



**NORTH CAROLINA  
PUBLIC STAFF  
UTILITIES COMMISSION**

June 27, 2022

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

Re: Docket No. EMP-108, Sub 0 – Application of American Beech Solar LLC for a Certificate of Public Convenience and Necessity to Construct a 140-WM Solar Facility in Halifax County, North Carolina

Dear Ms. Dunston:

In connection with the above-captioned docket, I transmit herewith for filing on behalf of the Public Staff the Third Supplemental Testimony of Jay B. Lucas.

By copy of this letter, we are forwarding copies to all parties of record.

Sincerely,

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

Attachments

cc: Parties of Record

Executive Director  
(919) 733-2435

Communications  
(919) 733-2810

Economic Research  
(919) 733-2902

Legal  
(919) 733-6110

Transportation  
(919) 733-7766

Accounting  
(919) 733-4279

Consumer Services  
(919) 733-9277

Electric  
(919) 733-2267

Natural Gas  
(919) 733-4326

Water  
(919) 733-5610

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. EMP-108, SUB 0

In the Matter of

Application of American Beech  
Solar LLC for a Certificate of Public  
Convenience and Necessity to  
Construct a 140-MW Solar Facility  
in Halifax County, North Carolina

) THIRD SUPPLEMENTAL  
) TESTIMONY OF  
) JAY B. LUCAS  
) PUBLIC STAFF –  
) NORTH CAROLINA  
) UTILITIES COMMISSION

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.    WHAT IS THE PURPOSE OF YOUR THIRD SUPPLEMENTAL**  
11           **TESTIMONY IN THIS PROCEEDING?**

12   A.    The purpose of my testimony is to: (1) address the supplemental  
13           testimony and exhibits of witness Michael Stanton; and (2) make  
14           additional recommendations to the Commission on American Beech's  
15           application.

16   **Q.    PLEASE PROVIDE THE HISTORY OF THIS APPLICATION.**

17   A.    On January 28, 2020, American Beech Solar LLC (American Beech  
18           or Applicant) filed an application for a certificate of public convenience  
19           and necessity (CPCN) to construct a 110-megawatt AC (MW<sub>AC</sub>) solar  
20           photovoltaic generating facility (the Facility) in Halifax County, North  
21           Carolina. The Facility will interconnect to a transmission line in the

1 territory of Dominion Energy North Carolina (DENC), which is part of  
2 PJM Interconnection, L.L.C. (PJM). The application included the  
3 testimony of the Applicant's witness, Whitney Rubin. On April 15,  
4 2020, I filed direct testimony in which I recommended that the  
5 Commission approve the application subject to certain conditions.

6 Phase I of the Facility is in PJM cluster AC1 with a capacity of 80 MW  
7 and an assigned queue number of AC1-098/099. In May 2020, Duke  
8 Energy Progress, LLC (DEP) completed an affected system study  
9 report for PJM's AC1 cluster (DEP AC1 Report) and found that the  
10 Facility and four others in the AC1 cluster will affect the 115 kV Rocky  
11 Mount–Battleboro transmission line. DEP's estimated cost for  
12 affected system upgrades caused by the AC1 cluster was  
13 \$23,204,593, which later increased to \$31,285,275 after further  
14 restudy by DEP. Phase II of the Facility is in PJM cluster AC2 with a  
15 capacity of 60 MW and an assigned queue number of AC1-083/084.  
16 As I discuss below, Phase II originally had a capacity of 30 MW.

17 On June 22, 2020, the Commission issued its Order Requiring  
18 Additional Testimony (June 22 Order), which required the Applicant  
19 and the Public Staff to file testimony addressing several questions  
20 posed by the Commission.

21 On July 9, 2020, witness Rubin filed supplemental testimony in  
22 response to the June 22 Order. On July 22, 2020, I filed supplemental

1 testimony. I again recommended approval of the application but stated  
2 my concern over the complexity of CPCN applications for solar  
3 facilities created by their interdependency and the potential for high  
4 network upgrade costs. I also stated my concern that the costs for  
5 some network upgrades might be borne by customers who will not  
6 receive the energy produced. On July 29, 2020, witness Rubin filed  
7 supplemental reply testimony.

8 On November 17, 2020, I filed second supplemental testimony in  
9 which I explained the Public Staff's concern that the large amount of  
10 solar capacity in PJM's queue in North Carolina could trigger many  
11 millions of dollars of affected system upgrades that DEP's customers  
12 would have to pay for but may not need for reliable electric service. I  
13 also explained that to accommodate future clusters, upgrades to  
14 accommodate an earlier cluster, like AC1, may need to be replaced  
15 with even greater transmission assets long before the end of their  
16 normal service life of 40 to 60 years, thereby resulting in stranded  
17 costs that would be borne by DEP's customers. I recommended that  
18 the Commission issue the CPCN based upon the assumption that,  
19 consistent with DEP's Affected Systems Business Procedure and  
20 PJM's current Open Access Transmission Tariff, merchant generators  
21 who caused affected system costs would be responsible for those  
22 upgrade costs without reimbursement from DEP customers.

