



**NORTH CAROLINA  
PUBLIC STAFF  
UTILITIES COMMISSION**

November 17, 2020

Ms. Kimberley A. Campbell, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4300

Re: Docket No. EMP-108, Sub 0 – Application for a Certificate of Public Convenience and Necessity for a 110MW Merchant Plant Located at 830 Bynum's Bridge Road, Scotland Neck, NC 27874 in Halifax County

Dear Ms. Campbell:

In connection with the above-referenced docket, I transmit herewith for filing on behalf of the Public Staff the second supplemental testimony of Jay B. Lucas, Manager, Electric Section – Operations and Planning, Energy Division.

By copy of this letter, I am forwarding a copy to all parties of record by electronic delivery.

Sincerely,

/s/ Nadia L. Luhr  
Staff Attorney  
[nadia.luhr@psncuc.nc.gov](mailto:nadia.luhr@psncuc.nc.gov)

Attachment

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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. EMP-108, SUB 0

In the Matter of	)	
Application of American Beech Solar	)	SECOND
LLC for a Certificate of Public	)	SUPPLEMENTAL
Convenience and Necessity to	)	TESTIMONY OF
Construct a 110-MW Solar Facility in	)	JAY B. LUCAS
Halifax County, North Carolina	)	PUBLIC STAFF – NORTH
	)	CAROLINA UTILITIES
	)	COMMISSION

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION**  
**DOCKET NO. EMP-108, SUB 0**

**Second Supplemental Testimony of Jay B. Lucas**

**On Behalf of the Public Staff**

**North Carolina Utilities Commission**

**November 17, 2020**

1    **Q.    PLEASE STATE YOUR NAME AND ADDRESS FOR THE**  
2           **RECORD.**

3    A.    My name is Jay B. Lucas. My business address is 430 North  
4           Salisbury Street, Raleigh, North Carolina.

5    **Q.    BRIEFLY STATE YOUR QUALIFICATIONS AND DUTIES.**

6    A.    My qualifications and duties are included in Appendix A.

7    **Q.    WHAT IS YOUR POSITION WITH THE PUBLIC STAFF?**

8    A.    I am the manager of the Electric Section – Operations and Planning  
9           in the Public Staff's Energy Division.

10   **Q.    PLEASE PROVIDE A BRIEF HISTORY OF THIS APPLICATION.**

11   A.    On January 28, 2020, American Beech Solar LLC (American Beech  
12           or Applicant) filed for a certificate of public convenience and necessity  
13           (CPCN) to construct a 110-megawatt AC (MW<sub>AC</sub>) solar photovoltaic

1 electric generating facility in Halifax County, North Carolina (the  
2 Facility). The application included the testimony of the Applicant's  
3 witness, Whitney Rubin. On April 15, 2020, I filed direct testimony in  
4 which I recommended that the Commission approve the application.

5 In May 2020, Duke Energy Progress, LLC (DEP) completed an  
6 affected system study report because of PJM's AC1 cluster (DEP  
7 AC1 Report) in which it found that the Facility and four others in the  
8 AC1 cluster could affect the 115 kV Rocky Mount–Battleboro line.  
9 DEP's estimated cost for Network Upgrades caused by the AC1  
10 cluster is \$23,204,593. On June 22, 2020, the Commission issued its  
11 Order Requiring Additional Testimony (June 22 Order), which required  
12 the Applicant and the Public Staff to file testimony addressing several  
13 questions posed by the Commission.

14 On July 9, 2020, witness Rubin filed supplemental testimony in  
15 response to the June 22 Order. On July 22, 2020, I filed supplemental  
16 testimony, in which I calculated a Levelized Cost of Transmission  
17 (LCOT) for affected system upgrade costs of \$5.58 per MWh if the  
18 Applicant has to pay the full cost of the upgrade and \$0.90 if the  
19 upgrade cost is shared over the five projects in the DEP AC1 Report.  
20 I again recommended approval of the application but stated my  
21 concern over the complexity of CPCN applications for solar facilities  
22 created by their interdependency and the potential for high Network  
23 Upgrade costs. I also stated my concern that the costs for some

1 Network Upgrades might be borne by customers who will not receive  
2 the energy produced. On July 29, 2020, witness Rubin filed  
3 supplemental reply testimony.

4 **Q. WHAT IS THE PURPOSE OF YOUR SECOND SUPPLEMENTAL**  
5 **TESTIMONY IN THIS PROCEEDING?**

6 A. The purpose of my testimony is to: (1) summarize the Public Staff's  
7 concerns created by the increasing amount of non-utility generation  
8 proposed for construction in the state; (2) address the comments and  
9 reply comments in Docket No. E-100, Sub 170 (Sub 170 Proceeding)  
10 as they relate to the Facility; and (3) make additional  
11 recommendations to the Commission on American Beech's  
12 application.

