers have contacted us than are
9 currently participating in --

10 Q. Correct.

11 A. They are different programs. Under the NC
12 GreenPower program a customer would be required to
13 make an investment, a substantial investment, in a
14 PV system in order to be able to enter into that
15 arrangement whereas, under our program, that would
16 not be required. So that's one key difference in
17 the model that we're proposing to enable customers
18 to have this hands-on direct experience with the
19 development of solar energy.

20 Q. Ms. Ruff stated in her initial direct testimony on
21 page 8, line 2, that there are approximately 60
22 installed solar-generating facilities in the
23 Company's territory with a capacity of roughly 300
24 kilowatts. Is that correct?

1 A. Yes, it's -- that's accurate.

2 Q. And the program that you're proposing is 10
3 megawatts of distributed solar energy and, you
4 know, we -- we certainly applaud you for that, the
5 fact that you've taken a distributed generation
6 route rather than just one central generating
7 station. But when compared to the number of
8 customers, private non-utility customers, the 60
9 that I mentioned previous at 300 kilowatts and the
10 10 megawatts that would be utility owned at the end
11 of your program, that -- if megawatts and
12 production is the measure, your program would be
13 about 30 times larger than existing non-utility
14 generation. Is that accurate?

15 A. That's accurate.

16 Q. Does that -- does that pose an issue of utility
17 versus non-utility ownership equity to you or how
18 would you -- I guess how would you describe the --
19 the fact that the utility program -- or what impact
20 -- let me rephrase that.

21 What impact, if any, do you think the
22 utility program being substantially larger than the
23 private non-utility current solar generation assets
24 on the ground now, how would -- how would that

1 impact solar development in North Carolina?

2 A. I would say that just -- I think that a program of
3 this sort, of the magnitude that it is relative to
4 the installed capacity that currently exists with
5 the 300 kilowatts that you referenced, I think you
6 -- we expect to see a lot of interest.

7 And we already have with the -- the
8 number of customers and the number -- as well as
9 the number of solar suppliers that are expressing
10 interest in helping us fulfill this program. So
11 this program has initiated lots of interest amongst
12 both suppliers as well as customers that I think
13 can make solar energy more on the mind of
14 customers.

15 And so I think there's just a general
16 awareness that will be created as well as promoting
17 the investment in a much more short time frame to
18 get to 10 megawatts. If we had relied only the
19 pace at which customer-owned systems are coming
20 online, we would not attract the sort of interest
21 from the solar suppliers that we're seeing as a
22 result of this program.

23 We also -- important to note that I think
24 we would -- if we relied solely on customer-owned

1 generation, we would face a significant risk that
2 we wouldn't be able to meet our compliance
3 obligations that start in 2010.

4 Q. To what would you attribute the concerns that
5 you've raised about -- about private non-utility or
6 depending on private non-utility ownership to
7 fulfill your -- your REPS requirement under
8 statute? You expressed some concerns over the pace
9 of private non-utility development. What -- what
10 do you attribute that to?

11 A. I think -- well, our evidence, the evidence of what
12 -- what's currently installed and the pace at which
13 it's coming in. And when I'm referring to it, the
14 it I'm referring to is the customer-owned systems.
15 I -- I don't think that -- well, I believe that
16 that evidence would suggest that we cannot rely on
17 those sorts of arrangements to meet all of our
18 solar obligations or any specific -- specified
19 portion of our solar obligations.

20 The investments made by customers, the
21 decision to make those investments are made by the
22 customers, not by the utility. The utility is --
23 we bear the obligation to comply with the REPS
24 statute so we -- we feel uncertain that relying to

1 any degree or relying upon customer generation,
2 customer investments of this sort to meet a
3 specific portion of our requirements may pose the
4 risk that we would be unable to meet our compliance
5 obligations.

6 Q. Sure. And I guess my question, my follow-up
7 question to that would be why isn't private non-
8 utility ownership coming online faster in your
9 opinion?

10 A. There could be any number of reasons, but I'm not
11 sure. It's a significant investment that a -- that
12 a customer would have to make, and the reasons why
13 they choose not to make that I'm not sure.

14 Q. Okay. Would you agree that it would be valuable to
15 have historical information to -- to look at as a
16 utility of the cost-effectiveness and even the job
17 creation related to private non-utility owned solar
18 generation and utility-owned solar generation?
19 Sort of have them side by side and have a sort of
20 historical context of how each has performed?

21 A. Valuable for the purpose of?

22 Q. From an information standpoint or for making future
23 decisions on how to pursue your REPS requirements.

24 A. If that information was available, that would --

1 that would be of interest.

2 Q. Okay. And would Duke Energy be open to some sort
3 of framework within Commission rules whereby there
4 could be some set of -- some type of market test
5 set up to see which pathway is more cost-effective
6 and better at stimulating economic development? In
7 other words, the self-build option, power purchase
8 agreements, the RECs to determine which would
9 receive the most customer value and stimulate the
10 greatest economic development in North Carolina?

11 A. Are you asking would -- would I be willing to -- to
12 what? To --

13 Q. Yeah, my question is if the Company would be open
14 to some type of framework if proposed by -- by
15 staff or by the Commission to, you know, to somehow
16 set up an evaluation process from here going
17 forward of comparing side by side private
18 investment in -- in solar against utility in terms
19 of performance for cost-effectiveness and also
20 economic development measures?

21 A. I think that the -- the framework is already in
22 place with the REP statute. I don't know that --
23 that anything additional would be required in order
24 to be able to see that test play out. As I said,

1 we will -- we are pursuing this program as part of
2 a portfolio approach and, as such, we would -- we
3 would promote customer-owned generation and
4 purchase of RECs from that in addition to power
5 purchase agreements from developers and this
6 program. So I suppose that as we proceed through
7 the efforts to comply with the REP statute, there
8 will be information that would be available to make
9 the comparisons that you're talking about.

10 MR. CAVROS: Thank you. No further
11 questions.

12 CROSS EXAMINATION BY MR. CHAMBERLAIN:

13 Q. Good morning, Mr. Smith.

14 A. Good morning.

15 Q. As I understand the Company's revised proposal, the
16 Company is proposing to invest \$50 million over two
17 years, is that correct?

18 A. That's correct.

19 Q. And how does the Company propose to fund that \$50
20 million? How does the Company propose to recover
21 that \$50 million?

22 A. It will be recovered in the manner that we believe
23 is most appropriate given the language that's in
24 the REP statute.

1 Q. And that method is what?

2 A. I -- it involves the recovery through the REPs
3 rider and -- but I'll defer the specifics of the
4 cost recovery to Jane McManeus.

5 Q. You've answered my question. I'm not asking about
6 the specifics, but the Company proposes to recover
7 the \$50 million through -- from its customers
8 through a rider, is that correct?

9 A. That's correct. The rider that's specified under
10 the REPS statute.

11 Q. And that's a source of funding that's not available
12 to providers other than Duke, is that correct?

13 A. All of the utilities that are subject to the North
14 Carolina REPS requirements could have the rider as
15 their recovery mechanism.

16 Q. That was a poorly phrased question. That recovery
17 mechanism is not available to non-utility
18 providers, is that correct?

19 A. That's correct.

20 Q. Okay. Now, as I understand the proposal the
21 Company would approach site owners and propose --
22 try to negotiate a contract, is that correct?

23 A. Yes. We will -- with the larger-scale
24 installations we foresee an individual type of

1 negotiation on the terms and conditions of the
2 lease.

3 Q. Okay. And -- and the terms and conditions of that
4 lease are not standardized, is that correct?

5 A. Well, we foresee that -- well, the lease agreement
6 has not been fully developed yet. The terms and
7 conditions may vary based on the customers' needs
8 or based on the negotiations that we have with
9 them. So we would try for balance and simplicity
10 with balancing the needs to meet the customers'
11 requests as far as terms and conditions go. So on
12 the simplicity side, we would seek to standardize
13 our agreements as much as possible. But where it's
14 appropriate, we would -- we would customize terms
15 and conditions.

16 Q. But the Company is not asking this Commission to
17 review those terms and conditions or approve some
18 standardized set of terms and conditions, are they?

19 A. That's correct. It's my understanding that
20 Commission approval is generally not considered
21 necessary for real estate transactions; and that's
22 how we are viewing this, as a real estate
23 transaction.

24 Q. Well, you mentioned in your testimony you, I think,

1 prepared two right-of-way agreements, do you not?

2 A. I -- I may have -- I may have mentioned that in my
3 testimony.

4 Q. My understanding of -- typically, with the right-
5 of-way statutes or procedures that I'm familiar
6 with, if a property owner doesn't like the
7 utility's offer, there is a mechanism whereby that
8 property owner can seek intervention by district
9 court to arrive at a fair value. Is that your
10 understanding?

11 A. I'm not able to speak to that one.

12 Q. Is there a mechanism under the Company's proposal
13 if a site owner doesn't feel they're being offered
14 fair value is there a procedure for a site owner to
15 seek some sort of -- some sort of intervention or
16 second opinion, if you will, of that fair value?

17 A. The -- I think the customers -- our program is of a
18 limited scale. We won't necessarily be able to
19 meet the requests of all customers, particularly
20 given the number of customers that have already
21 indicated their interest in hosting a program. So
22 I don't think that would be something that we could
23 do to -- or would be appropriate to obligate us to
24 the Company to enter into a lease agreement.

1 Because I could see that entailing entering into
2 more lease agreements than we could -- than what
3 we've proposed as part of this program.

4 Q. Well, that's interesting, but you didn't answer my
5 question. There is no procedure under the
6 Company's proposal whereby a site owner who doesn't
7 believe they're being offered fair value can seek
8 some sort of resolution of that? In other words,
9 it's pretty much a take it or leave it type
10 proposal, is it not?

11 A. I was going to say, the resolution that the
12 customer has if they're not satisfied with the
13 terms and conditions that are offered is they could
14 refuse to enter into the agreement.

