

1 PLACE: Via WebEx Videoconference
2 DATE: Tuesday, November 23, 2021
3 TIME: 9:30 a.m. - 10:51 a.m.
4 DOCKET NO: EMP-117, Sub 0
5 BEFORE: Commissioner Kimberly W. Duffley, Presiding
6 Chair Charlotte A. Mitchell
7 Commissioner Daniel G. Clodfelter
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11 IN THE MATTER OF:

12 Application of Shawboro East Ridge Solar, LLC
13 for a Certificate of Public Convenience
14 and Necessity to Construct a 150-MW
15 Solar Facility in Currituck County,
16 North Carolina
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1 A P P E A R A N C E S:

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NORTH CAROLINA UTILITIES COMMISSION

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E X H I B I T S

Identified / Admitted

Shawboro East Ridge Solar, LLC	10/10
Application and Confidential	
Exhibit 1, and Exhibits 2 and 3	
Nwadike Confidential Exhibit 1	11/11
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P R O C E E D I N G S

COMMISSIONER DUFFLEY: Good morning. Let's come to order and please go on the record. I am Commissioner Kimberly W. Duffley, and with me today are Chair Charlotte A. Mitchell's and Commissioner Daniel G. Clodfelter.

I will now call for hearing Docket Number EMP-117, Sub 0, In The Matter of Application of Shawboro East Ridge Solar, LLC, for a Certificate of Public Convenience and Necessity to Construct a 150-MW Solar Facility in Currituck County, North Carolina.

On June 22nd, 2021, Shawboro East Ridge Solar, Shawboro or Applicant, filed the Application for a Certificate of Public Convenience and Necessity with confidential exhibits and confidential prefiled testimony of Linda Nwadike.

On July 7th, 2021, the Public Staff filed a Notice of Completeness as required by Commission Rule R8-63(d) with respect to the completeness of the Application and also filed a Motion to Stay.

On July 14th, 2021, the Applicant filed a response to the Public Staff's Notice of Completeness and Motion to Stay.

On August 12th, 2021, the Commission issued

NORTH CAROLINA UTILITIES COMMISSION

1 an Order Scheduling Hearings, Filing of Testimony,
2 Establishing Procedural Guidelines, and Requiring
3 Public Notice.

4 On August 13th, 2021, the Commission Staff
5 sent a letter to the State Clearinghouse requesting
6 comments on the Application. On September 15th, 2021,
7 and September 24th, 2021, the Clearinghouse filed its
8 Comments.

9 On September 13th, 2021, the Applicant filed
10 a Motion for Extensions of Time which the Commission
11 granted.

12 On October 8th, 2021, the Public Staff filed
13 a Motion to Cancel Public Hearing.

14 On October 12th, 2021, the Commission issued
15 an Order Canceling Public Witness Hearing.

16 On October 19th, 2021, the Public Staff
17 filed the testimony of Jay Lucas, Utilities Engineer
18 in the Public Staff's Electric Division, which
19 contained confidential information.

20 On November 4th, 2021, the Applicant filed
21 rebuttal or reply testimony and exhibit of Linda
22 Nwadike.

23 On November 16th, 2021, both the Public
24 Staff and the Applicant filed their consent to hold

1 the expert witness hearing by remote means.

2 In compliance with the State Ethics Act, I
3 remind all members of the panel of our duty to avoid
4 conflicts of interest, and inquire at this time as to
5 whether any member has a known conflict of interest
6 with respect to the matter coming before us this
7 morning?

8 (No response)

9 Please let the record reflect that no
10 conflicts were identified.

11 I will now call for appearances of counsel,
12 beginning with the Applicant.

13 MR. EASON: Thank you, Madam Commissioner.
14 My name is Joe Eason. I'm with the Raleigh Office of
15 Nelson Mullins, and I'm appearing today on behalf of
16 the Applicant.

17 COMMISSIONER DUFFLEY: Good morning,
18 Mr. Eason. Public Staff?

19 MS. LUHR: Nadia Luhr with the Public Staff
20 appearing on behalf of the Using and Consuming Public.

21 COMMISSIONER DUFFLEY: Good morning,
22 Ms. Luhr.

23 Do the parties have any preliminary matters
24 before we begin?

1 MR. EASON: None from the Applicant.

2 MS. LUHR: None from the Public Staff.

3 COMMISSIONER DUFFLEY: And do either of the
4 parties plan to address confidential information?

5 MR. EASON: We propose to --

6 MS. LUHR: The Public Staff does not.

7 MR. EASON: The Applicant does not. We
8 propose to move it into evidence but not to address it
9 publicly.

10 COMMISSIONER DUFFLEY: Thank you.

11 Mr. Eason, you may call your first witness.

12 MR. EASON: Madam Commissioner, I'd like to
13 call the witness for the Applicant, Ms. Linda Nwadike
14 (pronounced with a long I), please. Nwadike
15 (pronounced with a long E), pardon me.

16 LINDA NWADIKE;

17 having been duly affirmed,

18 testified as follows:

19 COMMISSIONER DUFFLEY: Mr. Eason?

20 DIRECT EXAMINATION BY MR. EASON:

21 Q Ms. Nwadike, would you state your name and your
22 employment position for the record, please?

23 A Sir, my name is Linda Nwadike and I am the
24 Director of Permitting and Community Relations

1 for SunEnergy1, the parent company of Shawboro
2 East Ridge Solar.

3 Q Ms. Nwadike, did you cause to be prepared in
4 connection with the Application and the exhibits
5 to the Application approximately 13 pages of
6 prefiled testimony containing three exhibits:
7 Exhibit 1 being an LCOT calculation, Exhibit 2
8 being the June 2019 -- excuse me -- Feasibility
9 Study for AE1-072, and Exhibit 3 being the August
10 2019 System Impact Study for the same cluster
11 group?

12 A Yes, sir.

13 Q If the questions in that testimony were asked of
14 you today, would -- except as supplemented by
15 your reply testimony, would they change in any
16 way?

17 A No.

18 Q And did you, in response to the testimony of the
19 Public Staff, cause to be prepared the 7-page
20 reply testimony found in the cover of
21 verification with one exhibit being a 5-page PJM
22 Interconnection Queue Status Update?

23 A Yes.

24 MR. EASON: Madam Commissioner, I would move

1 the Application and the exhibits thereto, together
2 with the prefiled direct and reply testimony of the
3 witness into evidence in support of the Applicant's
4 Application.

5 COMMISSIONER DUFFLEY: Any objection,
6 Ms. Luhr?

7 Hearing no objection --

8 MS. LUHR: No.

9 COMMISSIONER DUFFLEY: (Inaudible).

10 COURT REPORTER: Commissioner Duffley,
11 you're on mute.

12 COMMISSIONER DUFFLEY: Any objection,
13 Ms. Luhr?

14 MS. LUHR: No objection.

15 COMMISSIONER DUFFLEY: Without objection,
16 the motion is allowed. The Application and the direct
17 and reply testimony of Linda Nwadike will be received
18 into the record and treated as if given orally from
19 the stand, and the exhibits will be received into
20 evidence and marked as identified when prefiled.

21 (WHEREUPON, Shawboro East Ridge
22 Solar, LLC, Application and
23 Confidential Exhibit 1, and
24 Exhibits 2 and 3 are marked for

1 identification and received into
2 evidence.)

3 (WHEREUPON, Nwadike Confidential
4 Exhibit 1, Nwadike Exhibits 2 and
5 3, and Nwadike Reply Exhibit 1
6 are marked for identification as
7 prefiled and received into
8 evidence.)

9 (WHEREUPON, the prefiled direct
10 and reply testimony of LINDA
11 NWADIKE is copied into the record
12 as if given orally from the
13 stand.)
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**BEFORE THE
NORTH CAROLINA UTILITIES COMMISSION
SHAWBORO EAST RIDGE SOLAR, LLC
DOCKET NO. EMP-117, SUB 0**

**PRE-FILED DIRECT TESTIMONY
OF
LINDA NWADIKE**

June 18, 2021

OFFICIAL COPY

Dec 14 2021

INTRODUCTION

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

A. My name is Linda Nwadike. I am the Director of Permitting and Community Relations for SunEnergy1, LLC ("SunEnergy1" or the "Company"), the parent and an affiliate of the Applicant Shawboro East Ridge Solar, LLC ("Shawboro Solar" or "Applicant"). Shawboro Solar is a North Carolina limited liability company that was formed on August 29, 2014. My business address is 192 Raceway Drive, Mooresville, North Carolina 28117.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I obtained a Bachelor of Science degree in Chemical Engineering with a concentration in Biological Technology, and I am a licensed project manager professional.

Prior to joining SunEnergy1, I worked in the nuclear energy industry as a project manager and instrumentation and controls engineer. I worked with many large-scale utility providers, including Duke Energy Progress, LLC, Duke Energy Carolinas, LLC, Virginia Electric and Power Company d/b/a Dominion Energy North Carolina ("Dominion"), Florida Power & Light Company, and NextEra Energy, Inc. on various projects. I have also conducted or overseen material procurement and logistics on various oil and gas projects.

At SunEnergy1, I conduct project development and oversee permitting activities for utility-scale solar renewable energy facilities. I often am the liaison between SunEnergy1 and local community and government officials. I present information about projects to local government officials at quasi-judicial public hearings and to adjacent property owners at community meetings. I obtain federal, state, and local permits necessary for the solar facilities, and I coordinate and lead the SunEnergy1's project development team and sub-contractors in relation to achieving project goals.

1 **Q. PLEASE SUMMARIZE YOUR CURRENT RESPONSIBILITIES WITH SUNENERGY1.**

2 A. My current employment responsibilities are as follows:

- 3
- 4 • Conduct and oversee project development and permitting activities on utility-scale solar renewable energy facilities.
- 5
- 6 • Lobby and act as the liaison between SunEnergy1 and local community and government officials.
- 7
- 8 • Present SunEnergy1 projects at quasi-judicial public hearings and community meetings.
- 9 • Communicate and perform required activities needed to obtain federal, state, and local permits.
- 10
- 11 • Work with federal, state, and local governmental agencies, including mayors, county managers, boards of commissioners, and planning boards on solar projects.
- 12
- 13 • Coordinate and lead internal project development team and sub-contractors across broad technical, financial, and business disciplines to achieve project goals.
- 14
- 15 • Focus team on project objectives, and track progress against objectives to ensure project milestones are completed on time, on budget, and with the desired outcome.
- 16
- 17 • Anticipate and manage changes effectively in a rapidly evolving business environment.
- 18 • Report and escalate issues to upper management and stakeholders as needed.
- 19

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

21 A. Yes, I have provided testimony in support of the applications for a Certificate of Public
22 Convenience and Necessity ("CPCN") for Merchant Plant for several applicants seeking authority
23 to construct such solar projects, including Albemarle Beach Solar, LLC (NCUC Docket EMP-103
24 Sub 0), Cherry Solar, LLC (NCUC Docket EMP-115 Sub 0), Oak Solar, LLC (NCUC Docket EMP-112
25 Sub 0) and Pitt Solar (NCUC Docket EMP-102 Sub 1) .
26

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

28 A. To provide testimony supporting the application for a Certificate of Public Convenience and
29 Necessity ("CPCN") for a proposed solar merchant plant, and to satisfy the requirements of
30 Commission Rule R8-63 under which this Application for a CPCN is being requested. In

1 accordance with that rule, I incorporate that application into this testimony, and provide
2 responses to the following questions in support of the application.

3
4 **Q. PLEASE STATE THE PARENT COMPANY OF THE APPLICANT.**

5 A. SunEnergy1 is the parent company of the Applicant, Shawboro East Ridge Solar, LLC
6

7 **COMPANY BACKGROUND AND PROJECT FINANCE**

8 **Q. PLEASE DESCRIBE THE COMPANY'S PERSONNEL, TECHNICAL EXPERIENCE, AND FINANCIAL**
9 **CAPABILITY TO OWN AND OPERATE THE PROJECT.**

10 A. SunEnergy1 is a top U.S. solar developer, owner, and operator of utility-scale solar projects with
11 over 1 GW of installed solar power. SunEnergy1 has pioneered large-scale solar power on the
12 East Coast for nearly a decade and has developed numerous record-breaking solar projects in
13 the Southeast region. SunEnergy1 is vertically integrated and controls all stages of development
14 in-house.

15 SunEnergy1's professional team works closely with manufacturers, utilities, and industry
16 groups to ensure the safety, performance, and cost efficiency of its projects. The Company's
17 employees work closely with sponsors of the National Electric Code (NEC), members of the
18 National Fire Protection Association (NFPA) 70E, and with pertinent government agencies to
19 ensure that safety standards and compliance activities used in the solar industry continues to
20 improve.

21 Kenny Habul, SunEnergy1's CEO and President, has been involved in the development of
22 photovoltaic ("PV") solar and solar thermal technologies since 1996, and has established himself
23 as a leader in the field of sustainable construction technologies. Prior to forming SunEnergy1,
24 Mr. Habul was a partner in Habul Brothers Luxury Home Construction, one of the most

1 prominent and innovative builders in Queensland, Australia. Mr. Habul has vast experience in
2 commercial and residential construction and has a passion for sustainable construction practices
3 and solar energy. He holds a Bachelor of Laws degree from Bond University in Australia.

4 Brian Kennedy is SunEnergy1's Chief Development Officer. He brings over 25 years of
5 energy industry experience to SunEnergy1. Prior to joining the Company, Mr. Kennedy initiated
6 and established the solar enterprise for one of the largest utility companies in the country. As
7 such, he was directly responsible for the development of dozens of utility-scale solar projects
8 across the country, totaling nearly 1 GW of installed capacity and representing over \$1 billion
9 worth of investment. Mr. Kennedy holds an MBA from Xavier University.

