

1 PLACE: Dobbs Building, Raleigh, North Carolina  
2 DATE: Wednesday, November 2, 2016  
3 TIME: 2:00 p.m. - 5:45 p.m.  
4 DOCKET NO: EMP-92, Sub 0  
5 BEFORE: Commissioner ToNola D. Brown-Bland, Presiding  
6 Commissioner Bryan E. Beatty  
7 Commissioner James G. Patterson  
8  
9

10 IN THE MATTER OF:

11 Application of NTE Carolinas II, LLC,  
12 for a Certificate of Public Convenience and Necessity  
13 to Construct a 500-MW Natural Gas-Fueled Merchant  
14 Power Plant in Rockingham County, North Carolina.  
15

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## P R O C E E D I N G S

COMMISSIONER BROWN-BLAND: Good afternoon.

Let us come to order and go on the record. I am Commissioner ToNola D. Brown-Bland of the North Carolina Utilities Commission, presiding Commissioner for this hearing, and with me this afternoon are Commissioners Bryan E. Beatty and James G. Patterson.

I now call for hearing Docket Number EMP-92, Sub 0, which is In the Matter of Application of NTE Carolinas II, LLC, for a Certificate of Public Convenience and Necessity to Construct a 500-MW Natural Gas-Fueled Merchant Power Plant in Rockingham County, North Carolina.

On July 29, 2016, NTE Carolinas, LLC, hereafter NTE or Applicant, filed an Application pursuant to G.S. 62-110.1 and Commission Rule R8-63 for a Certificate of Public Convenience and Necessity to construct a natural gas-fueled merchant electric generating facility in Rockingham County, North Carolina. Testimony of Michael C. Green, Vice President of NTE, was also filed with the Application.

On August 10, 2016, the Public Staff filed a Notice of Completeness requesting the Commission to consider NTE's Application to be complete and issue a

1 procedural order setting the Application for hearing,  
2 requiring public notice pursuant to G.S. 62-82, and  
3 addressing other procedural matters.

4 On August 16, 2016, the Commission issued an  
5 Order Scheduling Hearings, Requiring Filing of  
6 Testimony, Establishing Procedural Guidelines, and  
7 Requiring Public Notice. This Order scheduled the  
8 public witness hearing for Tuesday, October 25, 2016,  
9 in Reidsville, North Carolina, and also scheduled an  
10 expert witness hearing solely for the purpose of  
11 receiving expert testimony of the parties at this date  
12 and time, Wednesday, November 2, 2016.

13 On September 21, 2016, NTE filed a letter  
14 amending its Application to add approximately 80 acres  
15 of property as a part of the project site. In  
16 addition, NTE filed an updated map showing the new  
17 acreage.

18 On September 23, 2016, the Commission issued  
19 an Order Amending Public Notice and Requiring Further  
20 Review by State Clearinghouse to reflect the  
21 additional acreage of the project site, and requiring  
22 the amendment to the Application be submitted to the  
23 Clearinghouse Coordinator.

24 On October 5, 2016, NC Waste Awareness and

1 Reduction Network, Inc., NC WARN, filed a Motion to  
2 Intervene which was allowed by the Commission on  
3 October 7, 2016.

4 On October 11, 2016, NTE filed a Motion for  
5 Reconsideration of the Order allowing intervention by  
6 NC WARN.

7 On October 17, 2016, the Commission issued  
8 an Order Denying NTE's Objection to Intervention by NC  
9 WARN.

10 On October 18, 2016, the Public Staff filed  
11 the testimony of Dustin R. Metz.

12 On October 19, 2016, NC WARN filed the  
13 testimony of William E. Powers.

14 The public witness hearing was held as  
15 scheduled on October 25, 2016, in Reidsville, North  
16 Carolina.

17 On October 26, 2016, NTE filed a Motion to  
18 Strike and Motion in Limine as to portions of the  
19 testimony of William E. Powers of NC WARN.

20 On October 27, 2016, NTE filed prefiled  
21 rebuttal testimony of Michael C. Green.

22 NTE filed Affidavits of Publication on  
23 October 27, 2016.

24 On October 28, 2016, NC WARN filed a

1 Response to NTE's Motion to Strike and Motion in  
2 Limine.

3 And on November 1st, the Commission issued  
4 an Order Denying NTE's Motion. Also, on  
5 November 1, 2016, NTE filed an Affidavit of Michael C.  
6 Green.

7 In compliance with the requirements of  
8 Chapter 138A of the State Government Ethics Act, I  
9 remind all members of the Commission of our  
10 responsibility to avoid conflicts of interest, and I  
11 inquire whether any member of the Commission has any  
12 known conflict of interest with respect to this matter  
13 before us this afternoon?

14 (No response.)

15 Let the record reflect that no conflict was  
16 identified.

17 I'll now call for appearances of counsel,  
18 beginning with the Applicant, NTE.

19 MR. STYERS: Good afternoon, Madam Chair and  
20 Commissioners. My name is Gray Styers with the Law  
21 Firm of Smith Moore Leatherwood and it's my privilege  
22 this afternoon to appear as counsel for the Applicant,  
23 NTE Carolinas II, LLC. I have with me Mike Green and  
24 John Gulliver as representatives of the Applicant.

1 COMMISSIONER BROWN-BLAND: Thank you,  
2 Mr. Styers.

3 MR. RUNKLE: May it please the Commission,  
4 my name is John Runkle representing NC WARN.

5 COMMISSIONER BROWN-BLAND: Good afternoon,  
6 Mr. Runkle.

7 MS. DOWNEY: Good afternoon, Commissioners,  
8 Dianna Downey with the Public Staff representing the  
9 Using and Consuming Public.

10 COMMISSIONER BROWN-BLAND: Thank you. We  
11 met up here at the bench and we discussed the order of  
12 the case. Are there any other matters or issues to  
13 come before the Commission before we begin?

14 MR. STYERS: The only other matter that I'd  
15 like to get into the record at this time, and counsel  
16 and I have talked about this, is that counsel may be  
17 relying upon and using in cross-examination questions  
18 the Integrated Resource Plan of Duke Energy Carolinas  
19 filed in Docket E-100, Sub 141 on September 1, 2014,  
20 and the Integrated Resource Plan of Duke Energy  
21 Progress filed in that same docket, E-100, Sub 141 on  
22 September 1, 2014. And, instead of having these  
23 marked and admitted as exhibits, we would ask that the  
24 Commission take judicial notice of these documents as

1 evidence in this docket by consent of all counsel?

2 COMMISSIONER BROWN-BLAND: Is there any  
3 objection to proceeding in that manner?

4 MR. RUNKLE: No objection.

5 MS. DOWNEY: No objection.

6 COMMISSIONER BROWN-BLAND: Then the two IRPs  
7 referenced by Mr. Styers will be -- the Commission  
8 will take judicial notice.

9 MR. STYERS: Thank you.

10 COMMISSIONER BROWN-BLAND: Mr. Styers, the  
11 case is with you.

12 MR. STYERS: Thank you. And our witness on  
13 our case in chief will be Mr. Michael Green and if he  
14 may proceed to the witness stand.

15 **MICHAEL C. GREEN;** was duly sworn and  
16 testified as follows:

17 DIRECT EXAMINATION

18 BY MR. STYERS:

19 Q Please state your name, address and position of  
20 employment for the record?

21 A I'm Michael Green. I am Vice President of  
22 Development for NTE Carolinas II, LLC, 24  
23 Cathedral Place, Saint Augustine, Florida.

24 Q Were you the individual who signed and notarized,

1 verified the Application in this docket?

2 A Yes.

3 Q Have you caused to be prefiled in this docket  
4 direct testimony consisting of nine pages in  
5 question and answer format?

6 A Yes.

7 Q Was that testimony prepared by you or under your  
8 direction?

9 A Yes, it was.

10 Q If you were asked those same questions today, now  
11 that you are under oath, would you provide the  
12 same answers as in your prefiled testimony?

13 A Yes, I would.

14 Q Do you have any corrections or additions to  
15 either the Application or your testimony,  
16 Mr. Green?

17 A No, I do not.

18 MR. STYERS: At this time I would ask that  
19 the prefiled testimony of Mr. Michael Green be entered  
20 into the record. And Mr. Green is prepared to and  
21 would like to provide a summary of that testimony.

22 COMMISSIONER BROWN-BLAND: Without  
23 objection, the direct testimony of Witness  
24 Michael C. Green will be received and entered into the

1 record. It's the testimony filed July 29, 2016,  
2 consisting of nine pages.

3 MR. STYERS: Thank you.

4 (WHEREUPON, the prefiled direct  
5 testimony of **MICHAEL C. GREEN** is  
6 copied into the record as if given  
7 orally from the stand.)  
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PREFILED DIRECT TESTIMONY OF  
MICHAEL C. GREEN  
ON BEHALF OF NTE CAROLINAS II, LLC

NCUC DOCKET NO. EMP-98, SUB 0

I. INTRODUCTION AND SUMMARY

1 Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.

2 A. My name is Michael C. Green. I am the Vice President of NTE Carolinas II,  
3 LLC ("NTE"). I am responsible for the development of the 500 MW natural  
4 gas-fired generating facility ("Facility") proposed for Rockingham County,  
5 North Carolina, by NTE. My business address is: 24 Cathedral Place, Suite  
6 300, Saint Augustine, Florida 32084.

8 Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

9 A. I received a Bachelor of Science in Civil Engineering from the University of  
10 Tennessee in 1972.

11 My professional experience includes several roles and over 40 years' energy  
12 industry experience with 30 years of that with Duke Power/Duke Energy  
13 beginning in 1972 when I began as a design engineer, working on various  
14 aspects of Belews Creek coal-fired steam station, supervised and managed  
15 structural engineering efforts at the Catawba Nuclear Station, and  
16 supervised and managed engineering efforts for the analysis and design of  
17 the underground Bad Creek Pumped Storage Facility.

18 After being loaned from Duke Power to the Institute of Nuclear Power  
19 Operations for two years, for the evaluation of design and construction  
20 practices at eleven domestic nuclear facilities under construction, I  
21 returned to Duke Power where I held a number of positions, including:  
22 Assistant to the Executive Vice President, Manager – Project Control

Department, Manager – Strategic Business Department, Vice President – Corporate Accounts at Duke Energy. Following the merger between Duke Power and Pan Energy, I served as Vice President and General Manager of Duke Energy North America where I managed DENA's independent power plant (IPP) development efforts in Florida and the Southeast

Following my departure from Duke in 2002, I provided private consulting services for several IPP's in Florida and the Southeast and worked for Calpine for a short period of time prior to joining NTE in 2010. Currently, as Vice President of Development for NTE, I am responsible for providing leadership in the development of power projects in which I coordinate permitting, public outreach, legislative and regulatory communications, as well as engineering and design efforts.

**Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

A. Yes, I have testified in NCUC Docket EMP-76 Sub 0, in which NTE Carolinas, LLC received a Certificate of Public Convenience and Necessity to construct a natural-gas fired electric generating facility near the City of Kings Mountain, North Carolina described in greater detail below.

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

A. The purpose of my testimony is to support the application of NTE for a Certificate of Public Convenience and Necessity to construct and operate the Facility and ancillary transmission facilities ("Application"), which is filed concurrently with this testimony and which I hereby incorporate in my testimony as evidence in this docket.

**Q. PLEASE DESCRIBE NTE CAROLINAS II, LLC.**

A. NTE is a limited liability company organized under the laws of the State of Delaware with its principal place of business in Saint Augustine, Florida, and

1 is authorized to do business in North Carolina. NTE is a wholly-owned first  
2 tier subsidiary of NTE Carolinas II Holdings, LLC, which is an affiliate of NTE  
3 Energy, LLC ("NTE Energy"). An organizational chart showing the  
4 relationship of the affiliates of NTE is attached to the Application and  
5 labelled Attachment 1.

6  
7 **Q. PLEASE DESCRIBE NTE ENERGY, LLC.**

8 A. NTE Energy is a privately-held, Florida-based company, which focuses,  
9 through its subsidiaries and affiliate, on the development, construction,  
10 acquisition and operation of strategically located electric generation and  
11 transmission facilities within North America. Its management team  
12 executes all aspects of project development, from initial market and site  
13 evaluations and permitting to financing, construction and operation. NTE  
14 Energy recently closed financing and began construction on two of its  
15 development projects totaling 950 MW of capacity and \$1.25 billion in  
16 financing – the Kings Mountain Energy Center in Kings Mountain, North  
17 Carolina and the Middletown Energy Center in Middletown, Ohio. In  
18 addition to these two facilities, NTE Energy, through its subsidiaries, is  
19 currently developing approximately 2,835 MW of generating capacity, with  
20 projects located in Texas, Ohio, Connecticut, Florida, and North Carolina.  
21 The energy and capacity from the facilities within NTE Energy's corporate  
22 structure are marketed to wholesale customers in the United States in  
23 accordance with all applicable law.

24  
25 **Q. WILL THE PROPOSED FACILITY IN ROCKINGHAM COUNTY BE SIMILAR TO**  
26 **THE ONE PREVIOUSLY CERTIFICATED BY THIS COMMISSION IN KINGS**  
27 **MOUNTAIN AND MENTIONED IN YOUR PREVIOUS ANSWER?**

28 A. Yes.  
29

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1 Q. PLEASE DESCRIBE THE STATUS OF CONSTRUCTION OF THE FACILITY IN  
2 KINGS MOUNTAIN.

3 A. The Commission issued a Certificate of Public Convenience and Necessity to  
4 NTE Carolinas, LLC, in Docket No. EMP-76, Sub O, on October 28, 2014 for  
5 the construction and operation of the Kings Mountain Energy Center. Since  
6 the issuance of the CPCN, all required permits for construction have been  
7 received, and equity and debt financing for the KMEC project has closed  
8 and been funded. Construction began in August 2015.

9 As of this date, the KMEC site is at rough grade. All piles have been  
10 installed, the heat recovery steam generator ("HRSG") and exhaust stack  
11 foundations have been placed, the combustion turbine generator ("CTG")  
12 and steam turbine generator ("STG") foundations are being formed, and  
13 rebar has been installed. Concrete placement for the CTG foundation has  
14 recently begun. Excavation for underground water, fuel gas, instrument air  
15 drain piping, and the duct bank is ongoing. The fabrication, installation and  
16 backfilling of equipment for the process water, fuel gas, fire water, and raw  
17 water pipes, as well as the oily water drains, and the pipe systems for  
18 instrument air and hydrogen are ongoing. Mitsubishi Hitachi Power  
19 Systems Americas, Inc. ("Mitsubishi") has begun fabrication of the CTG,  
20 Toshiba America Energy Systems Corporation ("Toshiba") has begun  
21 fabrication of the STG, and Vogt Power International, Inc. ("Vogt") has  
22 begun fabrication of the HRSG. Construction is on schedule.

23  
24 Q. WILL THE SAME MANAGEMENT TEAM OF NTE ENERGY THAT HAS BEEN  
25 RESPONSIBLE FOR THE DEVELOPMENT, FINANCING, AND CONSTRUCTION  
26 OF THE KINGS MOUNTAIN FACILITY ALSO BE INVOLVED IN THE  
27 DEVELOPMENT AND CONSTRUCTION OF THE PROPOSED FACILITY IN  
28 ROCKINGHAM COUNTY?

29 A. Yes, that is our plan and intent at this time.  
30



Q. PLEASE IDENTIFY THE AREA IN WHICH THE FACILITY IN ROCKINGHAM COUNTY WILL BE LOCATED.

A. The Facility will be constructed near Reidsville on approximately 20 acres of an approximately 90-acre site off NC-65 bounded by NC-65 to the east and New Lebanon Church Road to the west. A vicinity map showing the location of the Facility is attached to the Application and labeled Attachment 4.

Q. PLEASE DESCRIBE THE PROPOSED FACILITY.

A. The Facility will be constructed as a one-on-one combined cycle combustion turbine electric generating facility in Rockingham County North Carolina. The Facility will consist of one (1) combustion turbine generator, either a Mitsubishi M501GAC or Siemens Energy, Inc ("Siemens") SGT6-8000H, one (1) heat recovery steam generator, and one (1) steam turbine generator. The combustion turbine will be fired solely with natural gas. Additional equipment to support the Facility includes exhaust stacks, auxiliary boiler, combustion turbine enclosure, turbine air inlet ducts and silencers, continuous emission monitor systems ("CEMS"), generator step-up transformers ("GSUs"), a station service transformer ("SST"), switchgears, a gas metering/conditioning station, water treatment trailers, a de-mineralized water tank, transmission and interconnection equipment, mechanical draft evaporative cooling towers, a standby diesel generator, and a fire protection system.

The expected service life of the Facility is projected to be 30 years. The estimated construction costs are contained in a confidential attachment to the Application labeled Attachment 3.

Q. HOW WILL THE FACILITY BE FUELED?

A. Natural gas will be the only fuel burned by the Facility, requiring up to 95,000 MMBtu/Day to operate at full output. Transcontinental Gas Pipe Line Company, LLC ("Transco") has existing interstate pipelines crossing the

1 Facility site. The existing pipelines, the proposed gas interconnection  
2 facilities, and the Facility's proposed Natural Gas Lateral ("Facility Lateral")  
3 are reflected in the diagrams of the site layout which are included as  
4 Attachment 5.

5 The Facility Lateral is expected to be approximately 650 feet long, and its  
6 sole purpose is to connect the Facility with Transco's interstate natural gas  
7 pipelines. NTE is currently in discussions with Piedmont Natural Gas  
8 Company, Inc. ("Piedmont"), the local distribution company serving  
9 Rockingham County, regarding construction, ownership, maintenance, and  
10 operation of the Facility Lateral. NTE anticipates that Piedmont will  
11 construct, own, maintain, and be responsible for compliance testing on the  
12 Facility Lateral. Based on discussions to date, Piedmont expects to provide  
13 natural gas transportation to the Facility on the Facility Lateral under a  
14 Special Purpose Tariff specific to the Facility Lateral. The agreements,  
15 service contracts, and tariffs referenced above are not yet finalized, but  
16 copies will be filed in this docket once finalized.

17 NTE's natural gas procurement strategy for the Facility includes procuring  
18 firm delivered natural gas service priced at a Gas Daily index representative  
19 of the delivery location from one or more wholesale natural gas suppliers.  
20 A natural gas supplier to be selected will be responsible for providing firm  
21 delivered natural gas supply to the point of interconnection between  
22 Transco's interstate pipelines and the Facility Lateral. The Facility will not  
23 itself hold, nor have the fixed costs associated with, firm transportation  
24 capacity on Transco.

25  
26 **Q. HOW WILL THE FACILITY BE CONNECTED TO THE TRANSMISSION**  
27 **FACILITIES IN THE AREA?**

28 **A.** The Facility will interconnect with the electric transmission system of Duke  
29 Energy Carolinas, LLC ("DEC"), via the Ernest Switching Station, immediately  
30 adjacent to the Facility site. NTE has completed the feasibility study with  
31 DEC and has begun the system impact study. Only minor expansion of the

19

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Ernest Switching Station is required to accommodate NTE's interconnection. The 230 kV circuits from the CTE and STE's GSUs will meet at the Facility's substation, located on NTE's property. From the Facility's substation, a single 230 kV circuit will run to the Ernest Switching Station. This line will cross only NTE and DEC properties and no other parcels. No third-party private rights-of-way will need to be acquired for any of these facilities. All of the interconnection-related equipment is ancillary to the Facility and will be located entirely on the Facility site and the Ernest Switching Station site. The Application for certification is intended to encompass all these ancillary transmission facilities up to the Ernest Switching Station. A color map showing the general location of the transmission facilities is attached to the Application and labelled as Attachment 5.

**Q. WHAT TYPES OF PERMITS OR REGULATORY APPROVALS ARE REQUIRED FOR THE FACILITY AND HAVE THEY BEEN OBTAINED?**

A. As of the date of this filing, Attachment 6 attached to the Application summarizes the required permit and approvals, submittal dates, and their status.

The Major approvals needed for the Facility include:

- The Certificate of Public Convenience and Necessity for the Facility
- PSD Air Quality Permit
- Section 404/401 (Clean Water Act)
- Special Use Permit

**Q. PLEASE EXPLAIN THE NEED FOR THE FACILITY.**

A. The need for new generation in North Carolina is demonstrated in the 2015 Integrated Resource Plans ("IRP") filed by DEC and Duke Energy Progress, LLC ("DEP"). DEC's 2015 IRP projects annual growth rates of 1.5% in summer and winter peak demand for its retail and wholesale customers for

1 the years 2016 through 2030. This growth results in a summer peak  
2 demand of 18,764 MW in 2016 that grows to 23,125 MW in 2030, which is  
3 an increase of 4,361 MW. With the expected load growth, DEC's IRP  
4 concludes that an additional 5,711 MW of capacity is needed to support  
5 growth, while maintaining system reliability through 2030.

6 DEP's 2015 IRP projects growth rates in summer peak demand of 1.5% and  
7 in winter peak demand of 1.3% for its retail and wholesale customers for  
8 the years 2016 through 2030. This growth results in a summer peak  
9 demand of 13,048 MW in 2016 that grows to 15,981 MW in 2030, which is  
10 an increase of 2,933 MW. With the expected load growth, DEP anticipates  
11 adding 5,292 MW of additional generating resources through 2030. Of the  
12 5,292 MW of new generation, DEP expects 3,483 MW to be natural gas-  
13 fired combined cycle facilities. Collectively, DEC and DEP have a projected  
14 need for over 11,000 MW of additional generating resources through 2030.

15 A summary of the new generation requirements, as reported in DEC's and  
16 DEP's IRPs, follows:

- 17 • Duke Energy Carolinas – Integrated Resource Plan (2015)
  - 18 ○ Service area requires an additional 5,711 MW of capacity by 2030
  - 19 ■ Baseload / Intermediate: 5,711 MW
- 20 • Duke Energy Progress – Integrated Resource Plan (2015)
  - 21 ○ Service area requires an additional 5,292 MW of Capacity by 2030
  - 22 ■ Baseload / Intermediate: 3,552 MW
  - 23 ■ Peaking / Simple Cycle: 1,740 MW

24  
25 Based on its assessments and its investigation of market activity by regional  
26 load-serving entities, NTE has concluded that there is a need for additional  
27 peaking, intermediate and baseload capacity in North Carolina. NTE has  
28 identified specific wholesale customers who are interested in purchasing  
29 the output of the Facility, and is currently negotiating power supply  
30 agreements. A summary of the proposed power supply contracts relating  
31 to the output of the unit being constructed is attached to the Application  
32 and labeled Attachment 7. The successful subscription of available electric



power and capacity from the Kings Mountain Facility under construction, and the successful financing of that project are further evidence of the demand – as recognized both by load serving entities and by the financial markets – and the need for additional electric power generation facilities in the region.

An additional benefit of the Facility is that this plant will be developed and financed by private companies, rather than ratepayers. The construction costs of the Facility will not be considered in a future determination of the rate base of any public utility under N.C.G.S. § 62-130 et seq. The information in this Application demonstrates that North Carolina needs additional electric generation capacity. The Facility will be a contributor to the solution, meeting future needs for electricity in the state and region.

**Q. DO YOU RECOMMEND THAT THE NORTH CAROLINA UTILITIES COMMISSION GRANT A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE FACILITY AND ANCILLARY TRANSMISSION FACILITIES?**

**A.** Yes. NTE has completed its analysis of the need for the additional generation and believes that the Facility will provide highly reliable, competitively priced, and necessary new capacity. In addition, this new capacity will be developed and financed by private companies, rather than ratepayers. The construction costs of the Facility will not be considered in a future determination of the rate base of any public utility under N.C.G.S. § 62-130 et seq. The management team of NTE Energy has demonstrated its ability to successfully develop and finance the construction of the Kings Mountain facility and looks forward to enabling additional private investment in North Carolina's electric generation infrastructure with this proposed Facility in Rockingham County.

**Q. DOES THIS CONCLUDE YOUR PRE-FILED TESTIMONY?**

**A.** Yes, at this time.

1 BY MR. STYERS:

2 Q Mr. Green, have you prepared a summary of your  
3 prefiled testimony that's now been admitted into  
4 the record to present today at this hearing?

5 A Yes, I have.

6 Q You may proceed.

7 A Thank you. Madam Chair, Commissioners, I  
8 appreciate the opportunity to be here. As I  
9 said, my name is Michael C. Green. I am the Vice  
10 President of NTE Carolinas II, LLC, referred to  
11 as NTE. I'm responsible for the development of  
12 our proposed 500-MW natural gas-fired generating  
13 station in Rockingham County, North Carolina.

14 NTE is a privately-held,  
15 Florida-based company, which focuses on the  
16 development, construction, acquisition and  
17 operation of generation and transmission  
18 facilities within North America. NTE recently  
19 closed financing and began construction on two of  
20 our development projects totaling 950-MW of  
21 capacity and \$1.25 billion in financing, that  
22 being the Kings Mountain Energy Center in Kings  
23 Mountain, North Carolina, and the Middletown  
24 Energy Center in Middletown, Ohio.

1                   This Commission previously issued  
2                   a Certificate of Public Convenience and Necessity  
3                   to NTE Carolinas for the construction and  
4                   operation of the Kings Mountain Energy Center.  
5                   NTE has received all of the required permits for  
6                   that facility and equity and debt financing has  
7                   closed and has been funded. Construction began  
8                   on the Kings Mountain facility in August of 2015.  
9                   The project is on schedule, on budget, with an  
10                  expected commercial operation in the fourth  
11                  quarter of 2018. The management team responsible  
12                  for the development of the Kings Mountain  
13                  facility will be the same management team  
14                  involved in development of this Rockingham County  
15                  facility.

16                 The proposed facility will be  
17                 located near Reidsville on approximately 20 acres  
18                 of an approximately 170-acres located between  
19                 Highway North Carolina 65 to the east and New  
20                 Lebanon Church Road to the west.

21                 The facility will be a one-on-one  
22                 combined cycle configuration, very similar to the  
23                 Kings Mountain facility. We are targeting a  
24                 commercial operation date during the fourth

1 quarter of 2020 for the Rockingham County  
2 facility to meet the needs of our prospective  
3 customers.

4 Natural gas will be the only fuel  
5 burned by the facility. Transcontinental Gas  
6 Pipe Line Company, Transco, has existing  
7 interstate pipelines crossing the facility site.  
8 NTE is currently in discussions with Piedmont  
9 Natural Gas, the local distribution company  
10 serving Rockingham County, regarding  
11 construction, ownership, maintenance and  
12 operation of the facility lateral.

13 The facility will interconnect  
14 electrically with the transmission grid of Duke  
15 Energy Carolinas via the Ernest Switching  
16 Station, which is immediately adjacent and to the  
17 south of our site.

18 The need for new generation in  
19 North Carolina is demonstrated in part in the  
20 Integrated Resource Plans filed by Duke Energy  
21 Carolinas and Duke Energy Progress in 2015.  
22 Taking into consideration projected load growth,  
23 the contributions of Demand-Side Management and  
24 Energy Efficiency Programs, and the planned

1 retirements of older, less efficient plants, Duke  
2 Energy's IRP concluded -- Duke Energy Carolinas'  
3 IRP concluded in 2015 that an additional 5,711  
4 megawatts of firm generating additional capacity  
5 would be needed to support system reliability  
6 through 2030.

7 Duke Energy Progress' 2015 IRP  
8 projected load growth, reflected the  
9 contributions of Demand-Side Management and  
10 Energy Efficiency Programs, and reflected planned  
11 retirements of older, less efficient plants,  
12 resulting in a need for DEP of an additional  
13 5,711 megawatts of firm generating capacity to  
14 support system reliability through the year 2030.  
15 Collectively, the two 2015 IRPs projected a  
16 combined Duke Energy Carolinas and Duke Energy  
17 Progress need for over 11,000 megawatts of  
18 additional, firm generating resources through  
19 2030.

20 Duke Energy Carolinas and Duke  
21 Energy Progress filed more recent IRPs in  
22 September of this year, which reduced slightly  
23 some of the wholesale and retail load growth  
24 projections, but still concluded that a

1 significant amount of firm generating capacity  
2 was needed in the Carolinas to maintain system  
3 reliability through 2031. The new Duke Energy  
4 Carolinas' 2016 IRP identifies a 5,002 megawatt  
5 need for additional capacity, and Duke Energy  
6 Progress identifies a 5,453 megawatt need for a  
7 combined total of 10,455 megawatts of additional,  
8 firm generating capacity to maintain system  
9 reliability.