15 Q. Okay. Basically, they could either take what the
16 Company offers or they could, I guess, build their
17 own facility?

18 A. Yes. That would be another alternative that they
19 would have.

20 Q. And of course, they don't have access to REP rider
21 funds to do that, do they?

22 A. No, but there's other mechanisms that they can
23 utilize.

24 Q. You also, in your rebuttal testimony you indicated,

1 I believe, that Duke may offer -- may offer a
2 portion of the RECs to the site owner but should
3 not be required to do that. Do you recall that
4 testimony?

5 A. Yes, I do.

6 Q. Okay. Before I forget, you indicated that there's
7 no requirement that the Commission approve these
8 lease agreements because they're a real estate type
9 of contract?

10 A. That's my understanding.

11 Q. Are you aware of any prohibition that would
12 prohibit this Commission from approving that
13 contract?

14 A. I am not aware of that.

15 Q. Okay. Now, back to the next topic. We were
16 talking about site ownership -- excuse me, site
17 owner -- ownership of the RECs generated by a solar
18 facility, and you indicated in your testimony that
19 Duke may offer ownership to site owners but should
20 not be required to. Is that correct?

21 A. Yes, that's correct.

22 Q. What assurances does this Commission have that Duke
23 will offer those? Will offer ownership?

24 A. As I also said in the direct testimony, our

1 inclination is to -- or excuse me, in the rebuttal
2 testimony, our inclination is to offer cash as the
3 compensation method. However, we're doing market
4 research studies and we'll -- we would like to
5 retain the flexibility to structure the lease
6 agreement in a manner that we think is the most
7 appropriate, most prudent for fulfilling this
8 program.

9 Q. Okay. But again, you indicate that Duke may offer
10 that, but you're not offering any assurances that
11 they will, in fact, offer that?

12 A. That's correct.

13 Q. All right. Is that something that would be
14 negotiable by an individual site owner?

15 A. We haven't made that determination if that would be
16 something that we would customize an agreement to
17 that extent or if it would -- or not.

18 Q. So it's possible that the site owner just may not
19 be allowed any ownership position in the RECs
20 generated by the facility on their site?

21 A. That's possible. It would be based on our
22 conclusions from our market research studies with
23 multiple customers.

24 Q. Right. You also indicated in your rebuttal

1 testimony that Duke would prefer to compensate with
2 cash rather than allowing the site owner to take a
3 portion of the renewable power generated by the
4 facility at that site, did you not?

5 A. That's correct.

6 Q. Okay. And I believe you indicated that that's
7 something that the Company may offer? Am I correct
8 there? I'm not sure whether your testimony
9 indicates that or not.

10 A. What -- that we may offer alternatives to the cash
11 compensation?

12 Q. That's right.

13 A. It would be, again, based on what we conclude from
14 the market -- our market research studies that
15 enough customers -- what will work the best for a
16 set of customers that's large enough and diverse
17 enough -- diverse enough to carry out this program.

18 Q. Then consistent with our previous discussion, it
19 sounds like that -- that the Company may or may not
20 offer that, hasn't reached a --

21 A. That's correct. Has not reached a definitive
22 conclusion on that.

23 Q. Okay. Now, I believe your testimony also indicates
24 that Duke believes that it will be able to purchase

1 solar panels at approximately \$5,000 per kilowatt,
2 is that correct?

3 A. \$5,000 per kilowatt is the -- the -- that
4 represents our estimate of the total installed cost
5 of the program over all.

6 Q. How confident is Duke in that number?

7 A. We feel confident in the number. However, it is --
8 it will be -- it's an estimate based on our
9 understanding of what's capable, what's possible.
10 But we'll -- we will utilize our Request For
11 Proposal process that's currently underway where we
12 will receive bids from solar suppliers to validate
13 or revise, if needed, our cost estimates. But
14 until we get those proposals we stand behind the
15 estimates that we've put out.

16 Q. What happens if your estimates are wrong and it's
17 \$6,000 per kW? How will that impact your
18 customers?

19 A. The -- the customers with whom we have a lease
20 agreement?

21 Q. Yes. Or will it have an impact?

22 A. It -- it may have an impact because I think if our
23 cost estimates need to be updated then I'm not sure
24 what all that would entail, but I think we would

1 follow whatever procedural requirements there are
2 to update cost estimates and make sure that our
3 program still has approval.

4 Q. And would it have an impact on Duke's electric
5 customers?

6 A. Our general customer base?

7 Q. Yes.

8 A. Sure, if we -- if our cost estimates are -- are
9 higher or lower than what we actually achieve and
10 we still undertake the program, then any -- any
11 variance, whether it's favorable or unfavorable,
12 would be reflected in the cost recovery. We would
13 -- as I mentioned before, if there are any
14 differences -- if our cost estimates need to be
15 updated, we would follow whatever procedural
16 requirements there are to make sure that our
17 program is still being prudent.

18 MR. CHAMBERLAIN: Thank you, Mr. Smith.
19 That's all the questions I have.

20 COMMISSIONER JOYNER: Mr. Olson?

21 MR. OLSON: Thank you, Commissioner. I
22 might be too close to this thing.

23 CROSS EXAMINATION BY MR. OLSON:

24 Q. Good morning, Mr. Smith.

1 A. Good morning.

2 Q. My name is Kurt Olson, and I'm representing the
3 North Carolina Sustainable Energy Association. I
4 have several questions. On page 6 of your rebuttal
5 testimony in line 3 and 4 there's a question. It
6 says, "Does this change?" And that change is
7 referring to, I believe, the change in your
8 proposal. Is that not correct?

9 A. The change from a 20 megawatt program to a 10
10 megawatt program.

11 Q. That's the change that's being referred to there,
12 is that correct?

13 A. That's correct.

14 Q. Okay. And it goes on to say that the change also
15 addresses the concerns raised by the solar
16 intervenors. And your answer to that is yes, do
17 you see that?

18 A. Yes.

19 Q. How do you know that?

20 A. The -- well, the answer to that question goes on to
21 explain in what way. It -- it goes on to address
22 the concerns raised. And we know that -- it's
23 based on our understanding of what the solar
24 intervenors collectively had expressed as a

1 concern, which was the size of the program relative
2 to our solar REPS requirements.

3 Q. Did you talk to any of the representatives of the
4 intervenors to determine that this change addressed
5 their concerns?

6 A. We attempted to, but did not have that
7 conversation.

8 Q. Do you know whether there are other aspects of the
9 programs other than the size itself that -- that
10 might be a concern to some of the solar
11 intervenors?

12 A. Yes. And -- and the -- my response to that
13 question addresses that, that one of the concerns
14 expressed by the solar intervenors has been to
15 assure that there are opportunities or reasons for
16 Duke Energy Carolinas to do business with owners of
17 -- customers who own small-scale solar PV systems.
18 And by reducing the size of the program, we feel
19 that that gives greater assurance to the solar
20 intervenors that we will, indeed, be doing exactly
21 that.

22 Q. And when do you think you'll be doing exactly that?

23 A. We are -- we are in the process of developing a
24 standard offer as described in the testimony, and

1 we would expect -- a precise date of when a first
2 transaction might be executed with a solar
3 generation owner of this sort, I'm not able to give
4 that. But the process is definitely under
5 development at this point.

6 Q. But isn't it true that you won't have to or Duke
7 will not have to go to a third-party solar provider
8 to meet its compliance obligations until 2015 or
9 later?

10 A. No, that's not correct.

11 Q. Okay. When would you have to go to a third party
12 in order to meet your -- given this program, when
13 would you have to go to a third party to meet your
14 compliance obligations?

15 A. We already have. There's a SunEdison agreement,
16 which is a third party, and we've already signed
17 that contract. And that will begin supplying
18 energy per the contract in the 2011 time frame.

19 Q. Okay. Well, putting Sun aside, can -- let me ask
20 the question this way, then. Can Duke meet its
21 compliance obligations through 2015 without having
22 to go to any third-party solar provider?

23 A. Well, I think that's based on -- on a couple of
24 assumptions. One would be that our -- that we get

1 approval for this program, and the other would be
2 that the SunEdison contract performs as expected.
3 However, I think -- the number you said was 2015.
4 I think the correct number is 2014 that, based on
5 the banking and the projected output of this
6 program combined with SunEdison would carry through
7 2014.

8 However, I would also add that the
9 banking allowances or the banking aspects of the
10 REPS statute would allow us to continue to make
11 investments, a steady progression of investments or
12 -- or contractual arrangements with a variety of
13 different types of solar suppliers now through the
14 out years of the REPS requirement. So even though
15 we would -- the analysis shows that we would have
16 sufficient RECs given the two -- our self-build and
17 the SunEdison program to carry us through 2014,
18 there would be good reason for us to continue to do
19 business with standard offers with -- with
20 customer-owned PV systems, to continue to get
21 additional RECs for compliance in the subsequent
22 years.

23 Q. Okay. You just referred that there would be good
24 reasons to continue to deal with other third-party

1 providers besides SunEdison. And you said -- to
2 collect RECs seems to be -- is that the good reason
3 that you're talking about or are there other
4 reasons that Duke would do that?

5 A. It -- it seems clear to me that the steady
6 progression of the solar carve-out requirements
7 combined with the banking provisions, there --
8 there are -- there are reasons -- that's the reason
9 why it makes sense for us to not, I guess, sit idle
10 until 2014 until we make other arrangements with
11 other -- other types of solar suppliers whether
12 they be customer-owned generation, third-party
13 arrangements with major developers. We would -- we
14 would -- we are not -- with this program and
15 SunEdison, we won't -- there's no reason for us to
16 sit on the sidelines until 2014 to begin procuring
17 resources. We see it more as a steady progression
18 of resource additions through time.