10 Bradley Fite is SunEnergy1's Chief Operations Officer. He holds an Unlimited/Master
11 Electrical License in multiple states. He is certified through the Underwriter's Laboratory (UL) as
12 a professional PV installer and holds several certifications through the North American Board of
13 Certified Energy Practitioners (NABCEP). He is an active member of the Institute of Electrical
14 and Electronics Engineers Association (IEEE) and NFPA, and he works closely with utilities and
15 manufacturers to stay on the leading edge of the PV industry. Mr. Fite is directly involved with
16 all aspects of the Company and oversees projects from the initial development through
17 construction, operations and maintenance. He has over 20 years of construction experience and
18 has built more than 500 MW AC of solar PV projects.

19 Kevin Chen is SunEnergy1's Chief Commercial Officer. Prior to joining SunEnergy1, he
20 had several leadership positions in the power industry. He has worked in the business from
21 leading global technology and equipment supply provision, large utility transmission and
22 distribution operations, and generation project development. His solar development experience
23 has grown from 250 MW of DG portfolio to community solar projects and utility-scale projects.

1 Mr. Chen received his master's degree in electric power from Iowa State University and his MBA
2 from the University of California at Los Angeles.

3
4 **SITE AND FACILITY DESCRIPTION**

5 **Q. WHERE IS THE PROJECT THAT IS THE SUBJECT OF THE APPLICATION LOCATED?**

6 A. As shown by Schedule 2-2 attached to the Application, the facility is intersected and bound on
7 the east by East Ridge Road, bound on the west by Shawboro and Indiantown Roads in
8 Shawboro, Currituck County, North Carolina. I herewith reference and incorporate the
9 Application and its exhibits, as well as all other materials supplied by the Applicant, in support of
10 the Application for a CPCN for a merchant plant.

11 **Q. WHAT IS THE CURRENT LAND USE AND ANTICIPATED USE?**

12 A. The project will be located on several parcels in Currituck County, North Carolina as shown on
13 layout map attached to the Application as Schedule 2-2. The site is comprised of rural land,
14 some of which is utilized for agricultural purposes. The parcel landowners have provided
15 Shawboro Solar with the right to develop and use the property for solar energy purposes,
16 including the installation of solar panels, inverters, transformers, and other elements of the
17 facility described in this Application.

18 **Q. WHAT IS THE FACILITY'S ANTICIPATED ELECTRICITY PRODUCTION CAPACITY?**

19 A. The maximum gross power production capacity of the facility is 150 MW.

20 **Q. PLEASE DESCRIBE THE BASIC COMPONENTS OF THE FACILITY.**

21 A. Shawboro solar is a 150-MW PV array, and the sole source of its power is solar energy. The
22 facility will be a single-axis tracking, ground-mounted solar PV system, and the facility will be
23 comprised of solar arrays, inverters, generator step-up ("GSU") transformers, racking, posts,
24 wiring, utility poles, communication poles, security cameras, and accessories. A color map

showing the proposed site boundary, layout with all major equipment, roads, and electric facilities is attached to Exhibit 2 of the Application as Schedule 2-2.

Q. PLEASE DESCRIBE THE TRANSMISSION FACILITIES TO WHICH THE FACILITY WILL INTERCONNECT AND HOW THE PROJECT WILL BE INTERCONNECTED TO THE GRID?

A. The project, assigned to PJM queue AE1-072, will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on Dominion's Shawboro to Sligo 230 kV line # 269.

NEED FOR THE FACILITY

Q. PLEASE EXPLAIN THE NEED FOR THE FACILITY.

A. Shawboro Solar will interconnect with the Dominion Energy Transmission grid, providing the merchant plant with direct access to PJM, a Regional Transmission Organization ("RTO") in which Dominion participates. Summer peak load growth for the Dominion zone is expected to grow by 0.5.% per year over the next ten to fifteen years. While winter peak load growth in the Dominion zone is expected to grow by 0.9% per year over the next ten to fifteen years (PJM Load Forecast Report (Jan. 2021), available at. <https://www.pjm.com/-/media/library/reports-notices/load-forecast/2021-load-report.ashx>). Finally, the annual net energy in Dominion zone is expected to grow by 0.6% per year over the next ten to fifteen years.

Additionally, Shawboro Solar is in negotiations to enter into a long-term Power Purchase Agreement for the output of the renewable power production and the associated Renewable Energy Certificates (RECs"). Therefore, the Applicant believes that there are strong market conditions and needs for renewable energy projects such as this facility.

Q. DESCRIBE THE OFF-TAKE PLANS FOR THE PROJECT.

- 1 A. Shawboro Solar is in negotiations to enter into a long-term power purchase agreement (“PPA”)
2 for the output of the facility.
3

4 **REGULATORY APPROVALS AND PERMITS**

5 **Q. DOES CURRITUCK COUNTY HAVE A SOLAR ENERGY ORDINANCE?**

- 6 A. Yes. Currituck County’s unified development ordinance contains solar energy facility standards.
7 The solar energy facility standards were adopted by the Currituck County Board of
8 Commissioners pursuant to the authority and provisions of N.C. Gen. Stat. § 153A-121 (general
9 ordinance-making power), N.C. Gen. Stat. § 153A-340 (grant of power), and other applicable
10 law, but such ordinances include a declaration that nothing shall be interpreted to conflict with
11 or supersede any provision of N.C. Gen. Stat. § 153A-144 (limitations on regulating solar
12 collectors).

13 **Q. DESCRIBE THE PERMITS AND APPROVALS YOU ANTICIPATE WILL BE NECESSARY TO**
14 **COMMENCE CONSTRUCTION OF THE FACILITY.**

- 15 A. Shawboro Solar will need to obtain the required use permit from Currituck county. In addition to
16 the use permit, Shawboro solar will also need to obtain an electrical/building Permit from
17 Currituck County.

18 From the State of North Carolina, the facility has obtained driveway permit(s) from the
19 North Carolina Department of Transportation. Approval of an erosion and sedimentation control
20 plan from the NC Department of Environmental Quality (“NCDEQ”) will be needed. The project
21 also will require a Certificate of Public Convenience and Necessity from this Commission for its
22 construction.

23 With regard to federal permits and approvals, a wetland delineation for the entire site
24 will be submitted to the US Army Corps of Engineers (“USACE”). Additionally, Shawboro Solar

may apply for a Market-Based Rate Authorization from the Federal Energy Regulatory Commission ("FERC"), pursuant to Sections 205 and 206 of the Federal Power Act. The facility will also be registered as a Generator-Owner with the North American Electric Reliability Corporation ("NERC").

COMMUNITY

Q. PLEASE DESCRIBE THE ANTICIPATED BENEFITS OF THE FACILITY TO THE LOCAL COMMUNITY.

A. The Shawboro Solar facility will bring a variety of financial benefits to Currituck County. Shawboro Solar anticipates that the County will realize property and real estate tax revenues from the project. Shawboro Solar also will enhance the County's reputation as an attractive and friendly environment for advanced manufacturing, technology, and related jobs. Local contractors and businesses such as installation, fencing, landscaping, and machine rental companies will receive sales or lease opportunities from the facility during construction and during its post-construction operations. During the approximately year-long construction process, the facility will offer full-time construction jobs. Shawboro Solar expects to hire up to 1,000 workers for the duration of the construction. Increased economic activity in the area is expected to increase revenue for local hotels, restaurants, service stores, and other vendors.

Q. WHAT ARE THE EXPECTED ENVIRONMENTAL IMPACTS OF THE FACILITY?

A. By design and by its nature as a solar PV facility, the facility will provide clean renewable power with minimal environmental impacts. The facility will create no air or water emissions and no environmental contamination. There will be no noise impact outside of the fence line. At the end of the facility's useful life, materials can be recycled or sold for scrap, and the land can be returned to agricultural use.

OTHER INFORMATION REGARDING THE PROJECT

Q. PLEASE FOCUS ON THE INTERCONNECTION OF THE PROJECT WITH THE TRANSMISSION GRID. ARE THERE ANY NETWORK UPGRADES TO DENC'S TRANSMISSION SYSTEM OR ANY AFFECTED SYSTEM'S TRANSMISSION SYSTEM REQUIRED TO ACCOMMODATE THE OPERATION OF THE APPLICANT'S PROPOSED FACILITY? IF SO, PROVIDE THE MOST CURRENT INFORMATION ABOUT THE AMOUNT OF NETWORK UPGRADES ON DENC'S OR ANY AFFECTED SYSTEM'S TRANSMISSION SYSTEM, IF ANY, THAT WILL BE REQUIRED TO ACCOMMODATE THE OPERATION OF THE APPLICANT'S PROPOSED FACILITY.

A. PJM has identified an overload on Dominion / DENC Everetts – Greenville 115kV line #218. The DENC portion of this line is 1.87 miles and the upgrade is to reconductor and replace some structures. The estimated cost is \$8.5 million.

Q. IF THERE ARE ANY REQUIRED SYSTEM UPGRADES, DOES THE APPLICANT HAVE LEVELIZED COST OF TRANSMISSION (LCOT) INFORMATION FOR THE SYSTEM UPGRADES? IF SO, PROVIDE THE LCOT INFORMATION FOR ANY REQUIRED TRANSMISSION SYSTEM UPGRADES OR MODIFICATIONS.

A. Please see Exhibit 1 attached to this testimony.

Q. IS THERE ANY INTERCONNECTION STUDY AVAILABLE FOR THE PROPOSED FACILITY? IF SO, PROVIDE ANY INTERCONNECTION STUDY RECEIVED FOR THE PROPOSED FACILITY. IF THE APPLICANT HAS NOT RECEIVED A STUDY, PROVIDE A DATE BY WHEN THE STUDY IS EXPECTED TO BE COMPLETED.

1 A. PJM has issued Feasibility and System Impact Studies (see Exhibit 2 and 3 respectively). PJM's
2 target to issue the Facility Study was October 31, 2020 and no new expected date has been
3 provided.

4
5 **Q. IS THE APPLICANT AWARE OF ANY SYSTEM OTHER THAN THE STUDIED SYSTEM THAT IS OR**
6 **WILL BE AFFECTED BY THE INTERCONNECTION? IF YES, EXPLAIN THE IMPACT AND BASIS FOR**
7 **CONCLUDING THAT SUCH IMPACTS EXIST.**

8 A. The PJM studies identified a potential impact to DENC. No other systems outside of PJM have
9 been identified as needing to be studied.

10
11 **Q. IS THE APPLICANT PROPOSING TO SELL ENERGY AND CAPACITY FROM THE FACILITY TO A**
12 **DISTRIBUTION UTILITY REGULATED BY THE COMMISSION? IF SO, PROVIDE A DISCUSSION OF**
13 **HOW THE FACILITY'S OUTPUT CONFORMS TO OR VARIES FROM THE REGULATED UTILITY'S**
14 **MOST RECENT IRP.**

15 A. No, the Applicant does not propose to sell energy or capacity from the facility to a distribution
16 utility regulated by this Commission.

17
18 **Q. IS THE APPLICANT PROPOSING TO SELL ENERGY AND CAPACITY FROM THE PROPOSED**
19 **FACILITY TO A DISTRIBUTION UTILITY NOT REGULATED BY THE COMMISSION BUT SERVING**
20 **RETAIL CUSTOMERS IN NORTH CAROLINA (E.G. CO-OP OR MUNI)? IF SO, DISCUSS HOW THE**
21 **FACILITY'S OUTPUT CONFORMS TO OR VARIES FROM THE PURCHASING DISTRIBUTION**
22 **UTILITY'S LONG-RANGE RESOURCE PLAN.**

23 A. No, the Applicant does not propose to sell energy or capacity from the facility to a distribution
24 utility that is not regulated by this Commission but serves retail customers in North Carolina.

1 **Q. IS THE APPLICANT PROPOSING TO SELL ENERGY AND CAPACITY FROM THE PROPOSED**
2 **FACILITY TO A PURCHASER WHO IS SUBJECT TO A STATUTORY OR REGULATORY MANDATE**
3 **WITH RESPECT TO ITS ENERGY SOURCING (E.G., A REPS REQUIREMENT OR VIRGINIA'S NEW**
4 **STATUTORY MANDATE FOR RENEWABLES)? IF SO, EXPLAIN HOW, IF AT ALL, THE PROPOSED**
5 **FACILITY WILL ASSIST OR ENABLE COMPLIANCE WITH THE MANDATE. IN ADDITION, PROVIDE**
6 **ANY CONTRACTS THAT SUPPORT THAT COMPLIANCE.**

7 **A.** No, the Applicant is not proposing to sell energy or capacity from the proposed facility to a
8 purchaser who is subject to a statutory mandate with respect to its energy sourcing.
9

10 **Q. DOES THE APPLICANT HAVE AN PPA AGREEMENTS, REC SALE CONTRACTS, OR CONTRACTS**
11 **FOR COMPENSATION FOR ENVIRONMENTAL ATTRIBUTES FOR THE OUTPUT OF THE PROPOSED**
12 **FACILITY? IF SO, PROVIDE ANY PPA AGREEMENTS, REC SALE CONTRACTS, OR CONTRACTS FOR**
13 **COMPENSATION FOR ENVIRONMENTAL ATTRIBUTES FOR THE OUTPUT OF THE FACILITY.**

14 **A.** The Applicant is currently negotiating a PPA agreement for the output of the facility.
15

16 **Q. DOES THIS CONCLUDE YOUR INITIAL TESTIMONY IN SUPPORT OF THE APPLICATION?**

17 **A.** Yes.
18

BEFORE THE
NORTH CAROLINA UTILITIES COMMISSION
RALEIGH, NORTH CAROLINA

SHAWBORO EAST RIDGE SOLAR, LLC
DOCKET NO. EMP-117 Sub 0

REPLY TESTIMONY
OF
LINDA NWADIKE

November 4, 2021

INTRODUCTION

Q. WHAT IS THE PURPOSE OF THE REPLY TESTIMONY YOU ARE SUBMITTING TODAY IN THIS DOCKET?

A. The purpose of my Reply testimony is to respond on behalf of the Applicant Shawboro East Ridge Solar, LLC ("the Applicant") to the direct testimony submitted by Public Staff witness Mr. Jay Lucas (Lucas) in this docket on October 19, 2021.