10 As further evidence of the need,  
11 in addition to the IRP projections of Duke Energy  
12 Carolinas and Duke Energy Progress, NTE has  
13 identified specific wholesale customers who are  
14 interested in purchasing the output of the  
15 facility and we are currently in negotiation for  
16 long-term power supply agreements. This interest  
17 from specific wholesale buying entities further  
18 demonstrates that there is a need for the  
19 facility.

20 An additional benefit of the  
21 facility is that it will be developed and  
22 financed by private companies, rather than  
23 ratepayers. NTE is a wholesale generator, has no  
24 captive customers, and is not guaranteed a rate

1 of return. The construction costs of the  
2 facility will not be considered in a future  
3 determination of the rate base of any public  
4 utility under Chapter 62 of North Carolina's  
5 Statutes. NTE must execute long-term power  
6 supply contracts with willing wholesale customers  
7 in order to gain the financing for, and to start  
8 the construction of, the facility.

9 NTE's proposed facility will  
10 provide highly reliable, competitively priced,  
11 and needed new firm capacity to willing wholesale  
12 customers. The management team of NTE Energy has  
13 demonstrated its ability to successfully develop  
14 and finance the construction of the Kings  
15 Mountain facility and looks forward to enhancing  
16 the North Carolina's electric generation  
17 infrastructure with the proposed facility in  
18 Rockingham County.

19 NTE has satisfied all of the  
20 requirements of North Carolina General Statute  
21 62-110.1 and Commission Rule R8-63 and, for the  
22 reasons stated in my testimony, we respectfully  
23 request that NTE's Application be approved.

24 That concludes my summary.



1 MR. STYERS: The witness is available for  
2 cross examination.

3 COMMISSIONER BROWN-BLAND: Mr. Runkle, do  
4 you have cross examination for this witness?

5 CROSS EXAMINATION

6 BY MR. RUNKLE:

7 Q Good afternoon, Mr. Green. My name is John  
8 Runkle. I'm representing NC WARN. Now, earlier  
9 this week you submitted an Affidavit responding  
10 to some of the questions that were raised at the  
11 public hearing, did you not?

12 A That is correct.

13 Q In fact, since the public hearing I've gotten  
14 requests from several NC WARN members to try to  
15 clarify one or two points in your Affidavit, and  
16 those are -- there seems to be some  
17 misunderstanding about how much water the plant  
18 is actually going to require. You have said that  
19 the average is approximately 1.7 million gallons  
20 a day and then other people have said it's  
21 five million gallons a day. Which figure is it?

22 A Are you asking which is the figure that the  
23 facility is going to use or the figure that the  
24 county is going to build for their



1 infrastructure?

2 Q That may be the difference. Now, what -- how  
3 much is the NTE proposed plant going to use?

4 A Our average annual consumption of water is 1.7  
5 million gallons per day, on an average.

6 Q Okay.

7 A The county is proposing to build an  
8 infrastructure that I think approaches  
9 five million gallons a day to account for some  
10 redundancy, and capacity, and also to provide  
11 them some room for growth for other additional,  
12 potential additional customers in the future.

13 Q In looking at the average over a years' time,  
14 what's your projected high and what's your  
15 projected low water use?

16 A To the best of my recollection, subject to  
17 verifying later, zero would be low on days we're  
18 not running. I think a maximum upset condition,  
19 and I'd have to verify this, but is approximately  
20 three and a half million gallons per day.

21 Q And what do you refer to as an upset condition?

22 A Extremely hot day, very humid day and we're  
23 running wide open, requiring the most amount of  
24 water possible.

1 Q On those -- on this upset condition when you  
2 would be using three, three and a half million  
3 gallons a day, are those actually times when the  
4 flow in the Dan River is at its lowest?

5 A I believe that is addressed in the county's  
6 letter that was an attachment to my affidavit, I  
7 believe.

8 Q Okay.

9 A And I'd have to check on that but I'd have to  
10 refer to that.

11 Q So that would be Appendix A to your Affidavit.  
12 Can you --

13 A Let me see if I brought my Affidavit up here.  
14 Yes, I did. Appendix B of my Affidavit -- no,  
15 wait a minute, I'm sorry. Yes, Appendix A to my  
16 Affidavit is a letter from Rockingham County.

17 Q And can you point to -- can you point to  
18 something in this letter that would better  
19 explain what the flow of the Dan River is?

20 A If I put my glasses on I'll stand a better  
21 chance. I believe the fourth bullet on the first  
22 page under *Water Intake* addresses the comparison  
23 of the amount of water our facility would take  
24 compared to the lowest seven-day average flow

1           that occurs once every 10 years as identified by  
2           the North Carolina Department of Environmental  
3           Quality.

4       Q     Thank you. I appreciate that. We just really  
5           need to be clear on that since there seemed to be  
6           a little confusion at the public hearing. What's  
7           the Reidsville station, how many megawatts of  
8           capacity will that plant be?

9       A     Nominal 500 megawatts.

10      Q     And nominal is 500 megawatts, what would be a  
11           capacity factor of that plant?

12      A     We're anticipating probably 60 to 70 percent  
13           capacity factor on day one to allow growth for  
14           our prospective wholesale customers to grow into  
15           it in the anticipated 20-year contract term.

16      Q     Now, this plant, as you've testified, is similar  
17           to the Kings Mountain plant?

18      A     Yes.

19      Q     How similar is it? Is it identical or is it darn  
20           close or how would you characterize it?

21      A     Darn close is what I'd use.

22      Q     I think that's what you said the other day so I  
23           just --

24      A     I know. The Kings Mountain Energy Center and the

1        Reidsville, or Rockingham County Energy Center  
2        are both one-on-one combined cycles. They both  
3        have one combustion turbine, one HRSG, one boiler  
4        and one steam turbine with all of the associated  
5        equipment. The combustion turbine for the Kings  
6        Mountain Energy Center is a Mitsubishi G-Class  
7        combustion turbine, state of the art, highly  
8        efficient. What we're proposing to use for the  
9        Reidsville project is either the same, the  
10       Mitsubishi G-Class turbine or a Siemen's H  
11       combustion turbine, both of which are state of  
12       the art, extremely efficient units.

13    Q        So when is the Kings Mountain plant expected to  
14        come online?

15    A        In the fall of 2018, commercial operation for the  
16        Kings Mountain Energy Center.

17    Q        And your website says there was about  
18        \$450 million of capital for that site; is that  
19        approximately the cost of that plant?

20    A        That's approximately correct. I'm the engineer  
21        not the finance guy but --

22    Q        But approximately?

23    A        Approximately.

24    Q        Yeah. And what would be the -- for the

1           Rockingham station, the Reidsville station, would  
2           that be about \$500 million?

3   A       Again, subject to verification, it should be  
4           fairly close to \$500 million.

5   Q       I mean that's --

6   A       Slightly more expensive --

7   Q       Yeah, that's what your website said, \$500  
8           million, so I think --

9   A       I'm not to question the website.

10           MR. RUNKLE: Your Honor, may I approach the  
11           witness?

12           COMMISSIONER BROWN-BLAND: Yes.

13           MR. RUNKLE: Your Honor, if we could mark  
14           this for identification purposes as NC WARN Green  
15           Cross Exhibit 1?

16           COMMISSIONER BROWN-BLAND: It will be so  
17           identified.

18           NC WARN Green Cross Exhibit 1

19                           (Identified)

20   BY MR. RUNKLE:

21   Q       Sir, what I've handed you I've characterized as  
22           press releases from NTE Energy discussing  
23           long-term Power Purchase Agreements with six or  
24           seven different towns in North and South

1 Carolina; is that correct? Is that your  
2 understanding what these are?

3 A That's what it looks like to me; yes, sir.

4 Q And so are these the towns presently with the  
5 long-term Power Purchase Agreements: Black  
6 Creek, Lucama, and Sharpsburg, and Stantonsburg  
7 in North Carolina?

8 A That is four of the off takers of the Kings  
9 Mountain Energy Center, yes.

10 Q And then on the second page it's the same similar  
11 kind of press release announcing Kings Mountain;  
12 is that correct?

13 A Yes, it is.

14 Q And then a couple more pages looking at the City  
15 of Greenwood, South Carolina; is that correct?

16 A That is a press release announcing the long-term  
17 purchase agreement with Greenwood, South  
18 Carolina, correct.

19 Q Is it your understanding that these are the  
20 cities that have long-term Power Purchase  
21 Agreements with NTE from the Kings Mountain  
22 plant?

23 A They are some of them; there are a couple of  
24 others.

1 Q How many more are there?

2 A I think there's two others.

3 Q So nine all together?

4 A Yes, sir.

5 Q And they're all cities?

6 A Municipalities or cooperatives or in the case of  
7 one - I'm not sure it's a state agency - I think  
8 New River Power & Light. It's not a secret.

9 (The witness was requested to  
10 repeat by the Court Reporter.)

11 THE WITNESS: New River Power & Light. They  
12 serve Appalachian State and Boone. And, just for the  
13 record, the ninth one is the City of Winterville,  
14 North Carolina.

15 Q Now how much power is the Kings Mountain plant  
16 expecting to provide to these nine entities?

17 A The Power Purchase Agreements that we have with  
18 these nine entities calls for NTE to provide all  
19 the baseload, intermediate load and peaking load  
20 needs of these communities for, between 17 and 20  
21 years depending on the contract. The capacity of  
22 the Kings Mountain Energy Center is 475  
23 megawatts, which when you take into account the  
24 current peak demand anticipated from these nine

1           entities as indicated by these nine entities and  
2           taking a look at the load growth anticipated over  
3           the next 17 to 20 years, the Kings Mountain  
4           Energy Center is fully subscribed by these nine  
5           entities.

6       Q     Okay. Now who -- so they will -- these nine  
7           entities will use the power when the Kings  
8           Mountain plant comes online in 2018?

9       A     Yes.

10      Q     Who provides power --

11      A     Actually 2019. They start -- I think the first  
12           one starts in 2019.

13      Q     Okay. So in 20- -- until now to 2019 who is  
14           providing power to these nine entities?

15      A     Either Duke Energy Carolinas or Duke Energy  
16           Progress.

17      Q     Looking at the Reidsville plant, do you have  
18           similar long-term Power Purchase Agreements with  
19           any entities?

20      A     We're in negotiation with four to five  
21           municipalities and cooperatives in North and  
22           South Carolina for the off -- for the output of  
23           the Reidsville Energy Facility, basically the  
24           same status we were in at this stage of the Kings



1 Mountain Energy Center development. It's kind of  
2 a two-legged schedule, you've got to show the  
3 customers that the plant is viable, is getting  
4 the permits it needs to be built and, of course,  
5 the investors have to see that the plant is  
6 viable and is going to be built and will have  
7 willing off takers that will pay for the output  
8 of the plant.

9 Q So and these -- how many entities did you say you  
10 were in negotiation at this time?

11 A Four with potentially a fifth one being added in  
12 the last couple of weeks.

13 Q And who is providing power now to those entities?

14 A Again, a combination of Duke Energy Progress,  
15 Duke Energy Carolinas, and I'm not sure on the  
16 fifth one, quiet frankly.

17 Q Can we look at your Application on, it's one of  
18 the maps, it's Attachment 5 near the end, it's --  
19 there are a couple of maps and diagrams.

20 MR. RUNKLE: Your Honor, I'm assuming that  
21 the Application is in the record that's submitted  
22 as -- that's marked as an exhibit.

23 MR. STYERS: It's in the record or we would  
24 stipulate that it be admitted into the record if it

1 isn't considered so, for purposes of ease, we would  
2 stipulate and ask that the Application and the  
3 Attachments thereto be part of the record in this  
4 hearing.

5 COMMISSIONER BROWN-BLAND: Are you moving at  
6 this time that they be admitted into evidence,  
7 Mr. Styers?

8 MR. STYERS: (Nods head affirmatively).

9 MR. RUNKLE: No objection.

10 COMMISSIONER BROWN-BLAND: Since there's no  
11 objection, the Application filed by NTE will be  
12 received into the evidence.

13 MR. STYERS: Along with the attachments to  
14 the --

15 COMMISSIONER BROWN-BLAND: Along with the  
16 attachments which will be -- remain as marked when  
17 prefiled.

18 MR. STYERS: Thank you.

19 COMMISSIONER BROWN-BLAND: And those  
20 attachments will be received into evidence.

21 NTE Carolinas II, LLC, Application

22 (Admitted)

23 (Confidential version filed under seal)

24

1 BY MR. RUNKLE:

2 Q If you look at Attachment 5 which is the diagram  
3 of the site and then followed by location of  
4 major equipment.

5 A Yes, sir, I'm looking at it.

6 Q Now --

7 COMMISSIONER BROWN-BLAND: Mr. Runkle, could  
8 you direct me?

9 MR. RUNKLE: It's in the Application, it's  
10 Attachment 5.

11 COMMISSIONER BROWN-BLAND: I've got 5.

12 MR. RUNKLE: And the second, there's a  
13 diagram and then there's a map.

14 COMMISSIONER BROWN-BLAND: Thank you.

15 BY MR. RUNKLE:

16 Q Now, on this map you show the Reidsville Energy  
17 Center, do you not?

18 A Yes, I do, I show the proposed location of  
19 Reidsville Energy Center.

20 Q And the various switching stations and gas yard  
21 and other things necessary for that facility; is  
22 that correct?

23 A Yes, sir.

24 Q Now, at the bottom in the, sort of in the middle

1           it's called Rockingham Station. What's the  
2           Rockingham Station?

3       A     It's the Rockingham Station. It's Duke Energy  
4           Carolinas peaking plant that exists today.

5       Q     Are you aware that's about 825 megawatts in size?

6       A     Yes.

7       Q     And that there are five natural gas-fired peaking  
8           plants there?

9       A     Five combustion turbines, yes.

10      Q     Are you aware that the plant was built by Dynegy,  
11           D-Y-E-N-G-Y, with a commercial date about 2000?

12      A     I'm aware of it. I'm not -- I can't confirm the  
13           dates.

14      Q     And that sometime in 2006 or 2007, Dynegy sold  
15           that site to Duke Energy Carolinas?

16      A     Again, I cannot confirm the dates. I know it was  
17           sold to Duke Energy.

18      Q     Is the Reidsville Energy Station adjacent,  
19           directly adjacent to the Rockingham Station?

20      A     Yes, it is.

21      Q     In fact, you'll share the switching station. And  
22           will you share any other of the infrastructure?

23      A     It does not appear so. We will tie into the  
24           Ernest Substation which is the substation for the

1       Rockingham facility and that's where the output  
2       of the Reidsville facility would get onto the  
3       transmission grid to serve the customers of North  
4       and South Carolina.

5       Q     Are you aware that in 2008, after Duke had  
6       purchased the Rockingham Station, it actually  
7       submitted an Application for Certificate of  
8       Public Convenience and Necessity to add 677  
9       megawatts of new capacity there?

10      A     I'm not aware of that.

11               MR. RUNKLE: Your Honor, we'd ask that you  
12      take judicial notice of Docket E-7, Sub 861. It's a  
13      fairly short docket. It's the preliminary information  
14      as opposed to a full certificate.

15      BY MR. RUNKLE:

16      Q     Are you aware that in 2010, Duke Energy withdrew  
17      its Application for the CPCN for the expansion of  
18      the Rockingham Station because it wasn't needed?

19      A     I'm not aware of that.

20      Q     Now, in your testimony you have stated that NTE  
21      has relied on the Integrated Resource Plans, the  
22      IRPs of Duke Energy Carolinas and Duke Energy  
23      Progress; is that correct?

24      A     In part; to demonstrate the need for our

1       Reidsville, Rockingham County facility, yes, we  
2       looked to the Integrated Resource Plans of Duke  
3       Energy Carolinas and Duke Energy Progress in  
4       part.

5       Q     Now, in your testimony you really don't say "in  
6       part". This is in your prefiled testimony. In  
7       addition to your IRPs, what have you been looking  
8       at?

9       A     We've been looking at the expressed desires from  
10      willing wholesale buyers that have approached us.  
11      After we have fully subscribed the Kings Mountain  
12      Energy Center, additional municipalities and  
13      cooperatives had come to us and said we would  
14      love to look at the opportunity of you serving us  
15      as well. Since I did not have any more capacity  
16      on the Kings Mountain facility, the need for  
17      additional capacity to serve that expressed need  
18      from willing wholesale customers is the other  
19      part of the need, I guess expression, we  
20      identified.

21      Q     So in the 2008 IRP probably, I mean one that you  
22      may not have looked at it, it references the  
23      expansion to the Rockingham Station and it states  
24      that at this time Duke really doesn't need that

1 generation at that point. Would that surprise  
2 you?

3 A Well, first of all, again I have not seen that in  
4 writing. Repowering a peaking plant to combined  
5 cycle is likely less efficient than building a  
6 new combined cycle plant. If combined cycle is  
7 indeed needed as it is needed as expressed in the  
8 two IRPs, both the one approved in 2015 by this  
9 Commission as well as the 2016 IRPs, that  
10 identify continued significant need of over  
11 10,000 megawatts.

12 Q And let me look at this again. So the expansion  
13 of the Rockingham Station was for 677 megawatts  
14 of combined cycle plants, and Duke said that  
15 those weren't needed in their 2008 IRP. Okay.  
16 And so are you saying that your combined cycle  
17 plants are needed now in this location?

18 A Combined cycle generation is needed in North and  
19 South Carolina as expressed by Duke Energy  
20 Carolinas and Duke Energy Progress in the IRPs,  
21 and as expressed by the desires of the willing  
22 wholesale customers that we're in negotiations  
23 with now. The exact location of that combined  
24 cycle capacity as long as it can tie into the



1 transmission grid is pretty -- it's indifferent  
2 as to where as long it gets into the transmission  
3 grid.

4 Q So what criteria did NTE use to select the siting  
5 of the Reidsville plant at this point, at this  
6 site?

7 A The criteria and development of any site, and as  
8 it was used on this site, is to identify adequate  
9 acreage. In this case we have 170 acres of which  
10 we will utilize about 20 acres in the middle of  
11 it so we've got a significant buffer on the  
12 outside. We identify proximity to existing  
13 electric transmission that we can basically get  
14 the output of the plant onto the transmission  
15 grid. Picking this site adjacent to the Ernest  
16 Substation meets that criteria because any  
17 transmission -- the bus line from our step-up  
18 transformers to our switch yard to the Duke  
19 switch yard is all crossing just our property and  
20 Duke's property. The proximity to the Transco  
21 natural gas pipelines already existing and  
22 running through this property means that our taps  
23 into that Transco facility, that Transco pipeline  
24 requires no extensive lateral across anybody

1           else's property; a very simple tap all on our  
2           property.

3       Q     Now, are there any scenarios in which NTE, like  
4           Dynergy, would consider selling to Reidsville  
5           Energy complex to another company such as Duke  
6           Energy?

7       A     No. The strategy of NTE Carolinas, and one of  
8           the significant reasons that I chose to come out  
9           of retirement and work with them, is their desire  
10          to develop, build, operate and maintain for the  
11          long-term the power plants that we're developing.  
12          We are entering into long-term, full-requirement  
13          contracts with our off-take customers. We have  
14          to be here for the long-term and that's the goal.  
15          We intend to be sound, responsible corporate  
16          citizens in every community that we're in.

17      Q     Will NTE make a commitment that they are not  
18           going to sell their Reidsville plant to an  
19           investor-owned utility?

20      A     I don't think we can ever make such a commitment  
21           as bold as that, I mean, I don't know what could  
22           happen 20 years from now.

23      Q     Fair enough. Let's look at the need for the  
24           plant starting with the IRPs. So really the two

1 things you looked at were the IRPs and then after  
2 you filled up the Kings Mountain you thought  
3 there might be additional customers out there;  
4 the IRPs and the additional customers?

5 A I'm trying to -- I don't understand your  
6 question. I'm sorry.

7 Q Well, in looking at the need for the Reidsville  
8 plant you started with the IRPs and also looked  
9 at potential customers; is that correct?

10 A Certainly.

11 Q Now, your Application references the demand  
12 growth projections in the Duke Energy IRPs; do  
13 they not?

14 A Yes, it does.

15 Q Have you looked at the IRPs in depth to see what  
16 rationale they use to project growth?

17 A Yes, I have. The IRPs that Duke Energy Carolinas  
18 or Duke Energy Progress utilize, in conjunction  
19 with the Public Staff and the Commission,  
20 identify the capacity needed to make sure that  
21 basically the lights stay on at all times, peaks  
22 and non-peaks. The IRP is a -- has proven to be  
23 successful in that vain. Lights have stayed on  
24 in some of the worst sort of weather conditions

1           the last few years. I think the IRP is the best  
2           projection model for firm, proven, generating  
3           capacity, taking into account the contributions  
4           of Demand-Side Management, Energy Efficiency,  
5           planned unit retirements, see what additional is  
6           needed and can be firmly counted upon and capable  
7           of providing energy when it's needed by the  
8           customers. And that's the same need as expressed  
9           by these willing wholesale customers that are  
10          talking to us. They, too, have retail customers  
11          that seek reliable, firm capacity, cost-effective  
12          and reliable capacity.

13        Q     And those customers are purchasing or presently  
14            buying their electricity power needs from Duke  
15            Energy Carolinas and Duke Energy Progress; is  
16            that correct?

17        A     That is correct.

18        Q     Now, looking at page 10 of the Application, it's  
19            the description of need. Now, you take these  
20            numbers from the IRPs, do you not?

21        A     That is correct.

22        Q     And in the footnotes, several of the footnotes  
23            say *Excludes the impacts of new Energy Efficiency*  
24            *Programs*; is that correct?

1 A Which footnote are you referring to, sir?

2 Q Footnote number 3, footnote number 6.

3 A Yes, sir.

4 Q And footnote number 7.

5 A Yes, sir.

6 Q And so the basis of the IRPs is that this will be  
7 a retail and wholesale growth without the impacts  
8 of new efficiency programs; is that correct?

9 A I don't agree with that. I think the IRP  
10 identifies the contributions of Energy Efficiency  
11 Programs, Demand-Side Programs that can be  
12 committed to serving firm capacity when its  
13 needed at all times. I think these footnotes on  
14 this testimony are added because that's what was  
15 in the IRP table that they were pulled from.  
16 The -- I think, if I remember correctly,  
17 approximately -- approximately, subject to check,  
18 four or five hundred megawatts of firm  
19 Demand-Side Management is identified currently.  
20 And I'm more familiar with the Duke Energy  
21 Carolinas IRP, with that projected to grow to  
22 something like 1100 megawatts of Demand-Side  
23 Management which I think is more than doubling it  
24 in the next 15 years. Even with that as a

1           consideration, there's still in excess of 10,000  
2           megawatts of additional generation required to  
3           meet the anticipated loads that Duke projects.

4       Q     Now, in the IRPs, are the loads projected by DEC  
5           and DEP, are those increases in peak demand?

6       A     I think the -- these numbers are the increase in  
7           capacity needed to meet that anticipated peak  
8           demand. But keep in mind you've got to have firm  
9           generating capacity capable of serving that peak  
10          demand when it hits on that coldest day in the  
11          winter or that hottest day in the summer. And  
12          these are the numbers that they say is needed  
13          given the planned retirements of older, less  
14          efficient units in the contributions of  
15          Demand-Side/Energy Efficiency Programs, et  
16          cetera.

17      Q     Now, are the IRPs based on a winter peak or a  
18           summer peak or a combination?

19      A     I think they take a look at both winter and  
20           summer peaks.

21      Q     Is the Reidsville plant, the proposed Reidsville  
22           plant, is that going to be a peaking unit or a  
23           baseload unit?

24      A     It will be a baseload, intermediate and a peaking

1 unit.

2 Q So you expect it all -- to run it most of the  
3 time?

4 A Yes. It's an extremely efficient combined cycle  
5 unit. The price of natural gas is currently  
6 extremely low and projected to be extremely low.  
7 If those two -- if the gas remains low, it will  
8 run as a baseload; if gas becomes a little  
9 higher, we'll run as an intermediate; and we have  
10 duct-firing capability to provide more peaking  
11 power.

12 Q Did you -- in looking at your expressed need for  
13 the Reidsville plant, did you consider other  
14 existing merchant power facilities in North  
15 Carolina?

16 A Quiet frankly, no. Because the willing wholesale  
17 customers that approached us were inquiring about  
18 us building a state of the art, latest, greatest  
19 efficiency unit to serve their needs. The model  
20 that we looked at in the Kings Mountain  
21 development effort is being repeated about two to  
22 three years separated in this Reidsville project.

23 Q Is NTE familiar with the 523-megawatt Columbia  
24 Energy combined cycle plant outside of Columbia,



1 South Carolina?

2 A I'm aware it exists, yes.

3 Q Are you aware that that Columbia Energy facility  
4 is presuming Purchase Power Agreements to sell  
5 its capacity to Duke Energy - Duke Energy, both  
6 DEC and DEP?

7 A I'm not aware of that.

8 Q Is NTE familiar with the 940-megawatt Tenaska  
9 Virginia merchant combined cycle power plant  
10 80 miles north of Rockingham County?

11 A I'm aware it exists up there, yes.

12 Q Are you aware that that facility only operated at  
13 a capacity factor of about 60 percent in 2015?

14 A I am not familiar with the exact numbers but I  
15 would not be surprised. Any combined cycle plant  
16 in the SERC region is probably going to operate  
17 between a 60 and 70 percent capacity factor.

18 Q Fair enough. Are you familiar with the Smoky  
19 Mountain Hydro units near the Carolina-Tennessee  
20 border with a capacity of 378 megawatts?

21 A No, I wasn't until you brought it up. I am now;  
22 yes, sir.

23 Q Now, to your knowledge in North Carolina, South  
24 Carolina, Virginia, are there other merchant

1 plants that are not fully utilized?

2 A You've got to be a little clearer on what you  
3 mean by "not fully utilized".

4 Q Under-utilized, operating at a low capacity  
5 factor because they just don't have the  
6 customers?

7 A Well, again, the capacity factor -- if a power  
8 plant is available to run and if it meets the  
9 economic dispatch model of that region, whether  
10 it be South Carolina Electric & Gas region, or  
11 Dominion PJM region, or a Duke region, that plant  
12 will get dispatched. The fact if it's only  
13 running at 60 percent capacity factor recognizes  
14 that there are other more efficient plants that  
15 can serve whatever needs it's trying to serve 30  
16 or 40 percent of the time. The --

17 Q So in your dispatch model that you've just  
18 discussed, who does the dispatching?

19 A I don't know what the commitments are for the  
20 Columbia plant or for the Tenaska plant or for  
21 the hydro plant. I don't know and I'm not  
22 sure -- well, I don't know what the capacity and  
23 energy commitments are for those plants. I would  
24 imagine that the Columbia plant will serve --

1       when there's a peak in Charlotte, North Carolina  
2       or Raleigh, North Carolina, there's likely going  
3       to be a peak in Columbia, South Carolina, too. I  
4       would imagine that Columbia Energy plant is going  
5       to be dependent upon by South Carolina  
6       Electric & Gas to help meet that service area  
7       need to try to wheel energy from South Carolina  
8       Electric & Gas territory, SCANA territory, or  
9       wheel it from Virginia's territory and incur that  
10      additional cost to the Carolina customers, just  
11      does not seem to be the right path to take even  
12      if there was availability, which I don't know if  
13      there is.

14    Q     In the contracts, Power Purchase Agreements that  
15           you have with the various entities, how long are  
16           those agreements for?

17    A     The nine that we have now, one is 17 years  
18           beginning in -- well eight of them -- one starts  
19           in 2018 and is 20 years, eight of them start in  
20           2019 for 20 years, and one starts in 2021 I  
21           believe for 17 years.

22    Q     So fairly long-term contracts?

23    A     Yes, sir.

24    Q     And do you expect at the Reidsville station to

1           have that same kind of fairly long-term  
2           contracts?

3     A     Yes, sir. It will be required for us to have  
4           long-term contracts to gain the trust of the  
5           investors to close our financing.

6     Q     So it's not required by any regulatory body, it's  
7           required by your financiers?

8     A     It's what is determined between willing wholesale  
9           buyers and willing wholesale customers.

10    Q     Now --

11    A     Wholesale generators, I'm sorry.

12    Q     In North Carolina, have -- in looking at, I guess  
13           starting with the IRPs, have you looked at the  
14           growth of retail demand over the last decade?

15    A     I have read what the IRP has in it for growth  
16           projections, yes.

17    Q     And what are those growth projections over the --  
18           I mean, I'm looking in the past, we'll get to the  
19           future in a minute. Looking at the past growth,  
20           has there been a significant growth of retail  
21           demand in the Duke service areas within the last  
22           decade?