19 Q. But you could sit on the sidelines if you wanted
20 to, at least until 2014?

21 A. I don't -- I don't think so. I think there's --
22 there's a major stair step between 2014 and 2015
23 with respect to the solar energy requirements, and
24 we will need to step into that. And so it would

1 not be prudent or -- or it would be very difficult
2 for us to make the step change exactly as it's --
3 as the requirements shift from 2014 to 2015.

4 Those requirements in 2015 are
5 substantially higher than in 2014. So we would
6 need to make -- take action well before 2015 to
7 meet that -- that subsequent stair step.

8 Q. Okay. So if I understand what you're saying, at
9 least until 2014 you could, as you put it, sit on
10 the sidelines. But after that point you would have
11 to --

12 MS. NICHOLS: Objection. I don't -- I
13 think he mischaracterized the witness's answer.

14 COMMISSIONER JOYNER: Mr. Olson, it --
15 well, go on and ask your question. The objection
16 is overruled and the witness is capable of
17 clarifying his answer to eliminate that concern if
18 it does, indeed, exist.

19 MR. OLSON: Okay.

20 Q. Well, let me ask it this way, then. If Duke
21 decided to, it could basically rely on its own
22 program and the SunEdison contract to meet
23 compliance through 2014, is that correct?

24 MS. NICHOLS: Objection. Asked and

1 answered.

2 COMMISSIONER JOYNER: Overruled. You may
3 answer the question.

4 A. The -- no, that's not correct. The -- if we think
5 about what our solar obligations are in 2014 and
6 2015 since those are the years we're talking about,
7 the years 2012 through 2014, based on our
8 estimates, our solar carve-out requirement is
9 40,000 megawatt hours. And then in 2015 it jumps
10 up to 81,000 megawatt hours. It doubles from 2014
11 to 2015.

12 So to sit on the sidelines until 2014
13 when you know your requirement doubles and you also
14 know that you have banking provisions that allow
15 you to take action early, that would not be wise
16 business, I would say, and we would fully intend to
17 continue making, you know, business arrangements to
18 procure more solar energy to -- to comply with the
19 2015 requirement well in advance of -- of 2015.

20 Q. Okay. But that would be a business decision. It
21 would not be something that would be mandated under
22 the REPS compliance requirements, is that correct?

23 A. I don't think the REPS requirements mandate when
24 you enter into any particular transaction.

1 Q. Okay. Well, I guess, to get back to the question -
2 - I don't mean to belabor the point, but you could
3 meet your compliance obligations through 2014 based
4 on your program and the SunEdison contract alone,
5 is that correct?

6 MS. NICHOLS: Objection.

7 COMMISSIONER JOYNER: I'm going to
8 sustain the objection. That question has been
9 answered, I believe, Mr. Olson, a couple of times.

10 MR. OLSON: Okay. Fine. Thank you.

11 Q. You referred to the program as allowing a blanket
12 CPCN, is that correct?

13 A. It's requesting a blanket CPCN.

14 Q. Right, that's what's requested in your application,
15 is that correct?

16 A. That's correct.

17 Q. Are you aware of any other blanket CPCNs that have
18 been granted?

19 A. It's my understanding that that has precedent, that
20 that has been granted before for other types of
21 programs.

22 Q. Okay. And can you point to any precedent that
23 you're aware of?

24 A. I will -- I'm going -- out of an abundance of

1 caution, I'm going to hesitate to refer to a
2 specific program. But we've had these discussions
3 and I do know there is precedent. But specifics, I
4 will -- I'll refrain from attempting to address
5 that.

6 Q. Okay, fair enough. In looking at your rebuttal
7 testimony on page 10, lines 3 and 4 ask the
8 question, "Does the program create market
9 opportunity for solar suppliers?" And then on page
10 5 -- I mean, line 5 you say, "Yes. Duke Energy
11 Carolinas intends to enter into agreements with
12 solar suppliers to fulfill the Program." Do you
13 see that?

14 A. Yes, I do.

15 Q. Are those -- when you're referring to solar
16 suppliers, can you elaborate on who you're
17 referring to there?

18 A. In this context we're referring to the -- to firms
19 that will -- that will fulfill this program for us.
20 We've issued an RFP to solar installers or
21 integrators that would be capable of fulfilling
22 this program for us. That's -- that's what we're
23 referring to here.

24 Q. Okay. And those are -- those are not persons that

1 are supplying energy, then, is that correct?

2 A. This would be -- that's correct. It's for -- it's
3 for the installation of solar systems.

4 Q. So it's just the persons that are providing the
5 hardware or the solar equipment?

6 A. Equipment, installation, labor, maintenance
7 agreements, but not -- not a contract to purchase
8 energy.

9 Q. Okay, thank you. Just one point of clarification.
10 Do you consider the North Carolina Sustainable
11 Energy Association as a -- as a solar advocate?

12 A. I'm not sure.

13 Q. You are aware that we represent, or the North
14 Carolina Sustainable Energy Association represents
15 providers of other forms of alternative energy
16 technology, aren't you?

17 A. In -- yes, I'm aware of that.

18 Q. In your earlier testimony you were asked questions
19 about the pace of private non-utility investment in
20 solar energy. Do you recall that testimony?

21 A. Yes.

22 Q. Okay. And you were asked a question of whether you
23 had an opinion on why that was occurring, do you
24 recall that?

- 1 A. You're speaking about the question from Mr. Cavros?
- 2 Q. That's correct.
- 3 A. Yes.
- 4 Q. Okay. Are you aware of any disincentives that may
- 5 exist for persons to invest in solar energy and
- 6 participate in these programs that are available
- 7 for solar providers?
- 8 A. It's a significant investment for a person or
- 9 business to make.
- 10 Q. Are there other disincentives that you're aware of?
- 11 A. No. I would say there are -- I mean, there are
- 12 substantial incentives in the form of tax credits
- 13 and net-metering arrangements. But I don't -- I
- 14 don't know that there are disincentives to making
- 15 the investment. There's the capital investment
- 16 that's a significant outlay, significant decision
- 17 for a person or a business to make.
- 18 Q. Have you at any time sort of evaluated whether a
- 19 private third-party investor can -- is viable in
- 20 the current, you know, environment that exists
- 21 today with the regulatory structure that is in
- 22 place?
- 23 A. Whether a third-party investor is viable?
- 24 Q. Can be viable given -- given the way the current

1 regulatory structure exists and other factors that
2 affect the viability of an organization?

3 A. Are you referring to, say, the creditworthiness of
4 a counter party to a transaction or the default
5 risk of a third party?

6 Q. No, I'm just asking you if you've done any analysis
7 whether it makes sense for a third party to go out
8 and invest in solar technology.

9 A. Well, I think we'll probably get into this shortly,
10 but Dr. Starrs in his testimony had provided some
11 analysis, and we certainly reviewed that and made
12 comments on that. That gets into what are the
13 economics of a solar investment.

14 Q. Well, one of the points you've made repeatedly is
15 that Duke is concerned about the ability to meet
16 its compliance obligations. And that, of course,
17 translates into the ability or the existence of
18 other solar providers in the market. Isn't that
19 true?

20 A. That -- I'm not sure I understood what you were
21 asking isn't that true to.

22 Q. Okay. Let me rephrase the question. One of the
23 points that Duke made is that this program is
24 necessary in order for you to feel comfortable

1 about meeting your -- your obligations under the --
2 under the statute, is that correct?

3 A. That's correct.

4 Q. Okay. And part of that is that you don't feel
5 confident that there will be enough private
6 investment for you to be able to secure the -- the
7 RECs in order for you to meet your obligations?

8 A. Yeah, I would say that's -- that's clear to me,
9 that with a requirement in 2010 of over 11,000
10 megawatt hours, given currently approximately 300
11 kilowatts of customer-owned generation in our
12 system and the pace at which that's likely to
13 continue in the near term, that it would be -- it
14 would not be possible for us to comply with the
15 2010 requirement relying on customer-owned systems
16 to -- to give us that assurance.

17 Q. And why is it in your opinion that that would not
18 be possible?

19 A. I think the -- the evidence that I would refer to
20 to make that assessment is the current installed --
21 current number of installations and the current
22 installed capacity of solar PV systems at 300
23 kilowatts approximately today and the presence of
24 incentives through NC GreenPower, which offer an

1 avenue for customers to sell their RECs, which --
2 which certainly gives an additional economic
3 incentive to making the investment in solar PV
4 combined with net-metering arrangements.

5 There still lacks -- even with the
6 presence of -- of those facts, we're -- we are
7 where we are with approximately 300 kilowatts of
8 solar PV on the system today. So to -- to conclude
9 that -- I think it's safe to say that we need
10 something else other than relying entirely on those
11 types of arrangements to allow us to meet the
12 11,000 megawatt hour obligation that we face.

13 Q. And do you believe that the program that you are
14 proposing has an effect on that at all?

15 A. An effect on our ability to comply with the
16 requirement?

17 Q. No, you've already made that clear. On the effect
18 of the ability of a private investor to enter the
19 market?

20 A. No, our program does not preclude a customer from
21 making their own investment, just as they are able
22 to do so today.

23 Q. Right. It doesn't preclude them but does it, in
24 effect, have some bearing on the economic viability

1 of doing so?

2 A. I don't -- I don't think that it does.

3 Q. And why is that?

4 A. As we talked about a few minutes ago we -- we will
5 -- we have an obligation that increases through
6 time. And not to go back through the conversation
7 we had several minutes ago, but we will continue --
8 we have reasons, you know, compliance obligations.
9 We will pursue arrangements with customer-owned PV
10 systems to purchase RECs to meet our compliance
11 requirements as they -- and as I mentioned before,
12 we see our actions there as being -- you could
13 characterize them as a steady progression of
14 business transactions to meet our requirements
15 through time as those requirements increase.

16 Q. Okay. On page 4 of your rebuttal testimony, line
17 6, you're referring to reasons, I believe, why
18 you've -- this program is necessary from Duke's
19 standpoint and, I guess, stating factors that you
20 would urge the Commission to keep in mind in
21 considering the Public Staff's and the intervenor
22 testimony.