Q. WHAT IS YOUR REPOSENSE TO WITNESS LUCAS STATEMENT, STARTING ON PAGE 6 OF HIS FILING, THAT ".....THE FACILITY WILL NOT CAUSE THE NEED FOR AFFECTED SYSTEM UPGRADES AS LONG AS DEP COMPLETES THE UPGRADES FROM AN EARLIER QUEUED PROJECT, SUMAC SOLAR, LLC WHICH IS ASSIGNED PJM QUEUE NUMBER AD1-023.... THE COMMISSION GRANTED STAYS IN THE APPLICATIONS OF SUMAC SOLAR, LLC AND SWEETLEAF SOLAR, LLC WHICH IS ALSO IN PJM'S AD1 CLUSTER. IF DEP DOES NOT BUILD THE UPGRADES NEEDED FOR AD1-023, THE FACILITY WILL CAUSE APPROIXMATELY \$10 MILLION OF AFFECTED SYSTEM UPGRADES ON THE EVERETTS-GREENVILLE 230KV-LINE...."?

A. The statement overlooks other projects that are ahead of the Applicant in the relevant PJM queue. The facility of Sumac Solar, LLC is PJM Queue AD1-022 / AD1-023, and the facility of Sweetleaf Solar, LLC, is PJM Queue AD1-056 / AD1-057. If both of these projects were to withdraw and drop out of the PJM queue, the next project that is forecast to cause the \$10 million upgrades to the DEP portion of the Everetts – Greenville 230kV line would be the facility of Macadamia Solar, LLC, as described in docket EMP-119 (PJM

1 Queue AD1-074 / AD1-075 / AD1-076); that project is still going through its CPCN
2 application process. In addition to the facility of Macadamia Solar, LLC, there is another
3 project in the relevant PJM queue in front of the facility of Shawboro East Ridge Solar.
4 Therefore, all four of the above-mentioned projects will have to drop out of the PJM
5 queue for the Shawboro East Ridge Solar Facility to cause the approximately \$10 million
6 of affected system upgrade costs on the Everetts-Greenville 230KV line.
7

8 Q. THE PUBLIC STAFF, THROUGH WITNESS LUCAS, ALSO EXPRESSES CONCERNS ABOUT
9 DEP'S REIMBURSEMENT OF DEVELOPERS FOR AFFECTED SYSTEM COSTS, AND ON PAGE
10 13 OF HIS TESTIMONY, QUOTES FROM A CONCURRING OPINION IN THIS COMMISSION'S
11 ORDER OF SEPTEMBER, 2020, ENTERED IN EMP-107, SUB 0. THE STATEMENT QUOTED IS
12 THAT "WHEN THE COMMISSISON ADOPTED RULE R8-63 AND OPENDED THE DOOR FOR
13 THE CONSTRUCTION OF MERCHANT GENERATING FACILITIES, IT WAS ASSUMED THAT
14 THE DEVELOPER OF A FACILITY WOULD BEAR ALL OF THE FINAICIAL RISK AND THAT NO
15 COST WOULD BE IMPOSED UPON RETAIL RATEPAYERS OTHER THAN THOSE COSTS THAT
16 WOULD FLOW FROM THE PURCHASE OF POWER FROM THE FACILITY BY A UTILITY
17 UNDER LEAST COST PRINCIPLES.... WHEN THAT IS NOT THE CASE, IT IS THE
18 COMMISSION'S ROLE AND OBLIGATION TO PROTECT RETAIL RATEPAYERS FROM
19 UNREASONABLE COSTS." WHAT IS THE RESPONSE OF THE APPLICANT TO THE QUOTED
20 STATEMENT?
21

22 A. The Applicant acknowledges, as the Interconnection Customer, that it is responsible for
23 all affected system Network Upgrade costs assigned to the Applicant's proposed facility,

1 if any, without reimbursement, and that the ratepayers should not bear the cost of the
2 Applicant's proposed facility.

3 The Applicant is willing to pay its fair share of the affected system Network Upgrade costs
4 if the projects in earlier study queues, in front of the applicant queue number, were to
5 drop out and withdraw from the queue, such that the Applicant became the first in line.

6 Additionally, we understand that the Public Staff has concerns following the decision of
7 the FERC on October 1, 2021, in the FERC proceeding involving DEP and American Beech
8 Solar Affected System Operating Agreement ("ASOA"). The Public Staff appears to believe
9 that the FERC's ruling indicates a strong likelihood that affected system costs paid by
10 interconnecting merchant plant generators will have to be reimbursed by DEP, and
11 therefore by its intrastate ratepayers.

12 However, the FERC ruling was a single decision based on a single generation resource,
13 and was based on the record that DEP compiled to support its new ASOA. In its recent
14 ruling the FERC acknowledged that the decision of whether to approve a non-conforming
15 ASOA was subject to a fact-specific analysis. Additionally, although DEP did not meet its
16 burden under Section 205 of the Federal Power Act in that American Beech case, that
17 does not mean that DEP cannot make such a showing in a future FERC proceeding.

18 Therefore, if an Applicant is willing to pay its fair share of applicable affected system
19 network upgrade costs without regard to whether there will be any reimbursement, the
20 concerns raised by Public Staff are no longer applicable.

21

22

1 Q. WHAT IS THE RESPONSE OF THE APPLICANT TO THE RECOMMENDATIONS EXPRESSED BY
2 WITNESS LUCAS THAT THE COMMISSION SHOULD HOLD THE RECORD IN THIS DOCKET
3 OPEN UNTIL AFTER (1), PJM RELEASES ITS RETOOLING OF PJM CLUSTER AE1, WHICH IS
4 SCHEDULED FOR NOVEMBER OR DECEMBER OF 2021, AND AFTER (2), DEP COMPLETES
5 ITS STUDY OF THE RETOOLING AND DEVELOPS A REVISED AFFECTED SYSTEM STUDY AS
6 NECESSARY?
7

8 A. The Applicant believes that the Commission should not hold this docket in abeyance until
9 both conditions are met. Mr. Lucas may not be aware that at a recent PJM Planning
10 Committee meeting it was announced that the AE1 queue retool is now scheduled to be
11 completed sometime from November through January, 2022, as shown in Exhibit 1 to
12 this testimony. PJM issued the current AE1-072 System Impact Study in August 2019, so
13 Shawboro East Ridge Solar expects the PJM retool to provide updated study results based
14 on PJM Queue activity over the past 2 plus years.

15 The Applicant has no objection to waiting until the PJM retooling is performed in
16 November- January 2022. However the Applicant expects that PJM will have more
17 retooling to perform in the future on the AE1 queues, because PJM still has a few earlier-
18 queued North Carolina projects in the study phase which may decide to reduce the
19 proposed capacity of a project or to withdraw from the queue entirely. Therefore, the
20 retooling slated for November- January, 2022, is unlikely to be the final PJM AE1
21 retooling.

22 While the Applicant consents to waiting for the retooling slated for the period from
23 November- January, 2022, it believes it would be unreasonable for its application to be

1 suspended indefinitely while waiting for any further future retooling of PJM Cluster AE1.

2 A complex study or forecast can be modified or updated or “retooled” in an essentially
3 endless iterative process, but that does not mean that every such modification or update
4 must be made before a decision-maker can use the results of an earlier study.

5 Additionally, Shawboro Solar does not believe this docket should remain open pending a
6 revised DEP affected system study, as the timeline to complete that study is unknown
7 and a study may not be necessary. Therefore, the Applicant respectfully suggests that
8 after PJM completes and releases its retool of the AE1 queue System Impact Study that is
9 due in November- January 2022, the Applicant’s application should be reviewed and
10 ruled upon by this Commission. The Applicant will provide any revised or updated studies
11 promptly to the Commission as additional information., but in the view of the Applicant,
12 supplemental testimony should not be required for the Applicant nor the Public Staff
13 unless there are major changes to the results of the studies.

14
15 **Q. DOES THE APPLICANT ACCEPT THE FOUR CONDITIONS RECOMMENDED BY WITNESS**
16 **LUCAS AT PAGES 16 AND 17 OF HIS TESTIMONY AS AN ALTERNATIVE RECOMMENDATION**
17 **IN THE EVENT THAT THE COMMISSION APPROVES THE APPLICANT’S CPCN APPLICATION?**

18 **A.** Yes, the Applicant is willing to accept a CPCN issued by the Commission subject to the
19 four conditions stated on page 17 in the pre-filed testimony of public staff Witness Lucas
20 on October 19, 2021.

21
22 **Q. DOES THAT CONCLUDE YOUR REPLY TESTIMONY?**

23 **A.** Yes.

1 MR. EASON: Thank you, Madam Commissioner.
2 With that, the witness is available for cross.

3 COMMISSIONER DUFFLEY: Any cross?

4 MS. LUHR: Just, I believe, one question for
5 Ms. Nwadike.

6 CROSS EXAMINATION BY MS. LUHR:

7 Q Good morning. I am looking at page 5 of your
8 reply testimony, and you probably don't need to
9 turn there, but beginning on line 5 you state
10 that you don't believe the decision on the
11 Application should remain open pending the
12 revised -- or any revised DEP Affected System
13 Study.

14 Isn't it true that a revised
15 Affected System Study based on PJM's retooling
16 could result in a change in the affected system
17 costs?

18 A That is correct; however, DEP published its
19 Affected System Study for the AE1 queue back in
20 September 9th of this year, so that is two
21 months, about two plus months ago. So, we do not
22 believe there will be major charges in regards to
23 that for the new Affected System Study that they
24 might issue later on, which we don't know the

1 dates.

2 Q Okay. Thank you.

3 MS. LUHR: That's all the questions I have.

4 COMMISSIONER DUFFLEY: Thank you. Any
5 reply, Mr. Eason?

6 MR. EASON: I have no questions on the
7 Public Staff's question.

8 COMMISSIONER DUFFLEY: Can you hear me?

9 MR. EASON: Yes, ma'am. I'm sorry. I said
10 I had no questions on the Public Staff's question.

11 COMMISSIONER DUFFLEY: Okay. There was a
12 blip in my computer.

13 Commission questions? Chair Mitchell?

14 CHAIR MITCHELL: I do have a question for
15 Ms. Nwadike.

16 EXAMINATION BY CHAIR MITCHELL:

17 Q So, in your testimony, and specifically in your
18 reply testimony, you indicate that it's your
19 position that you all would pay for your fair
20 share, or that Shawboro would pay for its fair
21 share of the affected system costs. Help me
22 understand specifically what you mean by that
23 testimony? What do you mean by fair share? And
24 I'll leave my question there and let you respond.

1 A Yes, Madam Chair. The parent company SunEnergy1
2 has been doing solar for over a decade. We have
3 never requested reimbursement for any costs
4 applied to an Affected System Study by both PJM,
5 Duke or any of those entities. So right now, we
6 do have four projects in the queue ahead of our
7 project. If those projects were to drop out or
8 anything of that nature where we become the first
9 in line, Shawboro East Ridge or SunEnergy1, the
10 parent company, would pay for that. If in any
11 way any costs apply to the project, we would pay
12 for our own share. That's what we meant with
13 that statement.

14 Q And -- okay. Thank you for that explanation.
15 And just one follow up for you. If the four sort
16 of -- the four projects or the four
17 interconnection requests ahead of the Shawboro
18 project were to drop out or otherwise be removed
19 from the queue such that the Shawboro project
20 were assigned all of the affected system costs,
21 is it your testimony that -- or is it your
22 position that Shawboro would pay for all of those
23 affected system costs?

24 A That's correct, because we are next in line and

1 for us we have financial obligations to construct
2 the site, so we will go ahead and pay for it so
3 we can be able to construct the site.

4 Q And in keeping with your past practice you would
5 not ask for a reimbursement of those costs?

6 A That is correct.

7 Q Thank you.

8 CHAIR MITCHELL: I have nothing for the
9 witness. Thank you very much.

10 COMMISSIONER DUFFLEY: Thank you. No
11 questions from Commissioner Clodfelter. So, I just
12 have a few questions as well.

13 EXAMINATION BY COMMISSIONER DUFFLEY:

14 Q You stated in your reply comments on page 4 that
15 PJM's retooling of the AE1 cluster is scheduled
16 to be completed between November through January
17 of 2022. Can you just explain a little bit what
18 this retooling process will entail?

19 A Yes, Commissioner. Periodically, PJM will take a
20 look at each queue, like AE1 queue for the
21 Shawboro site to figure out who has dropped or
22 who has lowered the capacity for their project
23 and they will reassign the cost, something of
24 that nature.

1 So, our System Impact Study, we
2 received it back in August 2029 (sic), so we
3 believe there might have been project developers
4 that have dropped out from the queue since then
5 or decided to lower the capacity for their
6 project. So right now, if they perform their
7 retool between November and January of next year,
8 we should definitely look, it gives you more
9 insight in terms of what's going on and also
10 gives you more insight in regards to costs, also
11 should unwrap projects, if there's any changes.