23                 MR. STYERS: Objection. I'm not sure -- I  
24           mean the question was retail demand, I mean, that's

1 not been a defined term. I'm not so sure what  
2 Mr. Runkle is referring to when he says "retail  
3 demand".

4 COMMISSIONER BROWN-BLAND: Mr. Runkle, will  
5 you specify?

6 MR. RUNKLE: Okay.

7 MR. STYERS: There's energy, there's  
8 capacity, there's lots of different ways; I'm just not  
9 so sure what demand he's referring to.  
10 BY MR. RUNKLE:

11 Q Has there been a -- over the last decade has --  
12 in the residential sector, I mean, in the retail  
13 sector has there been more electricity used over  
14 the last decade or not?

15 A I don't think I'm in a position to say. I think  
16 that's a question better suited for Duke Energy  
17 or perhaps the Public Service Commission or the  
18 Public Staff. I tend to look at what the -- what  
19 is needed going forward, and my plants that I'm  
20 developing are going to serve needs in the  
21 future, not the needs in the past.

22 Q So have you looked at the needs of the future for  
23 the retail - I thought the word was demand - the  
24 retail demand for electricity?

1 A As I reviewed the Duke Energy Carolinas and Duke  
2 Energy Progress IRPs, they indicate what is  
3 projected to be the growth in retail and the  
4 growth in wholesale demand over the next, I  
5 think, it's 15 years. I'm not in a position to  
6 question the accuracy of that or anything else.  
7 It shows a growth. I believe the 2016 filing  
8 from Duke Energy Carolinas and Duke Energy  
9 Progress reduced the expected growth in both  
10 wholesale and retail which reduced the needed  
11 capacity down from 11,000 megawatts additional to  
12 maybe 10,500 megawatts additional new capacity.  
13 That's about the depth of my research of the IRP.

14 Q Now, in your analysis of the IRP, did you look at  
15 the difference between retail and wholesale  
16 demand growth?

17 A I did not because we are a wholesale generator.  
18 We will serve only wholesale customers and, quite  
19 frankly, the growth in retail, I'm depending upon  
20 the willing wholesale, prospective wholesale  
21 customers we have in their identification of what  
22 they expect their retail load and commercial load  
23 and industrial load to be, residential and  
24 everything else. I depend more on what the

1 willing customers that are wanting to buy power,  
2 capacity and energy from me than I do what Duke  
3 says statewide or systemwide is the growth in  
4 retail.

5 Q Did you look at any of the impact that operating  
6 the Reidsville plant would have on new generation  
7 sources in the Carolinas?

8 A You'll have to rephrase that question. I'm  
9 sorry, sir.

10 Q Okay. New generation sources, say solar energy,  
11 did you analyze the impact of having your plant  
12 in operation; would it impact other possible  
13 generation sources?

14 A We certainly look at what our customers, our  
15 prospective customers are needing. There's been  
16 a tremendous growth of solar, capacity in the  
17 State of North Carolina which I think is a good  
18 thing. The fact is that solar is an intermittent  
19 capacity. I think it -- if I can quote, if I can  
20 remember what the IRPs of Duke said, I think the  
21 solar facilities can support peak winter demand  
22 at 5 percent of their nameplate capacity and  
23 approximately 46 percent of nameplate capacity at  
24 the summer peak and that's a good thing. I think



1       our customers can benefit from available solar  
2       energy when it is available. And we provide our  
3       customers with the opportunity to hour-by-hour,  
4       every hour of every day of every week of every  
5       month of the year that our energy manager will  
6       look at all of the available energy on the grid  
7       and, if more efficient, less costly energy can be  
8       provided to our customers it will be provided to  
9       our customers. So the customers that we serve  
10      benefit from our plant as being the baseload,  
11      low-cost, efficient plant that it is,  
12      supplemented by, if there are more economy  
13      purchases that can be made, they will get that  
14      again, but that is energy and not capacity. The  
15      capacity of the plant has to be the megawatts  
16      that are capable of serving the power at all  
17      times of the day. Solar cannot serve their full  
18      nameplate capacity at all times of every day.

19    Q    Now, in Attachment 6 to the Application is a  
20        table of permits and approvals. And there are a  
21        number of permits and approvals, are there not,  
22        before you can begin operation?

23    A    Oh, yes, sir. We -- this appearance before the  
24        North Carolina Utilities Commission is just one.

1 As listed in that attachment many permits are  
2 being sought.

3 Q One of NC WARN's concerns is about greenhouse gas  
4 emissions. Has NTE conducted an analysis of  
5 greenhouse gas emissions for this project?

6 A The Department of Air Quality has received our  
7 permit application for the emissions from our  
8 plant and I believe all of the -- all of the  
9 emissions are identified in that. I can't quote  
10 what they are right now.

11 Q So, if we wanted to look at greenhouse gas  
12 emissions, would you refer us to the Air Quality  
13 Permit application?

14 A Yes.

15 Q Now, are there other environmental impacts from  
16 your proposed natural gas plant? And let me just  
17 reference, some of those would be, there's --  
18 would there be water quality impacts?

19 A Repeat the question. You asked me if there's a  
20 water quality permit --

21 Q Yes.

22 A -- required?

23 Q Well, not a permit, from your plant would there  
24 be water quality impacts?

1 A No. This is a -- Rockingham County is providing  
2 us water for our cooling. They will design,  
3 permit, own, operate, and maintain the water  
4 system that brings us water and they will take  
5 the water back that just is -- nothing is added  
6 to it, it's just run through the cooling towers  
7 and it's returned to the county for disposal. So  
8 the county would be responsible for getting all  
9 of the permits and they will get all of the  
10 permits required for that intake and discharge as  
11 well as the route of all the pipes to and from  
12 our facility.

13 Q Has NTE conducted an analysis of the methane  
14 leaking and venting of the natural gas  
15 infrastructure for the gas coming to your  
16 proposed plant?

17 A In our air permit application we have identified  
18 the methane emitted from the gas yard owned by  
19 Transco and our plant, that 600 feet of pipe, and  
20 that is a part of the Air Quality Permit.

21 Q And you will be purchasing your natural gas from  
22 Transco; is that correct?

23 A No, that's incorrect.

24 Q Who will you be purchasing natural gas from?

1     A     I had to make you ask. Transco is the pipeline,  
2           we will be buying our gas from a major supplier  
3           that actually owns gas molecules that go in the  
4           Transco pipeline. For example, the Kings  
5           Mountain Energy Center, we purchase gas from  
6           Sequent, a subsidiary of Atlanta Gas Light.  
7           We're in negotiations now with various suppliers,  
8           major suppliers, that have significant volumes of  
9           gas on the Transco pipeline that we will purchase  
10          firm natural gas from, and it's those suppliers  
11          that will meet all of the necessary safety,  
12          permitting requirements for transportation of gas  
13          on the pipeline.

14        Q     Now, I think earlier -- we're almost finished --  
15           so earlier you had said that the cost of the  
16           plant is roughly in the \$500 million range;  
17           that's what you stated, right?

18        A     I believe that's ballpark, correct.

19        Q     Okay.

20        A     University of Tennessee ballpark.

21        Q     How does that compare to the construction of  
22           other similar natural gas plants? Is that in the  
23           same ballpark?

24        A     I believe we've provided to the, I think to the

1           Public Staff, I think under confidential seal the  
2           EPC cost per kW and I'd have to -- I'm not sure I  
3           can say much more about it.

4       Q     And that's for your plant? That's for this  
5           plant? Did you compare it to other plants being  
6           built around the country?

7       A     The cost per kilowatt and then the subsequent  
8           cost of energy coming from that plant has to be  
9           at a price that's acceptable by the willing  
10          wholesale buyers that are going to buy the power  
11          from us. The cost of the plant comes into play  
12          in their determination of their capacity payment,  
13          and obviously the efficiency of the plant comes  
14          into play on the cost of the energy provided from  
15          the plant.

16               MR. RUNKLE: I have no further questions.  
17       Thank you.

18               COMMISSIONER BROWN-BLAND: Is there  
19       redirect?

20               MR. STYERS: I guess --

21               COMMISSIONER BROWN-BLAND: I'm sorry, is  
22       there cross?

23               MS. DOWNEY: I don't have any questions.

24               MR. STYERS: I just wanted to make sure that

1 there weren't any questions by the Public Staff. I do  
2 have some redirect, if I may ask.

3 REDIRECT EXAMINATION

4 BY MR. STYERS:

5 Q Mr. Green, Mr. Runkle asked you some questions  
6 regarding a 2008 IRP and a 2010 application; do  
7 you remember those questions?

8 A Yes.

9 Q I would like to hand to you a document that is  
10 labeled Exhibit Cross-X Powers but we're going to  
11 call it instead Exhibit Redirect Green 1.

12 COMMISSIONER BROWN-BLAND: It will be so  
13 identified.

14 NTE Redirect Green Exhibit 1

15 (Identified)

16 BY MR. STYERS:

17 Q And I will represent to you that this is  
18 population overview for the North Carolina Office  
19 of State Budget Management. The population  
20 numbers the State of North Carolina utilizes for  
21 both -- for state budgeting purposes. And the  
22 first column is headed *July 2010*. If you will  
23 look at the bottom of page 3, it has a total  
24 state population of nine point five -- 9,574,000

1 people as the population of the state. Do you  
2 see that, Mr. Green?

3 A Yes, I do.

4 Q Okay. And then -- so at the time that that was  
5 referenced by Mr. Runkle in his testimony, the  
6 population of the state was approximately nine  
7 and a half million or a little less than that a  
8 few years before then; is that correct?

9 A I would confirm that's what this says, yes.

10 Q And then the next column is, the heading on the  
11 first page is *July 2015*, and it shows a state  
12 population in 2015, according to the U.S. Census  
13 data, and reported in the North Carolina Office  
14 of Budget Management of 10 million, a little over  
15 10 million people. Is that what the total is in  
16 the second column?

17 A Yes, it is.

18 Q And then the 2020 and '25 and '30, those are the  
19 headings on the third, fourth and fifth columns;  
20 is that correct?

21 A That is correct.

22 Q And, subject to check, that shows the state  
23 projecting a population growth in the State of  
24 North Carolina of about 500,000 people every five



1           years?

2       A     That's what I would determine from this, about a  
3           half a million people every five years.

4       Q     So the population in the state growing about  
5           1 percent per year generally or a little bit more  
6           than that based upon these numbers from the State  
7           of North Carolina.

8           MR. RUNKLE: Your Honor, I'm going to  
9     object. It's not clear with this exhibit where these  
10    numbers came from and what they've been used for and  
11    what they even suggest.

12          MR. STYERS: Mr. Runkle opened the door by  
13    asking about 2010 events and I am -- and I will also  
14    bring this back into relevance when we talk about the  
15    IRP projections which uses population as an input for  
16    IRP projections.

17          COMMISSIONER BROWN-BLAND: Mr. Styers, I  
18    believe -- in the beginning did you not identify where  
19    this information came from?

20          MR. STYERS: Yes, and it's noted by the URL  
21    at the bottom, NCOSBM, that's the North Carolina  
22    Office of Budget Management for the State of North  
23    Carolina website.

24          COMMISSIONER BROWN-BLAND: If you would have

1 the witness to identify the source of the information.

2 MR. STYERS: Excuse me.

3 COMMISSIONER BROWN-BLAND: If you would have  
4 the witness to identify the source of the information  
5 since he's providing testimony.

6 MR. STYERS: Yes.

7 BY MR. STYERS:

8 Q Mr. Green, do you see at the bottom of the page  
9 the footer noting the URL from -- a URL there at  
10 the bottom of the page? I know you need to  
11 adjust your glasses.

12 A Yes, I do, and I will demonstrate my lack of  
13 computer savvy; is that the https?

14 Q That will be yes, sir.

15 A And thank you.

16 MR. RUNKLE: Your Honor, I would have to  
17 renew my objection to that. I mean, the document says  
18 what it says but we don't know where the document  
19 comes from and how it has been used by, purported by  
20 the office of something or another in North Carolina.

21 MR. STYERS: I'm just asking --

22 COMMISSIONER BROWN-BLAND: Well, we'll  
23 accept it for what it is with that objection noted.

24 MR. RUNKLE: Thank you, Your Honor.

1 BY MR. STYERS:

2 Q 2008, Mr. Green, was the year that some people  
3 refer to as the stock market collapsed. The  
4 stock market failed dramatically in 2008, did it  
5 not?

6 A I remember it well.

7 Q And it was also the year Bear Stearns and  
8 financial institutions on Wall Street also were  
9 in great distress, was it not?

10 A That is correct.

11 Q Some would say that was perhaps the height of the  
12 great recession or kicking off the recession of  
13 the unemployment, the fall of that year?

14 A That is correct.

15 Q And North Carolina was still in that recession  
16 with basically no employment growth through 2009  
17 and 2010, isn't that correct?

18 A I believe that's correct, as many other states  
19 were.

20 Q And do you have information regarding plant  
21 closings that have occurred by Duke Energy  
22 Carolinas and Duke Energy Progress over the last  
23 six to eight years, just from your knowledge of  
24 the industry?

1 A Yes. There's been significant -- I'm not sure  
2 I'm in a position to name all the plant closings  
3 but Duke has -- both Duke Energy Carolinas and  
4 Duke Progress have closed a significant number of  
5 plants that are older, less efficient, in most  
6 cases coal plants or in some cases older  
7 combustion turbine plants for peaking. I believe  
8 the IRP as issued in 2015 and is approved by the  
9 Commission identifies another list of projected  
10 closings of existing plants. And I can't recall  
11 exactly what those numbers were but they were  
12 significant in the range of five to eight  
13 thousand megawatts of closings, if I recall  
14 correctly.

15 Q So, as a result, the need for supply side  
16 resources in the State of North Carolina in 2016  
17 is very different than it was in 2008; would you  
18 agree with that, Mr. Green?

19 A Absolutely. You had plants being closed. Even  
20 with flat growth you'd have to replace those  
21 plants but you don't have flat growth you have  
22 growth, so you do have a need for additional  
23 capacity.

24 Q Do you have -- do you remember Mr. Runkle asking

1           you questions about retail demand in the past and  
2           I actually objected, and there were some  
3           questions about what past trends have shown about  
4           demand in the State of North Carolina?

5       A     Yes, I remember that question.

6                   MR. STYERS: May I approach the witness? I  
7       have another exhibit which again was premarked as a  
8       cross-examination exhibit of Powers but since there's  
9       been a question I will ask that to be the redirect  
10      exhibit of Green Exhibit 2.

11                   COMMISSIONER BROWN-BLAND: It will be so  
12      identified as NTE Redirect Green Exhibit 2.

13                   NTE Redirect Green Exhibit 2  
14                                   (Identified)

15      BY MR. STYERS:

16      Q     Now, on page -- okay, so on the cover, just so  
17      we're clear for the record, what's been marked  
18      now as Redirect Exhibit Green 2, the title of  
19      that is *Annual Report Regarding Long Range Needs*  
20      *for Expansion of Electric Generation Facilities*  
21      *for Service in North Carolina Received by the*  
22      *Governor of North Carolina and the Joint*  
23      *Legislative Commission on Governmental*  
24      *Operations.* Is that the title on the first page?

1 A That is correct.

2 Q And I'll refer you to page 11, Table 3, and here  
3 can you, looking at that table, can you describe  
4 in your own terms your understanding of what the  
5 numbers are in that table?

6 A They are the summer and winter systemwide peak  
7 loads for the Progress Duke in the North Carolina  
8 power systems.

9 Q And let's look at the first two -- the first  
10 column under Progress where it says *Summer*.

11 A Yes, sir.

12 Q Okay. And 2012 is 12,770 megawatts; is that the  
13 Progress --

14 A That's what I read; yes, sir. .

15 Q And the next number is 12,248, and then at the  
16 winter peaks the second column in 2012 is 12,376.  
17 Is that the electric peak number in 2012?

18 A 12,376, yes.

19 Q What was the winter peak in 2013?

20 A Winter peak for Duke Progress in 2013 was  
21 fourteen thousand, excuse me, 14,159 megawatts.

22 Q I'm not going to ask you to pull out the  
23 calculator and do the math but, subject to check,  
24 does that appear to be about a 14.4 increase,

1 14.4 percent increase in the winter peak from  
2 2012 to 2013?

3 A That seems approximately right; a 180-megawatt  
4 increase on 1200 megawatts, yes.

5 Q And then what was the peak winter in 2014?

6 A Again, for Progress the winter peak was  
7 15,151 megawatts.

8 Q And, subject to check, I'm not asking you to do  
9 the math but does that appear to be a 7 percent  
10 increase in the peak from 2013 to 2014?

11 A Yes, about a 1000 megawatt increase on a 14,000  
12 megawatt base; yes.

13 Q The third and fourth columns are -- have a header  
14 called *Duke*. What is your understanding of  
15 those, the columns -- the numbers in those  
16 columns?

17 A I would assume that to be Duke Energy Carolinas.

18 Q And the column headed *Summer*, so what was the  
19 summer peak in 2012, Mr. Green?

20 A Summer peak for what I assume to be Duke Energy  
21 Carolinas in 2012 was 17,610 megawatts.

22 Q And then the summer peak following that in 2013?

23 A That was 18,239 megawatts.

24 Q Subject to check, was that -- the math there

1 indicates that that's about a 3.5 percent growth  
2 in summer peak for Duke Energy?

3 A I'd accept that, yes.

4 Q And then what was the summer peak for Duke in  
5 2014?

6 A Summer peak for Duke Energy Carolinas was 18,993  
7 megawatts.

8 Q Subject to check, does that appear to be over a  
9 4 percent increase in the summer peak for Duke  
10 Energy Carolinas?

11 A Yes, it does.

12 Q Now, the fourth column, what was the winter peak  
13 for Duke in 2012?

14 A Winter peak for Duke in 2012 was  
15 15,307 megawatts.

16 Q And what was the winter peak in 2013 for Duke  
17 Energy Carolinas?

18 A 18,859 megawatts.

19 Q Subject to check, does that appear to be  
20 approximately a 23 percent increase in the winter  
21 peak for Duke Energy Carolinas between those two  
22 numbers?

23 A A significant growth, yes, I'll take that.

24 Q And then what was the winter peak in 2014?



1 A Another significant growth, 21,101 megawatts for  
2 Duke Energy Carolinas.

3 Q And, subject to check, does that represent an  
4 11.8 percent increase in the winter peak?

5 A Yes.

6 Q So just to clarify your answer to Mr. Runkle's  
7 questions, do these numbers indicate significant  
8 increases in the peak loads for both Progress and  
9 Duke from 2012 through 2014?

10 A They certainly do.

11 Q You indicated in your response to one of  
12 Mr. Runkle's questions that the Tenaska plant was  
13 fully subscribed when it was operating at 60 to  
14 70 percent. What do you mean by "fully  
15 subscribed"?

16 A I think I responded that I'm not sure if it's --

17 Q But that -- a plant at -- a combined cycle plant  
18 at 60 to 70 percent may well be fully subscribed?

19 A A combined cycle plant that operates at a  
20 capacity factor of 60 to 70 percent of the time  
21 means it's running 60 or 70 percent of the time.  
22 That means that you have planned outages, you  
23 have forced outages and, as I think I said, you  
24 have the opportunity for economy purchases that

1           could be less costly to the end user and,  
2           therefore, dispatched in lieu of the combined  
3           cycle plant. A combined cycle plant that's at 60  
4           or 70 percent capacity factor, the capacity is  
5           fully committed. It's just that the energy is  
6           not dispatched 100 percent of the time.

7       Q     Have you yourself personally had conversations  
8           with the wholesale customers of Kings Mountain  
9           Energy Center and the prospective customers of  
10          the Reidsville Energy Center?

11      A     Yes.

12      Q     And, based on those conversations, are the  
13          customers that you've -- the wholesale customers  
14          that you've spoken to, are they aware of other  
15          merchant facilities that are in the region?

16      A     Absolutely they are. They're shopping around and  
17          they liked what we offered in Kings Mountain and  
18          want to duplicate that offer with the Reidsville  
19          facility. They are not just looking at us, they  
20          are looking at all of the opportunities before  
21          them since it is an open wholesale market.

22      Q     So if there are available supply-side resources,  
23          they would be aware of those supply-side  
24          resources, your customers?

1 A Absolutely.

2 Q Before -- as part of the development of a power  
3 plant, does NTE assess the markets and the need  
4 for those power plants?

5 A Certainly.

6 Q And what are the consequences of moving forward  
7 with a power plant where there's no need?

8 A Well, if there is no need we can't move forward  
9 and we can't get financing unless we have  
10 long-term contracts that identify the need and  
11 confirm the need from the end-use customers.  
12 Without the financing the plant doesn't get built  
13 and we don't operate the plant.

14 Q The last set of questions I have on follow up on  
15 Mr. Runkle's questions pointing towards  
16 Attachment 6 to the Application. Do you have  
17 that in front of you or would you like for me to  
18 bring that to you?

19 A I'll get it. It's a matter of finding it. Yes,  
20 sir, I have it.

21 Q So in that Attachment 6 to the Application,  
22 there's a list first of Federal Permits, Notices  
23 and Approvals, and the first of that is the  
24 United States Army Corps of Engineers; is that

1 correct?

2 A That's correct.

3 Q Are you familiar with what a 404 Permit,  
4 generally, what type of permit that is?

5 A Yes, it's dealing with the Clean Water Act. It's  
6 a -- yeah, we have to ensure that we protect all  
7 the waters on the site, consistent with our  
8 operations.

9 Q Now, let me move down to under State Permits and  
10 Approvals. There's several listed under the  
11 North Carolina Department of Environmental  
12 Quality, one of which is an Air Quality Permit,  
13 PSD. Can you generally describe what that permit  
14 requirement is?

15 A That permit requires we identify the emissions we  
16 project from our plant. The Department of Air  
17 Quality identifies what the maximum emissions  
18 will be allowed from that plant. They will  
19 require us to put in place what is called Best  
20 Achievable Controlled Technologies, BACT,  
21 controls on all of the -- on the operation, and  
22 we'll be required to implement those BACT  
23 requirements as identified by the Department of  
24 Air Quality.

1 Q The next permit listed is called a Title IV Acid  
2 Rain Permit. In general, do you -- is that  
3 another air permit that the plant will have to  
4 receive?

5 A Yes, it's not filed until after we operate  
6 though.

7 Q Okay. But that is another regulatory air  
8 permitting requirement?

9 A Yes, sir, it is.

10 Q Then there's Title V Operating Permit; is that an  
11 Air Quality Permit as well, Mr. Green?

12 A Yes, it is. And, I'm sorry, I think I misspoke,  
13 the Title IV is submitted prior to operation but  
14 it is a permit that is required and is  
15 administered by the Department of Environmental  
16 Quality. Title IV Operating Permit is the one  
17 that's required after operation but it is another  
18 permit that is be required for Air Quality.

19 Q So both the air quality -- the first listed Air  
20 Quality Permit; the second, Title IV Acid Rain  
21 Permit; and the third, Title IV Operating Permit,  
22 are all Air Quality Permits that this plant has  
23 to receive?

24 A That is correct.

1 Q And the plant has to be in compliance with the  
2 requirements of those regulatory sections in  
3 order to operate?

4 A That is correct.

5 MR. STYERS: No further redirect questions.

6 COMMISSIONER BROWN-BLAND: We're going to  
7 take a 10-minute break and well --

8 THE WITNESS: I've used all your water.

9 COMMISSIONER BROWN-BLAND: I know and I can  
10 tell you're in need of some.

11 (Laughter)

12 Let's come back on the record at 3:40.

13 (WHEREUPON, a recess was taken at  
14 3:26 p.m., until 3:40 p.m.)

15 COMMISSIONER BROWN-BLAND: Let's come back  
16 on the record.

17 We had just finished with redirect of  
18 Witness Green. Mr. Styers, the Application was  
19 admitted into evidence and I neglected to state, I  
20 believe portions of that is marked confidential.

21 MR. STYERS: Correct. So --

22 COMMISSIONER BROWN-BLAND: And I just want  
23 to call the court reporter's attention to that.

24 MR. STYERS: That's correct so we would ask

1 that any of the confidential portions of the  
2 Application be in the record under seal. But, if it's  
3 not redacted and noted that it's confidential, it  
4 certainly can be publicly available in the record.  
5 Thank you.

6 COMMISSIONER BROWN-BLAND: Do any of the  
7 Commissioners have questions for this witness?

8 (No response.)

9 Mr. Green, we're not quite done this  
10 go-around with you.

11 THE WITNESS: I've got lots of water now.  
12 I'm good.

13 COMMISSIONER BROWN-BLAND: Good. I have  
14 just a couple, a few questions here.

15 EXAMINATION

16 BY COMMISSIONER BROWN-BLAND:

17 Q The Application states that this Rockingham  
18 facility will depend entirely on natural gas; is  
19 that correct?

20 A That is correct, ma'am.

21 Q And so there will be no fuel oil back up; is that  
22 right?

23 A We do not fire on fuel oil, we fire on natural  
24 gas only.

1 Q So your facility will depend on a third-party  
2 marketer for firm natural gas supply at a Gas  
3 Daily Index?

4 A Yes, ma'am. We're in discussions with several  
5 high volume suppliers now.

6 Q Do you know what delivery point will that Gas  
7 Daily Index use, whether it will be Zone 5?

8 A Zone 5 daily index, ma'am.

9 Q For Transco Zone 5?

10 A Yes, ma'am.

11 Q And will your third-party marketer secure firm  
12 capacity on Transco?

13 A Yes, they will. Yes, they will. That's the only  
14 way we will do it.

15 COMMISSIONER BROWN-BLAND: Are there  
16 questions on Commission's questions?

17 MR. RUNKLE: No, ma'am.

18 MR. STYERS: No.

19 MS. DOWNEY: (Shakes head no).

20 COMMISSIONER BROWN-BLAND: Then you may step  
21 down at this time.

22 THE WITNESS: Thank you, ma'am.

23 (The witness is excused.)

24 COMMISSIONER BROWN-BLAND: Mr. Styers,



1 anything else from --

2 MR. STYERS: No, that -- we do have rebuttal  
3 testimony but that concludes our case in chief at this  
4 point.

5 COMMISSIONER BROWN-BLAND: All right.  
6 Mr. Runkle.

7 MR. RUNKLE: Thank you. NC WARN would like  
8 to call William E. Powers to the stand.

9 WILLIAM E. POWERS; was duly sworn and  
10 testified as follows:

11 COMMISSIONER BROWN-BLAND: Mr. Runkle.

12 DIRECT EXAMINATION

13 BY MR. RUNKLE:

14 Q Mr. Powers, can you give your name and address  
15 for the record, please?

16 A My name is William E. Powers. My address is 4452  
17 Park Boulevard, San Diego, California.

18 Q Have you ever testified to the North Carolina  
19 Utilities Commission before?

20 A I have not.

21 MR. RUNKLE: Your Honor, with your  
22 indulgence, we'd like to ask just a couple of  
23 questions to introduce this witness to the Commission.

24 COMMISSIONER BROWN-BLAND: Go right ahead.

1 BY MR. RUNKLE:

2 Q What is your occupation?

3 A I am a consulting engineer.

4 Q What kind of experience have you had?

5 A I have done extensive permitting for a variety of  
6 power generation sources, engines, peaking gas  
7 turbines, micro turbines, and have done numerous  
8 evaluations for energy planning, energy mix to  
9 meet need, for example.

10 Q Have you testified before any other Commissions?

11 A I have.

12 Q Which Commissions have you testified before?

13 A The State of Maryland, the State of West  
14 Virginia, the State of Missouri, the State of  
15 California.

16 Q And what topics have you testified to these  
17 Commissions about?

18 A In the case of West Virginia was the need for a  
19 transmission line; Missouri - transmission line;  
20 Maryland - liquefied natural gas export terminal;  
21 California - a variety of topics including power  
22 plants and transmission line.

23 Q And what is your educational background?

24 A I have a BS in Mechanical Engineering from Duke

1 University; a Masters in Environmental Science  
2 from the University of North Carolina - Chapel  
3 Hill.

4 Q Are you a Registered Professional Engineer in any  
5 state?

6 A Yes. I'm a Registered Professional Engineer in  
7 the State of California.

8 Q In preparation for the hearing today, did you  
9 prepare or cause to be prepared the testimony of  
10 William E. Powers on behalf of NC WARN,  
11 approximately 12 pages with one attachment?

12 A I did.

13 Q If I asked you those same questions today, would  
14 you answer the same?

15 A I would.

16 Q Do you have any additions or corrections to make  
17 to your testimony?

18 A I have none.

19 MR. RUNKLE: At this time we'd move that  
20 Mr. Powers' testimony be entered into the record as if  
21 asked and answered.