23 A. Yes, sir.

24 Q. On line 6 you say that there are -- other

1 alternatives to procuring solar resources entail
2 either too much lead time in project development or
3 cannot be counted on to meet the full level of this
4 near-term requirement. Do you see that?

5 A. Yes, I see that.

6 Q. Okay. What other alternatives are you referring to
7 there?

8 A. The other alternatives that -- we refer to this as
9 one of -- our program as one of three, essentially,
10 three different models for solar energy; one being
11 utility ownership, which the program represents;
12 the other alternatives being REC purchases from
13 systems owned by -- by parties such as customers or
14 -- and the third being power purchase agreements.

15 So the other alternatives -- when I say
16 either entail too much lead time, our experience
17 would say that when you enter into a power purchase
18 agreement that entails lead time because the
19 project needs to be developed before it can be put
20 online. And with the customer-owned generation we
21 cannot count on customers to make those investments
22 to the order of magnitude required to meet the
23 11,000 megawatt hour plus obligation.

24 Q. Okay. Part of the program, if I understand it

1 correctly, is to lease rooftops from your
2 residential customers and place the solar equipment
3 necessary to generate energy on top of those
4 rooftops, is that not correct?

5 A. That's correct.

6 Q. And how long do you anticipate owning that and
7 leasing that rooftop and owning the equipment
8 necessary to produce the -- the energy?

9 A. As the application and our testimony indicates, we
10 expect -- we -- our understanding is that PV
11 systems generally have an economic life of
12 approximately 25 years. Our lease agreements with
13 customers will, as we talked about, are being
14 developed. And the lease agreement will need to --
15 the terms and conditions of the lease agreement and
16 the length of the agreement will need to satisfy
17 our objectives to carry out the program while also
18 meeting the needs of customers.

19 And we recognize that there may be
20 questions that customers have with respect to --
21 particularly residential customers with respect to
22 how long of a lease agreement they're willing to
23 enter into with us and that the length of that
24 lease agreement is something that we're working

1 through with customer research.

2 Q. You anticipate owning the equipment, either
3 throughout the use lives of the equipment or as
4 long as the lease allows you to, is that correct?

5 A. Yeah, that's what I would anticipate and likely may
6 have -- have some provisions in the lease agreement
7 where either the Company or the customer could
8 terminate the lease agreement, you know, based on
9 some predefined circumstances.

10 Q. On page 4 of your rebuttal testimony, line 14, you
11 refer to a "host of other benefits for our
12 customers and the State." Can you describe what
13 those other benefits are?

14 A. Yes. I guess if I could, I would refer to -- I'm
15 not sure if it was the summary of my direct -- I
16 guess it was the summary of my direct testimony,
17 page 2 of my direct testimony, line 11 through 25.

18 MS. NICHOLS: And Mr. Smith, you're
19 referring to page 2 of the summary of your direct
20 testimony?

21 THE WITNESS: Yes, I am. Thank you.

22 Q. Okay. Are there any other benefits that you were
23 referring to when you said there were a host of
24 other benefits for our customers and the State?

1 A. I don't believe so. I think page 2, 11 through 25,
2 captures the benefits.

3 Q. Have you -- have you issued an RFP for solar REC's
4 to date?

5 A. We issued an RFP for -- for renewable energy
6 resources in 2007. However, at that time -- it was
7 not open to REC-only bidders, and that was based on
8 our understanding of the statute at the time. So
9 the answer is no.

10 Q. Okay. Have you offered to buy REC's from any of
11 your customers?

12 A. Yes.

13 Q. Is there a certain class of customers that you made
14 this offer to?

15 A. No, not a certain class of customers. We have
16 entered into REC agreements to -- agreements to
17 purchase REC's.

18 Q. And would they be with residential customers or
19 with your commercial customers or your industrial
20 customers? Can you describe it in that fashion?

21 A. No, I can't describe it in that fashion. Actually,
22 the REC agreements that we have entered into -- and
23 I apologize if I've misinterpreted the emphasis of
24 your question. But the agreements that we've

1 entered into have -- would not generally be
2 considered as agreements to purchase RECs from --
3 from customers so much as other -- other types of
4 third parties.

5 Q. Can -- without getting into any confidential
6 information, I mean, can you describe who these
7 other types of third parties are?

8 A. An owner of a renewable generation project that's
9 -- and again, without getting into specifics as you
10 say, these -- the agreements that we've entered
11 into are not with our customers in the -- in the
12 traditional sense. They are agreements to purchase
13 RECs from a developer of a project.

14 Q. And when you say developer of a project, is that a
15 developer of a project that's designed to produce
16 energy?

17 A. That being one of the reasons for the project to be
18 developed, yes.

19 Q. So it could be a co-generation project as well?

20 A. I mean, it could be. And we're talking -- I'm
21 thinking about specific examples where we've
22 transacted but -- and you're speaking in
23 generations of what it could be. And again,
24 without getting into specifics that are

1 confidential, we've entered into agreements with --
2 with counterparties to purchase RECs for
3 compliance.

4 Q. Well, then, if you can without getting into any
5 confidential information, can you be more specific
6 about these agreements and who they are that you've
7 entered into them with?

8 A. I mean, I can't talk about who we've -- who we've
9 transacted with. Some of that information will be
10 available when we file our compliance plan for the
11 REPS.

12 Q. Okay.

13 MR. OLSON: Okay. I have no further
14 questions.

15 COMMISSIONER JOYNER: I think we're going
16 to take our midmorning break and give Mr. Smith an
17 opportunity to get his second wind.

18 THE WITNESS: Thank you.

19 COMMISSIONER JOYNER: We will be in
20 recess for 15 minutes. We will reconvene at 11:00.

21 (RECESS TAKEN FROM 10:44 A.M. UNTIL 11:00 A.M.)

22 COMMISSIONER JOYNER: If you will take
23 your seats, and if we will get the resurrected Mr.
24 Smith. Mr. Olson, you had completed cross, had you

1 not?

2 MR. OLSON: Yes, I had. Thank you.

3 COMMISSIONER JOYNER: Ms. Compton, you
4 are leaning forward. Do you have questions of the
5 witness?

6 MS. COMPTON: I do. Thank you.

7 CROSS EXAMINATION BY MS. COMPTON:

8 Q. Hi. I'm Sarah Compton, and I represent The Vote
9 Solar Initiative and The Solar Alliance.

10 One, I'd like to follow up on an earlier
11 question where we were talking about that Duke has
12 estimated that it can procure and install solar PV
13 systems for a price as low as 5,000 per kilowatt.
14 Do you recall discussing that earlier? And my
15 question is can you explain what that estimate is
16 based on? I don't think we've heard that.

17 A. It is based on a number of -- a number of sources
18 that include discussions with solar developers and
19 other -- other types of solar suppliers as well as
20 discussions with representatives from the Solar
21 Electric Power Association and -- or SEPA as it's
22 referred to -- and our review of various reports
23 and databases and publications.

24 Q. Is that a number that you came up with very

1 recently?

2 A. The numbers that we came up with were -- we
3 developed those numbers for our June 6 filing, so
4 they were very current as of that time.

5 Q. Well, you've also stated -- Duke has also stated
6 that it -- each kilowatt of solar generating
7 capacity will produce 1500 kilowatt hours of energy
8 annually. Do you recall?

9 A. Yes, that's correct. That's right.

10 Q. And what is the foundation for coming up with that
11 number? How did -- how did you arrive at that?

12 A. That is -- that is an approximation. That's an
13 estimate based on what we think is likely. It's an
14 estimate like our other estimates, but we -- it's a
15 -- it's based on what we understand capacity
16 factors can be for various types of solar
17 technologies.

18 Q. And the basis -- I'm sorry, and the basis for that
19 again is conversations with --

20 A. The same --

21 Q. -- solar suppliers?

22 A. -- same sorts of research, yes. That's right.

23 Q. In your rebuttal summary testimony on page 3, line
24 4, and there's already been some discussion of

- 1 this, you're talking about a standard REC offer.
2 And in that paragraph you talk about you'll provide
3 it on an as-needed basis. Can you be more specific
4 on when you plan to have this standard REC offer
5 available and what you mean by as-needed basis?
- 6 A. Did you say of my rebuttal, page 3, line 4?
- 7 Q. Your rebuttal summary.
- 8 A. Oh, rebuttal summary. Sorry. Based upon current
9 market prices on an as-needed basis. That's -- and
10 your question is what is -- what do we mean by as
11 needed?
- 12 Q. Well, prior to that, what -- can you nail down a
13 little bit better your timing on developing this
14 standard REC offer, how soon it's going to be
15 available?
- 16 A. The -- I mean, it's under development. It's
17 something that we've worked on and are working on
18 within Duke Energy. When it actually -- when it
19 actually is available, I think that would require
20 approval of management that represents more than
21 me, so I'm not able to give you a definitive date.
22 But we expect it to be -- it's under development
23 now and we hope to have it available soon.
- 24 Q. By soon in the next two years?

1 A. I would hope so, certainly.

2 Q. Okay. Now, could you describe what you mean as
3 needed?

4 A. As needed refers to our solar carve-out
5 obligations. So we would look at what our
6 requirements are not only in the -- the immediate
7 year but in the -- the next several years. And we
8 would seek to procure resources to meet the
9 requirements.

10 So if we need resources, we will seek to
11 procure resources. If we feel that entering into
12 agreements would put us in danger of exceeding our
13 cost caps that are specified in the REPS statute,
14 that's -- that's where we would feel that it would
15 not be needed to procure additional resources.

16 Q. You stated earlier today that you thought third-
17 party or customer-owned solar facilities were less
18 favorable because they had a longer lead time.
19 Could you explain why there would be a longer lead
20 time for such facilities in comparison to the
21 utility-owned facilities where you need to
22 negotiate leases and basically do the same
23 construction?