12 Q Thank you. And will the -- so is it a matter of
13 cost allocation or because they are going through
14 each of the queues, you know, going back to AD1
15 and AD2, will the costs change, like the affected
16 system cost change, and the amount of the network
17 upgrades change?

18 A We follow -- we believe at this time, we're not a
19 hundred percent sure, but we think it shouldn't
20 change that much. It might be a small margin,
21 but we need to get our Facility Study, which is
22 hopefully due next year, for us to see exactly
23 what costs are allocated to us, but we do not
24 believe that change will be in there.

1 Q Thank you. So you don't believe the change will
2 be significant percentage-wise?

3 A That is correct.

4 Q And you also testified that PJM will provide the
5 updated study results for the Shawboro project,
6 and you just mentioned that in your testimony as
7 well. And do you expect these results by the end
8 of January 2022?

9 A By the end of -- retooling, we expect by the end
10 of January 2022. However, the Facility Study we
11 believe it might come next year, but PJM hasn't
12 given us a definite date for the Facility
13 Studies. But the retooling, we believe sometime
14 before January we should see the retooling done
15 on the AE1 queues.

16 Q Thank you. And you also mentioned with this
17 retooling that projects ahead of Shawboro may
18 reduce capacity or withdraw from the queue. What
19 is the basis for that statement?

20 A That's kind of what happens in every queue.
21 There are developers, maybe the costs are
22 allocated to them, they cannot proceed with the
23 project, so it kind of varies by decision --
24 business decision by each developer. So, they

1 could -- if the cost is so high, they could
2 decide to lower the capacity for their project or
3 they could decide to just drop out of the queue
4 altogether. So, it's based on each business
5 practice or each developer's business practice.

6 This has happened in the past in
7 other queues so that's kind of what we believe
8 will happen as well in this scenario.

9 Q And you also mentioned that Duke, DEP, may not
10 have to prepare a new Affected System Study, and
11 what's the basis for that statement?

12 A Duke actually performed their Affected System
13 Study for the PJM AE1 queue back in September. I
14 believe it was September 9th, 2021. So that was
15 just a couple of months ago that they performed
16 that. So right now, they're retooling all their
17 re-analyzation. We don't when they will do that,
18 so we do not want to hold onto the project for a
19 year if they're going to do it. We're not sure
20 when they will perform it, so we don't want to
21 just keep the docket open for a year waiting on
22 Duke when they just did one a couple of months
23 ago.

24 Q And, in general, how quickly is DEP or Duke

1 turning around these Affected System Studies?

2 A Unfortunately, I cannot state because it varies.

3 It depends on personnel's work load and things of
4 that nature. So, I'm not a hundred percent sure
5 how quickly they usually publish it, but it kind
6 of varies. Right now, unfortunately, we do not
7 know when that will come out.

8 Q Thank you. And then on page 5, getting to a
9 question Ms. Luhr asked you, you stated that
10 supplemental testimony -- she might not have gone
11 this far -- supplemental testimony should not be
12 required unless there are major changes to the
13 results of the studies. And what would you
14 consider major changes?

15 A If there's a change in cost of, let's say
16 \$20,000, \$20,000, something of that nature, that
17 is not big enough to make a dire decision on
18 that. If the cost is as strong, you know, is
19 way, way larger than expected, of course I would
20 want us, unless the Public Staff, to file. But
21 there are minimum costs associated with it. We
22 have seen changes such as \$30,000, which doesn't
23 really break a bank in terms of construction of a
24 solar facility. But anything above like

1 \$10 million, something of that nature, of course
2 we expect to defend that if we do decide to move
3 forward with a project. That's what I meant by
4 that.

5 Q Okay. Thank you. So that's a big range between
6 \$30,000 and \$10 million, but I'll --

7 A Yeah. I was just giving you an example. I'm
8 sorry.

9 Q But thank you, that was instructive. And then I
10 have one question from staff. In the
11 Application, you reference ongoing negotiations
12 to enter into a long-term Power Purchase
13 Agreement for the output of the proposed
14 facility. Has there been any progress in those
15 negotiations?

16 A Yes, there has been. We have -- and this might
17 be a conversation we may have to move into the
18 confidentiality phone call. But we do have an
19 entity that have -- that really we have a
20 contract that wants to purchase about over
21 500 megawatts, and this project, in particular,
22 is a backup. Because, as you know what's going
23 on with Duke, affected system upgrade issues
24 going on, we do not know what will happen to

1 other projects, so this particular project is a
2 backup.

3 In addition to that, we have
4 another entity that we are negotiating for this
5 project, but we have not dotted the lines and
6 signed that contract, because again, this one is
7 a backup to one that has already been signed.

8 Q And when you say this one is a backup, if the
9 other one goes through are you saying this
10 project will not move forward?

11 A No. This project will still move forward. We
12 have two PPAs. Two different entities. So, as
13 a -- we have various projects in the docket right
14 now that have not received their CPCN. So, let's
15 say, for instance, one of the projects, we are
16 not able to receive a CPCN for one of the
17 projects, this project becomes the backup for
18 that PPA. And let's say all the CPCNs we have in
19 the docket are approved with this particular PPA
20 entity. We have a second entity who will take
21 this project. So, that's kind of where we are
22 right now, because we're uncertain on what's
23 going on with a couple of dockets.

24 Q Okay. Thank you for that. And then on your

1 Exhibit 3, and I probably should have asked my
2 own group this but since I have you on the stand
3 I'm going to ask you, can you describe a little
4 bit -- you talk about the need for the facility
5 and there's discussion about the annual net
6 energy. Could you tell me what exactly the
7 annual -- how do you refer to annual net energy?
8 I looked in the PJM manual and I could not find a
9 PJM definition for it.

10 A Sure. That came from PJM January 2021 focus for
11 net energy in Dominion territory, and they were
12 projecting a .6 percent per year increase over
13 the next 10 to 5 -- 10 to 15 years actually. In
14 addition, they have the summer peak for Dominion
15 territory as well on a .5 percent increase over
16 10 to 15 years. So, that is just -- and what
17 they anticipate for the next 10 to 15 years
18 increase in the energy requirement for their
19 area.

20 Q Thank you. So, you're understanding of that --
21 the definition of that term is the same as
22 Mr. Lucas'?

23 A I believe so.

24 Q Okay. Thank you.

1 COMMISSIONER DUFFLEY: I have no further
2 questions. Commissioners, no other questions?

3 CHAIR MITCHELL: (Shakes head no).

4 COMMISSIONER CLODFELTER: (Shakes head no).

5 COMMISSIONER DUFFLEY: Questions on
6 Commission questions?

7 MR. EASON: None from the Applicant.

8 MS. LUHR: The Public Staff has no
9 additional questions.

10 COMMISSIONER DUFFLEY: Okay. Thank you.
11 Thank you, Ms. Nwadike.

12 THE WITNESS: Thank you, Commissioner.

13 (The witness is excused)

14 COMMISSIONER DUFFLEY: Mr. Eason, you've
15 finished your case?

16 MR. EASON: That completes our case, Madam
17 Chair. We will rest our Applicant's case.

18 COMMISSIONER DUFFLEY: Thank you. Ms. Luhr?
19 Go ahead, Mr. Eason.

20 MR. EASON: We had previously indicated in
21 the reply testimony that we would anticipate
22 submitting the retooling if it's received. So, when I
23 say completed it, that part we would supplement if
24 that occurs or if any developments occur with respect

1 to the output. We will be filing motions on any
2 supplemental events, but we're complete with the case
3 as of today's evidence.

4 COMMISSIONER DUFFLEY: Thank you, Mr. Eason.
5 We get to Public Staff's motion at the end of the
6 hearing. Ms. Luhr?

7 MS. LUHR: The Public Staff now calls Jay
8 Lucas to the stand.

9 COMMISSIONER DUFFLEY: Good morning,
10 Mr. Lucas.

11 JAY LUCAS;
12 having been duly affirmed,
13 testified as follows:

14 DIRECT EXAMINATION BY MS. LUHR:

15 Q Mr. Lucas, would you please state your name,
16 business address and position for the record?

17 A My name is Jay Lucas. My business address is 430
18 North Salisbury Street, Raleigh, North Carolina.
19 I am the Manager of Operations and Planning for
20 the Electric Section of the Energy Division of
21 the Public Staff.

22 Q And on October 19, 2021, did you prepare and
23 cause to be filed testimony consisting of 18
24 pages, an appendix, and five exhibits?

1 A Yes.

2 Q Do you have any changes or corrections to your
3 testimony, appendix or exhibits?

4 A No.

5 Q And if you were asked the same questions today,
6 would your answers be the same?

7 A Yes.

8 MS. LUHR: Commissioner Duffley, we request
9 that Mr. Lucas' testimony be admitted into evidence as
10 if given orally from the witness stand, and that his
11 exhibits be premarked.

12 COMMISSIONER DUFFLEY: Any objection?

13 MR. EASON: No objection.

14 COMMISSIONER DUFFLEY: Without objection,
15 the motion is allowed.

16 (WHEREUPON, Public Staff Lucas
17 Confidential Exhibits 1 - 4 and
18 Public Staff Lucas Exhibit 5 are
19 marked for identification.)

20 (WHEREUPON, the prefiled direct
21 testimony and Appendix A of JAY
22 B. LUCAS is copied into the
23 record as if given orally from
24 the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. EMP-117, SUB 0

In the Matter of)	TESTIMONY OF
Application of Shawboro East Ridge)	JAY B. LUCAS
Solar, LLC, for a Certificate of Public)	PUBLIC STAFF – NORTH
Convenience and Necessity to)	CAROLINA UTILITIES
Construct an 150-MW Solar Facility in)	COMMISSION
Currituck County, North Carolina)	

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION**DOCKET NO. EMP-117, SUB 0****Testimony of Jay B. Lucas****On Behalf of the Public Staff****North Carolina Utilities Commission****October 19, 2021**

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 SUPPLEMENTAL**
11 **TESTIMONY IN THIS PROCEEDING?**

12 A. The purpose of my testimony is to make recommendations to the
13 Commission on the request filed on June 22, 2021, for a certificate

1 of public convenience and necessity (CPCN) filed by Shawboro East
2 Ridge Solar, LLC (Shawboro or Applicant), to construct a 150-
3 megawatt AC (MW_{AC}) solar photovoltaic electric generating facility
4 near Shawboro in Currituck County, North Carolina (the Facility).

5 My testimony responds to the application and to matters raised in the
6 Commission's Order Scheduling Hearings, Filing of Testimony,
7 Establishing Procedural Guidelines, and Requiring Public Notice
8 issued on August 12, 2021 (August 12 Order).

9 I. **Background**

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

11 A. The application filed on June 22, 2021, included exhibits and the
12 direct testimony of witness Linda Nwadike. The Facility will
13 interconnect to the Shawboro-Sligo 230 kilovolt (kV) transmission
14 line owned by Virginia Electric and Power Company, d/b/a Dominion
15 Energy North Carolina (DENC). Because DENC is part of PJM
16 Interconnection (PJM), the Applicant is required to enter into an
17 interconnection service agreement with both entities. The Facility
18 has PJM queue number AE1-072.

19 On July 7, 2021, the Public Staff filed a Notice of Completeness and
20 Motion to Stay.

1 The August 12 Order denied the Public Staff's motion to stay, called
 2 for a public witness hearing on the application to be held on October
 3 14, 2021, and called for an expert witness hearing to be held on
 4 October 28, 2021. Additionally, the August 12 Order required the
 5 Applicant to respond to the following questions:

- 6 1. Are there any network upgrades to DENC's or any affected
 7 system's transmission system required to accommodate the
 8 operation of the Applicant's proposed facility? If so, provide
 9 the amount of network upgrades on DENC's or any affected
 10 system's transmission system, if any, required to
 11 accommodate the operation of the Applicant's proposed
 12 facility.
- 13 2. If there are any required system upgrades, does the Applicant
 14 have Levelized Cost of Transmission (LCOT) information for
 15 the system upgrades? If so, provide the LCOT information for
 16 any required transmission system upgrades or modifications.
- 17 3. Is there any interconnection study available for the proposed
 18 facility? If so, provide any interconnection study received for
 19 the proposed facility. If the Applicant has not received a study,
 20 provide a date by when the study is expected to be completed.
- 21 4. Is the Applicant aware of any system other than the studied
 22 system that is or will be affected by the interconnection? If yes,
 23 explain the impact and basis.
- 24 5. Is the Applicant proposing to sell energy and capacity from the
 25 facility to a distribution facility regulated by the Commission?
 26 If so, provide a discussion of how the facility's output conforms
 27 to or varies from the regulated utility's most recent integrated
 28 resource plan (IRP).
- 29 6. Is the Applicant proposing to sell energy and capacity from the
 30 proposed facility to a purchaser who is subject to a statutory
 31 or regulatory mandate with respect to its energy sourcing
 32 (e.g., a REPS requirement or Virginia's new statutory
 33 mandate for renewables)? If so, explain how, if at all, the
 34 proposed facility will assist or enable compliance with that

1 mandate. In addition, provide any contracts that support that
2 compliance.

3 7. Does the Applicant have a Power Purchase Agreement
4 (PPA), REC sale contracts or contracts for compensation for
5 environmental attributes for the output of the proposed
6 facility? If so, provide any PPA agreements, REC sale
7 contracts, or contracts for compensation for environmental
8 attributes for the output of the facility.

9 The questions above are similar to those asked by the Commission
10 in previous electric merchant power proceedings. Witness Nwadike
11 provided answers to these questions in her direct testimony.