22 COMMISSIONER BROWN-BLAND: There being no  
23 objection, that motion will be allowed and  
24 Mr. William E. Powers' direct testimony consisting of

1 12 pages will be received into evidence as if given  
2 orally from the witness stand.

3 MR. RUNKLE: Thank you.

4 (WHEREUPON, the prefiled direct  
5 testimony of WILLIAM E. POWERS is  
6 copied into the record as if given  
7 orally from the stand.)  
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STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH

DOCKET NO. EMP- 92, SUB 0

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of	)	
Application of NTE Carolinas II, LLC for a	)	TESTIMONY OF
Certificate of Public Convenience and Necessity	)	WILLIAM E. POWERS
to Construct a Natural Gas-Fueled Electric	)	ON BEHALF OF NC
Generation Facility in Rockingham County,	)	WARN
North Carolina	)	

- 1 Q. WHAT IS YOUR NAME AND BUSINESS ADDRESS?
- 2 A. My name is William E. Powers, P.E., and I am principal of Powers
- 3 Engineering, 4452 Park Blvd., Suite 209, San Diego, CA 92116.
- 4 Q. WHAT IS YOUR OCCUPATION AND EXPERIENCE?
- 5 A. I am a consulting and environmental engineer with over 30 years of
- 6 experience in the fields of power plant operations and environmental
- 7 engineering. I have worked on the permitting of numerous combined cycle,
- 8 peaking gas turbine, micro-turbine, and engine cogeneration plants, and am
- 9 involved in siting of distributed solar photovoltaic (PV) projects. I began my
- 10 career converting Navy and Marine Corps shore installation projects from oil
- 11 firing to domestic waste, including wood waste, municipal solid waste, and
- 12 coal, in response to concerns over the availability of imported oil following the
- 13 Arab oil embargo in the 1970's.
- 14 I authored "*San Diego Smart Energy 2020*" (2007) and "*(San*
- 15 *Francisco) Bay Area Smart Energy 2020*" (2012), and have written articles on

1 the strategic cost and reliability advantages of local solar over large-scale,  
2 remote, transmission-dependent renewable resources.

3 Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

4 A. I have a B.S. in mechanical engineering from Duke University, an M.P.H.  
5 in environmental sciences from UNC – Chapel Hill, and am a registered  
6 professional engineer in California.

7 Q. FOR WHOM ARE YOU SUBMITTING YOUR TESTIMONY?

8 A. I am submitting this testimony on behalf of NC WARN in response to the  
9 July 29, 2016, Application for a Certificate of Public Convenience and  
10 Necessity for a Merchant Plant submitted by NTE Carolinas II, LLC (“NTE”)  
11 and testimony of NTE witness, NTE Vice President Mr. Michael C. Green.

12 Q. DO YOU HAVE AN OPIONION OF THE NEED FOR THE PROPOSED  
13 POWER PLANT?

14 A. Yes. As part of my review of whether the proposed power plant meets the  
15 requirements of N.C. G.S. 62-110.1 for a certificate of public convenience  
16 and necessity (CPCN), I reviewed the need for the project. The primary  
17 purpose of the CPCN statute is to prevent costly overbuilding of unneeded  
18 power plants.

19 There is no evidence of actual growth in peak demand or annual  
20 electricity usage in Duke Energy Carolinas (DEC) service territory, Duke  
21 Energy Progress (DEP) service territory, or North Carolina or South Carolina  
22 in the last decade. Mr. Green references the 2015 DEC and DEP Integrated  
23 Resource Plans (“IRPs”) as the basis for projected DEC peak summer and

1 winter demand growth rates from 2016 through 2030 of 1.5 percent.<sup>1</sup> Mr.  
2 Green references the DEP 2015 IRP as the basis for projected DEP peak  
3 summer and winter demand growth rates from 2016 through 2030 of 1.5  
4 percent and 1.3 percent, respectively.<sup>2</sup>

5 The IRP peak demand forecasts relied upon by Mr. Green are in  
6 conflict with the actual DEC and DEP peak demand trends over the last  
7 decade, as shown in Table 1.

8 **Table 1. DEC and DEP actual summer and winter peaks, 2006-2014<sup>3</sup>**

Year	DEC Peak, MW		DEP Peak, MW	
	Summer	Winter	Summer	Winter
2006	17,906	16,196	12,493	12,138
2007	18,988	16,460	12,656	11,991
2008	18,228	16,968	12,290	11,832
2009	17,397	17,282	11,796	12,531
2010	17,358	17,570	12,074	12,230
2011	17,651	16,002	12,094	11,338
2012	17,610	15,307	12,770	12,376
2013	18,239	18,859	12,248	14,159
2014	18,993	unverified <sup>4</sup>	12,219	unverified

<sup>1</sup> Green direct testimony, p. 7.

<sup>2</sup> Ibid, p. 8.

<sup>3</sup> 2011NCUC Annual Report Regarding Long Range Needs for Expansion of Electric Generation Facilities for Service in North Carolina, Table 3, p. 12; 2015 NCUC Annual Report Regarding Long Range Needs for Expansion of Electric Generation Facilities for Service in North Carolina, Table 3, p. 11.

<sup>4</sup> Ibid, p. 11. Winter peak demand for DEC and DEP identified as occurring after the summer 2014 peak (meaning the winter of 2014) are higher than the winter 2013 peak values (which occurred in January 2014). However, no information of any kind is provided in the section of the report that addresses details of the peak load events. In contrast, extensive detail is

1 Summer peak load forecasts have historically driven DEC and DEP resource  
2 planning.<sup>5</sup> There was no increase in DEC summer peak load between 2007  
3 and 2014. The DEP summer peak load in 2014 was about 3 percent less  
4 than the DEP peak load in 2007. There is no basis for NTE Carolinas to  
5 assume any summer peak load increase in the 2016-2030 timeframe based  
6 on the trend of no actual increase in DEC and DEP peak loads over the last  
7 decade.

8 DEC and DEP winter peak loads were flat or declining in the 2006-  
9 2012 period. However, DEC and DEP reported anomalously high actual  
10 increases in winter peak loads in 2013 and 2014, reaching levels greater  
11 than forecast in the 2012 IRPs prepared by each utility. Both the DEC and  
12 DEP 2016 IRPs imply these loads were due to anomalous weather events,  
13 specifically polar vortex events.<sup>6,7</sup> These anomalous winter peak loads were  
14 presumptively driven by reliance on electric space heating in DEC and DEP

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provided for the DEC and DEP peak events that occurred in January 2014. See p. 19 and p. 20. For this reason, this testimony treats the DEC and DEP winter peak demand reported on p. 11 for the winter of 2014 as "unverified."

<sup>5</sup> DEC, 2016 IRP, September 1, 2016, p. 5. "Historically, DEC's resource plans have projected the need for new resources based primarily on the need to meet summer afternoon peak demand projections."

<sup>6</sup> Ibid, p. 5. "For the first time in the 2016 IRP, DEC is now developing resource plans that also include new resource additions driven by winter peak demand projections inclusive of winter reserve requirements. The completion of a comprehensive reliability study demonstrated the need to include winter peak planning in the IRP process. The study recognized the growing volatility associated with winter morning peak demand conditions such as those observed during recent polar vortex events."

<sup>7</sup> 2015 NCUC Annual Report, p. 20. "DEC's system peaked at 19,151 MW on January 30, 2014, at the hour ending 8:00 a.m. at a system-wide temperature of 12 degrees. The 12 degrees is significantly colder than the 18 degrees assumed in the winter peak load forecast. . . At this time, the Company did not activate any of its DSM programs. However, during its second highest peak, which occurred on January 7, 2014, the Company did activate its DSM programs, reducing load by 478 MW."



1 service territories beyond forecast levels.<sup>8</sup> There is no discussion in either  
 2 the DEC or DEP 2016 IRPs on adding exceptional space heating demand  
 3 reduction measures to exceptional polar vortex conditions.

4 There was no increase in DEC retail electricity consumption between  
 5 2007 and 2015,<sup>9</sup> or in DEP retail electricity consumption between 2006 and  
 6 2015.<sup>10</sup> There was little or no increase in electricity sales in North Carolina or  
 7 South Carolina between 2005 and 2014, and a decline between 2010 and  
 8 2014.<sup>11</sup> The North Carolina and South Carolina electricity consumption  
 9 trends from 2005 through 2014 are shown in Table 2.

10 **Table 2. Electricity consumption (gigawatt-hours per year), North**  
 11 **Carolina and South Carolina, 2005-2014**

State	2005	2007	2010	2012	2014
North Carolina	128,335	131,881	136,415	128,084	133,132
South Carolina	81,254	81,948	82,479	77,781	81,619

12  
 13 The only area of electricity sales growth for DEC and DEP has been  
 14 wholesale power sales. However, given there has been no overall increase in  
 15 electricity consumption in North Carolina or South Carolina over the last

<sup>8</sup> Ibid, p. 19. "DEP's 2014 annual system peak of 14,159 MW occurred on January 7, 2014, at the hour ending 8:00 a.m., at a system-wide temperature of 11 degrees. The 11 degrees is significantly colder than the 18 degrees assumed in the winter peak load forecast. DEP's 2013 and 2012 peaks were 12,166 MW in August 2013 and 12,770 MW in July 2012."

<sup>9</sup> 2016 DEC IRP, Table C-2, p. 95.

<sup>10</sup> 2016 DEP IRP, Table C-2, p. 91.

<sup>11</sup> EIA, Sales to Ultimate Customers (Megawatthours) by State by Sector by Provider, 1990-2014,

1 decade, the wholesale load growth experienced by DEC and DEP is either  
2 load shifting within the Carolinas, meaning there is a concomitant decrease  
3 in the output of other existing generators in the Carolinas, or DEC and DEP  
4 are selling into external wholesale markets unrelated to electricity demand in  
5 the Carolinas.

6 The 2016-2030 DEC and DEP forecast load growth projections relied  
7 on by Mr. Green in his pre-filed testimony and by NTE Carolinas II, LLC as  
8 the basis for the CPCN application are wrong. There is no load growth for  
9 proposed NTE Carolinas II power plant to meet.

10 Q. CAN THE POWER PRODUCED BY THE PROPOSED PLANT BE MET  
11 WITH EXISTING GENERATION?

12 A. Yes. The 500 MW capacity of the proposed NTE Carolinas II power plant  
13 can be met with existing available regional hydro or combined cycle capacity.  
14 There are available off-the-shelf hydropower and combined cycle gas turbine  
15 options in the region to supply capacity if additional capacity is needed. Four  
16 Smoky Mountain Hydro units near the North Carolina-Tennessee border  
17 have a capacity of 378 MW and produce 1.4 million MWh annually. These  
18 units are in the TVA system, which is connected to DEP West by a single  
19 161 KV line from TVA to the substation at the Walters Hydro Plant in DEP  
20 West. The power produced by these units is not currently contracted for  
21 purchase.<sup>12</sup> TVA has existing power contracts with four North Carolina  
22 electric cooperatives.<sup>13</sup>

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<sup>12</sup> Ibid, p. 11.

<sup>13</sup> 2015 NCUC Annual Report, p. 7.

1           The underutilized merchant 523 MW Columbia Energy combined  
2 cycle plant outside of Columbia, South Carolina, built more than a decade  
3 ago when the capital cost of combined cycle power construction was lower  
4 than it is today, could serve some or all of any need that might arise.<sup>14</sup>  
5 Columbia Energy LLC was granted party status in NCUC Docket E-2 Sub  
6 1089 on February 4, 2016.<sup>15</sup> According to Columbia Energy, the company is  
7 pursuing efforts to sell its capacity via a power purchase agreement with  
8 DEP or DEC.<sup>16</sup>

9           The 940 MW Tenaska, Virginia, merchant combined cycle power plant  
10 is located approximately 80 miles north of Rockingham County. This plant  
11 sells its output to power wholesaler Shell Energy North America.<sup>17</sup> The plant  
12 operated at a capacity factor of approximately 60 percent in 2015.<sup>18</sup> On  
13 average, the 940 MW Tenaska, Virginia, plant has 350 – 400 MW of unused  
14 capacity.<sup>19</sup>

15           North Carolina electric cooperatives already contract for portions of  
16 the output of selected power plants operated by third parties. For example,  
17 the North Carolina Electric Member Cooperative (NCEMC) owns 100 MW of  
18 the 750 MW capacity of the DEC-owned W.S. Lee combined cycle power

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<sup>14</sup> Petition to Intervene of Columbia Energy LLC, February 2, 2016, NCUC Docket E-2 Sub 1089, p. 1.

<sup>15</sup> Order Granting Petition to Intervene, February 4, 2016, NCUC Docket E-2 Sub 1089.

<sup>16</sup> Petition to Intervene of Columbia Energy LLC, February 2, 2016, NCUC Docket E-2 Sub 1089, p. 2.

<sup>17</sup> On average, the 940 MW Tenaska, Virginia, plant has 300 – 400 MW of unused capacity.

<sup>18</sup> EIA Form 923, calendar year 2015, Page 4.

<sup>19</sup>  $(1 - 0.60) \times 940 \text{ MW} = 376 \text{ MW}$ .

1 plant scheduled to begin operation in 2017.<sup>20</sup> This plant is located in  
2 Anderson County, South Carolina, distant from many of the North Carolina  
3 electric cooperatives that are members of the NCEMC.

4 On behalf of Powers Engineering, I present the available capacity of  
5 TVA hydro resources, Tenaska, Virginia combined cycle plant, and Columbia  
6 Energy combined cycle plant as examples of regional available capacity. I  
7 have not conducted an exhaustive investigation of the universe of available  
8 capacity in the Carolinas or neighboring states, or the relative cost of power  
9 from these available resources relative to a new combined cycle plant in  
10 Rockingham County, North Carolina. However, it is reasonably certain that  
11 the cost of power from existing available hydro and combined cycle units will  
12 be lower than the cost of power from a new combined cycle plant serving the  
13 same load.

14 However, it is important to underscore that here is no reason to build  
15 any baseload capacity to meet once-in-a-generation polar vortex conditions  
16 that cause higher than expected winter peak loads. DEC dispatched 478 MW  
17 of demand side management (DSM) resources to partially address a polar  
18 vortex-induced extreme cold day on January 30, 2014. North Carolina's  
19 winter reliability needs would be more efficiently addressed by adding  
20 another 478 MW of DSM capacity that emits no GHGs for exceptional, once-  
21 in-a-generation polar vortex events than authorizing construction of the NTE

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<sup>20</sup> Duke Energy Corporation Fact Sheet, W.S. Lee Natural Gas Combined Cycle Facility  
Anderson County, S.C., February 2015.

1 Carolinas II baseload high GHG-emitting natural gas-fired combined cycle  
2 power plant.

3 Q. DO YOU HAVE ANY OTHER CONCERNS ABOUT THE PROPOSED  
4 POWER PLANT?

5 A. Yes. Natural gas-fired power generation has a substantially greater  
6 greenhouse gas (GHG) emission footprint than previously understood.  
7 The carbon dioxide (CO<sub>2</sub>) component of the GHG footprint of a combined  
8 cycle plant operating at design efficiency would be approximately 820  
9 pounds per megawatt-hour (lb/MWh).<sup>21</sup> In contrast, the 2015 CO<sub>2</sub> footprint of  
10 grid power provided by DEC was 669 lb/MWh, about 20 percent less than the  
11 CO<sub>2</sub> footprint of the proposed combined cycle plant.

12 When methane leakage emissions associated with natural gas production  
13 and transport are included, the total GHG footprint of the combined cycle  
14 plant increases substantially. Prominent studies show that methane in the  
15 atmosphere is 100 times more effective at trapping heat than carbon dioxide  
16 over a 10-year period. Methane leaks in significant quantities during the  
17 drilling, storage, transportation and burning of natural gas – especially shale  
18 gas.<sup>22</sup> The total GHG footprint of DEC grid power increases at a much more  
19 modest rate when methane emissions are included, as natural gas  
20 combustion accounts for only 11 percent of DEC's 2015 power mix. A  
21 comparison of the total GHG emissions of the proposed combined cycle

<sup>21</sup> See Attachment A.

<sup>22</sup> Robert W. Howarth, Cornell University, "Methane emissions: the greenhouse gas footprint of natural gas," September 2016:  
[http://www.eeb.cornell.edu/howarth/summaries\\_CH4\\_2016.php](http://www.eeb.cornell.edu/howarth/summaries_CH4_2016.php)

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Oct 19 2016  
Nov 22 2016

1 plant and DEC grid power, assuming minimum, average, and maximum  
2 estimated methane emissions of 1.8 percent, 4.2 percent, and 12.0 percent  
3 respectively,<sup>23</sup> is provided in Table 2. See Attachment B for supporting  
4 calculations.

5 **Table 2. Comparison of total GHG emissions, proposed NTE Carolinas**  
6 **II combined cycle plant and 2015 DEC grid power mix**

Source	Total GHG emissions (lb/MWh)		
	1.8% methane leakage	4.2% methane leakage	12.0% methane leakage
NTE Carolinas II combined cycle	1,188	1,679	3,276
2015 DEC grid power mix	718	784	998

7  
8 Under any methane leakage scenario, the total GHG footprint from the NTE  
9 Carolinas II combined cycle power plant will be substantially above the total  
10 GHG footprint of DEC grid power.

11 Q. ARE THERE OTHER METHODS OF MEETING PEAK DEMAND?

12 A. Yes. Any demonstrable need for new capacity to meet summer or winter  
13 peak demand should be met with battery storage

14 Battery storage has been identified in at least one other state utilities  
15 commission proceeding as the preferred resource, through the utilities' own  
16 least-cost best-fit economic benefit assessment, over combustion turbine  
17 capacity to meet peak demand need.<sup>24</sup> Battery storage technology responds

<sup>23</sup> 1.8% emissions rate per EPA 2013 estimates of US average as of 2009; 4.2% emissions rate per average discussed in 2014 study, "A bridge to nowhere: methane emissions and the greenhouse gas footprint of natural gas" by Robert W. Howarth, Cornell University; 12% emissions rate per likely emissions from shale gas production discussed in 2015 study, "Methane emissions and climatic warming risk from hydraulic fracturing and shale gas development: implications for policy" by Dr. Robert W. Howarth, Cornell University.

<sup>24</sup> Southern California Edison, Application A.14-11-012, *Testimony of Southern California Edison Company on the Results of Its 2013 Local Capacity Requirements Request For*

1 more quickly than a gas turbine and can store and release intermittent  
2 renewable energy. For example, both DEC and DEP assume that only 5  
3 percent of solar nameplate capacity will be available to meet winter peak  
4 demand in their respective service territories. However, if battery storage is  
5 constructed to meet peak demand, solar power generated during the day can  
6 be stored and released in the morning or evening to meet the winter peak  
7 demand. Battery storage has the necessary characteristics to maximize the  
8 value of renewable energy resources as North Carolina transitions to higher  
9 levels of renewable power.

10 Q. WHAT IS YOUR CONCLUSION?

11 A. There is no trend toward increasing summer peak demand in DEC or DEP  
12 service territories, or any trend toward increasing annual electricity usage in  
13 either North Carolina or South Carolina, that the NTE Carolinas II combined  
14 cycle plant would be needed to address. The one recent increase in winter  
15 peak demand in DEC and DEP services territories occurred during the  
16 January 2014 polar vortex. This weather condition was unusual and not  
17 indicative of a pattern of rising winter peak load. The construction of a  
18 baseload gas-fired combined cycle power plant would not be a coherent  
19 response to a once-in-a-generation weather event. The GHG emission

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*Offers (LCR RFO) for the Western Los Angeles Basin*, November 21, 2014, pp. 57-58. "All (least-cost best-fit model) draws contained significant amounts of in-front-of-meter energy storage (Draw 1 had over 400 MW and Draw 25 had over 900 MW). . . SCE (then) limited the amount of in-front-of-meter energy storage that could be selected to 100 MW . . . Initially, in conjunction with the (100 MW) in-front-of-meter energy storage constraint, the optimization selected a higher amount of gas-fired generation. This was largely due to the (100 MW) limitation on in-front-of-meter energy storage, and gas-fired generation being the next economic resource in terms of net present value (NPV)."



al

1 impacts of the proposed NTE Carolinas II power plant, and the impacts to the  
2 surrounding community that would result from constructing the plant, should  
3 not be authorized by the NCUC given there is no demonstrable need for the  
4 plant's capacity. The approval of this plant when there is no need for it is not  
5 in the public interest.

6 Q. DOES THAT CONCLUDE YOUR TESTIMONY?

7 A. Yes, it does.

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1 BY MR. RUNKLE:

2 Q Mr. Powers, have you prepared a summary of your  
3 testimony?

4 A I have.

5 Q Can you present it to the Commission?

6 A My name is William E. Powers, Professional  
7 Engineer. I am the principal of Powers  
8 Engineering based in San Diego, California. In  
9 my prefiled testimony I present my experience as  
10 a consulting and environmental engineer  
11 specializing in energy matters.

12 As a part of my review of whether  
13 the proposed power plant meets the requirements  
14 of N.C. G.S. 62-110.1 for a Certificate of Public  
15 Convenience and Necessity, I reviewed the need  
16 for this project. The primary purpose of the  
17 CPCN statute is to prevent costly overbuilding of  
18 unneeded power plants.

19 In his testimony, NTE's witness,  
20 Mr. Green, states the company has adopted the  
21 high growth rates in the Duke Energy Integrated  
22 Resource Plans to assert the need for the plant,  
23 although there is no evidence of actual growth in  
24 peak demand or annual electricity usage in Duke

1 Energy Carolinas, acronym DEC, service territory,  
2 Duke Energy Progress, acronym DEP, service  
3 territory, or North Carolina or South Carolina in  
4 the last decade. The IRP peak demand forecasts  
5 relied upon by Mr. Green are in conflict with the  
6 actual DEC and DEP peak load trends over the last  
7 decade.

8 Summer peak load forecasts have  
9 historically driven DEC and DEP resource  
10 planning. There was no increase in DEC summer  
11 peak load between 2007 and 2014. The DEP summer  
12 peak load in 2014 was about 3 percent less than  
13 the DEP peak load in 2007. There is no basis for  
14 NTE Carolinas to assume any summer peak load  
15 increase in the 2016-2030 timeframe based on the  
16 trend of no actual increase in DEC and DEP peak  
17 loads over the last decade.

18 DEC and DEP winter peak loads were  
19 flat or declining in the 2006-2012 period.  
20 However, DEC and DEP reported anomalously high  
21 actual increases in winter peak loads in 2013 and  
22 2014, reaching levels greater than forecast in  
23 the 2012 IRPs prepared by each utility. Both the  
24 DEC and DEP 2016 IRPs imply these loads were due

1 to anomalous weather events, specifically polar  
2 vortex events. However, it is important to  
3 underscore that there is no reason to build any  
4 baseload capacity to meet once-in-a-generation  
5 polar vortex conditions that cause higher than  
6 expected winter peak load due to high space  
7 heating loads.

8 There was no increase in DEC  
9 retail electricity consumption between 2007 and  
10 2015, or in DEP retail electricity consumption  
11 between 2006 and 2015. There was little or no  
12 increase in electricity sales in North Carolina  
13 or South Carolina between 2005 and 2014, and a  
14 decline between 2010 and 2014.

15 The only area of electricity sales  
16 growth for DEC and DEP has been wholesale power  
17 sales. However, given there has been no overall  
18 increase in electricity consumption in North  
19 Carolina or South Carolina over the last decade,  
20 the wholesale load growth experience by DEC and  
21 DEP is either load shifting within the Carolinas,  
22 meaning there is a concomitant decrease in the  
23 output of other existing generators in the  
24 Carolinas, or DEC and DEP are selling into

1 external wholesale markets unrelated to  
2 electricity demand in the Carolinas. Simply  
3 speaking, there is no load growth for proposed  
4 NTE Carolinas II power plant to meet.

5 In my testimony, I also present  
6 the available capacity of TVA hydro resources,  
7 the Tenaska Virginia combined cycle plant and,  
8 and the Columbia Energy combined cycle plant as  
9 examples of regionally available capacity. It is  
10 reasonably certain that the cost from existing  
11 available hydro and combined cycle units will be  
12 lower than the cost of power from a new combined  
13 cycle plant serving the same load.

14 Battery storage has been  
15 identified in at least one other state's  
16 utilities commission proceeding as the preferred  
17 resource, through the utilities' own least-cost  
18 best-fit economic benefit assessment, over  
19 combustion turbine capacity to meet peak demand  
20 need. Battery storage technology responds more  
21 quickly than a gas turbine and can store and  
22 release intermittent renewable energy. Battery  
23 storage has the necessary characteristics to  
24 maximize the value of renewable energy resources

1 as North Carolina transitions to higher levels of  
2 renewable power.

3 A major problem with the project  
4 is that natural gas-fired power generation has a  
5 substantially greater greenhouse gas emission  
6 footprint than previously understood. When  
7 methane leakage emissions associated with natural  
8 gas production and transport are included, the  
9 total greenhouse gas footprint of the combined  
10 cycle plan increases substantially. Prominent  
11 studies show that methane in the atmosphere is  
12 100 times more effective at trapping heat and  
13 carbon dioxide over a 10-year period. Methane  
14 leets -- methane leaks in significant quantities  
15 during the drilling, storage, transportation and  
16 burning of natural gas, especially shale gas.

17 In my opinion, the Commission  
18 should not approve this plant because there is no  
19 need for it and it is not in the public interest.

20 MR. RUNKLE: The witness is available for  
21 cross examination.

22 COMMISSIONER BROWN-BLAND: Mr. Styers.

23 MR. STYERS: Thank you, Commissioner.  
24

## CROSS EXAMINATION

BY MR. STYERS:

Q Good afternoon, Mr. Powers.

A Good afternoon.

Q Do you have your direct -- your direct testimony prefiled in front of you there on the witness stand?

A I do.

Q You've stated in your summary and again in your -- repeating what you said in your direct testimony on page 6, lines 8 and 9, that *there is no load growth for proposed NTE Carolinas II power plant to meet*. Do you remember that sentence? It's 8 and 9.

A Page 9?

Q Is your testimony there's no load growth?

A That is correct.

Q Now, the preceding sentence immediately prior to that reads, *the 2016-2030 DEP/DEC forecast load growth projections relied on by Mr. Green in his prefiled testimony and NTE Carolinas II, LLC, as the basis of the CPCN Application*. Is that the first part of that sentence on page 6?

A That is correct.

1 Q And it is your understanding that the forecast  
2 growth projections that you're referring to here,  
3 those are the Integrated Resource Plans that have  
4 been filed by Duke Energy Carolinas and Duke  
5 Energy Progress?

6 A That is correct.

7 Q And then to finish that sentence it is your  
8 testimony that those Integrated Resource Plans,  
9 as indicated in your testimony on line 8, are  
10 wrong; is that your testimony today?

11 A The forecasts are wrong; that is correct.

12 Q The forecasts are wrong. Okay.

13 MR. STYERS: Let me -- if I may approach the  
14 witness with two exhibits and we'll label these  
15 exhibits Cross-Examination Powers 1 and 2. And I will  
16 give you a moment to look at those but will represent  
17 that it's the cover page from the Integrated Resource  
18 Plans which have been admitted into evidence pursuant  
19 to the stipulation of counsel by judicial notice. And  
20 then after that, instead of using the entire document,  
21 I will represent that this is pages 72 through 81 of  
22 the Duke Energy Carolinas IRP and pages 67 through 76  
23 of the Duke Energy Carolinas via Progress IRPs --

24 COMMISSIONER BROWN-BLAND: Mr. Styers, let

1 me, and I apologize, I just want to get this straight.  
2 So which exhibit -- let's get these identified.

3 MR. STYERS: Thank you, Madam Commissioner.  
4 So the Integrated Resource Plan for Duke Energy  
5 Carolinas cover page and pages 72 through 81 are  
6 marked Cross-Examination Powers Exhibit 1, and the  
7 Integrated Resource Plan of Duke Energy Progress cover  
8 page and pages 67 through 76 are labeled  
9 Cross-Examination Powers Exhibit 2.

10 COMMISSIONER BROWN-BLAND: And, Mr. Styers,  
11 just for format I'm going to begin these exhibits all  
12 with NTE, so NTE Cross-Examination Powers Exhibit.

13 MR. STYERS: Yes, ma'am.

14 COMMISSIONER BROWN-BLAND: The two exhibits  
15 will be so identified as NTE Cross-Examination Powers  
16 Exhibit 1 and Powers Exhibit 2.

17 NTE Cross-Examination Powers Exhibits 1 and 2  
18 (Identified)

19 MR. STYERS: And it may simplify things if I  
20 may approach the witness and point, if I may, to some  
21 questions here rather than question from the table, if  
22 I may.