1 On December 16, 2020, the Applicant filed a letter stating that it would  
2 not object to the issuance of its CPCN subject to the conditions  
3 recommended in my second supplemental testimony.

4 One of the other projects in the AC1 cluster is Edgecombe Solar, LLC  
5 (Edgecombe). American Beech, Edgecombe, and the three other  
6 projects in the AC1 cluster will rely on the same affected system  
7 upgrades. The Commission issued Edgecombe a CPCN for its facility  
8 on November 13, 2020, in Docket No. EMP-101, Sub 0. On May 12,  
9 2021, Edgecombe filed a complaint with the Federal Energy  
10 Regulatory Commission (FERC) in which Edgecombe challenged the  
11 Affected System Operating Agreement (ASOA) entered into between  
12 DEP and American Beech. The ASOA between DEP and American  
13 Beech provided that, consistent with DEP's Affected Systems  
14 Business Procedure, American Beech would not be reimbursed for the  
15 upgrade costs for the Rocky Mount-Battleboro line. On June 25, 2021,  
16 the Applicant filed a Motion to Stay this proceeding pending resolution  
17 of Edgecombe's complaint.

18 On August 9, 2021, the Commission issued its Order Denying Stay  
19 and Requesting Further Information (August 2021 Order), which  
20 required the Applicant to file all interconnection and affected system  
21 studies, an explanation of all transmission upgrade costs, and a  
22 recalculated levelized cost of transmission (LCOT).

1 On October 1, 2021, FERC rejected the ASOA entered into between  
2 DEP and American Beech. On November 1, 2021, DEP filed a  
3 Request for Rehearing with FERC, requesting reconsideration of the  
4 ASOA Rejection Order. On December 2, 2021, FERC issued a Notice  
5 of Denial of Rehearing.

6 On May 24, 2022, the Applicant filed the supplemental testimony of  
7 witness Michael Stanton with the following exhibits:

- 8 • Exhibit A – Site Plan
- 9 • Exhibit B – Interconnection Services Agreement
- 10 • Exhibit C – Interconnection Construction Service Agreement  
11 (ICSA)
- 12 • Exhibit D – Revised Cluster AC2 System Impact Study (AC2  
13 SIS)
- 14 • Exhibit E – May 21, 2021 Affected System Operating  
15 Agreement

16 **Q. PLEASE SUMMARIZE THE TESTIMONY OF WITNESS STANTON**  
17 **FILED ON MAY 24, 2022.**

18 A. Witness Stanton's testimony states that the Facility's planned capacity  
19 has increased from 110 MW to 140 MW. Phase I will remain at 80 MW,  
20 and Phase II will increase from 30 MW to 60 MW. The Applicant  
21 intends to construct both phases at the same time. Even though  
22 Phase II is in cluster AC2, it will not require any affected system

1 upgrades other than those necessary for PJM cluster AC1. Witness  
2 Stanton's testimony includes the responses and documents required  
3 by the August 2021 Order.

4 Witness Stanton's testimony also states that the Edgecombe facility  
5 has entered into an ASOA with DEP, which provides for the upgrade  
6 of DEP's portion of the Rocky Mount–Battleboro line at an estimated  
7 cost of \$31,285,275. This ASOA was filed with FERC on May 6,  
8 2022. In addition, witness Stanton indicates that American Beech  
9 and Edgecombe are negotiating an agreement whereby American  
10 Beech would provide a portion of the up-front funding for the Rocky  
11 Mount-Battleboro upgrade and receive a proportional share of any  
12 reimbursements. Page 8 of witness Stanton's testimony summarizes  
13 the following costs, for which the Applicant will not be reimbursed:

- 14 • A projected \$50,340,000 in PJM network upgrade costs in the  
15 AC2 SIS;
- 16 • \$2,911,509 in network upgrade costs for Phase I of the  
17 Facility, which has already been paid; and
- 18 • A projected \$7,260,942 in anticipated network upgrade costs  
19 and attachment facilities costs to interconnect the Facility.

20 The Applicant does not yet have a contracted off-taker for the energy  
21 or RECs from the Facility, and states in its supplemental testimony



1           that it is “unlikely to enter into a contract for offtake” until it receives  
2           a CPCN.

3           On pages 9 through 12, witness Stanton discusses the status of the  
4           ASOA between DEP and American Beech and proceedings at  
5           FERC, which I discuss more fully below.