12 **Q. PLEASE DESCRIBE THE STATEMENT OF NEED PROVIDED BY**
13 **THE APPLICANT FOR ITS PROPOSED FACILITY.**

14 A. Witness Nwadike provided a statement of need for the Facility in her
15 direct testimony and in her Exhibit 3. As a result of the Facility's
16 interconnection with DENC, the Facility has access to all load-
17 serving suppliers participating in PJM. Witness Nwadike stated that
18 the summer peak load in PJM is expected to grow by 0.5% per year
19 over the next ten to fifteen years. In the Dominion Virginia Power
20 Zone, energy requirements are expected to grow by 0.6% per year
21 over the next ten to fifteen years. The Applicant is in negotiations to
22 enter into a long-term power purchase agreement for the output of
23 the Facility.

1 **II. Affected System Potential Upgrades**

2 **Q. PLEASE DESCRIBE ANY TRANSMISSION SYSTEMS OTHER**
3 **THAN PJM THAT COULD BE AFFECTED BY THE FACILITY.**

4 A. Witness Nwadike stated that the Facility will not affect any
5 transmission systems other than PJM. The Public Staff submitted a
6 data request to Duke Energy Progress, LLC (DEP), inquiring about
7 the potential for affected system upgrades. In response, DEP
8 provided its Affected System Study Report, which indicated that the
9 Facility will not cause the need for affected system upgrades as long
10 as DEP completes the upgrades from an earlier queued project,
11 Sumac Solar, LLC,¹ which is assigned PJM queue number AD1-023.
12 However, on June 3, 2021, the Commission granted stays in the
13 applications of Sumac Solar, LLC, and Sweetleaf Solar, LLC,² which
14 is also in PJM's AD1 cluster. If DEP does not build the upgrades
15 needed for AD1-023, the Facility will cause approximately \$10 million
16 of affected system upgrades on the Everetts-Greenville 230-kV line.

17 In response to a Public Staff data request, DEP indicated that PJM
18 is retooling its analysis of PJM cluster AE1, and should be finished
19 in November or December of 2021. This retooling will likely require
20 DEP to restudy the effects of AE1 on its transmission system.

¹ Docket No. EMP-110, Sub 0.

² Docket No. EMP-111, Sub 0.

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

3 A. In the past, if one or more generators caused affected system costs,
4 the generators would be responsible for these network upgrade
5 costs, consistent with the Joint Open Access Transmission Tariff
6 (OATT) of Duke Energy Carolinas, LLC (DEC), Duke Energy Florida,
7 LLC (DEF), and DEP (collectively, Duke). However, pursuant to the
8 previous Duke OATT, upon commercial operation, the generators
9 that paid for the network upgrades would be entitled to receive
10 repayment from DEP of the entire balance of the network upgrade
11 cost plus interest, even if the upgrade was not needed to serve
12 customer load. Following repayment, DEP would seek to recover
13 those costs from its wholesale and retail customers.

14 **Q. PLEASE DESCRIBE DEP’S CURRENT PROCESS FOR**
15 **AFFECTED SYSTEM REVIEW AND COST RECOVERY.**

16 A. On October 1, 2020, Duke revised its Affected System Operating
17 Agreement (ASOA) template to assign the costs of affected system
18 network upgrades directly to the interconnection customer,
19 eliminating its prior policy of repayment to the interconnection
20 customer for the affected system costs.³

³ See Docket No. E-100, Sub 170, Duke Energy Initial Comments filed on October 7, 2020, at 4 (Section 6.1 of the “Affected System Operating Agreement template” for Duke Companies (DEP, Duke Energy Carolinas, and Duke Energy Florida) effective October 1, 2020, states “The Affected System Network Upgrades shall be solely funded by Customer.”).

1 **Q. DOES THE PUBLIC STAFF HAVE ANY CONCERNS REGARDING**
2 **REIMBURSEMENT FOR AFFECTED SYSTEM COSTS?**

3 A. Yes.

4 (1) On May 21, 2021, American Beech Solar, LLC (Docket No.
5 EMP-108, Sub 0) entered into an ASOA with DEP pursuant to
6 which American Beech agreed to pay DEP's costs for
7 construction of network upgrades without reimbursement for
8 such costs. On October 1, 2021, the Federal Energy
9 Regulatory Commission (FERC) issued an order rejecting the
10 ASOA between DEP and American Beech. In doing so, it
11 stated:⁴

12 . . . our evaluation of an ASOA that does not
13 require the affected system operator to
14 reimburse the interconnection customer for
15 network upgrade costs turns on a fact-specific
16 analysis of whether the filing party has shown
17 that a deviation from the Order No. 2003
18 reimbursement requirement is necessary or is
19 otherwise just and reasonable. As discussed
20 above, having conducted that analysis based on
21 the specific facts and record presented in this
22 case, we find that DEP has not demonstrated
23 that the DEP ASOA is just and reasonable.

24 If FERC similarly rejects future ASOAs in which
25 merchant facilities agree to pay costs of network
26 upgrades without reimbursement, or if DEP returns to

⁴ Order Rejecting Affected System Operator Agreement, Docket No. ER21-1955-002, 177 FERC ¶ 61,001, at 15 (Oct. 1, 2021).

- 1 its policy of reimbursement, such upgrades could
2 ultimately be paid for by DEP's customers.
- 3 (2) Edgecombe Solar, LLC (Docket No. EMP-101, Sub 0) has
4 filed a complaint against Duke before FERC challenging
5 Duke's elimination of affected system cost reimbursement
6 (Docket No. EL21-73-000).⁵ Currently, DENC has
7 approximately 7,000 MW⁶ of generation in the PJM
8 interconnection queue. This large amount of capacity could
9 trigger hundreds of millions of dollars in affected system
10 upgrades. If Edgecombe Solar, LLC, prevails at FERC, these
11 upgrades could be ultimately paid for by DEP's customers.
- 12 (3) An affected system could build network upgrades that go
13 unused for extended periods of time because some
14 interconnection projects withdraw from the queue late in the
15 review process. For example, over the past five years,
16 approximately 3,800 MW of proposed capacity entered PJM's
17 North Carolina queue but later withdrew. Over 3,600 MW of
18 that capacity was solar.

⁵ Edgecombe Solar Energy LLC v. Duke Energy Progress, LLC, Duke Energy Carolinas, LLC, and Duke Energy Florida, LLC, FERC Docket No. EL21-73-000. Edgecombe received a CPCN to construct a 75-MW solar facility in Edgecombe County, North Carolina in Docket No. EMP-101, Sub 0 by Commission Order dated November 13, 2020. The Public Staff is monitoring the status of the Edgecombe Solar Complaint at FERC.

⁶ This number includes a 1,210 MW solar project in Tyrrell County, North Carolina, that I describe more thoroughly below.

- 1 (4) If network upgrades on the Everetts-Greenville 230-kV line
2 are necessitated by the Facility, the upgrades could soon be
3 inadequate due to the needs of future facilities in PJM's North
4 Carolina queue. Because of future clusters, upgrades to
5 accommodate the Facility could soon need to be replaced
6 with even greater transmission assets long before the end of
7 their normal service life (40 to 60 years). As such, a large part
8 of the approximately \$10 million spent to upgrade the
9 Everetts-Greenville line, costs which could ultimately be borne
10 by DEP customers, could be wasted. For example, PJM
11 queue number AF1-236 is a proposed solar project in Tyrrell
12 County, North Carolina, that will affect the Everetts-Greenville
13 line. The project's capacity is 1,210 MW, which is eight times
14 larger than Shawboro's capacity. PJM expects the project to
15 be in service on September 30, 2024; however, DEP has not
16 yet completed an affected system study for PJM cluster AF1.
- 17 (5) PJM is retooling its interconnection review process and
18 should have the new results for cluster AE1 in November or
19 December of 2021. DEP will likely have to re-evaluate the
20 effect of cluster AE1 on its transmission system at that time.

1 **III. Network Upgrade Analysis**

2 **Q. DID WITNESS NWADIKE PROVIDE LCOT CALCULATIONS FOR**
3 **PJM NETWORK UPGRADES IN HER DIRECT TESTIMONY?**

4 A. Yes, in her direct testimony filed on June 22, 2021, witness Nwadike
5 provided an LCOT analysis for the network upgrades and DEP's
6 affected system upgrades based on the project's August 2019
7 System Impact Study. Shawboro later provided an updated LCOT
8 analysis in response to a Public Staff data request. This updated
9 LCOT analysis is attached as **Confidential Lucas Exhibit 1**.

10 In the updated analysis, Witness Nwadike determined an LCOT of
11 \$6.27 per MWh.

12 **Q. WHAT IS THE PUBLIC STAFF'S OPINION ON WITNESS**
13 **NWADIKE'S LCOT CALCULATION?**

14 A. The Public Staff does not disagree with witness Nwadike's LCOT
15 calculation; however, the Public Staff has developed an LCOT
16 calculation that uses the average capacity factor of the Facility over
17 its entire service life as shown in **Confidential Lucas Exhibit 2**,
18 rather than the capacity factor during the first year of operation. This
19 calculation yields an LCOT of \$6.89 per MWh. However, I have
20 concerns about use of the LCOT that I describe more fully below.

1 **Q. PLEASE DESCRIBE YOUR CONCERNS ABOUT USE OF THE**
2 **LCOT.**

3 A. On June 11, 2020, the Commission issued an *Order Denying*
4 *Application for a Certificate of Public Convenience and Necessity for*
5 *a Merchant Generating Facility* requested by Friesian Holdings, LLC
6 (Friesian), in Docket No. EMP-105, Sub 0. In that order, the
7 Commission found that, “The use of the levelized cost of
8 transmission (LCOT) provides a benchmark as to the
9 reasonableness of the transmission network upgrade cost
10 associated with interconnecting a proposed new generating facility.”

11 However, Finding of Fact No. 11 in the Commission’s order in the
12 Friesian case stated, “It is appropriate for the Commission to
13 consider the total construction costs of a facility, including the cost to
14 interconnect and to construct any necessary transmission network
15 upgrades, when determining the public convenience and necessity
16 of a proposed new generating facility.”

17 As noted in the concurring opinion to the Commission’s September
18 2, 2020 *Order on Reconsideration* in Docket No. EMP-107, Sub 0
19 (Halifax Order on Reconsideration), a properly-calculated LCOT may
20 be used as a benchmark to consider the overall costs of transmission
21 needed to interconnect a solar facility, but it is just one factor to be

1 considered in determining whether to grant a CPCN to a merchant
2 generating facility:⁷

3 Prior to the Federal Energy Regulatory Commission's
4 open access transmission rule, Order No. 888, and the
5 formation of regional transmission organizations, the
6 Commission would not approve siting of a true
7 merchant plant. When the Commission adopted Rule
8 R8-63 and opened the door for the construction of
9 merchant generating facilities, it was assumed that the
10 developer of a facility would bear all of the financial risk
11 and that no costs would be imposed upon retail
12 ratepayers other than those costs that would flow from
13 the purchase of power from the facility by a utility under
14 least cost principles. When that is still the case, the
15 LCOT analysis is less important. Whatever costs are
16 caused are borne by the developer and recovered
17 through the sale of power, which is bounded either by
18 such least costs principles if in a traditional bilateral
19 wholesale power market such as most of this State or
20 by the market clearing price in a restructured market,
21 such as PJM. When that is not the case, it is the
22 Commission's role and obligation to protect retail
23 ratepayers from unreasonable costs.

24 Furthermore, LCOT calculations can vary greatly depending on
25 chosen inputs, as shown in **Confidential Lucas Exhibits 3 and 4**.
26 Altering the inputs to the calculations can yield LCOTs ranging from
27 \$3.75 to \$7.31 per MWh for PJM costs only and from \$4.41 to \$9.58
28 per MWh for both PJM costs and DEP's affected system costs.

⁷ Order on Reconsideration, *Application of Halifax County Solar, LLC, for a Certificate of Public Convenience and Necessity to Construct an 80-MW Solar Facility in Halifax County, North Carolina*, No. EMP-107, Sub 0, at 2 (Mitchell, C., concurring) (N.C.U.C. September 2, 2020).

1 Therefore, while an LCOT can be a useful and informative
2 benchmark, it should only be considered as one factor in determining
3 whether to grant a CPCN.

4 **Q. DO YOU HAVE CONCERNS ABOUT APPLYING THE LCOT TO**
5 **THE COSTS OF AFFECTED SYSTEM UPGRADES?**

6 A. Yes.

7 (1) Currently, PJM has over 7,000 MW of capacity in its North Carolina
8 queue. Even if an LCOT for all or parts of this capacity is low, the
9 cumulative capacity could still trigger hundreds of millions of
10 dollars' worth of affected system upgrades that DEP's customers
11 would have to pay for. Furthermore, DEP's customers are currently
12 receiving reliable electric service without the upgrades.

13 (2) The LCOT calculation provides the ratio of the cost of transmission
14 needed to interconnect a generator to the amount of energy the
15 generator creates. The \$10 million cost for DEP's transmission
16 upgrade could be funded by DEP's customers; however, they will
17 not receive the energy. The benefit of the transmission upgrade to
18 DEP's customers, if any, is very limited.

1 **IV. Timing**

2 **Q. DOES THE CLUSTER STUDY REVIEW PERIOD AFFECT THE**
3 **PUBLIC STAFF'S REVIEW OF CPCN APPLICATIONS?**

4 A. Yes. The development of cluster studies and accurate cost estimates
5 for network upgrades can take years, but CPCN application review
6 by the Public Staff must be completed in just several months.

7 The Public Staff cannot provide a fully-informed recommendation to
8 the Commission on approval of a CPCN application without knowing
9 the effect of those upgrades on DEP's ability to provide safe and
10 reliable electric service and without knowing the potential costs to be
11 borne by the using and consuming public for network upgrades.