24 A. I'd like to emphasize that I don't believe I said

1 that they're less favorable. My point was that in
2 considering what our obligations are, we think that
3 this program is necessary in order to meet those
4 obligations, not that we view the other
5 arrangements with third parties as being less
6 favorable than this program. So I wanted to
7 emphasize that. But --

8 Q. But my question does not go to that terminology.
9 It goes to why you think there would be a longer
10 lead time for these other types of facilities.

11 A. For -- there's -- the other types of arrangements -
12 - I mentioned this, but there are two broad
13 categories of the other types of arrangements. And
14 with -- when we're speaking of customer-owned
15 generation there is no assurance that the utility
16 has, that Duke Energy Carolinas has, that customers
17 -- that those investments will actually be made by
18 customers at the magnitude and the timing that
19 would be required to meet our requirements.

20 So that's one aspect that -- in terms of
21 lead time, of getting projects in the ground when
22 we are -- or in operation. When we are controlling
23 the investment we have much more assurance of when
24 those projects will come into operation than if

1 we're relying on a customer-owned system, a
2 customer to make a decision to invest in a PV
3 system.

4 Q. But the actual negotiating with a customer-owned
5 facility would not necessarily take longer than a
6 utility-owned facility at a particular site, is
7 that correct?

8 A. I guess with -- since you said not necessarily I
9 would agree with that.

10 Q. I have one other question, and perhaps Ms. McManeus
11 might be better to address this. But now that the
12 cost or the -- the assessment that would be made to
13 the ratepayers has been reduced to less than a
14 fourth of what was in your original application,
15 has Duke considered returning to a program of 20
16 megawatts rather than the 10 megawatt program?

17 In your rebuttal testimony you talk about
18 reducing the size of the program would address some
19 of the public staff concerns on cost to the
20 customer, the ratepayer. But the original cost, if
21 I understand, was 34 cents per month per customer,
22 correct?

23 A. Yes, that is correct I believe.

24 Q. And the latest information being provided is that

1 the cost at half the program is reduced to 8 cents
2 per month, is that correct?

3 A. There are other reasons, other changes that were
4 made besides just the total investment that was
5 made. And as you said, Ms. McManeus would be the
6 one who could go through those -- those adjustments
7 that were made. But it's not merely changing the
8 investment from a \$100 million investment to a \$50
9 million investment that accounts for the change.
10 There are other changes, for example, the tax
11 credits.

12 Q. I understand that. My question is would Duke
13 consider, now that those tax incentives are
14 definite and they were more speculative when the
15 original application was filed, would Duke consider
16 looking at the 20 megawatt program again rather
17 than just the 10 megawatt program?

18 A. No. Our decision accounted for that and was
19 reflected by the Public -- it was a known -- the
20 tax credits were known at the time that the Public
21 Staff issued it's testimony. And so we made the
22 decision with that in mind.

23 MS. COMPTON: I have no further
24 questions. Thank you.

1 THE WITNESS: Thank you.

2 COMMISSIONER JOYNER: Attorney General?

3 MR. GREEN: No questions.

4 COMMISSIONER JOYNER: Public Staff?

5 CROSS EXAMINATION BY MR. GILLAM:

6 Q. Good morning, Mr. Smith.

7 A. Good morning.

8 Q. May I say initially that the Public Staff, at
9 least, appreciates your adopting our suggestion to
10 reduce the size of your program from 20 megawatts
11 to 10 megawatts.

12 Looking at the bottom of page 8 of your
13 rebuttal testimony, starting at line -- starting at
14 line 21 and continuing on to the end of the
15 paragraph at the top of the next page you discuss
16 how although the size of the project has been
17 reduced it will still consist of 80 to 90 percent
18 "large scale" installations, up to 10 percent
19 "medium scale" installations, and up to 10 percent
20 "small scale" installations, do you not?

21 A. I do.

22 Q. If in reducing the size of the project you had
23 eliminated the small-scale installations and medium
24 scale and retained 10 megawatts of large-scale

1 installations, the cost of your project per
2 megawatt hour would have been lower, would it not?

3 A. I don't -- well, perhaps. But not in a material
4 sense given the small amount of the investment
5 that's allocated to the smaller scale
6 installations.

7 Q. Turning now to page 18 of your rebuttal and looking
8 at line 3 starting there, you say, do you not, that
9 if the Commission finds the program to be
10 reasonable and prudent, the appropriate recovery
11 mechanism for all cost in excess of avoided cost is
12 through the REPS rider?

13 A. Yes.

14 Q. Are you saying that now in the certificate
15 proceeding is the Commission's only opportunity to
16 review the reasonableness and prudence of the
17 program and costs and, if they are now found to be
18 prudent, they must be recovered through the REPS
19 rider?

20 MS. NICHOLS: Objection. I think that's
21 a legal question.

22 COMMISSIONER JOYNER: Do you wish to be
23 heard?

24 MR. GILLAM: If he knows, I'd like to

1 have his answer.

2 COMMISSIONER JOYNER: And Mr. Smith, if
3 you know I will direct you to answer. If you do
4 not know, you are free to indicate that and to --
5 to adopt the representation of your lawyer that it
6 is a question --

7 THE WITNESS: I'll follow my counsel's
8 lead on that.

9 COMMISSIONER JOYNER: And I say that
10 because this is your first time here. You did not
11 know?

12 A. Well, I will say this, that it's -- I think the
13 answer is, to your question, Bob, is that the REPS
14 rider amount has to be approved by the Commission
15 when we file our REPS report, the rider amount to
16 be recovered from customers has to be approved.

17 Q. It was -- it sounds like, if I understand your
18 answer correctly, that it was not at least your
19 intent to say that this is the Commission's one and
20 only opportunity here at the certificate proceeding
21 to review reasonableness and prudence?

22 A. That sounds like a legal question.

23 Q. Was this sentence put in at the -- on the advice of
24 counsel?

1 A. Mr. Gillam, everything in this -- all of my
2 testimony was reviewed by my counsel.

3 Q. It may be that you can use that as your answer to
4 every one of my questions. And I -- and at least
5 with regard to this next question it really may be
6 your answer, but I'll ask it anyway.

7 Are you saying that aside from avoided
8 costs it's not proper for any of the program costs
9 to be recovered through base rates; they all have
10 to be recovered in the REPS rider?

11 A. You're saying other than avoided costs, all costs
12 need to be approved through the REPS rider?

13 Q. Yes.

14 A. Or recovered through the REPS rider? That's my
15 understanding, but I will -- I'm going to emphasize
16 that I think that is a legal question and I'll --
17 I'll ask you not to rely solely on my response.

18 Q. Okay. Looking at your rebuttal exhibit 1, your
19 proposed solar photovoltaic tariff.

20 A. The tariff?

21 Q. Yes. The first bullet says, "The Company will
22 install a PV system on the owner's property under a
23 separate lease agreement with the owner," does it
24 not?

1 A. It does.

2 Q. And I believe you indicated to Mr. Chamberlain that
3 Duke has not filed copies of its form -- of its
4 form lease agreements with the Commission because
5 those agreements are still in the process of
6 drafting?

7 A. That is correct.

8 Q. And you may have answered Mr. Chamberlain, but to
9 be sure in my own mind I'll ask you again. Would
10 you be willing to file copies of each of your form
11 lease agreements for approval once they're
12 available? I don't mean each agreement with each
13 property owner; I just mean each form lease
14 agreement.

15 Q. As I mentioned earlier, it's my understanding that
16 real estate transactions do not require the
17 Commission approval, the Commission's approval, so
18 -- and we'll -- we will follow whatever is -- is
19 required of us per the Commission's orders. But
20 it's my understanding, and again I think this is a
21 -- this is a legal question, but it's my
22 understanding that real estate transactions are not
23 generally required to be approved by the
24 Commission.

1 Q. It could be to your benefit to do this, could it
2 not, because if you do not, if you rest on what you
3 perceive to be your right to make your own decision
4 in that regard, then you could have customers
5 filing complaints with the Commission that you had
6 not been willing to -- to provide for such and such
7 in your lease agreement?

8 A. I'm not able to answer whether that would be to our
9 benefit or not.

10 Q. If -- well, I guess that would be a legal question
11 so I'll just pass it by.

12 Going back now to page 17 of your
13 rebuttal, lines 10 to 13. You say, do you not, it
14 is "of the utmost importance that Duke Energy
15 Carolinas determine the impacts of distributed
16 generation on its system" and that the Program
17 provides the Company with the scale and siting
18 control to do so?

19 A. Yes, that's correct.

20 Q. Duke currently has some distributed generation on
21 its system, does it not?

22 A. Yes, in limited amounts.

23 Q. Some of that is fossil and some is renewable, isn't
24 that correct?

- 1 A. By fossil are you referring to -- what -- could you
2 give me some specifics of what you're referring to?
3 I'm --
- 4 Q. Some of it burns oil, coal, or natural gas, does it
5 not?
- 6 A. I'm assuming you're not referring to our base load
7 generation stations and characterizing those as
8 distributed generation?
- 9 Q. No. You have some generation on customer sites,
10 not necessarily owned by you, but it is -- but you
11 have some fossil generation on customer sites, do
12 you not?
- 13 A. Yes, we do.
- 14 Q. In fact, every customer on your SCG or NM rider and
15 every customer for whom you provide stand-by or
16 supplemental service is a distributed generation
17 customer, isn't that correct?
- 18 A. I believe that would be correct.
- 19 Q. So in the passage I read on lines 10 to 13, would
20 it not be equally accurate to say it is of the
21 utmost importance that Duke Energy Carolinas more
22 fully determine the impacts of distributed
23 generation on its system?
- 24 A. You're asking would that be language that would, in

1 essence, mean the same thing?