23 COMMISSIONER BROWN-BLAND: Go ahead.  
24



1 BY MR. STYERS:

2 Q I'll refer you to the Cross-Examination Powers  
3 Exhibit 1, the Duke Energy Carolinas.

4 A Okay.

5 Q And the paragraph starting *energy projections are*  
6 *developed with econometric models*, the second  
7 full paragraph; do you see that sentence?

8 A I do.

9 Q And did you utilize any econometric models in  
10 your -- in developing your testimony in this  
11 docket, Mr. Powers?

12 A I looked at page 95 of the same document.

13 Q Of the IRPs?

14 A Yes.

15 Q Did you yourself use any econometric software  
16 modeling for your projections?

17 A I relied only on the reported values by these  
18 utilities.

19 Q But you did not yourself perform any independent  
20 model --

21 A I did not.

22 Q -- correct. And continuing with that sentence,  
23 *econometric models using key economic factors*,  
24 did you perform any independent study using

1 economic factors such as income, electricity  
2 prices, industrial production indices yourself  
3 independently of what was in the IRP?

4 A I looked at the last 10 years of actual loads. I  
5 did not do modeling beyond looking back at what  
6 the actual loads had been.

7 Q Did you yourself do any independent analysis or  
8 any modeling based upon weather projections or  
9 weather assumptions?

10 A Yes, I did.

11 Q And what were those?

12 A I looked at the last 10 years of data to see if  
13 there was any connection between the growth of  
14 actual electricity consumption and the  
15 projections that they have for residential,  
16 commercial and industrial customer base, retail  
17 base, going forward.

18 Q But I'm asking specifically about weather,  
19 W-E-A-T-H, weather data that you yourself  
20 analyzed separate than what's in the IRP?

21 A No.

22 Q Another --

23 COMMISSIONER BROWN-BLAND: Mr. Styers, do  
24 you see still need to stand next to the witness?

1 MR. STYERS: I think I pointed -- and  
2 we'll -- the question will go on that page. Thank  
3 you, Commissioner Brown-Bland.

4 BY MR. STYERS:

5 Q The next part of that sentence, Mr. Powers, talks  
6 about appliance efficiency trends. Did you do  
7 any modeling or make any assumptions about  
8 appliance efficiency trends beyond what are in  
9 the IRPs?

10 A Yes.

11 Q And what were your assumptions about appliance  
12 efficiency trends?

13 A Well they explain why there's been no growth for  
14 the last 10 years in loads, that the Energy Star  
15 requirements for refrigerators, for air  
16 conditioners; the fact that the entire population  
17 is converting to LED light bulbs is explaining  
18 why the population can grow while the load stays  
19 flat.

20 Q Other than what's in these documents, what's in  
21 the IRPs, did you yourself do a study of any  
22 appliance efficiency trends, you yourself?

23 A I've done multiple studies that include  
24 evaluations of those trends. As a result, I'm

1 familiar with what those trends are.

2 Q Okay. In developing the assumption that there's  
3 no load growth, did you yourself in this docket  
4 do a study of appliance efficiency trends in  
5 North Carolina?

6 A I think I can make this pretty simple. I looked  
7 at the last 10 years of actual loads reported by  
8 Duke Energy Carolinas and Duke Energy Progress,  
9 there was no increase in load. That's the extent  
10 of the study.

11 Q And you did not do any other analysis beyond  
12 looking at those 10 years of loads?

13 A That is correct.

14 Q The 10 years of data that you looked at, that was  
15 electricity usage, is it not?

16 A Electricity usage and peak load data.

17 Q Okay. So you also looked at peak load data?

18 A That is correct.

19 Q I would like to hand up to you what's been marked  
20 as Green Redirect Exhibit 1, I'm sorry, Redirect  
21 Powers -- Redirect Green Exhibit 2, I apologize,  
22 which is the report to the Governor, and also  
23 refer to the chart on the Table 1 on page 3 of  
24 your redirect, I'm sorry, of your prefiled

1 testimony on page 3, in which you noted the  
2 summer peaks.

3 A Correct.

4 Q Now, under 2014, you put unverified for the  
5 winter peak. You did not put a number at that  
6 point; is that correct, Mr. Powers?

7 A That is correct.

8 Q And there is a number in the Commission's own  
9 report in Green Exhibit 2, their report to the  
10 Governor, is there not?

11 A That is correct.

12 Q Do you have any reason to believe that that  
13 number that was reported to the Governor and to  
14 the Legislature by the Commission is incorrect?

15 A There's just no background on the number. More  
16 information is needed to understand. For  
17 example, Duke, both of these utilities - Duke  
18 Energy Carolinas, Duke Energy Progress - their  
19 wholesale loads have been growing in the last  
20 couple of years, specifically 2013 and 2014, and  
21 so no increase in their retail loads at all. So  
22 the question is unanswered in this report is, is  
23 the reason for the reported higher number the  
24 fact that they've been increasing their wholesale

1 customer base 15 percent per year such that some  
2 other place in North Carolina some is decreasing  
3 their same load? However, it's important to  
4 point out that for the 2013-2014 winter this same  
5 report goes into great detail about  
6 January 7, 2014 where there was a real cold snap  
7 and they hit peak loads. They go into great  
8 detail on that. Yet for the following year they  
9 show higher peak winter loads and they don't say  
10 a word about what happened. The reason I put  
11 unverified is it doesn't make sense to me that  
12 they would spend so much time explaining why  
13 there was an unexpected blip in the peak winter  
14 load in the winter of 2013-2014, report a higher  
15 number for 2014-2015 winter and say nothing about  
16 it.

17 Q My question, Mr. Powers, is do you have any  
18 information that the number that is in the report  
19 to the Governor for the north -- for the 2014  
20 winter peak is incorrect? That's my -- it's a  
21 yes or no answer.

22 A I do not have information either way. I do not  
23 know.

24 Q Okay. Is it your testimony today that it is

1 incorrect?

2 A If my question, in the testimony that it could  
3 be, and I want to point something else out since  
4 you're talking about this document. This  
5 document says Duke Energy Carolinas, the power  
6 mix for Duke Energy Carolinas in 2015 or 2014, 46  
7 percent nuclear. Duke Energy Carolinas in their  
8 2015 IRP says they are 61 percent nuclear.  
9 That's a big difference. In fact, their reported  
10 power mix in this document for Duke Energy  
11 Carolinas in the same year is very different.  
12 And so either Duke Energy Carolinas is right in  
13 their IRP and this report is wrong or vice versa.  
14 So there is a precedent for saying I don't trust  
15 these numbers until I can verify them.

16 Q So is your testimony that the information in the  
17 report by this Commission to the Governor and the  
18 Legislature is incorrect?

19 A My testimony is that I need to verify it with  
20 more information before certifying that I believe  
21 it to be correct or not correct.

22 Q No further questions on that document. Now, you  
23 would agree, wouldn't you, Mr. Powers, that  
24 population can influence energy peak demands and

1 energy usage; would you not agree?

2 A It is one factor.

3 Q Did you make any assumptions in your testimony  
4 today as to what the population growth in North  
5 Carolina will be over the next 20 years?

6 A I don't consider population growth to necessarily  
7 be connected to load growth.

8 Q Do you -- did you make any assumptions about  
9 manufacturing output in the State of North  
10 Carolina over the next 20 years?

11 A No.

12 Q Did you make -- do you have any data about Energy  
13 Efficiency and demand response participation in  
14 North Carolina?

15 A I do.

16 Q And what is that information?

17 A I'm glad you brought that up. The -- one of the  
18 issues we just talked about specifically demand  
19 response for peak winter days. Talking about  
20 Energy Efficiency issues, demand response issues  
21 is when Duke Energy Carolinas hit a winter peak  
22 in January of 2014, they did not dispatch a  
23 single megawatt of demand response; caught them  
24 off guard. A few weeks later they got another



1 very high winter peak load, they dispatched  
2 500 megawatts or nearly 500 megawatts of demand  
3 response and avoided getting a new peak in  
4 wintertime. And what I noted in the 2015 IRP for  
5 Duke Energy Carolinas is they show 1100 megawatts  
6 approximately of DSM available for the summer  
7 peak, they show 450 megawatts available for the  
8 winter peak. If you are now asserting that your  
9 winter peak is equivalent or even dominant over  
10 the summer peak, that utility should have at  
11 least as much DSM to address a winter peak as  
12 they have a summer peak meaning why do you only  
13 have 450 megawatts of DSM for the winter peak and  
14 nearly 1100 for the summer peak, and so I did  
15 note that in that document.

16 Q So my question is -- I'm sorry if I didn't word  
17 it correctly -- have you done any independent  
18 studies about EE and demand -- EE and DSM  
19 participation rates by customers in North  
20 Carolina? Have you done any studies about EE and  
21 DSM participation by customers?

22 A Just so I understand, are you asking me if I've  
23 read, for example, how much participation there  
24 is or have I done an independent study of

1 participation?

2 Q Have you done an independent study?

3 A I have not.

4 Q Okay. And did you make any assumptions in  
5 your -- in preparing your testimony about DSM and  
6 EE participation now or in the future by North  
7 Carolina customers?

8 A No.

9 Q Do you know -- you've talked a lot about the  
10 winter vortex and the peak that was realized in  
11 two thousand -- January of 2014. Do you know  
12 whether DSM was utilized on those peak times of  
13 the winter vortex of 2014 or not?

14 A I do.

15 Q And were they?

16 A The first winter -- the first event January  
17 7, 2014, in Duke Energy Carolinas territory that  
18 I just stated, they didn't use a single megawatt  
19 of DSM; however, the next peak later that month  
20 they dispatched 478 megawatts of demand response.

21 Q Do you know what the actual operating reserves  
22 were during the peak times for either DEP or DEC  
23 on those days?

24 A If we're going to talk about that level of

1 detail, I'd like to review that report that you  
2 just put before me, if it has that information in  
3 it.

4 Q Okay, that's fine. But do you know -- did you  
5 know in preparing your testimony what the actual  
6 reserves were at the time of those peaks?

7 A I recall reading what the reserves were and I'd  
8 want to refresh my memory if you're going to ask  
9 questions about that.

10 Q I'll move on. Are you aware that Duke Energy  
11 Carolinas reached an -- Duke Energy Carolinas  
12 reached an all-time peak this summer, this past  
13 summer?

14 A No.

15 MR. STYERS: I think the next exhibit is  
16 labeled Cross-Examination Powers Exhibit 3?

17 COMMISSIONER BROWN-BLAND: It will be  
18 identified as NTE Cross-Examination Powers Exhibit 3.

19 NTE Cross-Examination Powers Exhibit 3  
20 (Identified)

21 BY MR. STYERS:

22 Q In this press release by Duke Energy Carolinas  
23 states that, on the second paragraph, *the new*  
24 *summer peak usage record is 20,671 megawatt-hours*

1       of electricity for hour ending 5:00 p.m.,  
2       Wednesday, July 27, 2016. Is that what that  
3       press release reads?

4     A     Yes.

5     Q     If you look at the chart on page 3 of your  
6       testimony, which you have in front of you, or the  
7       data in the report to the Governor, that  
8       20,671-megawatt peak is considerably higher than  
9       the peaks at any point on this DEC peak chart in  
10      your testimony, is it not?

11    A     It is. Just to comment on that, though, the  
12      wholesale customer load for DEC, at least in the  
13      last two years we have in the state report, is it  
14      had gone up 15 percent per year. I do not know  
15      how much of this peak is associated with  
16      additional wholesale customer load that's been  
17      added in the last couple of years. I just don't  
18      know that bit of information.

19    Q     Regardless of how much wholesale customer load  
20      may have been added or taken away on Duke Energy  
21      Carolinas, Duke Energy -- this area has an  
22      obligation, does it not, to try to have  
23      sufficient supply-side resources to meet its peak  
24      demand; is that correct?

1 A I'd like to refer to you to Table 2 of my  
2 testimony, page 5, is that the State of North  
3 Carolina's overall consumption has not increased.  
4 In fact, it's -- at least to the year, the most  
5 recent year available in this report, it was  
6 lower in 2014 than it was in 2010. This is  
7 energy consumption; this is not peak load.  
8 However, I would want to look at North Carolina's  
9 peak load data to see, okay so DEC's peak load  
10 hit a record in the summer of 2016, how did the  
11 state do overall in terms of its peak load.  
12 Meaning, if I'm basing my resource procurement on  
13 meeting that peak load, and North Carolina's peak  
14 load is no different in 2016 than it was in 2007,  
15 for example, that tells me that NTE Carolinas II  
16 is selling into the regional wholesale market,  
17 they're market static. It doesn't matter if  
18 DEC's portion of the market bumped up a 1000  
19 megawatts or 1500 that overall market is static,  
20 and I don't know the answer to that.

21 Q The numbers you refer to that you say are not  
22 growing, you said that is energy consumption,  
23 correct?

24 A No, I also meant peak demand.

1 Q So it's your testimony that peak demand is not  
2 increasing as well?

3 A My testimony is what it is. It has the numbers  
4 that I covered through 2014. You have put before  
5 me a news -- a press release from Duke saying  
6 that their -- the Duke Energy Carolinas peak was  
7 20,671 in this summer. I have no reason to doubt  
8 it but this doesn't also tell me that the State  
9 of North Carolina's peak hit a new record that  
10 same day or that the State's peak was any  
11 different than it was a few years ago.

12 Q You understand that Duke Energy Carolinas does  
13 have retail and native load wholesale customers  
14 that it has an obligation to serve?

15 A I do.

16 Q And that the peak utilization is system-wide is  
17 your understanding as well? That the peak -- the  
18 peak demands that we've been talking about  
19 capacity is a system-wide peak demand of its  
20 native load wholesale and retail customers?

21 A That is correct.

22 Q Now, you referred to - I'm going back to the  
23 polar vortex - you referred to polar vortex as a  
24 once in a generation event in your testimony; did

1           you not?

2     A     I did.

3     Q     And polar vortex is a fairly -- it's not a  
4           technical term. That's a term kind of that you  
5           hear used in the media and by a meteorologist and  
6           so forth; is that correct?

7     A     It's in the public domain, yes.

8     Q     What -- do you have a meteorological definition  
9           of polar vortex?

10    A     Given I took that from an NCUC document I might  
11          just paraphrase that they use the term "polar  
12          vortex". They say that the low temperature was  
13          substantially below what the utility projected  
14          the low temperature would be - I think the  
15          projected low temperature was 18 degrees  
16          Fahrenheit and it ended up being 12 or 11 degrees  
17          Fahrenheit - and attributed this heavy load to a  
18          low temperature that was substantially below what  
19          the forecast was. And so given these forecasts  
20          are generally one in 10-year forecasts, if it's  
21          substantially below a one in 10-year forecast,  
22          that to me says once in a very infrequent amount  
23          of time.

24    Q     We had an event in 2016 here in North Carolina

1           which is also referred to as a polar vortex. Are  
2           you aware of that, Mr. Powers?

3       A     Again, I'm aware of the term "polar vortex" but  
4           are you telling me that you had an event that  
5           broke a new record or -- we just established  
6           polar vortex as a general public domain term so  
7           what is your definition of polar vortex?

8       Q     I'm asking you do you know that there was an  
9           event in 2016, which is referred to as a polar  
10          vortex two years after 2014?

11      A     Referred to by whom?

12      Q     I'm in a position of -- I'm asking the question,  
13          are you aware that there was a another below  
14          normal weather event referred to as a polar  
15          vortex in 2016; you are or you are not,  
16          Mr. Powers?

17      A     No.

18      Q     Are you aware that we have had two 100-year flood  
19          events here in this state in the past 17 years?

20      A     I'm aware that North Carolina had some serious  
21          flooding events.

22      Q     You would agree that a component of the delivered  
23          cost of electricity to load-serving entities  
24          would include the cost of transmission, would you



1 not?

2 A Yes.

3 Q And you would agree that a component of the  
4 delivered cost of electricity is fuel cost to  
5 generate that electricity, would you not?

6 A Correct.

7 Q Would you also agree that the efficiency of the  
8 generating plant, the heat rate, often referred  
9 to as the heat rate of a generation facility also  
10 affects the costs of electricity from that  
11 facility?

12 A Yes.

13 Q You cite some alternative sources in the market,  
14 some merchant plants, and I want to talk about  
15 them for a few minutes. You highlight or mention  
16 a plant in Virginia owned by Tenaska; is that  
17 correct?

18 A Correct.

19 Q Have you talked or spoken with anyone at that  
20 plant with Tenaska about their capacity  
21 availability?

22 A I didn't need to talk to them about their  
23 capacity or capacity factor but I have not talked  
24 to that facility directly.

1 Q What is your understanding about in whose service  
2 territory that plant is located?

3 A I think they're in Dominion's service territory.

4 Q Is the -- is it your understanding that the  
5 transmission in Dominion's service territory is  
6 managed by PJM?

7 A Correct.

8 Q And that to transmit, transport that electricity  
9 would involve wheeling costs in PJM if it were to  
10 an area outside of PJM?

11 A That is correct.

12 Q And those wheeling costs would be then part of  
13 the delivered cost of electricity to the end user  
14 if it was outside the PJM area?

15 A My experience is wheeling costs tend to be  
16 nominal.

17 Q My question is would there be wheeling costs?

18 A Right. But, if wheeling costs are very small,  
19 wheeling costs are not going to dominate whether  
20 or not that facility is used to provide power to  
21 North Carolina.

22 Q Have you done yourself any analysis or studies of  
23 wheeling costs in the State of Virginia in PJM?

24 A Not specifically but the transmission system, the

1 backbone transmission system in the United States  
2 is suppose to be an open highway for power  
3 generators to supply power in various parts of  
4 the country. It's specifically not suppose to be  
5 a barrier to moving power through different  
6 transmission control areas.

7 Q So your answer is no, you have not yourself  
8 studied the wheeling costs in PJM in the State of  
9 Virginia?

10 A That is correct.

11 Q Have you done any studies yourself of the  
12 transmission capabilities, capacity in the State  
13 of Virginia in PJM?

14 A I have not.

15 Q Do you know what pipeline serves -- delivers the  
16 gas that's used in that Tenaska system, that  
17 Tenaska plant?

18 A No.

19 Q Have you done any studies of the natural gas  
20 prices of delivered natural gas on any of the  
21 pipelines in the State of Virginia?

22 A I've looked at Hub prices in this region of the  
23 country. I haven't specifically looked at what  
24 that facility might be paying for natural gas.

1 Q Do you know what the age of the Tenaska plant is?

2 A I think it came online in 2004, either 2004 or  
3 2006, about a decade ago.

4 Q Do you know what the configuration is of that  
5 plant?

6 A It could be a 3-on-1, 3-on-1 combined cycle unit  
7 I think.

8 Q But you don't know the heat rate of that plant?

9 A I know the heat rate of combined cycle plants  
10 generally but not the explicit heat rate of that  
11 plant.

12 Q Let me ask you about the, you referenced the  
13 Smoky Mountain Hydro units on the North Carolina  
14 and Tennessee border. Do you know who owns those  
15 units?

16 A TVA.

17 Q Have you spoken with anyone at TVA about those  
18 units?

19 A I have not.

20 Q Would you be surprised if TVA is not the owner of  
21 those units?

22 A Not necessarily. It was my understanding that  
23 they were. I'm relying on the testimony that was  
24 given at another NCUC proceeding in February

1 where that plant was discussed in some detail.

2 Q Okay. Do you know why -- you said in your  
3 testimony that those units are not currently  
4 contracted for purchase, the energy for those  
5 units is not currently contracted for purchase.  
6 Do you know why that's -- assuming that's true,  
7 do you know why that's the case?

8 A I do not.

9 Q Those hydro units were 378 megawatts of capacity  
10 I believe you said; is that correct?

11 A Correct.

12 Q What is your understanding of the transmission  
13 capacity of a hundred and sixty -- single 161-kV  
14 line, if you know?

15 A It could be in the range of about 400 megawatts.

16 Q So it's your testimony today that 161-kV line  
17 would be sufficient to transmit 400 megawatts of  
18 power capacity?

19 A It depends on the conductor.

20 Q Are you familiar with what I'll call N+1  
21 redundancy in the context of electric  
22 transmission service?

23 A I am.

24 Q And would you explain what N+1 redundancy is?

- 1 A Well, I know it is N-1 redundancy but what it  
2 signifies is that the service territory of a  
3 utility should be able to withstand the one in  
4 10-year peak load with the largest element in the  
5 system out of service. So, if the largest  
6 element is a 500-kV line or a 230-kV line then it  
7 should be able to withstand the loss of that  
8 element and still provide service without  
9 interruption to its customer base.
- 10 Q And, if the power from the Smoky Mountain Hydro  
11 unit was served by a single 161-kV line, it would  
12 not meet those N-1 redundancy requirements, would  
13 it?
- 14 A That's an improper reading of that requirement.  
15 It is the single largest unit, element in the  
16 system. It's not every transmission pathway in  
17 the system.
- 18 Q Have you spoken with any of the North Carolina  
19 load-serving entities regarding the transmission  
20 that they would require for the baseload for  
21 their system?
- 22 A I have read Duke's application for a combined  
23 cycle plant in Asheville, North Carolina, where  
24 much of the discussion is about transmission

1 redundancy.

2 Q But you haven't spoken to any of the load-serving  
3 entities about what transmission redundancy they  
4 may require for their baseload?

5 A I've read what Duke Energy Carolinas indicated it  
6 would require in its application for that  
7 facility and why their position was transmission  
8 would not effectively cover the need.

9 Q And do you have any reason to believe that the  
10 other co-ops or municipalities would feel  
11 differently than with Duke Energy's position they  
12 took in E-2, 1089?

13 A Well, I contested Duke's interpretation of what  
14 its transmission redundancies are for that  
15 project. I didn't -- I don't know if any of the  
16 municipalities or the electric co-ops intervened  
17 in that proceeding to offer a position. It  
18 sounds to me like they're interested in low cost  
19 electricity. They probably want to reduce to a  
20 minimum any redundancies if it's going to cost  
21 them more than they need to pay.

22 Q Is it fair to -- would it be your understanding  
23 that the load-serving entities are also, also  
24 value the reliability, not only the cost but the

1 reliability of the electricity purchases that  
2 they make for capacity?

3 A They do but it's the responsibility of the  
4 Commission and the Commissioners to decide the  
5 balance between reliability and purchase of  
6 infrastructure. What you're suggesting is that  
7 every line, 161-kV and up, would have a redundant  
8 line right next to it. The cost of that  
9 infrastructure would be impressive. That's not  
10 how transmission planning or the FERC N-1  
11 requirement is intended to work.

12 Q But you would acknowledge that for baseload  
13 capacity to a wholesale customer, that that  
14 reliability of transmission is an important  
15 consideration?

16 A It's an important consideration.

17 Q But you've not spoken to any of the wholesale  
18 customers as to what they require as to the  
19 transmission capacity for their baseload  
20 capacity -- what transmission they require for  
21 their baseload capacity?

22 A Your question is have I spoken to --

23 Q To any --

24 A -- an end user of wholesale power?



1 Q In North Carolina, that's correct.

2 A Almost all of the co-ops and end users rely on  
3 N-1 for the system, not for every line, for the  
4 system.

5 Q You have had some questions about, I'm sorry, you  
6 had some testimony about the Columbia Energy  
7 facility. That's south of Columbia, South  
8 Carolina, is that correct?

9 A By a few miles I think. It's in the vicinity of  
10 Columbia, South Carolina.

11 Q Have you spoken with the owners of that facility  
12 regarding their available capacity?

13 A No. I looked at the Energy Information  
14 Administration's 2015 electricity consumption or  
15 production statistics to determine what the  
16 capacity factor was at Columbia Energy in 2015.

17 Q Do you know what transmission, natural gas  
18 transmission pipeline delivers natural gas to the  
19 Columbia Energy facility?

20 A I know they've indicated they have a secure  
21 supply of natural gas. I don't know offhand what  
22 the pipeline is that provides that gas.

23 Q And you have not studied what the natural gas  
24 costs are on any of the pipelines in South

1 Carolina, have you?

2 A No. For the testimony in the Asheville combined  
3 cycle case that Columbia Energy provided  
4 indicated that they felt Duke Energy Carolinas  
5 had an obligation to buy their power because they  
6 were a lower cost provider than Duke Energy  
7 Carolinas.

8 Q But my question is you don't know what the cost  
9 of gas is to those plants in South Carolina, that  
10 plant in South Carolina, do you?

11 A Not explicitly except it's sufficiently low to  
12 make them very competitive.

13 Q Do you know what the configuration of that  
14 combined cycle plant is?

15 A I think it's two 1-on-1's.

16 Q And do you know how old that plant is?

17 A How old?

18 Q Yes, when that was built.

19 A I think it's been operational 12 years.

20 Q Do you know the heat rate of that Columbia Energy  
21 plant?

22 A I presume it's a typical combined cycle heat  
23 rate.

24 Q But you don't know what it is specifically for

1           that -- do you know what type of turbine they  
2           have at that facility?

3     A     You mean make and model?

4     Q     Correct.

5     A     General Electric, probably General Electric, but  
6           I don't know for certain.

7     Q     F, G, H?

8     A     From that year, probably an F.

9     Q     And the heat rates for an F combustion turbine is  
10           not as efficient as for a more advanced Class G  
11           or H combustion turbine; wouldn't that be  
12           correct?

13    A     There would be a little bit of a difference but  
14           it's going to be a little bit of a difference  
15           between those models.

16    Q     And efficiency heat rates decline over years,  
17           over the life of the turbine, do they not?

18    A     Yes and no. Turbines undergo a zero hour  
19           overhaul every few years. They basically drop in  
20           a brand new system every few years and so their  
21           heat rate will decline during that operational  
22           30,000-hour period, but when they renovate the  
23           system, drop in a completely, not upgraded, but  
24           renovated system it should be back to its

1 original heat rate.

2 Q Have you spoken with anyone at South Carolina  
3 Gas & Electric (sic) regarding -- South Carolina  
4 Electric & Gas regarding their transmission  
5 system in South Carolina for power from the  
6 Columbia Energy system?

7 A Have I discussed that with them?

8 Q Correct.

9 A No.

10 Q Have you done any independent studies yourself of  
11 the transmission capabilities on the South  
12 Carolina -- in the South Carolina Electric & Gas  
13 system?

14 A No.

15 Q Have you done any studies as to, or do you know  
16 the cost of wheeling electricity from South  
17 Carolina Electric & Gas to any other Balancing  
18 Area Authority (sic)?

19 A I don't explicitly know that cost. I know that  
20 for other areas the cost is generally nominal for  
21 wheeling across transmission control areas.

22 Q But you don't know what it is in South --

23 A I do not specifically know what it is.

24 Q You filed actually two affidavits in the

1 Asheville CC docket, or Docket Number E-2, Sub  
2 1089; did you not?

3 A Yes.

4 Q Subject to check, would you agree that the  
5 distance from Asheville to Reidsville is probably  
6 a little less than 200 miles?

7 A Subject to check, that sounds about right.

8 Q And it's your understanding that the Asheville  
9 plant that was subject to E-2, Sub 1089 is in the  
10 Duke Energy Progress Balancing Area Authority  
11 (sic)?

12 A DEP West?

13 Q Yes.

14 A Correct.

15 Q And it's your understanding that the NTE plant  
16 that is proposed in this docket is in the Duke  
17 Energy Carolinas, DEC, Balancing Area Authority  
18 (sic)?

19 A Correct.

20 MR. STYERS: I'd like to label Mr. Powers'  
21 affidavit in E-2, Sub 1089 as Powers Cross-Examination  
22 Exhibit 4, I believe we're at, correct?

23 COMMISSIONER BROWN-BLAND: That will be NTE  
24 Cross-Examination --

1 MR. STYERS: NTE --

2 COMMISSIONER BROWN-BLAND: -- Exhibit  
3 Powers, I mean, Powers Exhibit 4.

4 NTE Cross-Examination Powers Exhibit 4  
5 (Identified)

6 BY MR. STYERS:

7 Q And I think you said you still have with you your  
8 direct testimony that you filed in this docket up  
9 there with you, Mr. Powers?