12 **V. Conclusions and Recommendations**

13 **Q. DOES THE PUBLIC STAFF HAVE ANY OTHER COMMENTS?**

14 A. Yes. The continued increase in non-utility generation seeking to be
15 constructed and interconnected in North Carolina raises questions
16 about the costs and long-range needs for the generation. The
17 amount of capacity in PJM's interconnection queue for North
18 Carolina is over 7,000 MW and is large compared to the 1,863 MW
19 of capacity that has been recently reviewed by or is pending before
20 the Commission. **Lucas Exhibit 5** provides a summary of these
21 recent proceedings.

1 As of December 31, 2020, DEP had over 2,700 MW of solar capacity
2 operating in North Carolina and DEP's interconnection queue for
3 North Carolina had over 3,200 MW of solar capacity.⁸

4 **Q. WHAT IS THE PUBLIC STAFF'S RECOMMENDATION ON**
5 **SHAWBORO'S APPLICATION FOR A CPCN?**

6 A. The Public Staff has reviewed the application, the direct testimony of
7 witness Nwadike, and other evidence in the record and obtained
8 through discovery. The Public Staff recommends that the
9 Commission hold the record in this docket open until after the
10 following:

- 11 i. PJM releases its retooling of PJM cluster AE1, which is
12 scheduled for November or December of 2021; and
13 ii. DEP completes its study of the retooling and develops a
14 revised affected system study if necessary.

15 The Public Staff requests that, upon the completion of the two items
16 above, the Commission issue an order requiring the Applicant to file
17 supplemental testimony addressing the new studies by PJM and
18 DEP, and allowing the Public Staff to file supplemental testimony.

19 In the alternative, the Public Staff recommends that the Commission
20 approve the application subject to the following conditions:

⁸ DEP's 2020 Small Generator Interconnection Consolidated Annual Report filed on March 31, 2021, in Docket No. E-100, Sub 113B.

- 1 i. The Applicant shall notify the Commission of any significant
2 change to the cost estimates for the construction of the Facility
3 itself, interconnection facilities, network upgrades, or affected
4 system costs within 30 days of becoming aware of such
5 revisions.
- 6 ii. That the Applicant file a copy of any executed Affected
7 System Operating Agreement (ASOA) with the Commission
8 at the same time such filing is made at FERC (at least 61 days
9 prior to commencing construction on the upgrades).
- 10 iii. If at any time the Applicant seeks to be reimbursed for any
11 interconnection facilities, network upgrade costs, affected
12 system costs, or other costs required to allow energization
13 and operation of the facility, the Applicant shall notify the
14 Commission.
- 15 iv. The three conditions above shall cease after commercial
16 operation if no reimbursement of costs to the Applicant have
17 been paid or agreed to via a legal binding agreement or
18 contract. If reimbursement does occur, the conditions will
19 cease upon the completion of full reimbursement of costs to
20 the Applicant. The Applicant shall file in this docket the total
21 amount reimbursed by DEP and the end date of the
22 agreement or contract.

- 1 Q. DOES THIS CONCLUDE YOUR TESTIMONY?
- 2 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 U. S. 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. Since September 2020, I have been the Manager of the Electric Section – Operations and Planning in the Public Staff’s Energy Division. I am a licensed Professional Engineer in North Carolina.

1 COMMISSIONER DUFFLEY: You may proceed.

2 MS. LUHR: The witness is available for
3 cross examination.

4 MR. EASON: The Applicant has no questions
5 for the witness on his prefiled. We'll reserve with
6 respect to any questions asked by the Commission.

7 COMMISSIONER DUFFLEY: Okay. Thank you.
8 Any questions? Chair Mitchell?

9 CHAIR MITCHELL: I have a few for you,
10 Mr. Lucas.

11 EXAMINATION BY CHAIR MITCHELL:

12 Q How are you doing this morning?

13 A Good. Thank you.

14 Q Do you have your testimony in front of you?

15 A Yes, I do.

16 Q I'll do my best to refer you to pages where I've
17 written that down in my notes. So, I'm going to
18 start on page 16 where you -- page 16, line 11,
19 you reference PJM's retooling of its cluster AE1.
20 What do you mean by "retooling"?

21 A Projects have dropped out of PJM's queue, it
22 might have been in this cluster or earlier
23 clusters, that will affect the projects in
24 cluster AE1. So, PJM is having to go back in and

1 reevaluate the System Impact Statements for those
2 facilities. So, we could end up with different
3 interconnection costs and different affects on
4 Duke Energy Progress as a result of the
5 retooling.

6 Q Thank you for that, Mr. Lucas. How often does
7 retooling and sort of a re-study occur for any
8 one cluster in PJM?

9 A We don't know. We just found out about retooling
10 just a few months ago. PJM announced starting
11 with cluster AD1, it's going to start retooling
12 its clusters based on projects dropping out.
13 This is the first iteration of retooling that I
14 know of.

15 Q Is retooling PJM's terminology?

16 A Yes. They call it retooling.

17 Q Okay. And so, Mr. Lucas, to the extent that you
18 know this, at what point does PJM deem a
19 cluster -- a study to be final and actionable,
20 actionable by the interconnection customer?

21 A I believe once every project has completed its
22 Facility Study it deems it to be final.

23 Q Okay. I'm just curious on this one, with respect
24 to this project, my understanding, now you tell

1 me if I'm wrong about this, but my understanding
2 is the projected in-service date of end of 2022.
3 And so if PJM goes in and retools AE1 sometime
4 during 2022 such that the final studies aren't
5 complete until 2023, and this project is actually
6 already in service by then, what happens to this
7 project? Is there any effect on this project
8 from the retooling?

9 A I don't believe PJM will retool after it issues a
10 Facility Study. And the project can't start
11 construction until after the Facility Study and
12 actually a little bit later, until it completes
13 an Interconnection Services Agreement.

14 Q Well, that helps me. That sort of puts things in
15 line for me, and that makes complete sense. All
16 right Mr. Lucas, you testify in this proceeding
17 as well as in other proceedings before the
18 Commission with the Public Staff's -- regarding
19 the Public Staff's concerns on the use of the
20 LCOT. And you know -- and previously the
21 Commission has used the LCOT as sort of a
22 benchmark for the reasonableness of
23 interconnection upgrade, network upgrade costs
24 associated with any specific project.

1 Help me, putting aside for a
2 minute the concerns that you and the Public --
3 that you have expressed on behalf of the Public
4 Staff about the use of the LCOT in general, what
5 is a -- what do you believe is a sort of a range
6 of reasonableness or a reasonable zone for the
7 Commission to establish for the LCOT? If the
8 Commission were to continue to look at the LCOT
9 as a benchmark for reasonableness, what is a
10 reasonable range?

11 A We have not been able to determine that yet.
12 Because there's some other factors that go into
13 the decision, total construction costs, other
14 factors that affect the transmission that a
15 utility might be building, at this time we can't
16 give a range.

17 Q Okay. Is it -- do you think it -- I'm going to
18 push you a little bit here, Mr. Lucas. Is it the
19 Public Staff's -- let me just ask you about your
20 opinion. Is it your opinion that it's impossible
21 to establish a reasonableness, a range of
22 reasonableness, because of other factors as
23 you've just described?

24 A I think it's difficult. One reason is we receive

1 CPCN Applications one at a time, but with these
2 cluster studies by PJM, and also these grouping
3 studies by Duke Energy, these projects are all
4 considered together. It's difficult for the
5 Public Staff to match up a construction LCOT for
6 one project knowing that there are other projects
7 that will influence the total transmission
8 construction costs. I believe we have a little
9 work to do in that area.

10 Q Okay. All right. So -- okay. You know, in
11 previous proceedings in previous dockets the
12 Commission has looked at the LCOTs identified by
13 the LBNL Study. Do you know which study I'm
14 referencing?

15 A Yes.

16 Q The 2019 LBNL Study.

17 A Yes.

18 Q We've compared the LCOT for a particular
19 application in front of us at the time to the
20 data in that study and making -- in our
21 consideration on a particular application. Is it
22 your opinion that that's no longer an appropriate
23 thing for the Commission to do and no longer an
24 appropriate analysis for the Commission to make?

1 A I think it's still valid. One thing I need to
2 point out is the LCOTs are a cost benefit ratio.
3 It's the cost of the transmission. It's LCOT's
4 dollars per-megawatt-hour, so it's a cost of
5 transmission applied by the megawatt hours that
6 that facility will put onto the grid. We've got
7 problems, particularly in these cases in PJM,
8 where Duke Energy Progress's customers are going
9 to be paying the dollars to make the affected
10 system upgrades but they're not getting the
11 energy.

12 Witness Nwadike pointed out that
13 they might have some offtakers but those
14 offtakers are not in North Carolina, so we'll
15 have citizens in North Carolina paying for
16 transmission but the energy is going somewhere
17 else. They're not getting the benefit of their
18 transmission dollars. And that -- in that
19 scenario the LCOT does lose some of its meaning.

20 If Duke Energy Progress were
21 building transmission for solar facilities that
22 were providing energy to Duke Energy's customers,
23 that would be different. It would be more valid
24 to show that Duke Energy Progress's customers are

1 paying dollars and they're getting a certain
2 amount of megawatt hours through that
3 transmission they're paying for.

4 Q Thank you, Mr. Lucas. Expound a little bit on a
5 point that you just made about benefits
6 associated with the transmission. I think I
7 heard your -- I think your testimony is that DEP
8 customers aren't benefiting from the transmission
9 they're paying for. Did I hear that? Is that
10 your testimony?

11 A Generally it is. Duke Energy Progress's
12 customers could get some benefit but they're
13 certainly not getting all of the megawatt hours
14 from this solar facility. There could be some
15 small system reliability improvement but no one
16 has quantified that.

17 Q Okay. You testified to this just a moment ago in
18 response to my question about the LCOT and the
19 utility of the LCOT at this point in time, or the
20 validity of the LCOT at this point and time, but
21 I'm hearing your -- I'm hearing you say that the
22 cluster study and the grouping study approach
23 analyzed these projects, you know, as a cluster
24 or as a group, so it makes a project-by-project

1 analysis and recommendation difficult. So, what
2 do we do? How do we consider these projects in
3 the aggregate? What's the best way for us to
4 move forward here on an individual application in
5 light of the fact that projects are being studied
6 now as a group or as a cluster?

7 A I think it's difficult to proceed on reviewing an
8 application. I think we need to do more analysis
9 of the transmission system and what do we really
10 need. What we're receiving are applications that
11 require a transmission upgrade. We know there
12 are other applications or facilities that haven't
13 even thought of the application that also need
14 transmission upgrades.

15 I really can't answer your
16 question. I don't know exactly how to proceed
17 with these individual applications knowing that
18 they're being studied as clusters. Perhaps we
19 need to take a step back and do some analysis of
20 these applications, not just Shawboro, but
21 others.

22 Q And when you say analysis, what specifically do
23 you mean? What would you be looking at? Or what
24 should we the Commission be looking at?

1 A The long range needs of all transmission that we
2 can reasonably anticipate for these projects.
3 And I need to not talk about Duke Energy. I need
4 to be talk about what we have in PJM.
5 Unfortunately, we're restricted by the Federal
6 Energy Regulatory Commission. We have lots of
7 projects being built in North Carolina's
8 territory for PJM that aren't providing any
9 energy to North Carolina's customers. As long as
10 these projects do pay their affected system
11 upgrade cost, like Shawboro has agreed to pay
12 them, FERC might not let us do that, as long as
13 they all agree, Public Staff's concerns go away.
14 I believe we --

15 Q Let me stop you right there, Mr. Lucas, just so I
16 can understand -- make sure I understand
17 correctly. So, is it your testimony that if an
18 Applicant like a Shawboro voluntarily agrees to
19 accept the costs associated with the upgrades,
20 the Public Staff's concern about transfer of
21 costs to retail ratepayers in North Carolina goes
22 away?

23 A No, because what was -- I wish it would work that
24 way. But we have the American Beech for ruling

1 where American Beech and Duke Energy Progress
2 agreed through an Affected System Operating
3 Agreement that American Beech would pay the
4 affected system costs. On October 1st, FERC
5 rejected that and urged Duke Energy to start
6 building the transmission expeditiously. It
7 would be good if that didn't happen. It would be
8 good if these systems like Shawboro agreed to pay
9 their affected system costs and we could proceed
10 in that manner.

11 Q Are you -- Mr. Lucas, is it your testimony or is
12 your opinion that the American Beech ruling casts
13 some doubt on or otherwise creates uncertainty
14 around an Applicant's ability to voluntarily
15 assume those costs?

16 A Yes. And I did quote a little bit of that in my
17 testimony. I'm looking for it.

18 Q You did and I reviewed that, so don't spend time
19 looking for that. I want --

20 A I found it. It's just -- and FERC did say based
21 on the specific facts of the case, so it looked
22 like it would not set precedent, but I could see
23 this easily happening in other cases.

24 Q In your testimony you point out that in the PJM

1 queue right now there are 7000 plus megawatts to
2 be, you know, to be proposed for study and
3 interconnection, and that there are -- that sort
4 of dwarfs that roughly 1800 megawatts that have
5 actually applied for a CPCN, or for which we have
6 approved a CPCN at this point in time.

7 Help me understand, I need you to
8 provide me with some context about cost, cost
9 implication of the 7000 megawatts or whatever
10 comes to us from the 7000 megawatts. What does
11 that look like for -- what is -- what do you know
12 as a member of the Public Staff about the
13 potential cost that could be imposed upon DEP
14 retail ratepayers associated with these projects
15 that are currently pending in the PJM
16 interconnection queue?

