

October 27, 2016

Ms. Paige Morris  
Interim Chief Deputy Clerk  
North Carolina Utilities Commission  
430 N. Salisbury Street  
Raleigh, NC 27603

**RE: NTE Carolinas II, LLC**  
***Application for a Certificate of Public Convenience and Necessity***  
***Docket No. EMP-92, Sub 0***

Dear Ms. Morris:

We are herewith electronically submitting the attached **Prefiled Rebuttal Testimony of Michael C. Green on Behalf of NTE Carolinas II, LLC** in the above-referenced docket.

If you have any questions or comments regarding this filing, please do not hesitate to call me. Thank you in advance for your assistance.

Very truly yours,

/s/M. Gray Styers, Jr.

Cc: Chris Ayers, Esq.  
Dianna Downey, Esq.  
John Runkle, Esq.

**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

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<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.

1  
2 On the other hand, measures of “energy” or electricity usage (*i.e.*,  
3 the focus of Mr. Powers’ analysis) are not a deciding factor in  
4 evaluating whether the electric infrastructure is sufficient to meet  
5 customer demands, especially during peak periods.  
6

7 **Q. SINCE THE FILING OF YOUR PRE-FILED DIRECT TESTIMONY, HAVE**  
8 **DEC AND DEP FILED UPDATED INTEGRATED RESOURCE PLANS (IRPs)**  
9 **FORECASTING THE NEED FOR GENERATION CAPACITY TO MEET**  
10 **FUTURE LOAD GROWTH?**

11 **A.** Yes. The 2016 IRPs were filed on September 1, 2016, in Docket No. E-  
12 100, Sub 147, and minor corrections were filed on September 30,  
13 2016. Those filings contain the most up-to-date modeling results  
14 identifying the peak capacity demands anticipated during the  
15 planning horizon and evaluate several other parameters including,  
16 the amount that demand side management and energy efficiency  
17 programs will contribute to reducing that peak demand, how many  
18 existing electric generation plants will be retired or repowered during  
19 this planning horizon, how many firm purchase contracts for non-  
20 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.

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