10 A I do.

11 Q So let's first look at your direct testimony that  
12 you filed in this docket on page 6.

13 A I'm there.

14 Q Line 15, last word four, F-O-U-R.

15 A Yes.

16 Q In your direct testimony you testified *four Smoky*  
17 *Mountain Hydro units near the North*  
18 *Carolina-Tennessee border have a capacity of*  
19 *378 MW and produce 1.4 million MWh annually.*  
20 *These units are in the TVA system, which is*  
21 *connected to DEP West by a single 161 KV line*  
22 *from TVA to the substation at the Walters Hydro*  
23 *Plant in DEP West. The power produced by these*  
24 *units is not currently contracted for purchase.*

1 Was that your testimony?

2 A It is.

3 Q Okay. Now, I'd like to refer to you what's been  
4 labeled Powers -- NTE Cross-Examination Exhibit 4  
5 and turn to page 3 of your affidavit.

6 A I'm there.

7 Q The last full paragraph, starting at the -- the  
8 last full paragraph -- I'm sorry, the last  
9 paragraph that starts at the bottom of page 3, it  
10 starts with the word four, F-O-U-R; do you see  
11 that, Mr. Powers?

12 A I do.

13 Q In that affidavit in E-2, Sub 1089, you said  
14 under oath, *Four Smoky Mountain Hydro units near*  
15 *the North Carolina-Tennessee border have a*  
16 *capacity of 378 MW and produce 1.4 million MWh*  
17 *annually. These units are in the TVA system,*  
18 *which is connected to DEP West by the single 161*  
19 *KV line from TVA to the substation at the Walters*  
20 *Hydro Plant in DEP West. The power produced by*  
21 *these units is not currently contracted for*  
22 *purchase; is that correct?*

23 A Yes.

24 Q So your testimony in that docket and in this

1 docket are exactly the same, is it not, on this  
2 issue?

3 A On this one unit or one plant.

4 Q Notwithstanding the fact that the two sites are  
5 in different balancing areas, which we talked  
6 about, correct?

7 A Duke Energy Carolinas is about to start up the  
8 Lee plant in South Carolina. 100 megawatts of  
9 that capacity is allocated to the North Carolina  
10 electricity members co-op. That's all over the  
11 state.

12 Q So my question is, notwithstanding the fact that  
13 they're in two different balancing areas in  
14 different parts of the state, your analysis is  
15 exactly the same in these two dockets; is that  
16 correct?

17 A The point of bringing up the exact same  
18 information in both dockets is that there are  
19 at-hand alternatives to the proposed project that  
20 are underutilized that could be utilized, and  
21 there's no guarantee that the 378 megawatts of  
22 hydro power operated in TVA territory that  
23 connects into DEP West is going to substitute for  
24 Duke's proposed Asheville combined cycle plant.



1           It is perfectly reasonable to introduce it as an  
2           available asset that has not yet been claimed to  
3           use to produce power.

4       Q     Continuing with your affidavit, Cross-Examination  
5           Exhibit 4, the first paragraph on the top of page  
6           4, do you see where it starts with the  
7           underutilized merchant?

8       A     Yes.

9       Q     So it reads the underutilized merchant 523 MW  
10           Columbia Energy combined cycle plant outside of  
11           Columbia, SC, built more than a decade ago when  
12           the capital cost of combined cycle power  
13           construction was lower than it is today, could  
14           serve some or all of the needs that might arise.  
15           Is that your statement in your affidavit?

16      A     Correct.

17      Q     And then turning to your prefiled testimony in  
18           this docket starting on top of page 7, line 1,  
19           your testimony reads the underutilized merchant  
20           523 MW Columbia Energy combined cycle plant  
21           outside of Columbia, South Carolina, built more  
22           than a decade ago when the capital cost of  
23           combined cycle power construction was lower than  
24           it is today, could serve some or all of the need

1           that might arise. That's exactly the same  
2           testimony on this issue as well, is it not?

3    A       Well, it's almost exactly the same except for the  
4           last two words. The last two words are *DEP* or  
5           *DEC*. That company has been reaching out to Duke  
6           Energy Carolinas as well as Duke Energy Progress  
7           as a potential recipient of the power.

8    Q       In that Docket, E-2 Sub 1089, in which you filed  
9           your affidavit, the Commission did, in fact,  
10           grant the CPCN for two 280-megawatt combined  
11           cycle facilities, did they not?

12   A       That's my understanding.

13                 MR. STYERS: And I want to ask a question,  
14           the witness a question about the Order in E-2, 1089.  
15           The Commission may take judicial notice of that since  
16           it is its own Order, but I don't want to ask the  
17           Commission -- the witness a question without showing  
18           him the document I want to ask him on. So I have  
19           copies for everyone of that Order so we can all be  
20           looking at it with regards to my next question, but it  
21           doesn't need to be admitted into evidence.

22   BY MR. STYERS:

23   Q       And I'll refer you to the bottom of page 33, the  
24           very, very last sentence that isn't even

1 completed on that sentence but it starts on the  
2 last line of page 33, *the need*; do you see that?

3 A I do.

4 Q And the Commission Order reads *the need for the*  
5 *two 280-megawatt CC units are based on an IRP*  
6 *planning basis. The comments filed by many of*  
7 *the intervenors appear to demonstrate a lack of*  
8 *fundamental understanding as to the difference*  
9 *between capacity and energy, a fundamental lack*  
10 *of understanding as to how load forecasts are*  
11 *prepared and approved by the Commission, as well*  
12 *as a fundamental lack of understanding of how*  
13 *electric systems are planned and maintained for a*  
14 *reliable and least cost system. As detailed in*  
15 *the CPCN application, the basis for need is*  
16 *demonstrated in the 2015 DEP IRP. Is that what*  
17 *the Commission's Order stated in Docket E-2,*  
18 *Sub 89 (sic), Mr. Powers? Did I read that*  
19 *correctly?*

20 A You did. It looks like an editorial comment. I  
21 accept that editorial comment.

22 Q In this docket, have you talked with anyone from  
23 NTE prior to preparing your testimony?

24 A I did not.

1 Q Have you talked or spoken with any of the  
2 load-serving entities that NTE will be serving  
3 from the Kings Mountain Energy Center  
4 regarding -- in preparation for your testimony in  
5 this docket?

6 A I did read the press releases that NTE Carolinas,  
7 when they signed the Power Purchase Agreements  
8 with the communities, I read the press releases.  
9 I also researched how big are these communities;  
10 how many customers that they have that will be  
11 served.

12 Q But you didn't actually speak with any of their  
13 energy managers or utility directors regarding  
14 the criteria that they utilize in selecting NTE  
15 and entering into purchase power agreements with  
16 them?

17 A So the question is did I talk to --

18 Q Correct. Any of their responsible utility  
19 directors or energy purchasers regarding their  
20 criteria they used.

21 A I did not.

22 Q Okay. Is it -- you said you had looked at the  
23 IRPs by Duke Energy Carolinas and Duke Energy  
24 Progress, Mr. Powers?

1 A Yes.

2 Q Battery storage is not a supply-side resource in  
3 the IRP; listed as a resource in the IRP, is it?

4 A That is correct.

5 MR. STYERS: Let me -- one second, please.  
6 I'm just about finished. I've got two more lines of  
7 questioning and I'm just about finished.

8 I'd like to hand out two documents labeled  
9 Powers Cross-Examination Exhibit 5, which is an  
10 excerpt from the Duke Energy Carolinas IRP, portions  
11 of that, and NTE Cross-Examination Exhibit Powers 6,  
12 which are portions of the Duke Energy Progress IRP.

13 COMMISSIONER BROWN-BLAND: These will be  
14 identified for the record as NTE Cross-Examination  
15 Powers, I mean, NTE Cross-Examination Powers Exhibits  
16 5 and 6.

17 NTE Cross-Examination Powers Exhibits 5 and 6  
18 (Identified)

19 COMMISSIONER BROWN-BLAND: Mr. Styers,  
20 which -- help me out again, which one is 5 and which  
21 one is 6?

22 MR. STYERS: Duke Energy Carolinas, DEC --

23 COMMISSIONER BROWN-BLAND: Is 5?

24 MR. STYERS: And DEP is 6.

1 BY MR. STYERS:

2 Q And, Mr. Powers --

3 MR. RUNKLE: Excuse me, I'm a little  
4 confused, I thought we had introduced them as NTE  
5 Cross Exhibit, Powers Exhibits 1 and 2?

6 MR. STYERS: Those were different portions.

7 MR. RUNKLE: Oh, it's the -- okay, that  
8 clarifies that.

9 BY MR. STYERS:

10 Q In Cross-Examination Exhibit 5, the second page  
11 is page 13 from the DEC Integrated Resource Plan  
12 and there's a table, Table 3-A; do you see that,  
13 Mr. Powers?

14 A Yes, I do.

15 Q And that Table 3-A is labeled *Load Forecast with*  
16 *Energy Efficiency Programs*; is that correct?

17 A It is.

18 Q And then the rows are labeled 2015 through 2029;  
19 is that correct?

20 A Correct.

21 Q And then the second and third columns are the  
22 projected peak load forecasts according to the  
23 IRP; is that correct, Mr. Powers?

24 A Correct.

- 1 Q And then the third page and the fourth page are  
2 the *Load, Capacity and Reserve Tables*, Table 8-B  
3 and 8-C for Duke Energy Carolinas. Is that how  
4 those pages are labeled?
- 5 A Yes.
- 6 Q And those tables start with *Load Forecast*, the  
7 system peak. That is line 1 is *Duke System Peak*;  
8 is it not?
- 9 A Yes.
- 10 Q And then they subtract from that *Cumulative New*  
11 *EE Programs* in line 3; is that correct?
- 12 A And you're on the summer?
- 13 Q Yes.
- 14 A Yes.
- 15 Q It's applicable to both, Tables 8-B and 8-C. So  
16 these load forecasts do take into effect -- these  
17 numbers do take into account EE programs, do they  
18 not, these numbers?
- 19 A They do.
- 20 Q And then lines 5, 6 and 7 are *Existing and*  
21 *Designated Resources* listed there in those three  
22 lines as labeled, are they not?
- 23 A Correct.
- 24 Q And line 8 is *Cumulative Generating Capacity*.

1 That is the capacity total of 5, 6 and 7; is that  
2 correct?

3 A Right.. And this is exclusively Duke Energy  
4 Carolinas' owned resources.

5 Q That's correct. Now line 9 is *Cumulative*  
6 *Purchase Contracts* and that would be capacity  
7 that is purchased from others. Is that your  
8 understanding, Mr. Powers?

9 A Yes.

10 Q And then line 13 is *Cumulative Renewable Capacity*  
11 added to that; is it not?

12 A Correct.

13 Q And *Demand Side Management* is then also accounted  
14 for in these totals here in line 15?

15 A Correct.

16 Q And those same rows that we've just reviewed are  
17 also reflected on 8-C which is the winter peak;  
18 is that correct?

19 A That is correct.

20 Q Now, I'll refer to NTE Cross-Examine (sic) Powers  
21 Number 6, very similar questions, the second page  
22 is a Table 3-A labeled *Load Forecast with Energy*  
23 *Efficiency Programs*. Is that the title of that  
24 table on page 14?



1 A Correct.

2 Q And then the rows are labeled years 2015 through  
3 2029?

4 A Correct.

5 Q And then the next column, the second column, are  
6 the summer peaks during that period as projected  
7 in the IRP?

8 A Yes.

9 Q And then the third column is projected winter  
10 peaks according to the IRP?

11 A Correct.

12 Q And Tables 8-B and 8-C are generally structured  
13 the same as they were in Cross-Examination Powers  
14 5, are they not?

15 A Correct.

16 Q My last set of questions pertain to the Exhibit A  
17 on your Cross Examination, I'm sorry, on your  
18 direct testimony, prefiled direct testimony  
19 Exhibit A. Did you prepare this Exhibit A,  
20 Mr. Powers?

21 A Exhibit A --

22 Q Attachment A to your testimony?

23 A I did.

24 Q So you didn't pull that or copy that from some

1 other source? These are your numbers?

2 A My numbers, correct.

3 Q To your knowledge, did NC WARN present to NTE  
4 data requests about the specific characteristics  
5 and projected emissions from the proposed  
6 facility in Rockingham?

7 A I do not know.

8 Q But you didn't utilize any data request responses  
9 in preparing Attachment A, did you?

10 A No.

11 Q In preparing Attachment A, did you talk with any  
12 original equipment manufacturer such as  
13 Mitsubishi or Siemens?

14 A For what purpose?

15 Q For any purpose that may be relevant to  
16 Attachment A? Have you had any conversations  
17 with any OEM regarding turbines, and emissions,  
18 and turbines in preparation of your testimony?

19 A No, this is -- at least in the field of power  
20 generation these numbers are commonly available.  
21 There was -- I did not talk to a turbine  
22 manufacturer for this.

23 Q Now, the next to last line you put 7MMBtu/MWh  
24 combined cycle unit heat rate number. You did

1 not get that information -- you did not get that  
2 number from NTE because you didn't talk with  
3 them, correct?

4 A No. And that is a high heating value number. To  
5 convert that into low heating value, which is  
6 pretty typical in the gas turbine world, it would  
7 be 10 percent lower. It might be 6300, somewhere  
8 in there.

9 Q And if it's -- if -- the lower heat rate would be  
10 higher efficiency of the turbines, correct?

11 A It's just a different way of presenting the  
12 heating value of gas.

13 Q And in that scenario the emissions would actually  
14 be less, would they not be?

15 A I think we're going on two different tracks here.  
16 Both numbers apply, 7000 applies, 6300 applies.  
17 A significant portion of natural gas is hydrogen.  
18 It's converted to water vapor. It doesn't  
19 provide useful work in the turbine and so  
20 manufacturers normally only present the heat rate  
21 at low heating value, which is a low number, but  
22 the high heating value is all of the gas that  
23 goes in and that's about 10 percent higher.

24 Q But you did not know the heat rate specifically

1           for the turbines proposed to be used for the  
2           Rockingham plant, do you?

3     A     That's correct.

4     Q     Are you aware that NTE has filed its Air Permit  
5           Applications -- an Air Permit Application with  
6           the Department of Environmental Quality in North  
7           Carolina?

8     A     I was not aware of that.

9     Q     So you have not reviewed any information in the  
10          Air Permit Application?

11    A     No, I've concentrated on the greenhouse gas  
12          emission aspect.

13                 MR. STYERS: No further questions.

14                 COMMISSIONER BROWN-BLAND: Let's stand at  
15          ease for a moment and let me see counsel up here.

16                 (Bench conference off the record)

17                 COMMISSIONER BROWN-BLAND: Mr. Runkle, do  
18          you have redirect?

19                 MR. RUNKLE: Yes, ma'am.

20                         REDIRECT EXAMINATION

21    BY MR. RUNKLE:

22    Q     Mr. Powers, can look on page 3 of your prefiled  
23          testimony?

24    A     I'm there.

1 Q On your Table 1 for the year 2007, there's a  
2 figure of 18,988 megawatts for summer peak for  
3 DEC?

4 A Yes.

5 Q Now, how is the summer peak measured? What does  
6 that number actually mean?

7 A This number is typically the one-hour average of  
8 the load at that time. And a good question to  
9 raise, I had not fully reviewed the Exhibit 3  
10 that was put before me, counselor indicating that  
11 Duke set an all-time record, summer peak record  
12 in 2016, July 27, 2016, new summer peak 20,671.  
13 Next sentence, *this exceeds the previous*  
14 *summertime record of 20,628 megawatt-hours set on*  
15 *August 8, 2007.* So in this press release Duke is  
16 indicating that in the summer of 2016 they  
17 basically got back to where they were in the  
18 summer of 2007. These are almost the same  
19 numbers, plus or minus a tenth of a percent or  
20 so. Yet it's a different number than what is  
21 reported in the NCUC's document for the summer of  
22 2007. Here it's reported as 18,988, Duke's  
23 reporting it for the same summer as 20,628. The  
24 issue was raised about my inability to accept at

1 face value the winter peaks reported for winter  
2 for twenty -- winter of 2014. This is a good  
3 example of why more information is needed to  
4 understand. But the bottom line here is the peak  
5 that Duke reached in the summer of 2016 is the  
6 same peak Duke had already -- Duke had already  
7 reached in 2007, which is almost a decade ago.

8 MR. RUNKLE: Well, that went through a lot  
9 of my questions pretty quickly so I have no further  
10 questions.

11 MS. DOWNEY: (Shakes head no).

12 COMMISSIONER BROWN-BLAND: Any questions  
13 from the Commission?

14 EXAMINATION

15 BY COMMISSIONER BROWN-BLAND:

16 Q Mr. Powers, do you know if the energy and  
17 capacity from the plants to which you refer in  
18 your prefiled testimony was actually marketed to  
19 the wholesale customers NTE contracted with for  
20 Kings Mountain Energy Center?

21 A Could you repeat that question, please?

22 Q Do you know if the energy and capacity from the  
23 plants you refer to in your prefiled testimony  
24 was actually marketed to the customers that NTE

1 contracted with for Kings Mountain?

2 A I do not know.

3 Q And in your testimony on page 10, lines 12  
4 through 13, you state that *any demonstrable need*  
5 *for new capacity to meet summer or winter peak*  
6 *demand should be met with battery storage.* Is it  
7 correct that combined cycle plants like the  
8 proposed facility can be used for baseload and  
9 intermediate demand, also?

10 A Yes. A combined cycle plant could be used for  
11 that purpose. However, I was just in a  
12 proceeding before another utilities commission  
13 where the utility itself said for - and I'm  
14 specifically talking here about the peak power  
15 need - that the battery was superior; a  
16 least-cost, best-fit option to a combustion  
17 turbine, similar to the 825 megawatts of  
18 combustion turbines at the site of the Rockingham  
19 Station, the existing units.

20 Q So would you concede that there's no battery  
21 storage available today for a commercial  
22 application that has a capacity of 500 megawatts?

23 A No, I wouldn't concede that.

24 Q And why not?

1 A We have a 300-megawatt battery storage project  
2 proposed for an existing power station in Los  
3 Angeles now and the provider is AES, which is a  
4 big power provider nationwide. They haven't  
5 indicated any cap on battery capacity to serve  
6 that purpose.

7 Q You state that in your answer that it's proposed.  
8 Is it able to provide that today at 300 megawatts  
9 or, and then my question was 500 megawatts?

10 A But I could give the same answer for the NTE  
11 Carolinas II project. It's not available today  
12 to provide 500 megawatts but the --

13 Q My question is about the battery storage. Would  
14 you concede that there was no battery storage  
15 available today for a commercial application that  
16 has the capacity of 500 megawatts --

17 A I would not --

18 Q -- and you said, *no, you would not concede that,*  
19 *then you discussed a proposed 300 megawatts.* My  
20 question is is that available and ready today and  
21 can it provide that 300 megawatts today?

22 A I will give you my professional opinion that, if  
23 it were approved and contracted for by the  
24 utility, it is available today.



1 Q And it will be available today at 500 megawatts?

2 A Yes.

3 Q If NTE -- the question of NTE -- surmising from  
4 your prefiled direct testimony, if NTE builds  
5 this Rockingham facility, are you saying that  
6 there wouldn't be any purchasers?

7 A There most certainly would be purchases. It's  
8 not clear how they are going to finance this  
9 plant. This is a saturated power market and I do  
10 not see -- they cannot make money on this plant  
11 as a merchant plant that Mr. Green talked about  
12 selling into a market and getting dispatched.  
13 They cannot finance a \$500 million plant on the  
14 hope that they're going to get dispatched  
15 sufficiently to cover their cost. There has got  
16 to be some other financial arrangement that is  
17 not clear to me if they go forward with building  
18 this plant.

19 Q But your answer is there would be purchases?

20 A No. I do not believe, in your opinion, that it  
21 would be purchased in sufficient quantity to  
22 justify -- for an investor to expect to make a  
23 profit.

24 Q Well, without regard to sufficient profit margins

1 or sufficient amounts, I just asked would there  
2 be purchases and I thought you answered yes there  
3 would definitely be purchases.

4 A There would be some but the only point of  
5 reference I have is that the Columbia power plant  
6 outside of Columbia, South Carolina, there are  
7 purchases but very few purchases.

8 COMMISSIONER BROWN-BLAND: Questions on  
9 Commission's questions?

10 MR. STYERS: I'm sorry, but I mean I have  
11 to.

12 EXAMINATION

13 BY MR. STYERS:

14 Q Have you examined and are familiar with the  
15 financing of the Kings Mountain Energy Center,  
16 Mr. Powers?

17 A Did you say finessing?

18 Q Financing?

19 A Oh, financing, I am not.

20 Q Have you spoken to anyone about the financing of  
21 the Rockingham Energy Center that's the subject  
22 of this docket?

23 A I have not.

24 Q Have you yourself been involved in the financing

1 of a combined cycle natural gas -- you yourself  
2 been a party or involved in the financing of a  
3 combined cycle natural gas power plant?

4 A To clarify, Mr. Green said they're going -- the  
5 plant will make money two ways - dispatch and  
6 contracts - and so I think he explained what the  
7 process would be to finance the facility?

8 Q Have you yourself been involved in the financing  
9 of a combined cycle natural gas power plant?  
10 That was my question.

11 A No.

12 MR. STYERS: No further questions.

13 COMMISSIONER BROWN-BLAND: Then are we going  
14 to take care of these exhibits?

15 MR. STYERS: Yes, I'd like to move into  
16 evidence NTE Cross-Examination Exhibits of William  
17 Powers 1, 2, 3, 4 -- I'll ask the court reporter how  
18 many -- 5 and 6, six total.

19 MR. RUNKLE: Your Honor, we would object to  
20 NTE Cross Exhibit Powers 3 which appears to be a one  
21 out of three-page press release by Duke Energy. It  
22 says one out of three and, if there is an additional  
23 part of this, we'd like to see this as maybe perhaps a  
24 late-filed exhibit.

1 MR. STYERS: Be glad to file, and I'd be  
2 glad to file the complete -- That was an oversight if  
3 it was more than one page and be glad to file the  
4 complete Exhibit 3 as a late-filed exhibit.

5 COMMISSIONER BROWN-BLAND: Subject to  
6 Mr. Styers' representation that he will present and  
7 file as a late-filed exhibit the complete pages 1  
8 through 3 that are referenced on the face of the NTE  
9 Cross-Examination Powers Exhibit 3, I will receive it  
10 into evidence at this time.

11 MR. RUNKLE: Thank you.

12 COMMISSIONER BROWN-BLAND: The full NTE  
13 Cross-Examination Powers, the exhibits 1 through 6.

14 NTE Cross-Examination Powers Exhibits 1 - 6

15 (Admitted)

16 MR. RUNKLE: Your Honor, while we're  
17 introducing evidence, we'd like to introduce into  
18 evidence NC WARN Green Cross-Examination Exhibit 1,  
19 which was the series of press releases on their  
20 customers, by then, the Kings Mountain plant.

21 MR. STYERS: No objection.

22 COMMISSIONER BROWN-BLAND: There being no  
23 objection, we'll receive NC WARN Green  
24 Cross-Examination Exhibit 1 into evidence.

1 NC WARN Green Cross Exhibit 1

2 (Admitted)

3 COMMISSIONER BROWN-BLAND: And the redirect  
4 exhibits, I assume you would like to enter?

5 MR. STYERS: Yes, I would like the redirect  
6 exhibits 1 and 2 --

7 COMMISSIONER BROWN-BLAND: NTE Redirect  
8 Green Exhibits 1 and 2 will be received into evidence.

9 MR. RUNKLE: Your Honor, we would renew our  
10 objection to the exhibit Green Redirect Exhibit 1,  
11 which is a series of population numbers perhaps.

12 COMMISSIONER BROWN-BLAND: That objection is  
13 noted and I'm going to come back to that later,  
14 Mr. Runkle.

15 MR. RUNKLE: Yes, ma'am.

16 NTE Redirect Green Exhibit 2

17 (Admitted)

18 COMMISSIONER BROWN-BLAND: Mr. Runkle,  
19 Witness Powers' direct testimony appeared to have an  
20 exhibit that we did not move into evidence.

21 MR. RUNKLE: Oh, his Attachment 1.

22 COMMISSIONER BROWN-BLAND: It appears to be  
23 identified as Attachment A.

24 MR. RUNKLE: Attachment A; yes, ma'am.

1 COMMISSIONER BROWN-BLAND: We will identify  
2 it and receive it into evidence. It will be  
3 identified as Powers Direct Exhibit -- well,  
4 Attachment A.

5 Powers Direct Attachment A  
6 (Identified and Admitted)

7 COMMISSIONER BROWN-BLAND: Anything else to  
8 clean up before we excuse Mr. Powers?

9 (No response.)

10 Mr. Powers, you're excused. Thank you.

11 (The witness is excused.)

12 COMMISSIONER BROWN-BLAND: Now, we had a  
13 discussion off the record a moment ago with counsel  
14 and we've agreed to take the witnesses out of order at  
15 this time and let the Public Staff.

16 MS. DOWNEY: The Public Staff would call  
17 Dustin Metz.

18 COMMISSIONER BROWN-BLAND: Actually, we're  
19 not out of order, I'm thinking about the rebuttal.

20 DUSTIN R. METZ; was duly sworn and  
21 testified as follows:

22 DIRECT EXAMINATION

23 BY MS. DOWNEY:

24 Q Please state your name, business address and

1 present position.

2 A My name is Dustin Metz. My business address is  
3 430 North Salisbury Street, Raleigh, North  
4 Carolina. I'm an Engineer in the Electric  
5 Division with the Public Staff.

6 Q Mr. Metz, did you prepare and cause to be filed  
7 on October 18, 2016, testimony in this case  
8 consisting of six (sic) pages and one appendix?

9 A Yes, I did.

10 Q Do you have any corrections or changes to that  
11 testimony at this time?

12 A Yes, I do.

13 Q Would you point us to that, please?

14 A On page 7, line 14, the date read October 23,  
15 that date should read October 28.

16 Q So that's page 7, line 14, should be October 28  
17 and not October 23?

18 A That is correct.

19 Q With that correction, if the same questions were  
20 asked of you today, would your answers be the  
21 same?

22 A Yes, they would.

23 MS. DOWNEY: Madam Chair, I move that the  
24 direct testimony of Mr. Metz be copied into the record

1 as if given orally from the stand.

2 COMMISSIONER BROWN-BLAND: That motion is  
3 allowed and the testimony of Witness Metz will be  
4 received into evidence as if given orally from the  
5 stand.

6 (WHEREUPON, the prefiled direct  
7 testimony of DUSTIN R. METZ is  
8 copied into the record as if given  
9 orally from the stand.)  
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NTE CAROLINAS II, LLC  
DOCKET NO. EMP-92, SUB 0

TESTIMONY OF DUSTIN R. METZ  
ON BEHALF OF THE PUBLIC STAFF  
NORTH CAROLINA UTILITIES COMMISSION

October 18, 2016

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

3 A. My name is Dustin R. Metz. My business address is 430 North  
4 Salisbury Street, Raleigh, North Carolina.

5 Q. WHAT IS YOUR POSITION WITH THE PUBLIC STAFF?

6 A. I am an engineer in the Electric Division of the Public Staff  
7 representing the using and consuming public.

8 Q. WOULD YOU BRIEFLY DISCUSS YOUR EDUCATION AND  
9 EXPERIENCE?

10 A. Yes. My education and experience are outlined in Appendix A of my  
11 testimony.

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

14 A. My testimony concerns the application by NTE Carolinas II, LLC  
15 (Applicant), for a certificate of public convenience and necessity  
16 (CPCN) to construct a 500 megawatt (MW) one-on-one combined

1 cycle natural gas-fired merchant electric generating facility in  
2 Rockingham County, North Carolina, to be known as the Reidsville  
3 Energy Center.

4 The purpose of my testimony is as follows:

- 5 1. To discuss the compliance of the application filed with G.S.  
6 62-110.1 and Commission Rule R8-63;
- 7 2. To discuss concerns raised by the application; and
- 8 3. To make a recommendation regarding whether the  
9 Commission should grant the requested certificate.

10 **Q. PLEASE BRIEFLY DESCRIBE THE GENERATION FACILITY**  
11 **PROPOSED TO BE CONSTRUCTED BY THE APPLICANT.**

12 A. The application is for a CPCN for an approximately 500 MW one-on-  
13 one combined cycle (CC), natural gas-fired electric generating facility  
14 in Rockingham County in North Carolina (Facility). The Applicant  
15 filed the application pursuant to G.S. 62-110.1 and Commission Rule  
16 R8-63. The Facility will be located on approximately 20 acres of a  
17 170 acre site in Rockingham County, North Carolina, with the  
18 majority of the site bounded by North Carolina Highway 65 (NC 65)  
19 to the east and New Lebanon Church Road to the west.