2 Q. Well, it would be language that would, in essence,
3 be true even though it's not the language you used,
4 isn't that correct?

5 A. I agree.

6 Q. And I would assume that in your judgment that
7 fuller determination of the impacts of distributed
8 generation on your system is worth the difference
9 in cost between Duke's self-build project and the
10 second-place bidder on your RFP?

11 A. I think we've covered this in my -- in my rebuttal
12 testimony, but I don't think it's appropriate to
13 make a comparison between the RFP bidder prices and
14 this program. And I would say that the distributed
15 -- understanding impacts of distributed generation
16 on our system is not the only additional benefit
17 that this program entails. So to -- to conclude
18 what I believe you're asking I don't think is
19 appropriate because it would imply that distributed
20 generation is the only variable of this program
21 that would constitute a -- a difference in price
22 between this program and the second-place bidder in
23 our RFP.

24 Q. Well, I appreciate that, but I think you're asking

1 a different -- you're answering a different
2 question than I asked. I think -- I know you
3 consider it inappropriate to compare the cost of
4 the second-place bidder with your -- with the cost
5 of your project, and I'll get to that later. But
6 there -- but I don't think you would deny that
7 there is a difference. And I was asking you -- I
8 thought the answer would be yes. I was asking you
9 whether you thought the difference in cost was
10 worth the additional benefits of the self-build
11 program that you refer to. That may -- I may need
12 to restate that. That was probably pretty wordy.

13 But what I'm really -- I'm just simply
14 asking, the extra cost of -- that will be incurred
15 because of your self-build program. You think it's
16 worth it because of the additional benefits of your
17 program?

18 A. I agree with that, but I think there's more to the
19 answer to that because your -- your question
20 requires one to assume that the second-place bidder
21 in the RFP was -- was a price and a developer that
22 we -- that had no risk of changing, that the price
23 as originally proposed would not change if we had
24 undertaken extensive negotiations with that bidder

1 to finalize terms and conditions, and would also
2 require us to have full confidence that that
3 project as proposed would come to fruition as
4 proposed. And those are assumptions that, I think,
5 stretch beyond what I would be comfortable making.

6 MR. GILLAM: I think at this point I'm
7 going to need to begin asking questions that relate
8 to confidential information.

9 COMMISSIONER JOYNER: Okay. Consistent
10 with our policy and to protect information that the
11 law deems protectable, I will ask that anyone who
12 has not signed a proprietary agreement leave the
13 room. I will ask the Company to look around and
14 make sure that all of the persons in the room are
15 persons entitled to this information. And as soon
16 as possible we will reopen the hearing.

17 MR. GILLAM: And Madam Chair, while
18 people are leaving I'd like to distribute some
19 exhibits which I'd like to have marked as Public
20 Staff Smith Confidential Cross-Examination Exhibits
21 1, 2, and 3.

22 COMMISSIONER JOYNER: Ms. Nichols?

23 MS. NICHOLS: Yes. We now have
24 confidentiality agreements with all the parties to

1 the case, and the witnesses -- I want to just
2 inquire with counsel that the witnesses for the
3 parties that are here have also executed the
4 agreements?

5 MR. OLSON: Yes. Ours have.

6 MS. NICHOLS: Everyone else appears to be
7 Duke or Public Staff or Commission staff.

8 COMMISSIONER JOYNER: Okay.

9 (BECAUSE OF THE PROPRIETARY NATURE OF THE
10 TESTIMONY CONTAINED ON PAGES 150 THROUGH
11 163, IT WAS FILED UNDER SEAL.)

1 COMMISSIONER JOYNER: You may proceed,
2 Ms. Nichols.

3 MS. NICHOLS: Thank you.

4 REDIRECT EXAMINATION BY MS. NICHOLS:

5 Q. Mr. Smith, you were asked a series of questions by,
6 I believe, counsel for the Southern Alliance for
7 Clean Energy and NCSEA regarding the different
8 models for solar investment in the Carolinas. I
9 wanted to ask you what benefits can Duke's pursuit
10 of this program bring to the ability of non-utility
11 parties that might seek to make their own
12 investment in their own systems?

13 A. Yes, there are several benefits that -- that are
14 mentioned in my -- in my testimony. But to mention
15 -- to emphasize and point out some of them here,
16 there are -- we've emphasized that we would seek to
17 standardize to the extent where possible the
18 requirements for installing PV systems.

19 These requirements vary at a local level
20 based on building code requirements and things of
21 that sort. By operating and installing a large
22 number of PV systems across different jurisdictions
23 within our own Carolina service territory, we
24 believe that we can educate building code

1 authorities to the point that we hopefully can
2 standardize some of these requirements and simplify
3 the -- the time and expense that's involved in
4 installing systems, which is a disincentive or a
5 hurdle to overcome, so to speak, with respect to
6 putting a PV system in today.

7 Also, with this program we would through
8 the -- through the RFP and just by publicity of the
9 program, we are getting a lot of interest not only
10 from customers but from manufacturers that have
11 expressed an interest in siting a manufacturing
12 facility to manufacture solar PV modules in our
13 service area or in our general region and -- as
14 well as the installation arm.

15 So as you -- you can imagine -- I mean, I
16 think it's safe to -- safe to say that if we
17 proceed with this program that there is large
18 interest, a large amount of interest from
19 installers and manufacturers of doing business in
20 -- in North Carolina. And having that local
21 availability of installers and manufacturers would
22 -- would drive down the cost of solar installations
23 for all parties, whether they fall under this
24 program or are pursued independent of this program.

1 Q. And Mr. Chamberlain asked you some questions
2 related to the cost recovery of costs under this
3 program. Do you remember that line of questions?

4 A. Yes.

5 Q. And he made a reference to ratepayer funds, do you
6 recall that?

7 A. Yes, I do.

8 Q. Before the Company comes to the Commission and
9 seeks approval of its REPS rider to recover these
10 costs, who provides the money for the installations
11 under this program?

12 A. Investors in Duke Energy Corporation.

13 Q. And Mr. Chamberlain also asked you some questions
14 about the ability of a host site to obtain as
15 compensation some of the RECs that would be
16 generated by the installation. And given that the
17 primary purpose, as indicated in the Company's
18 testimony, is to -- for this program is to meet the
19 REPS requirements, would you have some concerns
20 about transferring those RECs to the host sites on
21 a large-scale basis?

22 A. Yes, I would. Transferring ownership of the RECS
23 and where Duke Energy would no longer retain them,
24 obviously, would reduce the compliance benefits of

1 the program.

2 Q. And I believe in your discussions with Mr. Olson
3 you were talking about the opportunities for third-
4 party solar installations and if they -- and you
5 talked about the need for Duke to increase its
6 acquisition of RECs over time to meet its
7 compliance obligations. Are there other
8 alternatives for customer-owned generator --
9 customer generators to sell their RECs?

10 A. Yes, there are. An example of that is NC
11 GreenPower, which offers customers the opportunity
12 to sell RECs at a price of 15 cents a kilowatt
13 hour. And there are also other alternatives that
14 RECs can be sold on the voluntary market, so it's
15 not limited just to NC GreenPower. But there are
16 other opportunities as well.

17 Q. And I believe you were asked some questions about
18 the basis for Duke's projections about the capacity
19 factors and the kilowatt hours that would be
20 produced annually under its program. Was one of
21 the resources used to estimate those capacity
22 factors the National Renewable Energy Laboratory
23 Program, PVWATTS?

24 A. Yes, it was.

1 Q. And can you explain a little bit about that
2 program?

3 A. It's a -- it's a model that will estimate the --
4 based on a location and particular type of PV
5 technology, it will estimate the megawatt hour
6 production.

7 Q. And is that a DOE tool?

8 A. Yeah, NREL is the National Renewable Energy
9 Laboratory, which is a -- I think it's part of the
10 DOE, Department of Energy.

11 Q. And Mr. Gillam asked you about what the cost would
12 be if Duke eliminated the small and medium-size
13 installations under the program. What are some of
14 the benefits of pursuing those small and medium-
15 sized installations?

16 A. The benefit of pursuing the small and medium-size
17 installations is to -- to maximize what can be
18 learned with respect to distributed generation on
19 our system. If we only pursued utility-scale
20 installations under this program, I believe it
21 would be a missed opportunity to -- to understand
22 what else may occur in terms of operational issues
23 or opportunities that are out there with smaller
24 scale systems.

1 Q. And along those same lines, Mr. Gillam asked you
2 some questions about the existing distributed
3 generation on the Company's system today. Under
4 the program -- well, would you expect that the
5 impacts that you're look -- the Company would be
6 looking to measure under this program would be the
7 same level as the distributed generation that's on
8 the system today?

9 A. No, not the same level or the same type. We -- we
10 would expect that -- what we expect is that the
11 form of distributed generation that's most likely
12 to take hold in the -- now going forward is solar
13 PV distributed generation as opposed to a fossil-
14 based distributed form that Mr. Gillam referred to.

15 Q. And does the Company foresee in the future there
16 being a greater number or smaller -- would you say
17 greater or smaller amount of distributed generation
18 on the Company's system than currently today?

19 A. A greater amount.

20 Q. And why is that?

21 A. We see -- we see the costs of distributed
22 generation -- the economics of distributed
23 generation improving as they compare to cost of
24 traditional generation and retail electricity

1 rates. And as those economics improve, we foresee
2 that more customers will make those investments
3 themselves. And -- and so there you would see --
4 excuse me. I'm running out of voice. We would see
5 more customers making those investments themselves
6 as the economics improve relative to grid rates.
7 So we'd see a much higher adoption rate going
8 forward.

9 Q. And why not just wait until that happens to
10 determine the impact on the system?

11 A. Because then we are left dealing with a situation
12 where we no longer have the opportunity to
13 understand what the impacts or opportunities are.
14 With this program, we can be ahead of the trend
15 that we believe is coming.