17 A My fear is that it could be hundreds of millions
18 of dollars of transmission upgrades for affected
19 system transmission upgrades that would have to
20 be paid for by Duke Energy Progress's customers.

21 The clearest example we have is
22 this PJM Cluster AC1. That's a few hundred
23 megawatts of solar projects and the affected
24 system costs are \$31 million. That's what the

1 American Beech project is in. It's in PJM
2 cluster AC1. So, that few hundred megawatts of
3 capacity right now determine \$31 million of
4 upgrades for Duke Energy Progress so -- and
5 that's Cluster AC1. That was opened up in April
6 of 2016. We have several clusters later with
7 thousands of more megawatts coming on. So, we
8 are really concerned. This could be a big deal
9 for Duke Energy Progress to pay for.

10 Q And is this sort of argue -- you know, the
11 hundreds of millions, is that an informed number
12 or is that kind of a worst-case scenario number?
13 I'm trying to understand how much the Public
14 Staff knows specifically about costs that are --
15 cost implications for DEP network upgrades.

16 A It is a worst-case scenario and we don't know
17 specifically because a lot of the studies that we
18 need are not ready. I'm just using my example of
19 cluster AC1, that one cluster triggering
20 \$31 million. So, with these later clusters, and
21 I do mention in my testimony there's one project
22 planned for Tyrrell County. That one project is
23 1200 megawatts. We don't know what the effects
24 are at all on that one.

1 Q Okay. And so, Mr. Lucas, would it be impossible
2 for the Public Staff to have a better
3 understanding, a more informed understanding, of
4 affected system cost implications until DEP
5 actually performs some sort of study?

6 A Yes, that's correct.

7 Q Okay. And the studies are informed by what's
8 being proposed so --

9 A Yeah. And I consider -- really it's just the
10 risk that Duke Energy Progress's customers are
11 carrying. It's -- there's so many unknowns and
12 there's so much risk it's got us very concerned.

13 Q Okay. Have you all - has the Public Staff
14 engaged with project -- with Duke Energy Progress
15 on this issue? Meaning -- let me ask the
16 question differently.

17 Has the Public Staff had direct
18 conversation with Duke Energy Progress about its
19 concerns associated with the affected system cost
20 implications arising from the PJM interconnection
21 queue?

22 A Yes. It's been a few months. But we didn't
23 become aware of this problem until May of 2020.
24 And we've had a conversation with Duke Energy and

1 they confirmed yes we have lots affected system
2 studies in process but a lot they haven't
3 completed.

4 Q And is it the --

5 A I believe it's --

6 Q Does the Public Staff have an informed opinion
7 about whether Duke Energy Progress is devoting
8 sufficient resources to studying this issue at
9 this point in time?

10 A I can't give an opinion on that because I don't
11 know how Duke Energy is receiving the information
12 from PJM. We've seen some filings at FERC that
13 are critical of the communication between PJM and
14 Duke Energy Progress. One thing that Duke Energy
15 has to face and it can only react to what PJM
16 gives it. So I -- Duke Energy has been
17 cooperative with the Public Staff. They answer
18 all of our questions but they can't move faster
19 than what PJM gives to them.

20 Q Understood. Understood. And thank you for that
21 explanation. Has the Public Staff engaged with
22 PJM on this issue?

23 A Yes. We've -- I've talked some to PJM and they
24 do provide these System Impact Statements. But

1 this problem of retooling just arose. And
2 it's -- the schedule slid some already, it slid a
3 couple of months from what they originally
4 projected.

5 Right now, I think Witness Nwadike
6 is right. We're expecting more information in
7 January of 2022 for cluster AD and AE. But PJM
8 is complicated and it is somewhat difficult to
9 understand all of their processes, because they
10 of course don't operate like a vertically
11 integrated utility. But they are responsive to
12 our questions lately.

13 Q And when you say lately, were they previously not
14 responsive in the way that they are now more
15 responsive?

16 A Yeah, I believe so. We had trouble getting
17 information from them earlier but that's
18 improved.

19 Q Okay. Mr. Lucas, thank you for entertaining my
20 questions and for responding.

21 CHAIR MITCHELL: That's all from me for now,
22 Commissioner Duffley.

23 COMMISSIONER DUFFLEY: Thank you.
24 Commissioner Clodfelter?

1 COMMISSIONER CLODFELTER: (Shakes head no).

2 COMMISSIONER DUFFLEY: Okay. Thank you. I
3 have a few follow-up questions and a few questions of
4 my own. Chair Mitchell asked several that I was going
5 to ask. But I did want to follow up on the 7,000
6 megawatts and this triggering hundreds of millions of
7 dollars in affected system costs.

8 EXAMINATION BY COMMISSIONER DUFFLEY:

9 Q So, I think I heard you say that you don't really
10 have hard data, that you were using the AC1
11 cluster maybe as a kind of benchmark to come up
12 with the hundreds of millions of dollars; is that
13 accurate?

14 A Yes.

15 Q Thank you. And do you know or have any idea of
16 the percentage or the number of megawatts out of
17 that 7000 that will most likely be built?

18 A No. And that's sort of put in my testimony, just
19 in the past five years 3600 megawatts of solar
20 has dropped out of PJM's queue and that's just in
21 North Carolina. So, it is very difficult to pin
22 down, and I see why PJM has to retool. Lots of
23 big projects to drop out, all the transmission
24 has to be restudied because the way PJM evaluates

1 these projects is they depend on earlier queue
2 projects completing their upgrades to study later
3 projects. And, if those earlier projects drop
4 out and those upgrades aren't there for the later
5 projects, it requires a restudy.

6 Q And is there a way for the Commission to find out
7 this information regarding the speculative
8 projects or is that what the retooling will
9 provide?

10 A It's possible to delve deeper into PJM's
11 analysis. The problem is there's just so many
12 projects in various stages of interconnection.
13 There are a lot of pieces and there are a lot of
14 steps as they move along. Perhaps we could work
15 more closely with PJM and understand what
16 projects are dropping out, when they're most
17 likely to drop out, and understand better what
18 the capacity of those projects are and how
19 they're affecting the grid.

20 Q Thank you. And I just kind of want to get a
21 handle of the load in this area where the
22 projects are being built. Do you know what the
23 current peak load or the load profile looks like
24 for DENC?

1 A I don't know. We -- I knew -- we knew a few
2 years ago. I think average load is around
3 500 megawatts. We could ask about peak load and
4 get that information.

5 One thing that concerns us is
6 these solar facilities, of course, run during the
7 daytime. And if we have weekends where there's
8 low load, all of this solar capacity would
9 generate far more energy than what Dominion
10 Energy North Carolina needs. That energy will
11 proceed northward into PJM.

12 Q Thank you. You also mentioned that affected --
13 that an affected system could build upgrades that
14 could go unused for extended periods of time
15 because the projects may withdraw. And so my
16 question that I'm trying to get a handle on is,
17 for example, when you're discussing the value of
18 storage, there's a benefit in the deferral of a
19 transmission asset and there's a dollar value
20 assigned to it with that deferral of the assets.
21 And in your example you're stating there may be
22 some extended lumpiness in the build and of the
23 affected system, and that it might be built too
24 early. And I don't think that you're saying that

1 it would never be needed, but correct me if I'm
2 wrong, but that it's being built potentially too
3 early.

4 And so, in the ANOPR comments, you
5 know, some are stating that it might be a good
6 idea to proactively build transmission and that
7 might be a more efficient way to build out the
8 transmission system during this energy
9 transition.

10 And so, what I'm trying to get a
11 handle on is how do these dollars compare. You
12 know, the proactive build dollars and the
13 benefits for this proactive build versus the
14 dollars that are assigned to transmission
15 deferral. So, I mean, has anyone ever compared
16 those dollar amounts or am I off the chart,
17 meaning am I comparing apples and oranges?

18 A No, that's a good comparison. Of course, this
19 transmission has to be built before these
20 generators can be turned on and activated.

21 One of our concerns is who pays
22 for that transmission upfront and who carries the
23 cost and who's receiving the benefit. And it
24 almost doesn't seem fair, because within DENC in

1 PJM, the solar developers have to pay for all
2 their upgrade costs that it takes to move their
3 energy. But just a short distance away in Duke
4 Energy, FERC requires Duke Energy's customers to
5 pay for it. They don't require these developers
6 to pay for their transmission, just because they
7 happen to be living nearby.

8 But to your point, I believe it
9 would be wise to start planning for this large
10 level of transmission and figure out a fair
11 funding mechanism to get the transmission built
12 ahead of the generation.

13 Q Thank you for that. You also talked about how
14 the money spent could be wasted because another
15 upgrade could come along and so that it's not --
16 it doesn't fulfill -- the upgrade doesn't last
17 its full useful service life. So, could you just
18 describe a little bit more, what do you mean by
19 "wasted".

20 A Okay. That's a good question. For example, in
21 this case, Shawboro will affect a transmission
22 line. It's called the Everetts-Greenville line.
23 Shawboro is 150 megawatts, but we've got a System
24 Impact Study for a 1200-megawatt system, so it's

1 eight times larger than Shawboro, in Tyrrell
2 County. If Duke Energy has to make affected
3 system upgrades to allow for Shawboro or an
4 earlier queued project that would allow Shawboro
5 to interconnect, Duke Energy could go back in and
6 have to replace the wire that it just put in. If
7 the wire size to accommodate Shawboro and some
8 earlier queued projects is not sufficient to
9 allow this very large project in Tyrrell County,
10 Duke Energy would have no choice but to take down
11 the wire after a few years and replace it with
12 larger wire.

13 In our conversation with Duke
14 Energy, another thing, we have some other smaller
15 transmission that's affected by some of these
16 projects. The Rocky Mount-Battleboro line,
17 that's only 115,000 volts. What happens up to a
18 point, a certain transmission voltage can't
19 handle but a certain size wire, so not only are
20 you going to have to put a larger wire on a
21 transmission system, you'll have to take the --
22 or replace it with something of larger voltage,
23 build a whole new transmission line at a higher
24 voltage to accommodate the solar.

1 But sort of going back to the
2 Everetts-Greenville problem, these transmission
3 wires are supposed to last many years, 40 years,
4 50 years. It's -- and there's a lot of
5 installation costs to install them and take them
6 down. So, it's crucial with all this money being
7 wasted within a few years.

8 Q Okay, thanks. So, that's good information. So,
9 when you're talking about incremental upgrades
10 say on a 230-kV line, you're saying that you're
11 not just adding an additional increment on top of
12 what has just been built. They physically --
13 even with the increments on the same voltage, you
14 have to take one wire down and put a new wire,
15 replace it.

16 A Yes, at the same voltage. But there's a limit to
17 the size of wire that one voltage can handle.

18 Q Okay. And how many times typically can a line be
19 upgraded before you have to go to a next step up?

20 A I'm not sure the number. Each voltage has a
21 certain number of wire sizes that it can handle.
22 There's a few different wire sizes for each
23 voltage. I don't have that information but I can
24 get it.

1 Q Okay. Thank you. And why is it more appropriate
2 to calculate the LCOT using a facility's average
3 capacity factor versus its first-year capacity
4 factor? And how much do capacity factors degrade
5 for solar facilities over time?

6 A The LCOT uses the total energy that a facility
7 would generate over time. In some of these
8 projects it's about a 40-year service life.
9 We've seen degradation usually about one half of
10 a percent per year. So what's happening is the
11 facility is putting out less and less energy, a
12 little bit less and less every year, and that
13 also is reducing the capacity factor.

14 I've testified here I disagreed
15 with some of what Witness Nwadike used. My
16 calculation wasn't different by much. I think my
17 LCOT was maybe 10 percent higher than hers but I
18 think it is more appropriate. The capacity
19 factor of a solar facility is going to go down
20 every year a little bit, so I think it's more
21 appropriate to use the -- or to consider the
22 output of a facility in the later years to
23 calculate the LCOT because the LCOT is a
24 long-range projection of a facility's

1 effectiveness or cost-effectiveness.

2 Q Thank you. And we heard Ms. Nwadike state that
3 with this retooling that she didn't see any type
4 of change or drastic change in the potential
5 affected system upgrades in the present case. Do
6 you agree with that testimony or what is your
7 opinion?

8 A I can't agree to that yet because I really have
9 no idea as to what the retooling is going to
10 cost. I don't know what has dropped out that's
11 going to trigger this retooling.

12 Q And with this retooling, I saw that the AD1
13 cluster was part of this retooling as well. I
14 know that this is not part of the case, so you
15 may not have the answer, but in the AD1 cluster
16 there were not affected system costs for some of
17 those projects. With this retooling, could those
18 projects be assigned affected system costs for
19 AD1 cluster?

20 A Yes. Shawboro is dependent on some improvements
21 to be done in the AD1 cluster. If some of those
22 projects drop out, it could push more costs onto
23 Shawboro. One thing I --

24 Q But my question is if a project originally did

1 not, in the AD1 cluster, did not have affected
2 system costs, could this retooling change that
3 result?

4 A Yes, if that project was dependent on some
5 earlier improvements.

6 Q Okay. Thank you. And, so I believe I heard the
7 Applicant agree to wait until PJM releases its
8 retooling. And my question to you is what's the
9 purpose served by waiting for the affected system
10 results from DEP?

11 A Yes. The retooling will indicate some lines that
12 DEP might need to improve, but I believe we
13 should have waited until DEP completes its
14 Affected System Study because we won't know the
15 costs that DEP is going to have to pay until they
16 complete that Affected System Study.

17 Q But -- and I guess -- I guess where I'm headed,
18 and you spoke to Chair Mitchell about this, with
19 respect to the cumulative impacts to DEP's
20 customers, where is the tipping point? You know,
21 at some point in your opinion, do you think that
22 the Public Staff will come to the point that they
23 recommend the denial of the grant of a CPCN?