13 **Q. PLEASE DESCRIBE THE PLANNED INTERCONNECTION OF**  
14 **THE FACILITY.**

15 A. The Facility will interconnect to the Dawson Crossroads-South  
16 Justice Branch 115 kilovolt (kV) transmission line owned by Virginia  
17 Electric and Power Company, d/b/a Dominion Energy North Carolina  
18 (DENC). Since DENC is a member of PJM, the Applicant is required  
19 to enter into an interconnection service agreement with both entities.  
20 The Facility has PJM queue numbers AC1-098/AC1-099 for 80 MW  
21 of capacity and AC2-083/AC2-084 for 80 MW of capacity. In her  
22 supplemental testimony, witness Rubin stated that the Applicant has

1           asked PJM to study its AC2-083/AC2-084 request at 80 MW but is  
2           only seeking 30 MW in its CPCN application for a total of 110 MW.

3   **Q.   PLEASE SUMMARIZE THE ADDITIONAL SUPPLEMENTAL**  
4   **TESTIMONY FILED BY WITNESS RUBIN ON JULY 29, 2020.**

5   A.   Witness Rubin stated that the Applicant has learned that DEP is  
6           planning a complete upgrade of the Rocky Mount–Battleboro line in  
7           late 2022. However, DEP and PJM have not indicated which project  
8           in the AC1 queue is the first to cause the upgrade or who will fund  
9           the upgrade. Witness Rubin stated that the affected system  
10          upgrades described in the DEP AC1 Report will not only be  
11          necessary for the entire AC1 cluster but for the AC2 cluster, AD1  
12          cluster, and subsequent clusters as well. Witness Rubin pointed out  
13          that the Commission approved the NTE Kings Mountain and NTE  
14          Reidsville combined cycle plants in Docket Nos. EMP-72, Sub 0, and  
15          EMP-92, Sub 0, respectively, and these two plants require significant  
16          upgrade costs that will be funded by the ratepayers of Duke Energy  
17          Carolinas, LLC. However, witness Rubin stated that the Applicant will  
18          not be reimbursed for Network Upgrades in DENC territory that are  
19          necessary for interconnection of the Facility.

**Affected System Studies**

**Q. PLEASE SUMMARIZE THE PUBLIC STAFF'S CONCERNS REGARDING THE FACILITY AND OTHER MERCHANT POWER FACILITIES IN DENC TERRITORY.**

A. The Public Staff is concerned that (1) the large amount of solar capacity in PJM's North Carolina queue (over 6,600 MW) could trigger many millions of dollars of affected system upgrades that DEP's customers would have to pay for but may not need for reliable electric service; (2) the Virginia Clean Economy Act<sup>1</sup> could lead to more renewable energy facilities in Virginia near DENC territory, which would be above those facilities in PJM's North Carolina queue, increasing the risk for more affected system upgrades for DEP; (3) DEP could build affected system upgrades that go unused for extended periods of time if some interconnection projects withdraw from the queue late in the review process; and (4) in order to accommodate future clusters, upgrades to accommodate an earlier cluster may need to be replaced with even greater transmission assets long before the end of their normal service life of 40 to 60 years, thereby resulting in stranded costs that would be borne by DEP's customers.

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<sup>1</sup> The Virginia Clean Economy Act, signed into law on April 11, 2020, set clean energy and carbon emissions standards, and included numerous other requirements to encourage the adoption and construction of clean energy in Virginia. The full bill summary is located at <https://lis.virginia.gov/cgi-bin/legp604.exe?201+sum+HB1526>.

1   **Q.   PLEASE DESCRIBE DEP’S OTHER AFFECTED SYSTEM**  
2       **STUDIES.**

3   A.   Aside from the DEP AC1 Report, DEP is currently developing 22  
4       other affected system studies with a combined capacity of 2,676 MW  
5       and had anticipated completing several of them by October 1, 2020.  
6       As of the filing of this testimony, DEP has not completed any of these  
7       studies.

8   **Q.   PLEASE DESCRIBE DEP’S PREVIOUS PROCESS FOR**  
9       **AFFECTED SYSTEM REVIEW AND COST RECOVERY.**

10  A.   In the past, if one or more generator(s) caused affected system  
11       costs, the generator(s) would be responsible for these network  
12       upgrade costs, consistent with the Joint Open Access Transmission  
13       Tariff of Duke Energy Carolinas, LLC (DEC), Duke Energy Florida,  
14       LLC (DEF), and DEP (Duke OATT). However, pursuant to the  
15       previous Duke OATT, upon commercial operation, the generator(s)  
16       that paid for the network upgrades would be entitled to receive  
17       repayment from DEP of the entire balance of the network upgrade  
18       costs plus interest at the monthly interest rates posted by the Federal  
19       Energy Regulatory Commission (FERC). Following repayment, DEP  
20       would seek to recover those costs from its wholesale and retail  
21       customers.