6           On pages 13 through 16, witness Stanton discusses the  
7           interconnection costs and the LCOT calculations for the Facility,  
8           which I discuss more fully below.

9           On pages 16 and 17, witness Stanton discusses the conditions on  
10          the CPCN that I proposed in my second supplemental testimony filed  
11          on November 17, 2020. He states that, because (1) FERC has  
12          determined that DEP is required to provide reimbursement for  
13          affected system upgrades, (2) the Facility’s final interconnection  
14          costs are known, and (3) Edgecombe has entered into an ASOA with  
15          DEP, “meaning that final estimated costs and cost responsibility for  
16          the DEP Upgrade have been ascertained,” the conditions proposed  
17          in my second supplemental testimony are moot.

18                           **Affected Systems and FERC Proceedings**

19   **Q.     WHAT IS FERC’S CURRENT POLICY ON AFFECTED SYSTEMS?**

20   A.     FERC Order No. 2003 issued on July 24, 2003, in Docket No. RM02-  
21          1-000, allows affected systems such as DEP to require

1 Interconnection Customers such as American Beech to pay for  
2 affected system upgrades. However, the owner of the affected system  
3 must reimburse the Interconnection Customer the payments plus  
4 interest per paragraph 738 of Order No. 2003.

5 Such reimbursements will ultimately be paid for by DEP's retail and  
6 wholesale customers.

7 **Q. WHAT SIGNIFICANT EVENTS HAVE OCCURRED REGARDING**  
8 **AMERICAN BEECH SINCE THE AUGUST 2021 ORDER?**

9 A. As stated above, I recommended in my November 17, 2020 testimony  
10 that the Commission approve the application with the understanding  
11 that the Applicant would not be reimbursed for interconnection  
12 facilities, network upgrade costs, and affected system costs. The May  
13 2021 ASOA shown in witness Stanton's Exhibit E states, "Under the  
14 DEP ASOA, the parties have agreed that American Beech will not be  
15 reimbursed for costs of the needed upgrades identified in the ASOA."

16 However, on October 1, 2021, as discussed above, FERC rejected  
17 the ASOA between DEP and American Beech (October 2021 FERC  
18 Order) because it found that "the terms of the DEP ASOA are unjust  
19 and unreasonable."<sup>1</sup> FERC stated that, "Order No. 2003 requires  
20 that, upon commencement of commercial operation, any affected

---

<sup>1</sup> Order Rejecting Affected System Operator Agreement, FERC Docket No. ER21-1955, at Paragraph 1 (Oct. 1, 2021).

1 system operator that has received payments from an interconnection  
2 customer for the costs of network upgrades must reimburse the  
3 interconnection customer.”<sup>2</sup> FERC concluded by urging DEP to file a  
4 revised ASOA and “commence construction of the required network  
5 upgrades expeditiously.”<sup>3</sup>

6 On April 1, 2022, FERC issued an Order expounding on and modifying  
7 the October 2021 FERC Order but reaching the same result. Among  
8 other matters, FERC was not persuaded that DEP’s incurring  
9 \$31,285,275, and the resulting customer impact, was sufficient to  
10 support reversing its decision.<sup>4</sup> One FERC Commissioner wrote  
11 separately to highlight the Public Staff’s concerns regarding affected  
12 system cost reimbursement, stating that they “merit further  
13 consideration by [FERC] in a future generic proceeding.”<sup>5</sup>

14 On May 4, 2022, DEP filed a Petition for Review of the FERC order in  
15 the United States Court of Appeals for the District of Columbia Circuit.<sup>6</sup>

16 On May 6, 2022, this appeal was consolidated with another docket,  
17 and a briefing schedule was set on May 27, 2022.

---

<sup>2</sup> *Id.* at Paragraph 3.

<sup>3</sup> *Id.* at Paragraph 41.

<sup>4</sup> DEP Order Addressing Arguments Raised on Rehearing, FERC Docket No. ER-21-1955, at Paragraph 30 (Apr. 1, 2022).

<sup>5</sup> Statement of Commissioner Christie re Duke Energy Progress, LLC, FERC Docket No. ER21-1955, at Paragraph 1 (Apr. 4, 2022). Commissioner Christie’s statement refers to the comments filed by the North Carolina Utilities Commission, but the referenced comments were filed by the Public Staff.

<sup>6</sup> U.S. Court of Appeals for the District of Columbia Circuit, Docket No. 22-1072.

1           However, on May 6, 2022, DEP filed with FERC a draft ASOA  
2           between itself and Edgecombe in which DEP agreed to reimburse  
3           Edgecombe for all affected system costs to upgrade the Rocky  
4           Mount–Battleboro line at a current cost of \$31,285,275. Construction  
5           of the affected system upgrades necessary for Edgecombe would  
6           also allow American Beech and the three other projects to begin  
7           commercial operation without additional affected system upgrades.