16 We can have -- we can exercise some
17 siting control to understand what the saturation
18 limits are of distributed generation on our system
19 so we can be aware of where operational issues
20 arise or, on the other hand, opportunities to
21 interact with customers in new and innovative ways.
22 So it's important to start now in a proactive way
23 rather than to just wait until distributed
24 generation takes hold on its own.

1 Q. And is the Company -- I missed a question earlier
2 in terms of talking about the cost recovery of the
3 program. If the Company as a part of its portfolio
4 approach also purchases RECs from its customers,
5 what's your understanding of where the cost of
6 those RECs is ultimately recovered?

7 A. Through the REPS rider.

8 Q. And lastly, you were -- without getting into any of
9 the numbers on the confidential exhibits, you were
10 presented with -- on Public Staff Smith Cross-
11 Examination Exhibit 1 a list of the megawatt hour
12 -- the cost per megawatt hour for the various solar
13 bids. Are those -- how are those costs determined?
14 Are they first year costs? What -- what's the
15 basis for determination of that?

16 A. The -- the number that's listed is the first year
17 cost. The escalation rate is also noted.

18 Q. So those could change over the length of the
19 contract?

20 A. Yes.

21 MS. NICHOLS: Nothing further.

22 COMMISSIONER JOYNER: Questions from the
23 Commission? And what I'm going to do, if my
24 colleagues will permit, is to the extent we can

1 deal with questions on nonconfidential matters
2 first so we don't have to keep inconveniencing the
3 other people in the room, I'd ask that we do that.
4 And we'll start with the Chair.

5 CHAIRMAN FINLEY: Mr. Smith, I think the
6 Public Staff suggested that perhaps some of the
7 costs that you have identified that you will incur
8 under this program could be recovered as research
9 costs? Did they not?

10 THE WITNESS: In the -- the questioning
11 here?

12 CHAIRMAN FINLEY: No, no. In their
13 testimony.

14 THE WITNESS: You're saying they had
15 suggested that that would be an appropriate way? I
16 believe -- yeah, I believe that's correct. I
17 believe they did suggest that.

18 CHAIRMAN FINLEY: And you have mentioned
19 doing things like developing competencies and
20 evaluating the impact of distributed generation as
21 a part of the benefits, correct, of the program?

22 THE WITNESS: Yes, I have.

23 CHAIRMAN FINLEY: What is the Company's
24 response to the Public Staff's suggestion that you

1 treat some of those costs as research costs?

2 THE WITNESS: What is -- how do we
3 respond to the Public Staff on that? Our response
4 is that we think that the -- that the costs should
5 be recovered under the REPS rider as -- as more
6 traditional investment.

7 CHAIRMAN FINLEY: Why is that?

8 THE WITNESS: Because we believe --
9 because the entire amount of the investment results
10 in megawatt hours that count towards -- towards the
11 solar carve-out requirements. So despite the fact
12 that we're able to capture additional benefits, the
13 entire amount of the investment would generate
14 megawatt hours towards compliance.

15 CHAIRMAN FINLEY: So if you classified
16 part of the cost as research costs, you could
17 recover those through the REPS rider but they
18 wouldn't count towards compliance with your
19 obligations under the statute, is that right?

20 THE WITNESS: I think to comply with the
21 obligation -- the compliance is based on the
22 megawatt hours generated. So the -- and I think to
23 answer your question, the amount that we could
24 count towards compliance would be the same whether

1 it was recovered in one manner or another. We'd
2 still -- the recovery would not affect the number
3 of megawatt hours generated that we would have
4 towards compliance.

5 CHAIRMAN FINLEY: Has Duke considered
6 investing money in research aside from this
7 particular program to be recovered through the REPS
8 rider?

9 THE WITNESS: I would -- yes, we've
10 considered -- we've considered how to utilize the
11 -- how to make use of the research. No decisions
12 have been made on that matter, though.

13 CHAIRMAN FINLEY: All right. One of the
14 objectives of the legislation, one of the policy
15 objectives, is to encourage private investment in
16 renewable energy and energy efficiency, is that
17 correct?

18 THE WITNESS: That's correct.

19 CHAIRMAN FINLEY: What is the Company's
20 understanding of what the adjective "private" means
21 there?

22 THE WITNESS: We believe we are included
23 in that definition.

24 CHAIRMAN FINLEY: All right. Then what

1 would -- under that dichotomy, then, what would
2 non-private investment be?

3 THE WITNESS: I would define non-private
4 investment as government funded for -- as one
5 example.

6 CHAIRMAN FINLEY: Give me -- besides
7 intuitive reaction to language, any other support
8 for that?

9 THE WITNESS: Well, our -- we are a
10 corporation that's owned by investors and, as such,
11 I think that would -- as are many of the solar
12 suppliers that we would seek to do business with.
13 So I would classify an investor-owned corporation
14 as -- investments made by such a company to be
15 private investments.

16 CHAIRMAN FINLEY: All right. But you
17 haven't seen that word private defined any place in
18 any --

19 THE WITNESS: No, I don't --

20 CHAIRMAN FINLEY: -- in the legislation
21 or anywhere?

22 THE WITNESS: -- believe it is defined.

23 CHAIRMAN FINLEY: I think that's all I
24 have.

1 COMMISSIONER JOYNER: Commissioner Ervin?

2 COMMISSIONER ERVIN: Very briefly. Mr.
3 Smith, you had a discussion with one of the
4 intervenor counsel about the potential terms of the
5 lease that would be tendered to the site or under
6 the proposed tariff, didn't you?

7 THE WITNESS: Yes.

8 COMMISSIONER ERVIN: And I realize,
9 apparently, that no such document exists at this
10 point; it's mostly a theoretical construct. But
11 let me talk with you about a couple of issues that
12 might arise there. First of all, if you enter into
13 such a lease and the property is subsequently sold
14 so that the property owner no longer owns the
15 property, do you have any sense of what the Company
16 believes would be likely to happen at that point?

17 THE WITNESS: It would likely be -- to
18 happen is that the lease would be structured in a
19 way where -- in a manner where the lease would run
20 with the land and, in other words, that the new
21 owner of the property would --

22 COMMISSIONER ERVIN: Take it subject to
23 the lease?

24 THE WITNESS: -- take it subject to the

1 lease. And we are -- and however, that may be a
2 condition where we offer a provision of termination
3 depending on how --

4 COMMISSIONER ERVIN: And that's actually
5 my next question was what -- you also mentioned the
6 possibility of including provisions in this lease
7 that would provide for its termination under
8 certain circumstances by either the property owner
9 or the Company. What types of circumstances would
10 you be talking about?

11 THE WITNESS: A few examples of what
12 we've contemplated would include -- the -- we don't
13 believe that -- well, we believe that some
14 residential customers would have concerns with
15 signing a 25-year lease agreement that would -- you
16 know, of this sort because they may think they
17 would -- they would move out of the house or they
18 may just want to get out of the program for another
19 reason.

20 So we would have -- we would have some
21 options in there where -- that we think would match
22 up -- or we would require a lease agreement of a
23 certain period of time that is mostly likely less
24 than 25 years, particularly for residential

1 customers, but it's long enough for us to justify
2 the expense that we would incur in installing the
3 system.

4 So as an example, maybe it's a five-year
5 term or a seven-year term or a ten-year term that
6 we ask the customer to sign onto at first, with
7 renewals. And if they -- if they wanted to
8 terminate before the first renewal period came,
9 there may be some expense that the customer would
10 need to -- to pay. In other words, we want to
11 protect ourselves from installing a system and then
12 six months later or a year later the customer
13 decides they'd like to get out of the program.

14 So we're trying to control for that
15 through direct, you know, up front, clear
16 communication to the customers. They know what
17 they're getting into. But at the same time,
18 recognizing that customers will have concerns with
19 signing a 25-year agreement.

20 COMMISSIONER ERVIN: Now, you've had some
21 discovery with some of the intervenor counsel about
22 cost recovery issues. I realize that Ms. McManeus
23 covers that more than you do, but let me -- just to
24 make sure I'm not missing the right witness let me

1 ask you a couple of questions. I think you've
2 said, if I understood you correctly, that the
3 anticipated useful life of the equipment that would
4 be installed under this program would be
5 approximately 25 years?

6 THE WITNESS: That's correct.

7 COMMISSIONER ERVIN: So that assuming
8 that installation occurred and that the facility
9 remained in operation for 25 years, the cost
10 associated with that facility would be in rates
11 under the cost-recovery provisions of the statute
12 for that whole period of time?

13 THE WITNESS: That's my understanding.

14 COMMISSIONER ERVIN: What happens if the
15 contract is terminated for whatever reason with
16 respect to rate recovery? You put the -- put the
17 facilities on the customer's premises. The
18 contract for whatever reason, one of the reasons
19 that you've just told me about, is terminated.
20 What happens then in terms of what happens to the
21 facilities and what happens to rate recovery?

22 THE WITNESS: Our first -- our preferred
23 option would be to find another -- another site to
24 utilize those facilities so we wouldn't -- if they

1 still have an economic life associated with them
2 and they're useful, then we would look for another
3 location to -- to put those -- that -- those solar
4 installations.

5 COMMISSIONER ERVIN: And if that doesn't
6 work for whatever reason?

7 THE WITNESS: They potentially could be
8 sold. They may -- if we can't find a suitable
9 location to -- to relocate them, those components
10 could potentially be sold.

11 COMMISSIONER ERVIN: All right. Thank
12 you.

13 COMMISSIONER JOYNER: Commissioner
14 Culpepper?

15 COMMISSIONER CULPEPPER: Is it fair to
16 say from the Company's standpoint of view that when
17 evaluating whether or not the Company would wish to
18 get into an agreement or an arrangement with a
19 third party, a solar provider, that the Company
20 considers the qualifications and experience of that
21 third-party provider to be of fairly strong
22 importance as to whether or not the Company would
23 want to get into an arrangement? Is that a fair
24 statement?