20 As proposed, the Facility will consist of one combustion turbine  
21 generator (CTG), either a Mitsubishi M501GAC or Siemens Energy,  
22 Inc. SGT6-8000H; one heat recovery steam generator (HRSG); and  
23 one steam turbine generator (STG). The nominal generation for the

1 Facility will be approximately 500 MW. Natural gas will be the only  
2 fuel burned by the CC unit, consuming about 95,000 MMBtu/Day to  
3 operate at full output. Construction is anticipated to begin as early  
4 as first quarter of 2018, following receipt of the requested CPCN from  
5 the Commission and all necessary permits and approvals.  
6 Commercial operation is scheduled to begin as early as the fourth  
7 quarter of 2020, with an expected service life of 30 years. Additional  
8 equipment to support the Facility includes exhaust stacks, auxiliary  
9 boiler, combustion turbine enclosure, turbine air inlet ducts and  
10 silencers, continuous emission monitor systems, generator step up  
11 transformers, a station service transformer, switchgears, a gas  
12 metering/conditioning station, water treatment trailers, a de-  
13 mineralized water tank, transmission and interconnection equipment,  
14 mechanical draft evaporative cooling towers, a standby diesel  
15 generator, and a fire protection system.

16 Natural gas is anticipated to be provided via the existing interstate  
17 pipeline transmission facilities of Transcontinental Gas Pipeline  
18 Company, LLC (Transco), which has existing interstate pipelines  
19 crossing the project site. The Facility will be connected to the  
20 Transco pipelines by a facility lateral. The Applicant is currently in  
21 discussions with Piedmont Natural Gas Company, Inc. (PNG)  
22 regarding construction, ownership, maintenance, and operation of  
23 the facility lateral. A Special Service Tariff (currently under

1 discussion between the Applicant and PNG) specific to the facility  
2 lateral will govern PNG's provision of natural gas transportation  
3 service to the facility. PNG is expected to construct, own, maintain  
4 and be responsible for compliance testing on the pipe between the  
5 direct interconnection with Transco and the Facility. The Applicant's  
6 natural gas procurement strategy for the Facility includes procuring  
7 firm delivered natural gas service priced at a Gas Daily index  
8 representative of the delivery location, from one or more wholesale  
9 natural gas suppliers via Transco's interstate pipelines.

10 The Facility will interconnect with the electrical transmission grid via  
11 the existing Ernest Switching Station, which is owned by Duke  
12 Energy Carolinas, LLC (DEC) and is located adjacent to the  
13 Applicant's proposed project site. All transmission interconnection-  
14 related equipment will be located either on the Applicant's site or on  
15 the Ernest Switching Station site. The Applicant has stated that its  
16 application for a CPCN is intended to encompass all ancillary  
17 transmission facilities up to the line-side of the Ernest Switching  
18 Station. As a result, the Applicant does not intend to file a separate  
19 application for a certificate of environmental compatibility and public  
20 convenience and necessity.

21 **Q. HAS THE APPLICANT COMPLIED WITH THE COMMISSION'S**  
22 **FILING REQUIREMENTS?**

1 A. Yes. The original application for the Facility, along with supporting  
2 testimony, was filed on July 29, 2016 pursuant to G.S. 62-110.1 and  
3 Commission Rule R8-63.

4 On August 10, 2016, the Public Staff notified the Commission that it  
5 considered the application to be complete and requested that the  
6 Commission issue a procedural order setting it for hearing. On  
7 August 16, 2016, the Commission issued an Order requiring public  
8 notice, scheduling public and evidentiary hearings, and dealing with  
9 other necessary procedural matters.

10 An amended application increasing the proposed site acreage (but  
11 not the Facility footprint) was filed on September 21, 2016. On  
12 September 23, 2016, the Commission modified its August 16, 2016  
13 scheduling order by amending the public notice and providing for  
14 submission of the amended application to the State Clearinghouse.

15 **Q. HAS THE APPLICANT SHOWN A NEED FOR ITS PROPOSED**  
16 **FACILITY?**

17 A. Yes. In the statement of need section of its application, the Applicant  
18 discusses its review of the Integrated Resource Plans (IRPs) of DEC  
19 and Duke Energy Progress, LLC (DEP), both of which show a need  
20 for additional capacity due to load growth and planned plant  
21 retirements as follows:

1 DEC (2015 IRP): 5,711MW by 2030

2 DEP (2015 IRP): 5,292MW by 2030

3 DEC and DEP filed their 2016 IRPs with the Commission on  
4 September 1, 2016 in Docket No. E-100, Sub 147.<sup>1</sup> These filings  
5 show a need for additional capacity due to load growth and planned  
6 plant retirements as follows:

7 DEC (2016 IRP): 5,002MW by 2031

8 DEP (2016 IRP): 5,453MW by 2031

9 Given the future need for generation resources by DEC and DEP,  
10 the proposed Facility will assist in meeting the need.

11 **Q. HOW WOULD CONSTRUCTION OF THIS FACILITY IMPACT**  
12 **NORTH CAROLINA RETAIL RATEPAYERS?**

13 **A.** The Applicant stated that one benefit of this proposed merchant plant  
14 is that it will be financed by private companies, rather than  
15 ratepayers. As a result, the construction costs of the Facility will not  
16 be a component of rate base for any North Carolina electric public  
17 utility.

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<sup>1</sup> On September 30, 2016, in Docket No. E-100, Sub 147, DEC and DEP filed revised IRPs.

1 Q. HAS THE STATE CLEARINGHOUSE COMPLETED ITS  
2 APPLICATION REVIEW?

3 A. No. The original application was filed on July 29, 2016. On August  
4 17, 2016, the Commission sent a letter with a link to the application  
5 to the State Clearinghouse for distribution to appropriate agencies.  
6 The State Clearinghouse replied by email that agency review was  
7 anticipated to be completed by September 29, 2016.

8 On September 23, 2016, the Commission sent a letter to the State  
9 Clearinghouse, notifying the Clearinghouse that the Applicant had  
10 amended the application by adding approximately eighty (80) acres  
11 of property to the project site. A link to the amended application was  
12 included in the letter for distribution to appropriate State agencies.  
13 The State Clearinghouse replied by email that agency review of the  
14 amended application was anticipated to be complete by October 28, <sup>RTM</sup>  
15 2016.

16 On September 30, 2016, the State Clearinghouse filed a letter  
17 responding to the original application with attached comments. The  
18 letter stated the following: "Because of the nature of the comments,  
19 it has been determined that no further State Clearinghouse review  
20 action on your part is needed for compliance with the North Carolina  
21 Environmental Policy Act." However, in the attached comments,  
22 several agencies within the North Carolina Department of

1 Environmental Quality identified permits that may be needed as well  
2 as offered guidance to minimize the impact of the Facility on the  
3 environment.

4 As of the date of the filing of my testimony, the State Clearinghouse  
5 has not provided a response to the September 23, 2016, amended  
6 application. Should the additional comments from the State  
7 Clearinghouse reveal any issues not covered in the original  
8 comments filed on September 30, 2016, the Commission should  
9 require the Applicant to respond as appropriate.

10 **Q. DOES THE PUBLIC STAFF HAVE ANY RECOMMENDATIONS**  
11 **REGARDING THE ENVIRONMENTAL IMPACT OF THE**  
12 **PROPOSED FACILITY?**

13 **A.** No. The Public Staff does not have particular expertise in the area  
14 of the impacts of electric generation on the environment. Those  
15 issues are best left to the purview of environmental regulators who  
16 do have this expertise, and who are responsible for issuing specific  
17 environmental permits for electric generating plants. To that end, as  
18 stated below, the Public Staff recommends that the Commission  
19 require compliance with all environmental permitting requirements as  
20 a condition to the issuance of the CPCN.

21 **Q. WHAT IS THE PUBLIC STAFF'S RECOMMENDATION ON THE**  
22 **APPLICATION FOR A CPCN?**



1 A. The Public Staff recommends that the application be approved,  
2 subject to the following conditions:

3 1. The Facility shall be constructed and operated in strict  
4 accordance with applicable laws and regulations,  
5 including any environmental permitting requirements;

6 2. The Applicant will not assert that issuance of the CPCN  
7 in any way constitutes authority to exercise an power  
8 of eminent domain, and it will abstain from attempting  
9 exercise such power; and

10 3. The CPCN shall be subject to Commission Rule  
11 R8-63(e) and all orders, rules and regulations as are  
12 now or may hereafter be lawfully made by the  
13 Commission.

14 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

15 A. Yes, it does.

Appendix A

Dustin R. Metz

Through the Commonwealth of Virginia Board of Contractors, I hold a current Tradesman License certification of Journeyman and Master within the electrical trade, issued in 2008 and 2009 respectively. I graduated from Central Virginia Community College with Associates of Applied Science degrees in Electronics & Electrical Technology (Magna Cum Laude), in 2011 and 2012 respectively, and was awarded an Associates of Arts in Science in General Studies (Cum Laude) in 2013. I graduated from Old Dominion University in 2014, earning a Bachelor of Science degree in Engineering Technology with a major in Electrical Engineering and a minor in Engineering Management.

I have over 12 years of combined experience in engineering, electromechanical system design, troubleshooting, repair, installation, commissioning of electrical and electronic control system in industrial and commercial nuclear facilities, project planning and management, and general construction experience.

I joined the Public Staff in the fall of 2015 and have worked on utility rate case, fuel cases, applications for certificates of public convenience and necessity, customer complaints, nuclear decommissioning, power plant performance, and other aspects of utility regulation.

1 BY MS. DOWNEY:

2 Q Mr. Metz, do you have a summary of your  
3 testimony?

4 A Yes, I do.

5 Q Would you please read it for us?

6 A Good afternoon. The purpose of my testimony is  
7 in this proceeding is to make a recommendation to  
8 the Commission, based on the Public Staff's  
9 review and evaluation, as to whether or not a  
10 Certificate of Public Convenience and Necessity  
11 should be granted to NTE Carolinas II, LLC, for  
12 its proposed 500-MW merchant electric generating  
13 plant to be located in Rockingham County. In  
14 addition, I discuss NTE's compliance with  
15 G.S. 62-110.1 and Commission Rule R8-63.

16 Based upon my review, NTE has  
17 complied with the relevant portions of  
18 G.S. 62-110.1 and with the filing requirements of  
19 Commission Rule R8-63. NTE has shown a need for  
20 additional capacity based upon the most recent  
21 Duke Energy Carolinas and Duke Energy Progress  
22 Integrated Resource Plans. These IRPs show a  
23 need for additional capacity due to both load  
24 growth and planned plant retirements.

1                   Because NTE's proposal in this  
2                   case is for a merchant plant, no component of  
3                   rate base for any North Carolina electric public  
4                   utility will be impacted by this facility.

5                   The State Clearinghouse provided  
6                   comments on September 30, 2016, based on the  
7                   original application in this docket, which stated  
8                   that no further State Clearinghouse review action  
9                   was required by the Commission for compliance  
10                  with the North Carolina Environmental Policy Act;  
11                  however, NTE filed an amended application on  
12                  September 23, 2016, which the Commission  
13                  forwarded to the Clearinghouse for further  
14                  review. At this time, the State Clearinghouse  
15                  has not provided a response to this amended  
16                  application. Should future Clearinghouse  
17                  comments reveal any issues not covered by the  
18                  original comments filed on September 30, 2016,  
19                  the Commission should require NTE to respond  
20                  appropriately.

21                  Based upon my information known to  
22                  date, I recommend that the Application be  
23                  approved and the CPCN be granted, subject to the  
24                  conditions listed in my testimony.

1 This completes my summary.

2 BY MS. DOWNEY:

3 Q Mr. Metz, in your summary you indicated that a  
4 response from the State Clearinghouse is pending  
5 on the amended application. Has the Commission  
6 now received the response to the amended  
7 application from the State Clearinghouse?

8 A Yes, it was received on November 1st.

9 Q And what did the Clearinghouse say in that  
10 response?

11 A The State Clearinghouse letter stated that no  
12 further State Clearinghouse review action is  
13 needed for compliance with the North Carolina  
14 Environmental Policy Act.

15 Q In other words, there was no change from their  
16 previous comments; is that correct?

17 A Their comments were the same, no change.

18 MS. DOWNEY: The witness is available for  
19 cross.

20 COMMISSIONER BROWN-BLAND: Is there any  
21 cross examination, Mr. Runkle?

22 MR. RUNKLE: We have no cross examination.

23 COMMISSIONER BROWN-BLAND: Mr. Styers.

24 MR. STYERS: I have just a few questions.

1 COMMISSIONER BROWN-BLAND: Go ahead.

2 MR. STYERS: I'd like to hand to the witness  
3 a document labeled NTE Cross-Examination Exhibit, Metz  
4 Exhibit 1?

5 COMMISSIONER BROWN-BLAND: It will be so  
6 identified.

7 NTE Cross-Examination Metz Exhibit 1

8 (Identified)

9 CROSS EXAMINATION

10 BY MR. STYERS:

11 Q Good afternoon, Mr. Metz.

12 A Good afternoon.

13 Q Do you recognize the document that has been  
14 handed to you labeled as NTE Cross-Examine  
15 Exhibit Metz 1 (sic)?

16 A It appears to be the comments of the Public Staff  
17 filed in Docket E-100, Sub 141 on March 2, 2015.

18 Q I would first ask you to turn to page 1 towards  
19 the beginning of the document and right after the  
20 letters FERC, F-E-R-C, about three quarters the  
21 way down.

22 A Yes.

23 Q The Public Staff comment noted that *G.S. 62-110.1*  
24 *further requires the Commission to consider this*

1        *analysis in acting upon this petition for*  
2        *construction. Is that what the Public Staff's*  
3        *comments included in Docket E-100, Sub 141?*

4        A        That is correct. That is the comments in the  
5        introduction.

6        Q        Okay. Now, I'll refer you to page 18, the last  
7        sentence before *DNCP*, subheading there, the  
8        Public Staff's comments in conclusion was that  
9        *while DEC's 2014 forecasts are reasonable for*  
10       *planning purposes, the Public Staff recommends*  
11       *that DEC continue to review its forecasting*  
12       *models carefully, including planned changes to*  
13       *identify further improvements. Is that the*  
14       Public Staff position, summary position in Docket  
15       E-100, Sub 141?

16       A        That is correct.

17       Q        And it concluded that the DEC forecasts were  
18       reasonable for planning purposes?

19       A        Yes. They appear to be reasonable for planning  
20       purposes.

21       Q        And then, I'm sorry, I'm going backwards now to  
22       page 15, before the subheading *DEC*, was it the  
23       Public Staff's conclusion in its comments  
24       regarding DEP that *the Public Staff believes that*

1       the economic, weather-related, and demographic  
2       assumptions underlying DEP's peak and energy  
3       forecasts are reasonable and that DEP has  
4       employed accepted statistical forecasting  
5       practices. Accordingly, DEP's peak load and  
6       energy sales forecasts are reasonable for  
7       planning purposes. Was that the Public Staff's  
8       conclusion regarding DEP's 2014 IRP?

9     A     Based upon what I read, yes.

10    Q     I asked Mr. Powers about the actual operating  
11       reserves during the 2014 winter peak for DEP and  
12       DEC. I'd like to ask you those same questions as  
13       well since I think they are contained in these  
14       comments. If you will turn to page 21 and about  
15       two-thirds down after the digits 4.8% (sic) in  
16       the sentence starting "in addition".

17    A     Okay.

18    Q     And in that -- at that location the Public Staff  
19       noted that *in addition to the abnormal*  
20       *temperatures, several of the Company's generating*  
21       *units were down with forced outages, resulting in*  
22       *an available operating reserve of only 0.19% at*  
23       *the time of its actual peak.* Was that a finding  
24       of the Public Staff in its comments based upon



1           its investigation?

2     A       I agree with that statement.

3     Q       And then on page 23, four pages later, about  
4           right in the middle of the page, half way down  
5           after the footnote 9 symbol, the sentence  
6           starting "at hour".

7     A       Yes.

8     Q       And the Public Staff also found and commented  
9           that *at hour ending 8:00 a.m. that day, DEC*  
10          *anticipated having 10% available operating*  
11          *reserve; however, its actual level of operating*  
12          *reserves fell to 0.24%, similar to DEP's 0.19%*  
13          *operating reserves. Is that the finding of the*  
14          Public Staff in its comments?

15    A       That's the comments listed in there, yes.

16           MR. STYERS: I have no further questions.

17           COMMISSIONER BROWN-BLAND: Redirect?

18           MS. DOWNEY: I don't have anything.

19           COMMISSIONER BROWN-BLAND: Any questions  
20          from the Commission? Commissioner Patterson.

21                           EXAMINATION

22    BY COMMISSIONER PATTERSON:

23    Q       Whatever happens in terms of the business of this  
24           plant being proposed, it has no impact on the

1 ratepayers of North Carolina, does it?

2 A That is correct. It has no impact on the  
3 ratepayers.

4 COMMISSIONER PATTERSON: Thank you.

5 COMMISSIONER BROWN-BLAND: Then this witness  
6 may be excused.

7 (The witness is excused.)

8 MR. STYERS: Madam Chair, I would ask that  
9 NTE Cross-Examination Metz Exhibit 1 be admitted into  
10 evidence?

11 COMMISSIONER BROWN-BLAND: There being no  
12 objection, NTE's Cross-Examination Metz, Metz Exhibit  
13 1 will be received into evidence.

14 NTE Cross-Examination Metz Exhibit 1

15 (Admitted)

16 MS. DOWNEY: I would move that his testimony  
17 and Appendix be admitted.

18 COMMISSIONER BROWN-BLAND: I thought we had  
19 done that but, if not, I'll be careful and make sure  
20 that we have. So Mr. Metz' direct testimony and his  
21 Appendix will be received into evidence as if given  
22 orally from the witness stand and marked as -- and  
23 identified as marked when prefiled.

24 MS. DOWNEY: Thank you.

1 (Mr. Metz prefiled testimony and affidavit was  
2 previously admitted into evidence on page 160)

3 COMMISSIONER BROWN-BLAND: I think we're  
4 ready for rebuttal.

5 MR. STYERS: I would ask Mr. Michael Green  
6 to return to the witness stand for rebuttal testimony.

7 COMMISSIONER BROWN-BLAND: Mr. Green, you  
8 remain -- I'll remind you that you remain under oath.

9 THE WITNESS: Yes, ma'am.

10 MICHAEL C. GREEN; having previously been sworn,  
11 returns to the stand and  
12 testified as follows:

13 DIRECT EXAMINATION

14 BY MR. STYERS:

15 Q Please state your name, address and position for  
16 the record, Mr. Green?

17 A Michael Green, Vice President of Development for  
18 NTE Energy, 24 Cathedral Place, Saint Augustine,  
19 Florida.

20 Q Have you caused to be prefiled in this docket  
21 rebuttal testimony consisting of 14 pages in  
22 question and answer format?

23 A Yes, I did.

24 Q If that testimony -- was that testimony prepared

1 by you and under your direction?

2 A Yes, it was.

3 Q If you were asked those same questions today now  
4 that you're under oath, would you provide the  
5 same answers as in your prefiled testimony?

6 A Yes, I would.

7 Q Do you have any corrections or additions to your  
8 rebuttal testimony?

9 A No, I do not.

10 MR. STYERS: At this time, Madam Chair, I  
11 would move into evidence the prefiled rebuttal  
12 testimony of Michael Green consisting of 14 pages in  
13 question and answer format.

14 COMMISSIONER BROWN-BLAND: The rebuttal  
15 testimony of Witness Green will be received into  
16 evidence as if given orally from the witness stand.  
17 It is his 14-page direct testimony filed October 27th,  
18 I mean rebuttal. Excuse me, it's getting late.

19 THE WITNESS: I know the feeling.

20 COMMISSIONER BROWN-BLAND: Witness Green's  
21 rebuttal testimony will be received into evidence as  
22 if given orally from the witness stand.

23 (WHEREUPON, the prefiled rebuttal  
24 testimony of **MICHAEL C. GREEN** is

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copied into the record as if given  
orally from the stand.)

**PREFILED REBUTTAL TESTIMONY OF  
MICHAEL C. GREEN  
ON BEHALF OF NTE CAROLINAS II, LLC**

**NCUC DOCKET NO. EMP-92, SUB 0**

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

2 A. My name is Michael C. Green. I am the Vice President of NTE  
3 Carolinas II, LLC ("NTE"). I have previously offered direct testimony to  
4 support NTE's Application for a Certificate of Public Convenience and  
5 Necessity ("CPCN") to construct and operate a 500 MW natural gas-  
6 fired generating facility ("Facility") in Rockingham County, North  
7 Carolina.

8  
9 **Q. WHAT IS THE PURPOSE OF THIS REBUTTAL TESTIMONY?**

10 A. The purpose of this rebuttal testimony is to address the written  
11 direct testimony of Intervener NC WARN's witness Mr. William E.  
12 Powers and to provide additional information to the Commission in  
13 support of NTE's Application for the Facility.

14  
15 In brief, based upon the analysis NTE undertook before beginning  
16 the construction of the Kings Mountain Energy Center (KMEC) and

1 seeking to build the proposed Facility in this docket, NTE has  
2 identified a clear need for additional power generation in North  
3 Carolina and South Carolina in the years ahead that can be met in  
4 part by NTE's proposed Facility. The need that we at NTE have  
5 identified is consistent with the peak demand forecasts that Duke  
6 Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP")  
7 made in not only the approved Integrated Resource Plans ("DEC IRP"  
8 and "DEP IRP," or collectively "approved IRPs" ), which were  
9 approved by the Commission by Order dated June 26, 2015, but also  
10 in DEC's and DEP's most recent 2016 IRP filings ("DEC 2016 IRP" and  
11 "DEP 2016 IRP").

12  
13 As I will explain in more detail, Mr. Powers and NC WARN offer  
14 arguments that do not distinguish the key difference between  
15 capacity and energy usage in load forecasting; seek to re-litigate  
16 Commission-approved IRPs; propose "alternatives" to building the  
17 Facility, including discussion regarding other power plants and  
18 fledgling technologies not yet technically or commercially viable on a  
19 large scale; improperly use the statutory standard that governs the  
20 CPNC process for merchant plants, as opposed to public utilities; and

1 raise separate state and/or federal environmental policy-oriented  
2 concerns that are more properly addressed in venues other than this  
3 limited proceeding.<sup>1</sup>  
4

5 **Q. DOES MR. POWERS UTILIZE A VALID METHODOLOGY FOR LOAD**  
6 **FORECASTING IN REACHING HIS CONCLUSION THAT THERE IS “NO**  
7 **ACTUAL GROWTH IN PEAK DEMAND OR ANNUAL ELECTRICITY**  
8 **USAGE” IN THE SERVICE TERRITORIES WHERE NTE’S FUTURE**  
9 **WHOLESALE CUSTOMERS ARE LOCATED?**

10 **A.** No. Mr. Powers and NC WARN improperly focus on electricity  
11 consumption as opposed to peak demand and need for capacity. The  
12 NC WARN approach is fundamentally incorrect in its failure to  
13 distinguish between “capacity” and “energy,” how load forecasts are  
14 prepared for and approved by the Utilities Commission, and how the  
15 reliability of electricity systems during peak times is assured. The DEC  
16 IRP and DEP IRP address both peak demand growth and energy usage  
17 patterns, but the focus of the IRP process is to evaluate economic,  
18 population, and other relevant variables to anticipate the peak  
19 demand – i.e. maximum energy usage at a given point in time during

---

<sup>1</sup> Some of these issues are addressed in NTE’s Motion to Strike and Motion in Limine filed on October 26, 2016.

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1 a given season -- for both summer and winter seasons. Then the  
2 next step is to make sure there is adequate firm generating capacity  
3 in the future after considering numerous factors (e.g., anticipated  
4 growth, planned unit retirements, scheduled and unscheduled  
5 outages, purchase contracts, Energy Efficiency programs and  
6 Demand-Side Management programs, etc.) to meet the forecasted  
7 peak demand with adequate reserve margin to ensure system  
8 reliability.

9  
10 Accurate forecasting of peak demand and the availability of firm  
11 demand side and supply side resources are critical in the assessment  
12 of the need for additional generation. Available firm generation  
13 capacity – not energy usage over specified time periods – determines  
14 the ability for transmission balancing areas to satisfy fluctuating  
15 loads and meet peak demand requirements (at the most demanding  
16 times) without interruption and with prudent reserves in the system.  
17 Well prepared load forecasting and projections of peak demand are  
18 paramount in determining overall system reliability – ensuring  
19 sufficient generation capacity to keep the lights on for all during peak  
20 demands.

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On the other hand, measures of “energy” or electricity usage (*i.e.*, the focus of Mr. Powers’ analysis) are not a deciding factor in evaluating whether the electric infrastructure is sufficient to meet customer demands, especially during peak periods.

**Q. SINCE THE FILING OF YOUR PRE-FILED DIRECT TESTIMONY, HAVE DEC AND DEP FILED UPDATED INTEGRATED RESOURCE PLANS (IRPs) FORECASTING THE NEED FOR GENERATION CAPACITY TO MEET FUTURE LOAD GROWTH?**

A. Yes. The 2016 IRPs were filed on September 1, 2016, in Docket No. E-100, Sub 147, and minor corrections were filed on September 30, 2016. Those filings contain the most up-to-date modeling results identifying the peak capacity demands anticipated during the planning horizon and evaluate several other parameters including, the amount that demand side management and energy efficiency programs will contribute to reducing that peak demand, how many existing electric generation plants will be retired or repowered during this planning horizon, how many firm purchase contracts for non-utility owned generation can be counted upon, and how much

1 additional firm/dedicated electric generation needs to be added to  
2 their portfolio to ensure that DEC and DEP meet the peak demand  
3 requirements in their service territories and maintain adequate  
4 reserves to ensure system reliability.  
5

6 **Q. DO DEC'S AND DEP'S MOST RECENTLY FILED IRPs CHANGE NTE'S**  
7 **ASSESSMENT OF THE NEED FOR ITS PROPOSED FACILITY?**

8 A. No, not significantly. While the percentage growth rates for  
9 wholesale and retail load shown in the 2015 IRPs were reduced  
10 slightly in DEC's and DEP's 2016 IRPs, the sum of growth in peak  
11 demand plus planned retirements and other contributing factors  
12 continues to result in significant needs for new electric generation.  
13

14 As discussed in my pre-filed Direct Testimony, the 2015 IRPs, filed  
15 and accepted by the Commission in Docket E-100, Sub 141,  
16 forecasted future additional electric generation capacity needed  
17 through 2030 to meet load growth as follows:

18 For DEC: 5,711 MW

19 For DEP: 5,292 MW

1 In the base cases presented in the 2016 IRPs, the sum of growth in  
2 peak demand plus planned retirements was a slightly different, but  
3 still significant, need for additional capacity over the 15-year  
4 planning cycle through 2031 as follows:

5 For DEC: 5,002 MW

6 For DEP: 5,453 MW

7 Both the 2015 and the 2016 forecasts show a need for between  
8 10,000 MW and 11,000 MW of new capacity for the two service  
9 territories over their respective 15-year planning horizons. In short,  
10 utilization of the data in the 2016 IRP does not alter the bottom line  
11 conclusion that NTE's proposed Facility would make a relatively small  
12 (+/- 5%), but important, contribution to the capacity needed to serve  
13 the customers in the DEC and DEP service territories.

14  
15 **Q. HOW DOES THE INTEGRATED PLANNING PROCESS FORECAST THE**  
16 **FUTURE NEED FOR ADDITIONAL GENERATION CAPACITY?**

17 A. The DEC IRP and DEP IRP that the Commission has approved in  
18 Docket E-100, Sub 141, are the culmination of significant analysis and  
19 modeling by these utilities and thorough review by the Public Staff  
20 and the Utilities Commission.

1  
2 By statute, IRPs are a tool used by utilities, the Utilities Commission,  
3 the State of North Carolina, and others to analyze “the long-range  
4 needs for expansion of facilities for the generation of electricity in  
5 North Carolina” and to estimate “the probable future growth of the  
6 use of electricity.” This extensive and detailed nature of the IRP  
7 process and Commission approval of the IRPs provide NTE assurance  
8 that the IRPs are a reliable, vetted resource appropriately used in its  
9 own analysis.

10  
11 The use of Commission-approved IRPs in subsequent proceedings  
12 before the Commission only makes sense. As explained in the IRPs  
13 themselves, they are developed with sophisticated econometric  
14 models using key economic factors such as income electricity prices,  
15 industrial production indices, along with weather, appliance  
16 efficiency trends, rooftop solar trends, and electric vehicle trends.  
17 Population is also used in the Residential customer model.  
18 Regression analysis is used to track the results over the years. Along  
19 with other intervenors, the Public Staff then evaluates the IRPs and,  
20 in Docket No. E-100, Sub 141, filed 94 pages of Comments. Once the

1 Utility Commission issues its order approving the IRPs' forecasts and  
2 plans for the facilities needed to meet future demand for electricity  
3 and issues its report to the Governor and Joint Legislative  
4 Commission on Governmental Operations, it is appropriate for an  
5 independent power producer, such as NTE, and others to use these  
6 forecasts in their planning and development process.