8                           **Interconnection Costs and LCOT Calculations**

9   **Q.   DO YOU HAVE CONCERNS ABOUT THE COSTS OF THE**  
10 **FACILITY’S REQUIRED NETWORK UPGRADES IN DENC OR**  
11 **PJM?**

12 A.   No. The cost of the network upgrades in DENC and PJM will be paid  
13       by the Applicant and will not be borne by the customers of DENC or  
14       DEP.

15 **Q.   WHAT IS THE ESTIMATED COST OF AFFECTED SYSTEM**  
16 **UPGRADES IN DEP?**

17 A.   The ASOA between DEP and Edgecombe that has been filed with  
18       FERC estimates \$31,285,275 for affected system upgrades. If this  
19       ASOA is approved by FERC, and DEP builds the affected system  
20       upgrades to interconnect Edgecombe, there will be no marginal cost  
21       to interconnect the American Beech facility or the other cluster AC1

1 facilities. Therefore, there will be no affected system costs for  
2 American Beech.

3 **Q. WHAT HAS THE PUBLIC STAFF'S REVIEW OF WITNESS**  
4 **STANTON'S LCOT CALCULATIONS REVEALED?**

5 A. The Public Staff does not disagree with witness Stanton's LCOT  
6 calculations; however, I have concerns about use of the LCOT that I  
7 describe more fully below.

8 **Q. WHAT ARE YOUR CONCERNS ABOUT APPLYING THE LCOT**  
9 **TO THE COSTS OF AFFECTED SYSTEM UPGRADES?**

10 A. The LCOT is measured in dollars per megawatt-hour and is used as  
11 a way to gauge the reasonableness of the upgrade costs. However,  
12 implicit in the use of the LCOT in this manner is the assumption that  
13 the customers paying for the upgrade also receive the energy. If the  
14 dollars are paid by DEP's customers, but they do not receive the  
15 megawatt-hours, the LCOT loses its meaning. The value to DEP's  
16 customers is at or near zero. As stated above, the Applicant does not  
17 currently have an off-taker for the Facility's energy or RECs. The off-  
18 taker will likely not be DEP as, to the Public Staff's knowledge, no  
19 solar facility in DENC has ever contracted to sell energy to DEP.

**Conclusions and Recommendations**

**Q. WHAT HAVE YOU CONCLUDED REGARDING AFFECTED SYSTEM UPGRADES?**

A. DEP has agreed to reimburse Edgecombe for all affected system costs and filed the ASOA with FERC. If FERC approves the ASOA and DEP builds the necessary affected system upgrades, all five projects in PJM cluster AC1, including American Beech and its portion in cluster AC2, can begin commercial operation without negative impacts on DEP's system. In addition, American Beech would not be responsible for the up-front payment of, or reimbursement of, network system upgrade costs.

**Q. WHAT IS YOUR RECOMMENDATION ON AMERICAN BEECH'S APPLICATION FOR A CPCN?**

A. I recommend that the Commission issue the CPCN with the following conditions:

1. The Applicant shall construct and operate the Facility in strict accordance with applicable laws and regulations, including any local zoning and environmental permitting requirements.
2. The CPCN shall be subject to Commission Rule R8-63(e) and all orders, rules and regulations as are now or may hereafter be lawfully made by the Commission.

1           3.     The Applicant shall file with the Commission in this docket any  
2                 significant revisions in the cost estimates for the construction  
3                 of the Facility itself, interconnection facilities, network  
4                 upgrades, or affected system upgrades, or any other  
5                 significant change in costs, within 30 days of becoming aware  
6                 of such revisions.

7           4.     The Applicant shall file a copy of any executed Affected  
8                 System Operating Agreement with the Commission at the  
9                 same time such filing is made at the Federal Energy  
10                Regulatory Commission (at least 61 days prior to commencing  
11                construction on the upgrades).

12          5.     If at any time the Applicant seeks reimbursement for any  
13                 interconnection facilities, network upgrade costs, affected  
14                 system costs, or other costs required to allow energization and  
15                 operation of the Facility, the Applicant shall notify the  
16                 Commission no later than 60 days before seeking  
17                 reimbursement.

18                 My recommendation is based upon the Facility's position in PJM  
19                 cluster AC1 in which Edgecombe is responsible for the initial funding  
20                 of the affected system upgrades.

21   **Q.     DOES YOUR RECOMMENDATION APPLY TO PROJECTS IN**  
22   **PJM CLUSTERS OTHER THAN AC1 AND AC2?**

1 A. No. My recommendation in this testimony only applies to projects in  
2 PJM clusters AC1 and AC2. My recommendation for American  
3 Beech should not set precedent for later PJM clusters.

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

5 A. Yes, it does.





## APPENDIX A

**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.