1 THE WITNESS: Yes, that's a fair
2 statement.

3 COMMISSIONER CULPEPPER: All right.
4 Thank you.

5 COMMISSIONER JOYNER: Mr. Smith, I have
6 one question before we move into confidential
7 information. And it has to do with the
8 demonstration of interest that you mentioned in
9 your testimony, some 400 or so inquiries showing
10 interest in participating in this project if it is
11 approved by this Commission. I'm curious about
12 what you can tell me with respect to where this
13 interest comes from. Is it concentrated in certain
14 parts of your service area in North Carolina or is
15 it fairly widely dispersed?

16 THE WITNESS: I would characterize it as
17 fairly widely dispersed.

18 COMMISSIONER JOYNER: And is one of the
19 objectives of the Company to -- to make sure that
20 the program, if it is approved and you do deploy
21 it, that it is in a fairly diverse part of your
22 service territory so that you get more information
23 as opposed to less?

24 THE WITNESS: Well, I think the way that

1 we would get the most information is potentially
2 through an arrangement where we would try to
3 cluster the installations, because part of what
4 we're trying to do is understand what the limits
5 are on a circuit level. And if we -- if the
6 installations that we understood under the program
7 were completely dispersed, then there would be a
8 limit to what we could actually learn. Whereas if
9 we identify a few circuits and -- or maybe more,
10 maybe a few is not the right word, but we identify
11 circuits and target those for installations and
12 also identify a relatively small number of clusters
13 geographically, that would minimize some of the
14 expense of operating or maintaining the facilities
15 so you're not having a maintenance person going to
16 lots -- going very far for -- to check on one
17 particular installation. If you can concentrate
18 them somewhat, that would be preferable.

19 COMMISSIONER JOYNER: And my question
20 actually contemplated clusters, if you will,
21 perhaps in the Charlotte area but perhaps in Durham
22 and some of your more -- or Greensboro or -- or
23 other places as opposed to having all of these
24 installations in a more narrow part of your service

1 territory, because the interest will I'm sure, as
2 you say, come from all over.

3 THE WITNESS: Yes, we agree with the way
4 you're thinking about it, and we're evaluating.
5 And we will evaluate when we get the proposals back
6 how many different geographic areas make sense.
7 But we're thinking about that much like you've
8 indicated.

9 COMMISSIONER JOYNER: Okay. Will there
10 be Commission questions on the confidential portion
11 of the -- okay, Commissioner Culpepper.

12 MR. GILLAM: Madam Chairman or Presiding
13 Commissioner, would it be better to have questions
14 on the Commission's questions before we send people
15 out or wait and do that later?

16 COMMISSIONER JOYNER: Well, the problem
17 with that -- I actually had thought about that, Mr.
18 Gillam. The problem with that is that if you then
19 have questions on Commissioner Culpepper's
20 questions then we're going to end up doing this
21 multiple times. So my preference -- and I will
22 just kind of exercise it -- is to -- for us to
23 entertain the questions from Commissioner Culpepper
24 and then we'll see where we are.

1 So with apologies, I will ask if you are
2 not a party to a confidentiality agreement if you
3 will make yourself comfortable in our delightful
4 lobby outside. We'll let you back in as soon as we
5 can.

6 Commissioner Culpepper, Duke, it appears
7 to me that the same cast has exited the room?

8 MS. NICHOLS: Yes.

9 (BECAUSE OF THE PROPRIETARY NATURE OF THE
10 TESTIMONY CONTAINED ON PAGES 185 THROUGH
11 192, IT WAS FILED UNDER SEAL.)

1 COMMISSIONER JOYNER: Now I inquire
2 whether there are any questions from intervenors on
3 any of the other questions of the Commission? Mr.
4 Cavros, do you have any?

5 MR. CAVROS: I have none.

6 COMMISSIONER JOYNER: Mr. Chamberlain?

7 MR. CHAMBERLAIN: Just a couple.

8 CONTINUED RECROSS EXAMINATION BY MR. CHAMBERLAIN:

9 Q. I'd like to follow up, if I could, on some
10 questions posed by Commissioner Ervin. And I
11 believe you testified that the useful life of the
12 equipment would be 20 to 25 years?

13 A. Yes, we -- we've -- I recognize we've indicated
14 both 20 to 25 years in the application, but when we
15 were speaking earlier we were -- I used the number
16 25 years.

17 Q. And I believe you also indicated that during that
18 period of time the facilities that are included or
19 covered by this application would be in Duke's rate
20 base, is that correct? Did I hear that correctly?

21 A. I don't -- I don't know that I've used the term
22 rate base. I'm not sure how -- I'm not sure how
23 the investments that would be recovered through the
24 REPS rider should be defined as to whether or not

1 they're part of the rate base or not. I -- I'd
2 like to defer that to witness McManeus.

3 Q. Okay. I guess I misunderstood your testimony. I
4 thought you had testified that they would be in
5 rate base during that time period. Is that not
6 correct?

7 A. I -- I don't believe that I had said they would be
8 in rate base.

9 Q. Okay. Thank you.

10 MR. CHAMBERLAIN: That's all I have,
11 ma'am.

12 COMMISSIONER JOYNER: Other questions
13 from intervenors on the Commission's questions?
14 Mr. Gillam.

15 RE CROSS EXAMINATION BY MR. GILLAM:

16 Q. I only have a couple. The first relates to
17 Commissioner Ervin's question and also to Mr.
18 Chamberlain's question, and that is the 25-year
19 life span. When I was asking you some questions
20 earlier we made some calculations alternatively on
21 a 20 and a 25-year basis and then took the
22 midpoint. It sounds like perhaps if you were
23 looking for a single figure to use, maybe 25 years
24 would be the best figure and it's not necessary to

1 take a midpoint between 20 and 25?

2 A. That's -- I think that goes -- we had some
3 discussion of whether the midpoint was -- was a
4 useful number or not. But I think 25 years -- 25
5 years is as good a number as a number that would be
6 associated with what I suppose would be 22.5 years.

7 Q. Okay. And then a question in regard to one of
8 Commissioner Culpepper's questions before we
9 cleared the room. He discussed with you the
10 importance of the qualifications and experience of
11 the bidders. And was there any reference in your
12 rebuttal testimony to the qualifications -- to any
13 qualification and experience shortcomings of PVEe
14 or any other bidder?

15 MS. NICHOLS: Wait. The names of the
16 bidders are confidential information.

17 MR. GILLAM: Well, I apologize.

18 Q. I -- I can't unsay it, but was there any reference
19 to the shortcomings in qualifications and
20 experience of any bidder?

21 COMMISSIONER JOYNER: Before you answer
22 that, I'm going to entertain a motion to strike.

23 MS. NICHOLS: Thank you. We would move
24 to strike that from the record. I appreciate the

1 Chair protecting me from myself.

2 COMMISSIONER JOYNER: That motion is
3 allowed with respect to the identify referenced in
4 Mr. Gillam's question.

5 Q. Well, I'll reask the question as I rephrased it.

6 A. And I may need to ask you to rephrase it again,
7 because I'm not -- I'm not certain that I'm able to
8 respond to the question without getting into
9 confidential information, but I'll ask you if you
10 could rephrase it.

11 Q. Was there any reference in your rebuttal testimony
12 to the shortcomings in qualifications and
13 experience of any bidder?

14 A. No, there was not.

15 MR. GILLAM: That's all my questions.

16 COMMISSIONER JOYNER: Redirect?

17 MS. NICHOLS: No questions.

18 COMMISSIONER JOYNER: Mr. Smith?

19 THE WITNESS: Yes.

20 COMMISSIONER JOYNER: Welcome to the
21 North Carolina Utilities Commission.

22 MS. NICHOLS: And I would move that his
23 exhibits to his direct and rebuttal testimony be
24 admitted.

1 (SMITH DIRECT EXHIBIT NO. 1 AND SMITH REBUTTAL
2 EXHIBIT NO. 1 WERE ADMITTED INTO EVIDENCE.)

3 MR. GILLAM: And if this is the proper
4 time --

5 COMMISSIONER JOYNER: Okay. Without
6 objection his exhibits are admitted into evidence.
7 With respect to your cross-examination exhibits?

8 MR. GILLAM: We would move that the
9 cross-examination exhibits be admitted to the
10 record.

11 COMMISSIONER JOYNER: Without objection,
12 Public Staff Cross-Examination Exhibits 1, 2, and 3
13 are admitted into evidence. These are confidential
14 exhibits so, Madam Court Reporter, would you please
15 make sure the record reflects that?

16 (SMITH PUBLIC STAFF CONFIDENTIAL CROSS EXAMINATION
17 EXHIBITS 1, 2, AND 3 WERE ADMITTED INTO EVIDENCE.)

18 COMMISSIONER JOYNER: If there is nothing
19 else, you are excused, Mr. Smith.

20 (WITNESS EXCUSED)

21 COMMISSIONER JOYNER: We are recessed
22 until 1:30 when we will reconvene promptly.

23 (THE HEARING WAS ADJOURNED TO BE RECONVENED AT 1:30 P.M.)

STATE OF NORTH CAROLINA

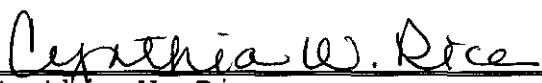
COUNTY OF WAKE

C E R T I F I C A T E

I, Cynthia W. Rice, Notary Public/Court Reporter, do hereby certify that the foregoing hearing before the North Carolina Utilities Commission in Docket No. E-7, Sub 856 was taken and transcribed under my supervision; and that the foregoing pages constitute a true and accurate transcript of said Hearing.

I do further certify that I am not of counsel for, or in the employment of either of the parties to this action, nor am I interested in the results of this action.

IN WITNESS WHEREOF, I have hereunto subscribed my name this 27th day of October, 2008.


Cynthia W. Rice
Notary Public No. 200602400090