7  
8 To the extent NC WARN and Mr. Powers are challenging the load  
9 forecasts, reserve margins, and other aspects of the currently-  
10 approved IRPs, it must be noted that those challenges have already  
11 been reviewed – and litigated – by the utilities, Public Staff, and  
12 Interveners (including NC WARN) before the Commission. The  
13 Commission expressly rejected NC WARN's load forecast arguments  
14 in its Order approving DEC's and DEP's IRPs. Thus, it is appropriate  
15 for NTE to utilize those IRPs here and unpersuasive for Mr. Powers to  
16 argue that DEC's and DEP's forecasts and analyses are "wrong" –  
17 and to try to re-litigate those issues again here. And, as noted, the  
18 recently filed 2016 IRPS do not materially change the previously  
19 approved forecasts and further confirm continued growth in peak

1 demand and the need for additional generation to meet that growth.

2

3 **Q. DO YOU HAVE ANY OBSERVATIONS ABOUT THE EXISTING**  
4 **GENERATION IDENTIFIED IN MR. POWERS' TESTIMONY AS ALLEGED**  
5 **ALTERNATIVES TO NTE'S ROCKINGHAM FACILITY ?**

6 A. Yes. First, in general, it is worth noting that all of the generation  
7 sources mentioned by Mr. Powers were in existence prior to NTE's  
8 efforts to identify and contract with wholesale customers for our  
9 Kings Mountain facility. If energy and capacity were available from  
10 these other sources, and especially if available at a lower cost than  
11 that offered by NTE (as Mr. Powers speculates, without any factual  
12 basis), then wholesale customers would presumably have chosen not  
13 to contract for energy and capacity from NTE's Kings Mountain  
14 facility. Yet, nine different wholesale electric customers have  
15 executed long-term PPAs for output from the Kings Mountain facility.  
16 With regards to the specific alternatives cited by Mr. Powers, I have  
17 the following observations.

18

19 Most, if not all, wholesale customers would conclude that the single  
20 161 KV line connecting the Smoky Mountain Hydro Units in TVA to

1 DEP West is not sufficient transmission with adequate reliability to  
2 serve a utility's firm load and provide adequate protection of supply  
3 for their customers. Also, those units are located over 250 miles from  
4 the site of our proposed Rockingham Facility.

5  
6 The Columbia Energy combined cycled (CC) plant south of Columbia,  
7 South Carolina, is within the balancing authority area of South  
8 Carolina Electric & Gas Company (SCE&G). Capacity and energy from  
9 this facility would have to be wheeled through SCE&G, significantly  
10 adding to its cost, and would potentially reduce the reliability of the  
11 SCE&G balancing authority system. In addition, Mr. Powers offered  
12 no information about the availability and economic viability of  
13 transmission to transport the power reliably to wholesale customers  
14 in North Carolina.

15  
16 Regarding Tenaska's plant in Virginia, CC power plants typically have a  
17 load factor of around 70% when fully subscribed and also some  
18 measure below this to accommodate customer growth over the lives  
19 of their contracts. This plant sells its output to power wholesaler Shell  
20 Energy North America. It appears from Mr. Powers' own testimony



1 that this facility is at, or close to, being fully subscribed. Moreover,  
2 the Tenaska plant is physically located within the PJM market and  
3 thus can more economically serve customers in PJM during peak  
4 periods than customers within the DEP or DEC service territories. It  
5 also presents the same potential transmission issues as the Columbia  
6 Energy plant in South Carolina.

7  
8 **Q. FROM THE PERSPECTIVE OF UTILITY RATEPAYERS, HOW DO THE**  
9 **RISKS ASSOCIATED WITH A MERCHANT PLANT SUCH AS THE ONE**  
10 **PROPOSED IN THIS DOCKET DIFFER FROM THE RISKS OF**  
11 **CONSTRUCTING A UTILITY-OWNED, RATE-BASED POWER PLANT?**

12 **A.** One of the purposes of the CPCN statute is to prevent utilities from  
13 overbuilding unneeded power plants. The policy reasons and the  
14 concerns underlying this purpose, however, are different when a  
15 private party seeks to build a merchant plant. The costs incurred by a  
16 utility to construct power plants become part of the utility's rate  
17 base, paid for by end-use customers, on which the utility earns an  
18 allowed rate of return. In contrast, a merchant plant is privately  
19 financed, and the financial risks are borne by private investors, not by  
20 utility ratepayers.

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1  
2 NTE is a wholesale generator that is *not* guaranteed a rate of return,  
3 has no captive customers, and has no incentive to over-build power  
4 generation facilities – in fact, its incentive is just the opposite. NTE  
5 requires willing wholesale customers to sign long-term Power Supply  
6 Contracts in order to finance the Facility. If there were no demand or  
7 need, and there were no willing customers seeking to enter into  
8 contracts for the output of the Facility, NTE would not be able to  
9 finance, construct, and operate it. NTE assumes the risk involved in  
10 obtaining sufficient wholesale purchasers for the proposed Facility  
11 and, if it does not obtain those purchasers, then NTE and its  
12 investors—not ratepayers—bear the consequences.

13  
14 For the Kings Mountain Energy Center project, NTE was successful in  
15 contracting with wholesale customers to purchase capacity and  
16 energy from that facility, so we proceeded with construction. During  
17 that process, we recognized additional need beyond what could be  
18 accommodated by KMEC, so we started with the development of the  
19 Rockingham County facility that is the subject of this docket. As with  
20 KMEC, if the need is present, and we are again successful in

1 contracting with customers, we will move forward with the  
2 construction and operation of the facility in Rockingham County. The  
3 risk is on us.  
4

5 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

6 **A.** Yes, at this time.  
7

1 MR. STYERS: Madam Chair, we have  
2 distributed a summary; it's only a page and a half.  
3 We could dispense with the reading of that summary and  
4 just ask that it be included in the record as if it  
5 were read from the witness stand. But if you think we  
6 have time Mr. Green will be glad to read it into the  
7 record since it's only a page and a half.

8 COMMISSIONER BROWN-BLAND: Is there any  
9 objection to this appearing in the --

10 MR. RUNKLE: We have no objection.

11 COMMISSIONER BROWN-BLAND: -- transcript as  
12 if given from the witness stand?

13 MS. DOWNEY: No objection.

14 MR. STYERS: I would -- if I could ask  
15 Mr. Green just to read the last paragraph on the first  
16 page and one paragraph on the second page starting  
17 "finally".

18 A I'm sorry, last paragraph?

19 BY MR. STYERS:

20 Q Yes.

21 A Be glad to. Accurate forecasting of demand at  
22 any given hour and the availability of firm  
23 demand-side and supply-side resources to meet  
24 that demand are critical in maintaining system

1 reliability. Available firm generation capacity  
2 - not annual electricity usage or consumption  
3 over specified time periods as Mr. Powers  
4 analyzes - determines the ability of the  
5 transmission balancing areas to satisfy  
6 fluctuating loads and to meet peak demand  
7 requirements (at the times of highest demand)  
8 without interruption and with prudent reserves in  
9 the system.

10 I apologize for my coughing.

11 To the extent NC WARN and  
12 Mr. Powers are challenging the load forecasts,  
13 reserve margins and other aspects of the  
14 currently-approved IRPs, those challenges have  
15 already been reviewed - and litigated - by the  
16 utilities, Public Staff, and Intervenors  
17 (including NC WARN) before the Commission. The  
18 Commission expressly rejected NC WARN's load  
19 forecast arguments in its Order approving Duke  
20 Energy Carolinas' and Duke Energy Progress' IRPs.  
21 Thus, it is appropriate for NTE to utilize those  
22 IRPs as an indication of need and unpersuasive  
23 for Mr. Powers to argue that these forecasts and  
24 analyses are wrong.

1                   That completes my --

2       Q     If you'd read that one more paragraph following  
3             that.

4       A     Finally, I would like to conclude by  
5             re-emphasizing that the financial risks  
6             associated with a merchant plant, such as the one  
7             we are proposing, differ from the financial risks  
8             associated with the construction of a  
9             utility-owned rate-based power plant.  
10            Specifically, the costs incurred by a utility to  
11            construct power plants become part of the  
12            utility's rate base, on which the utility earns  
13            an approved rate of return. In contrast, a  
14            merchant plant is privately financed, and the  
15            financial risks are borne by private investors,  
16            not by utility ratepayers. NTE assumes the risk  
17            involved in obtaining sufficient wholesale  
18            purchasers for its proposed Facility and, if it  
19            does not obtain those purchasers, then NTE and  
20            its investors bear the consequences. We feel  
21            strongly that the need for this Facility is very  
22            real.

23            MR. STYERS: We'd appreciate the entire  
24            summary being included in the record, and the witness

1 is available for cross examination.

2 COMMISSIONER BROWN-BLAND: That was about  
3 the entire summary I do believe.

4 (Laughter)

5 THE WITNESS: I thought I was going to save  
6 my voice here.

7 (WHEREUPON, the summary of **MICHAEL**  
8 **C. GREEN** is copied into the  
9 record.)

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## SUMMARY OF REBUTTAL TESTIMONY OF MICHAEL C. GREEN

1 As stated in the Application and in my Rebuttal Testimony, NTE has  
2 identified a clear need for additional power generation in the Carolinas in  
3 the years ahead that can be met in part by NTE's proposed Facility. The  
4 need that we have identified is consistent with the peak demand forecasts  
5 that Duke Energy Carolinas, LLC ("DEC"), and Duke Energy Progress, LLC  
6 ("DEP"), made in both their approved Integrated Resource Plans ("IRPs")  
7 and in DEC's and DEP's most recent 2016 IRP filings, and is consistent with  
8 the express desires of our specific prospective wholesale customers.

9  
10 The testimony of Mr. Powers on behalf of NC WARN is incorrect or  
11 irrelevant in a number of respects. In the interest of brevity, I will  
12 summarize only one of these errors. Mr. Powers and NC WARN improperly  
13 focus on electricity consumption as opposed to peak demand and the need  
14 for capacity. The NC WARN approach is fundamentally incorrect in its  
15 failure to distinguish between "capacity" and "energy," how load forecasts  
16 are prepared for, and approved by, the Utilities Commission, and how the  
17 reliability of electricity systems during peak times is assured. The IRPs  
18 address both peak demand growth and energy usage patterns, but the  
19 focus of the IRP process is to anticipate peak demand for both summer and  
20 winter seasons and then to make sure there is adequate firm generating  
21 capacity to meet those peaks with adequate reserve margins to ensure  
22 system reliability.

23  
24 Accurate forecasting of demand at any given hour and the availability of  
25 firm demand-side and supply-side resources to meet that demand are  
26 critical in maintaining system reliability. Available firm generation capacity  
27 – not annual electricity usage over specified time periods as Mr. Powers  
28 analyzes – determines the ability of transmission balancing areas to satisfy  
29 fluctuating loads and meet peak demand requirements (at the times of the  
30 highest demand) without interruption and with prudent reserves in the  
31 system.



1  
2 To the extent NC WARN and Mr. Powers are challenging the load forecasts,  
3 reserve margins, and other aspects of the currently-approved IRPs, those  
4 challenges have already been reviewed – and litigated — by the utilities,  
5 Public Staff, and Intervenor (including NC WARN) before the Commission.  
6 The Commission expressly rejected NC WARN's load forecast arguments in  
7 its Order approving DEC's and DEP's IRPs. Thus, it is appropriate for NTE to  
8 utilize those IRPs as an indication of need and unpersuasive for Mr. Powers  
9 to argue that DEC's and DEP's forecasts and analyses are wrong.

10  
11 Finally, I would like to conclude by re-emphasizing that the financial risks  
12 associated with a merchant plant, such as the one NTE proposes, differ  
13 from the financial risks associated with the construction of a utility-owned,  
14 rate-based power plant. Specifically, the costs incurred by a utility to  
15 construct power plants become part of the utility's rate base, on which the  
16 utility earns an approved rate of return. In contrast, a merchant plant is  
17 privately financed, and the financial risks are borne by private investors,  
18 not by utility ratepayers. NTE assumes the risk involved in obtaining  
19 sufficient wholesale purchasers for its proposed Facility and, if it does not  
20 obtain those purchasers, then NTE and its investors bear the  
21 consequences. We feel strongly that the need for this Facility is very real.

22  
23 Thank you for the opportunity to testify before you today and for your  
24 consideration of NTE's application. For the reasons started in my  
25 testimony, we respectfully request that NTE's applications be approved.  
26

1 COMMISSIONER BROWN-BLAND: Cross  
2 examination?

3 MR. RUNKLE: Yes, I better at this point.

4 CROSS EXAMINATION

5 BY MR. RUNKLE:

6 Q Looking at Mr. Powers' prefiled testimony, he  
7 addresses peaks, does he not?

8 A In part, yes, he does, he address peaks and  
9 energy consumption. I believe he refers to it  
10 as --

11 Q He looks at the peaks for both summer and winter.

12 A He refers to peaks for summer and winter; yes,  
13 sir.

14 MR. RUNKLE: I have no further questions.

15 COMMISSIONER BROWN-BLAND: Any questions?

16 MS. DOWNEY: No.

17 COMMISSIONER BROWN-BLAND: Any redirect?

18 MR. STYERS: No.

19 COMMISSIONER BROWN-BLAND: Any questions  
20 from the Commission? I have a few.

21 THE WITNESS: Yes, ma'am. I have water, I'm  
22 good.

23 (Laughter)  
24

## EXAMINATION

BY COMMISSIONER BROWN-BLAND:

Q Mr. Green, on page 8 of your rebuttal testimony you mention -- there's a line there that says *this extensive and detailed nature of the IRP process and the Commission approval of the IRPs provide NTE assurance that the IRPs are a reliable, vetted resource appropriately used in its own analysis.* Can you tell us more about your analysis of the need for this facility?

A Well, first of all, Madam Chair, I think the IRP process that Duke has offered and that the Commission has approved is a long-standing process that takes into account so many of the variables that look at what the need really is. I have to commend Duke in being able to meet all of these peak demands over the years, including the last couple of years they have met, you know, have achieved new peaks even though they have had significant unit retirements over the last five to 10 years.

In addition to the IRP, we are in direct conversations responding to requests from specific wholesale buying entities, people that

1           were currently buying wholesale from other  
2           parties that have the opportunity to look at  
3           other -- at other methods to obtain their  
4           generation. These specific four or five  
5           customers are the ones that are really guiding  
6           our determination of need. They say they need  
7           it. They say they need reliable, cost-effective  
8           capacity that conserve the energy needs at all  
9           times for their retail customers.

10       Q    Are you familiar with an article that was  
11           published by the *Charlotte Business Journal* that  
12           stated Kings Mountain and three other Carolina  
13           cities have signed 20-year agreements with NTE to  
14           buy wholesale power from the Kings Mountain  
15           facility?

16       A    I'm not sure if I'm aware of the article but I  
17           know Kings Mountain and eight others have decided  
18           to buy power from us.

19       Q    And the three that I'm -- the three that were  
20           discussed here I believe were Concord,  
21           Winterville, both in North Carolina, and  
22           Greenwood, South Carolina. You do have contracts  
23           with those?

24       A    Yes, ma'am. We have 20-year contracts with all

1 four of these.

2 Q So the Duke Energy Carolinas IRP, 2016 IRP, Duke  
3 identified three wholesale contracts terminating  
4 in 2018. Those customers are Concord, Greenwood  
5 and Kings Mountain. And then Duke Energy  
6 Progress identified the wholesale contracts in  
7 the 2016 IRP terminating in 2017 as Winterville.  
8 Is that --

9 A Yes, ma'am.

10 Q -- information correct?

11 A Yes, ma'am, I believe it is.

12 Q In reference to the process that you're going  
13 through to identify specific wholesale customers  
14 who are interested in purchasing the output of  
15 this facility that we're discussing here today,  
16 is that a similar process that you went through  
17 that resulted in the contracts with these other  
18 cities, 20 year?

19 A Yes, ma'am. Currently those wholesale buying  
20 entities are being provided generation capacity  
21 by an investor-owned utility, whether it be Duke  
22 Energy Carolinas or Duke Energy Progress. They  
23 have signed up for -- they have contracts with  
24 these utilities that are terminating in the next

1 three to four years perhaps and at the -- and  
2 they are looking at the options they have to  
3 replace those contracts with energy supplied from  
4 NTE.

5 Q Is it fair to say that any cooperative or  
6 municipal power agency in North Carolina is a  
7 potential wholesale customer for the proposed  
8 plant?

9 A So long as they're not bound by some existing  
10 contract; yes, ma'am.

11 Q And did NTE in its need assessment analyze those  
12 potential customers?

13 A Yes, ma'am. I've identified those wholesale  
14 buying entities that would have the opportunity  
15 to buy wholesale from us and we've approached all  
16 of them.

17 Q So we'd like to know the sources of information  
18 you used for the analysis given that they  
19 don't -- those potential customers don't file  
20 IRPs?

21 A I'm sorry, ma'am, could you repeat the question?  
22 I'm sorry.

23 Q We're interested in the sources of information  
24 you used in your analysis of those customers, of

1       those potential customers given that they don't  
2       file IRPs. Can you summarize the sources of  
3       information you used to assess the needs for  
4       potential co-ops and municipal agencies?

5       A    Yes, ma'am. Just meeting with their utility  
6       directors you -- in a meeting with their utility  
7       management teams, sitting with them and reviewing  
8       what their current loads are, what their current  
9       peaks are expected to be based on their  
10      projections of their growth rates and everything  
11      else, we will enter into contracts for firm  
12      capacity to basically meet all of the  
13      requirements that they have going forward. We  
14      enter into contracts for capacity payments which  
15      basically allows these municipalities and co-ops  
16      to purchase energy when they need it and whatever  
17      amount that they need. We've identified what  
18      their maximum growth rates could be and make sure  
19      that we have adequate supplies from the  
20      Rockingham County facility to meet their current  
21      loads and their expected loads for the long-term,  
22      whether it be 15 or 20 years.

23      Q    Do you consider other market -- did you consider  
24      other markets besides North Carolina in assessing

1           need such as South Carolina or PJM?

2       A     Yes, ma'am, we've looked at South Carolina  
3           extensively. One of our current customers,  
4           Greenwood, is in South Carolina. We've looked at  
5           other customers in South Carolina. We've also  
6           looked at PJM. We've got a plant being built in  
7           Ohio which is in the PJM system balance area.  
8           We're investigating the opportunity to build a  
9           power plant in Connecticut, a peaking facility  
10          potentially in Texas and a second unit  
11          potentially in Ohio. So we're identifying those  
12          markets where we can find willing customers and  
13          provide what they need for their capacity and  
14          energy for the long-term, giving them an option  
15          to rely upon the incumbent investor-owned utility  
16          perhaps.

17       Q     Are you aware of any specific issues that would  
18           need to be addressed for those markets to be real  
19           viable opportunities for the Rockingham project?

20       A     Well, those markets would not be served by the  
21           Rockingham facility. The only market that would  
22           be served by the Rockingham facility would be  
23           North Carolina and South Carolina specific  
24           utilities. We're not bidding it into a



1       dispatched grid or anything like that. We are  
2       providing the power specifically to the specific  
3       customers we sign up for. If indeed we have  
4       available capacity and we can offer some  
5       short-term block power sales because our plant is  
6       not on that day fully subscribed, we'll certainly  
7       take the opportunity to try to sell that at  
8       whatever the going rate is on the market. But  
9       again, it would just be in the market of North  
10      and South Carolina.

11      Q     Mr. Powers in his prefiled testimony on behalf of  
12             NC WARN suggested that as an alternative the  
13             power to be produced by the proposed plant could  
14             be produced with -- could be produced with  
15             existing generation and he identified TVA hydro  
16             units, Columbia Energy and the Tenaska plant in  
17             Virginia. Do you know if the energy and/or the  
18             capacity from those plants referred to by  
19             Mr. Powers was actually marketed to the wholesale  
20             customer you contracted with for Kings Mountain  
21             Energy Center?

22      A     I do not know if the customers we're talking to  
23             specifically went to those providers of  
24             generation. I do know that the customers we're

1 talking to have reviewed a wide array of  
2 potentials that could serve their needs. The  
3 fact that the Columbia facility is in SCE&G's  
4 service territory and requires wheel adds a cost  
5 to the potential buyer of that capacity and  
6 energy, similar to the Tenaska plant. The  
7 wholesale, potential wholesale customers we're  
8 talking to, they're looking for the  
9 cost-competitive and reliable capacity that they  
10 can count on for 20 years. I'm not personally  
11 aware of what the -- how much of capacity of the  
12 Tenaska plant is already committed. I think  
13 Mr. Powers said it was operating at 60 or  
14 70 percent capacity factor which I agree is  
15 probably what the combined cycle is operating at,  
16 but I don't know how much of that capacity is  
17 already basically slated for somebody up in the  
18 Dominion service territory. Similarly, I don't  
19 know what capacity is already committed to SCE&G.  
20 When we hit a peak in North Carolina -- when the  
21 customers I'm talking to hit a peak, they have to  
22 know that that capacity that they're contracting  
23 will serve them, will meet their needs, and I  
24 personally don't know what amount of capacity is

1 already committed.

2 Q Do you -- you were in the room -- well, I'm not  
3 sure you were in the room when Mr --

4 A I've left a lot; yes, ma'am.

5 Q -- when Mr. Powers was on the stand. But he  
6 indicated that the wheeling cost, while he had  
7 not done specific studies, the wheeling cost from  
8 one of these plants to another location that the  
9 wheeling cost should not serve as a barrier. Do  
10 you agree with that characterization or  
11 assessment?

12 A Yes, ma'am. It's an open access on the  
13 transmission system but there are indeed costs  
14 incurred to wheel power from one system to  
15 another. There are costs to take power from the  
16 Tenaska plant and transmit it over wires to get  
17 into the Carolinas, whether it be Duke Energy  
18 Progress or Carolinas. Those costs, I'm not so  
19 sure they're insignificant, I mean a \$2.00 or  
20 \$3.00 per-kilowatt-month transmission wheeling  
21 charge on a 500,000-kilowatt plant is a fair  
22 amount of money every month that somebody's got  
23 to pay -- that the end-use customer has got to  
24 pay to get that power wheeled to them. It's a

1 cost that's just not needed. Similarly, the age  
2 of the Tenaska plant being 12 years old, probably  
3 built and operational in 2002 or '04, and  
4 similarly in Columbia, those plants are 12 years  
5 old. They are not as efficient as they were when  
6 they were built and are certainly not as  
7 efficient as a new G-Class or H-Class combustion  
8 turbine combined cycle would be today. So any  
9 end-use customers or wholesale customers we're  
10 talking to or anybody else would have to weigh  
11 the fact that it's a less efficient plant than  
12 what could be built new, that it has also some  
13 transmission fees associated with it to get it to  
14 us, and compare that to what new capacity might  
15 be. Again, I would imagine SCE&G counts on the  
16 Columbia plant. Somebody in South Carolina  
17 around Columbia counts on that plant to help  
18 serve the load at peak when that peak hits South  
19 Carolina which will probably happen about the  
20 same time it hits North Carolina.

21 COMMISSIONER BROWN-BLAND: Any other  
22 questions from the Commission?

23 (No response.)

24 Mr. Runkle, I can see you're anxious so I

1 assume you have questions on Commission's questions?

2 MR. RUNKLE: I just have one fairly short  
3 line of questions.

4 EXAMINATION

5 BY MR. RUNKLE:

6 Q At the Kings Mountain and at your Reidsville  
7 plant you're going to have contracts for firm  
8 capacity with these different entities, right?

9 A Yes, sir.

10 Q And if you're -- let's say the Reidsville plant  
11 goes down for a week or is scheduled out for  
12 maintenance or something like that, where does  
13 the Kings Mountain and the other entities get  
14 their power?

15 A The contract -- we hire an energy manager who in  
16 this case is ACES for Kings Mountain power plant  
17 here in Raleigh. ACES is responsible for making  
18 sure we have back-standing for when our unit is  
19 offline. They are also responsible for  
20 identifying any economy purchases that could be  
21 made that perhaps could be less expensive for our  
22 customers than dispatching our plant. And so the  
23 energy manager has a responsibility to ensure we  
24 have back-stand generation that's basically the

1 bricks and mortar that stands behind our plant  
2 and when our plant's down another plant is  
3 standing in its stead.

4 MR. RUNKLE: Fair enough. No other  
5 questions.

6 MR. STYERS: I just --

7 COMMISSIONER BROWN-BLAND: Mr. Styers.

8 EXAMINATION

9 BY MR. STYERS:

10 Q The load serving entities, the wholesale  
11 customers that you're talking to, Mr. Green, do  
12 they have planning processes that look at what  
13 their capacity needs are over the next 10 and 20  
14 years?

15 A Yes, absolutely. Their customers are relying  
16 upon their utility directors to make sure that  
17 their loads are met so they have, perhaps not as  
18 extensive as what the Commission does here with  
19 the investor-owned utilities, but they have for  
20 the size that they are they have very extensive  
21 planning processes to take into account several  
22 of the same parameters that the IRP process at  
23 Duke Energy Carolinas and Progress do.

24 Q And most of those wholesale customers that you've

1           spoken to are they anticipating growth over the  
2           next 10 to 20 years?

3    A       Absolutely.

4    Q       And Commissioner Brown-Bland asked you about kind  
5           of other knowledge you have in the market. Have  
6           you been involved in the North Carolina energy  
7           market for many years, Mr. Green?

8    A       I've had the fortune to work in North Carolina  
9           from 1972 to 2002. That makes me old.

10                               (Laughter)

11   Q       So you're also -- your knowledge of market and  
12           your knowledge of potential opportunities are a  
13           function of your experience here in North  
14           Carolina, is it not?

15   A       I agree, absolutely. That's why NTE is in North  
16           Carolina.

17                       MR. STYERS: No further questions.

18                       COMMISSIONER BROWN-BLAND: We've already  
19           accepted his evidence so, Mr. Green, you may be  
20           excused.

21                       THE WITNESS: Thank you, ma'am.

22           Commissioners, thank you.

23                               (The witness is excused.)

24                       COMMISSIONER BROWN-BLAND: I want to go back

1 and revisit Mr. Runkle's objection to the NTE Redirect  
2 Green Exhibit 1. Mr. Runkle, was the basis of your  
3 objection an authentication objection?

4 MR. RUNKLE: Yes, ma'am.

5 COMMISSIONER BROWN-BLAND: And so,  
6 Mr. Styers, if you could file something as a  
7 late-filed exhibit that would provide the basis for  
8 authentication --

9 MR. STYERS: Absolutely.

10 COMMISSIONER BROWN-BLAND: -- of that  
11 document. Would that satisfy your --

12 MR. RUNKLE: Yes, ma'am. If there's a  
13 header and some agency has put it out as an official  
14 document there's no problem with that.

15 MR. STYERS: I'll be glad to explain how  
16 that came from the North Carolina State Office of  
17 Budget Management. I'll be glad to do that.

18 COMMISSIONER BROWN-BLAND: Subject to the  
19 sufficiency of the late-filed exhibit from Mr. Styers,  
20 that Redirect Green Exhibit 1 will be received into  
21 evidence.

22 NTE Redirect Green Exhibit 1

23 (Admitted)

24 Is there anything else that comes before the



1 Commission in this case?

2 (No response.)

3 So proposed orders or any post-hearing  
4 filings - are the parties amenable to providing those  
5 within 30 days after the availability and posting of  
6 the transcript?

7 MR. STYERS: Yes, that will be fine.

8 COMMISSIONER BROWN-BLAND: That will be so  
9 ordered. If there is nothing else, we made it  
10 through. Thank you for your participation and  
11 cooperation. We stand adjourned.

12 (WHEREUPON, the proceedings were adjourned.)

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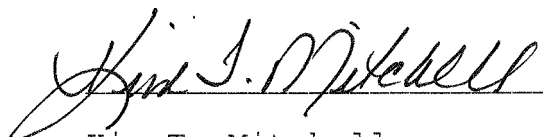
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## C E R T I F I C A T E

I, KIM T. MITCHELL, DO HEREBY CERTIFY that  
the Proceedings in the above-captioned matter were  
taken before me, that I did report in stenographic  
shorthand the Proceedings set forth herein, and the  
foregoing pages are a true and correct transcription  
to the best of my ability.



Kim T. Mitchell  
Court Reporter II