1 DEP and DEC have changed their affected system review and cost  
2 recovery process as I discuss below.

3 **Docket No. E-100, Sub 170**

4 **Q. PLEASE PROVIDE A BRIEF SUMMARY OF DOCKET NO. E-100,**  
5 **SUB 170.**

6 A. On September 16, 2020, the Commission issued its *Order Requiring*  
7 *Comments and Reply Comments Regarding Affected System Study*  
8 *Process and Cost Allocation* in the Sub 170 Proceeding. On October  
9 7, 2020, DENC filed comments and DEC and DEP (collectively,  
10 Duke) filed joint comments in the Sub 170 Proceeding. Duke  
11 provided as Attachment A to its comments the new Affected Systems  
12 Process that became effective on October 1, 2020. On October 28,  
13 2020, the Public Staff and Geenex Solar, LLC (Geenex), filed reply  
14 comments. On that same date, the North Carolina Clean Energy  
15 Business Alliance and the North Carolina Sustainable Energy  
16 Association (collectively, NCCEBA-NCSEA) filed joint reply  
17 comments. The information gathered in the Sub 170 Proceeding  
18 could assist the Commission in determining whether proposed  
19 merchant generating facilities triggering significant network upgrade  
20 costs or affected system costs are in the public convenience and  
21 necessity.

1     **Q.     PLEASE SUMMARIZE THE COMMENTS OF DEP AND DEC IN**  
2           **THE SUB 170 PROCEEDING.**

3     A.     Duke stated on page 3 of its October 7, 2020, response that  
4           merchant generators would be responsible for any affected systems  
5           upgrade costs:

6                     Historically, interconnection customers that were  
7                     assigned affected system network upgrades in  
8                     DEP/DEC/DEF were reimbursed after the applicable  
9                     projects achieved commercial operation pursuant to  
10                    the terms of the affected system operating agreement.  
11                    However, DEP and DEC (along with Duke Energy  
12                    Florida, LLC) implemented a change to its standard  
13                    affected system operating agreement effective October  
14                    1, 2020 that eliminated the reimbursement.

15    **Q.     PLEASE SUMMARIZE THE COMMENTS OF DENC.**

16    A.     DENC also confirmed that the generator would be responsible for  
17           any affected systems upgrade costs, consistent with how it has  
18           treated those costs historically

19    **Q.     PLEASE    SUMMARIZE    THE    PUBLIC    STAFF'S    REPLY**  
20           **COMMENTS IN THE SUB 170 PROCEEDING.**

21    A.     As stated in the Public Staff's reply comments, the recent change to  
22           Duke's affected systems studies process addresses a key concern  
23           raised by the Public Staff in recent merchant generator CPCN  
24           proceedings that affected system upgrade costs could be passed on  
25           to a utility's customers who were not causing or contributing to the  
26           need for the upgrade. Thus, the Public Staff is supportive of the

1 proposed revisions. This change also brings Duke's costs  
2 responsibility and cost allocation procedures for affected systems in  
3 alignment with those of DENC.

4 Also in its Sub 170 comments, the Public Staff recommended that,  
5 going forward, the Commission should condition any CPCN approval  
6 for a merchant facility that includes potential affected system costs  
7 to require the Applicant to file a copy of an executed Affected  
8 Systems Operating Agreement (ASOA) with the Commission at the  
9 same time such filing is made at FERC (at least 61 days prior to  
10 commencing construction on the upgrades). The Public Staff also  
11 recommended that the CPCN applicant file a verified statement  
12 acknowledging that under Duke's Affected Systems Business  
13 Procedure and PJM's OATT, the Interconnection Customer is  
14 responsible for all affected system costs without reimbursement.

15 **Q. DOES THE PUBLIC STAFF HAVE ANY COMMENTS ON THE**  
16 **OTHER PARTIES' REPLY COMMENTS FILED IN THE SUB 170**  
17 **PROCEEDING AS THEY APPLY TO THIS APPLICATION?**

18 A. Yes. In its joint reply comments, NCCEBA-NCSEA stated that Duke's  
19 policy change to deny reimbursement for FERC-jurisdictional  
20 network upgrade costs is a "sweeping policy change" and "it is far  
21 from clear that Duke may do so without FERC approval." (NCCEBA-  
22 NCSEA Reply Comments, p. 5.)

1       Geenex similarly stated in its reply comments that “Duke’s  
2       elimination of cost reimbursement for Affected System Upgrades is  
3       a substantial change in policy.” (Geenex Reply Comments, p 19.)  
4       Geenex further stated that, because the policy is new, it has not had  
5       the opportunity to assess whether it must be approved by FERC or  
6       whether it is consistent with FERC requirements. (Id. at 3, n.1.)

7       The Public Staff agrees that, if Duke’s new policy were challenged at  
8       FERC and the challenging parties were successful in shifting cost  
9       responsibility ultimately back to DEP’s retail and wholesale  
10      ratepayers, it would be appropriate for the affected system costs to  
11      be considered by the Commission as part of a determination of  
12      whether a facility is in the public convenience and necessity. Given  
13      the recent changes to Duke Energy’s Affected System process, the  
14      continued interest in solar development in North Carolina, the current  
15      cost estimates or tools used to evaluate the reasonableness of the  
16      costs be passed onto ratepayers (e.g., LCOT benchmark), and the  
17      fact that the affected system study for the AC2 cluster has not been  
18      completed, if any path remains open that would place undue costs  
19      on to ratepayers, the Public Staff believes too much uncertainty  
20      exists regarding the magnitude and responsibility of these costs.  
21      Therefore, I recommend several conditions to the issuance of a  
22      CPCN below in order to address this uncertainty.

1 In the event the Commission has already issued a CPCN for a facility  
2 and new costs are subsequently assigned to the facility that will  
3 ultimately be borne by North Carolina retail ratepayers, the Public  
4 Staff believes the Commission should reconsider the issuance of the  
5 CPCN after the Applicant has provided accurate updated cost  
6 estimates.

7 **Recommendation on the Application**

8 **Q. WHAT IS THE PUBLIC STAFF'S RECOMMENDATION ON**  
9 **AMERICAN BEECH'S APPLICATION FOR A CPCN?**

10 A. The Public Staff has reviewed the application, the testimony of  
11 witness Rubin, and the other evidence in this docket. The Public Staff  
12 has also reviewed the comments and reply comments in the Sub 170  
13 Proceeding. Based on this information, and subject to the Public  
14 Staff's understanding that DEP and DENC's current interconnection  
15 procedures applicable to merchant generation do not provide for  
16 reimbursement for interconnection facilities, network upgrade costs,  
17 affected system costs, or other costs required to allow energization  
18 and operation of the Facility, the Public Staff recommends that the  
19 Commission issue the CPCN, subject to the following conditions:

20 i. The Applicant shall file a copy of an executed Affected  
21 System Operating Agreement (ASOA) with the  
22 Commission at the same time such filing is made at FERC

1 (at least 61 days prior to commencing construction on the  
2 upgrades).

3 ii. The Applicant shall file a verified statement acknowledging  
4 that, under Duke's Affected Systems Business Procedure  
5 and PJM's OATT, the Interconnection Customer is  
6 responsible for all affected system costs assigned to the  
7 Applicant's facility, if any, without reimbursement.

8 iii. The Applicant shall notify the Commission of any change  
9 in the cost estimates for the construction of the Facility  
10 itself, interconnection facilities, network upgrades, or  
11 affected system costs within 30 days of becoming aware  
12 of such change.

13 iv. If at any time the Applicant seeks to be reimbursed for any  
14 interconnection facilities, network upgrade costs, affected  
15 system costs, or other costs required to allow energization  
16 and operation of the Facility, including as a result of any  
17 change to the DEP/DEC/DEF OATT or any other  
18 governing document(s), the Commission shall weigh the  
19 costs to be borne by DEP's retail and wholesale customers  
20 with the generation needs in the state or region consistent  
21 with its ruling in its Order Denying Application for a  
22 Certificate of Public Convenience and Necessity for a

1 Merchant Generating Facility requested by Friesian  
2 Holdings, LLC, in Docket No. EMP-105, Sub 0.

3 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

4 A. Yes, it does.

## **QUALIFICATIONS AND EXPERIENCE**

JAY B. LUCAS

I graduated from the Virginia Military Institute in 1985, earning a Bachelor of Science Degree in Civil Engineering. Afterwards, I served for four years as an engineer in the Air Force performing many civil and environmental engineering tasks. I left the Air Force in 1989 and attended the Virginia Polytechnic Institute and State University (Virginia Tech), earning a Master of Science degree in Environmental Engineering. After completing my graduate degree, I worked for an engineering consulting firm and worked for the North Carolina Department of Environmental Quality in its water quality programs. Since joining the Public Staff in January 2000, I have worked on utility cost recovery, renewable energy program management, customer complaints, and other aspects of utility regulation. I am a licensed Professional Engineer in North Carolina.