24 A Oh, yes, that could easily happen. If Duke

1 Energy Progress's customers are paying for
2 transmission that does not benefit them at all,
3 we would definitely recommend denial.

4 Q Okay. Do you have any idea at this point where
5 that tipping point might be?

6 A Do you mean in dollar costs?

7 Q However you would define, make that decision.

8 A I could put a dollar on it, but if we determine
9 that the costs to DEP's customers were de minimus
10 of almost no effect on their bills, the Public
11 Staff could recommend acceptance of the CPCN.

12 Q Okay. And so what would that affect on the
13 bills, like what percentage of bill increase do
14 you think could potentially change Public Staff's
15 or leave Public Staff to seek a denial of a CPCN,
16 if you know? If you don't know, that's okay.

17 A No. No. I can provide some answer to that. We
18 can't calculate it down to a percentage increase
19 in a customer's bill because of the number of
20 projects coming in. If it was just a small
21 fraction of 1 percent for one CPCN, on face value
22 it might look good, but we have to understand
23 there are hundreds of projects in the queue for
24 Dominion and for Duke Energy, so this cumulative

1 effect can -- would be large.

2 One example is the Friesian case
3 in EMP-105. That system required somewhere in
4 the neighborhood of \$200 million in upgrades for
5 that one project, and it -- that was significant
6 enough to calculate a percentage effect on
7 customers bills, but it was easy to assess that
8 because it was one project. The Public Staff is
9 concerned about the cumulative effect of these
10 hundreds of projects coming along and the total
11 cumulative effect on these customers bills.

12 Q Thank you. And you were talking with Chair
13 Mitchell about that DEP's customers might be able
14 to receive a small reliability benefits
15 potentially. Are those small reliability
16 benefits quantifiable?

17 A Perhaps they are, but I don't believe anyone has
18 done any reasonable work on it. To say if Duke
19 Energy Progress's customers pay for these
20 upgrades even though they're not getting its --
21 the energy, there's some quantifiable benefit, I
22 don't think anyone has done anything reasonable
23 on that.

24 Q Okay. Thank you for that.

1 COMMISSIONER DUFFLEY: Those are all of my
2 questions. I'll follow up with the Commissioners to
3 see if they have any follow-up questions. No. Okay.
4 Questions on Commission questions?

5 MS. LUHR: I just have one quick question
6 for Mr. Lucas.

7 COMMISSIONER DUFFLEY: And Mr. Eason, you
8 were on mute. Do you have questions?

9 MR. EASON: Yes, I do. I apologize. I am
10 on mute. But I do have some questions on the
11 questions. If the Public Staff wanted to go first or
12 would I go first?

13 COMMISSIONER DUFFLEY: Yes, you go ahead.

14 EXAMINATION BY MR. EASON:

15 Q Mr. Lucas, I wanted to just ask a few questions.
16 A couple of times in your testimony you alluded
17 to the fact that the 40-year useful life and the
18 fact that it is a conceivable possibility that if
19 upgrade costs were made for a specific project
20 that subsequent projects might require upgrades
21 shorter than that 40-year period. Am I
22 understanding that's one of the concerns you have
23 when you use the term "waste"?

24 A Well, there are two ways I've talked about that.

1 One of them is the fact that some transmission
2 might be built too soon to accommodate solar
3 facilities that later get canceled. Another way
4 I talk about waste is construction of
5 transmission assets that are inadequate to serve
6 a later queued project, even just a few years
7 later, and those transmission assets would have
8 to be removed and increased to accommodate a
9 later project.

10 Q So, in the second instance, the construction
11 queue to accommodate a later project, isn't that
12 something that could happen with regard to an
13 incumbent-owned facility as well?

14 A It could happen but these projects are coming in
15 such short order. We used to build generating
16 plants that were many years apart in
17 construction, but now with this large increase of
18 facilities in PJM's North Carolina queue they are
19 just a few years apart. And I guess another
20 point is when incumbent utilities build
21 transmission assets it's to serve that utility's
22 customers.

23 Q Well, I was -- that's what I was going to
24 mention. You've referenced the examples that one

1 of the concerns you had with LCOTs were that
2 there is no benefit of the energy to the
3 ratepayers of DEP that may have a share. Isn't
4 that true with respect to any third-party-owned
5 generation that's not being sold to a North
6 Carolina entity?

7 A That could be if a third-party generator is built
8 somewhere in North Carolina and it sends that
9 energy to another state, it's a possibility that
10 North Carolina customers could be paying for
11 transmission that's not serving them.

12 Q Well, in regards to that, is there any benefit to
13 the North Carolina ratepayers of Duke Energy
14 Progress to having a competitive wholesale
15 transmission market or a competitive wholesale
16 power market adjacent to it?

17 A That's beyond what's under consideration in this
18 case. That's a much larger question.

19 Q But is that capable of calculation what the
20 benefit the North Carolina ratepayers in the
21 Progress area have enjoyed as a result of the
22 federal competition policies?

23 MS. LUHR: Objection. I think we're going
24 beyond the scope of the Application at hand in this

1 case.

2 MR. EASON: Madam Chair, I think that's
3 precisely the point. They are concerned about a
4 asset, a generation resource that's directed toward a
5 federal market that's competitive, and the problems
6 it's causing for a market where it's a non-vertically,
7 excuse me, is a vertically-owned integrated
8 transmission owner. I mean, that seems to be the
9 problem that Atlantic Beech is raising. I think it's
10 all over the testimony in this docket.

11 COMMISSIONER DUFFLEY: Well, I think I heard
12 Mr. Lucas say that he wasn't prepared to testify, but
13 I'll allow him to testify to what he can testify to.

14 A I'm not really prepared to testify about
15 competitive markets at this time.

16 BY MR. EASON:

17 Q Well, the reason I'm asking, does the Public
18 Staff attribute any value to the North Carolina
19 intrastate ratepayers of having the wholesale
20 competitive market or a competitive market where
21 there's competition in the ownership of
22 transmission assets?

23 A I don't know. For one thing, the Commission
24 doesn't really regulate the wholesale markets.

1 Q Well, I understand that. This Commission
2 doesn't.

3 A Yes.

4 Q Well, the point that you're making that there's
5 no benefit to the energy, isn't it basically an
6 indirect assertion that you the Public Staff
7 disagrees with having a competitive -- a
8 difference in policy for vertically-owned
9 transmission and independently-owned
10 transmission?

11 A Well, that's not really the Public Staff's point.
12 Our point is the -- it's cost causation
13 principle. Whoever causes the cost for that
14 transmission should pay for it whether it's a
15 competitive market or not.

16 Q Well, in the -- you mentioned that the developers
17 of a solar project inside the PJM footprint
18 inside the State of Virginia would have to pay
19 for all the upgrades without reimbursement; is
20 that correct?

21 A No, that's not quite what I said. Any generator
22 developer in PJM has to pay the full cost to
23 interconnect that system into PJM. But if they
24 are close to North Carolina having affects on

1 Duke Energy, Duke Energy has to start paying for
2 some of those upgrades, and we don't think that's
3 fair.

4 Q Now, you mentioned the Duke's pace on the
5 preparation of Affected System Studies. What is
6 the Public Staff's understanding of how many
7 Affected System Studies Duke conducts in a
8 quarter? You know, objective criteria,
9 measurements, and how long, how many months they
10 take? Has the Public Staff collected that data
11 from Duke?

12 A No, we don't have that data. I filed testimony
13 in a different case several months ago, I think
14 at one time Duke Energy had 22 Affected System
15 Studies in progress, underway.

16 Q And those have to be done by interconnection or
17 by cluster group?

18 A Those are done by cluster group. PJM will inform
19 Duke Energy of the projects that could affect
20 Duke in each cluster like, as an example, AC1. I
21 believe there are five projects that are being
22 developed in cluster AC1 that could affect Duke
23 Energy. So PJM told Duke Energy here are the
24 five, here are the capacities, the locations and

1 other data, and Duke Energy developed an Affected
2 System Study.

3 Q And you indicate they have approximately 20 to 22
4 going, but is there no publically available
5 indication of how rapidly how many are conducted,
6 what expectations interconnection, potential
7 interconnection customers should have with regard
8 to the pace at which these will be done?

9 A Well, when I said 22 underway I did testify to
10 that. I put that in testimony several months
11 ago. I can't remember the docket. But it's
12 possible to investigate the pace and inquire of
13 Duke Energy. Ask them when are you getting
14 System Impact Studies and what type of
15 information are you getting from PJM? And once
16 all that information is complete, how long is
17 Duke Energy taking to develop an Affected System
18 Study?

19 Q But the Public Staff doesn't have that data
20 presently?

21 A No, we don't.

22 Q Now, you indicated that it's difficult sometimes
23 to understand PJM because they don't operate as a
24 vertically-integrated entity --

1 A Yes.

2 Q -- and you were talking with regard to the
3 studies. What is your understanding about how
4 the PJM process is different vis-a-vis the
5 independent developer such as the Applicant here
6 as compared to Duke in a vertically-integrated
7 operator of transmission?

8 A What PJM does is twice a year they open up a
9 cluster. Shawboro is in cluster AE1 and that's
10 open for six months -- it's open for a few
11 months, and every project in PJM enters that
12 cluster. That project could be in Illinois.
13 They'll gather them in that cluster and PJM
14 studies them as one group. And there are large
15 effects. I mean, there are thousands of
16 megawatts in each cluster. PJM starts doing the
17 interconnection analysis. But it comes to a
18 point where for some of the projects it realizes
19 that it will have affected systems. It could be
20 TVA or someone else, but they do identify what
21 could affect the energy and informs Duke Energy,
22 say hey we've got some projects that could affect
23 you. Here they are. Here are their capacities.
24 Here's the data. And Duke Energy takes that data

1 and develops an Affected System Study. And
2 that's different for Duke Energy. I know I'm
3 going a little long-winded, but Duke Energy
4 operates differently.

5 We're just in the process of going
6 from serial consideration where each project is
7 valued one at a time to a cluster study project,
8 excuse me, a cluster study project process in
9 Duke that doesn't operate the same way. It will
10 gather projects in closer vicinity. For one
11 thing Duke Energy's footprint in the Carolinas is
12 a lot smaller than PJM, but right now it will
13 develop a transition cluster to move projects
14 from a serial study to a more cluster study
15 process. So, we're in transition in Duke Energy.
16 What PJM has been doing has been going on for
17 many years.

18 COMMISSIONER DUFFLEY: And Mr. Eason, I'll
19 remind you these questions are questions on Commission
20 questions.

21 MR. EASON: Yes, ma'am. I'll be very quick.

22 BY MR. EASON:

23 Q One last thought on that is you mentioned the
24 cost allocation and the interplay with the

1 cluster group process. In the PJM process, is
2 cost responsibility assigned to the first unit
3 seriatim?

4 A I know Duke Energy requires that in Affected
5 System Studies. I believe so. Yeah, the first
6 project to trigger those upgrades has to pay the
7 full cost of those upgrades even if some later
8 project can use some of that capacity to
9 interconnect. Yes. So, the first project to
10 trigger upgrades does have to pay.

11 Q Now, are you referring to PJM or Duke?

12 A I'm referring to Duke.

13 Q In the PJM system, is it the same process? Is
14 it all the cost responsibility assigned to a
15 single developer in a single-development project?

16 A I'm not sure about that.

17 Q Well, if -- and subject to check, if it was found
18 that they aggregate those costs per -- or divide
19 those costs among the group in some form of
20 proration, do you have a perception as to whether
21 assigning a hundred percent of the costs to a
22 single developer versus prorating them on a group
23 or members of a group would have more or less
24 affect on this dropping out process?

1 You've made a significant point of
2 the fact that a number of projects in the North
3 Carolina area of PJM drop out. Is there any
4 concern on the part of the Public Staff that
5 perhaps the assignment of a hundred percent of
6 the cost to one developer when there are five
7 developers potentially going to use the line has
8 the consequence of causing the drop out because
9 it might affect the financial viability of each
10 one if a hundred percent has to be absorbed by
11 that developer?

12 MS. LUHR: Sorry. Objection. I think we're
13 going beyond Commission questions here.

14 COMMISSIONER DUFFLEY: Your response,
15 Mr. Eason?

16 MR. EASON: I believe he's indicated that
17 one of the concerns that the Public Staff has is
18 associated with cost causation. And my point is only
19 to emphasize that that's a Duke decision because it's
20 not necessary to utilize the cost allocation principle
21 that Duke chooses. And I believe the witness can
22 confirm PJM does a different method for assigning
23 costs not to the first user, a hundred percent to the
24 first user.

1 COMMISSIONER DUFFLEY: Okay. I'm going to
2 allow this question. But Mr. Eason, please keep in
3 mind these are questions on Commission questions.

4 MR. EASON: That's my final question, Madam
5 Chairman.

6 BY MR. EASON:

7 Q Go ahead, Mr. Lucas.

8 A If PJM were to assign these significant
9 transmission costs to the first project, yeah,
10 that could cause a project to lose financial
11 viability. If it were more organized where
12 different projects pay a fair share of upgrades,
13 it could lead to them dropping out. But we're
14 straying away from the mission of the Public
15 Staff and we're here to protect the Using and
16 Consuming Public. It's difficult for the Public
17 Staff to get too far involved in some of these
18 projects dropping in or remaining in the queue,
19 starting to stray from the mission - our
20 mission - of protecting the Using and Consuming
21 Public.

22 MR. EASON: I have no more questions, Madam
23 Chair.

24 COMMISSIONER DUFFLEY: Okay. Thank you.

1 Ms. Luhr?

2 MS. LUHR: Just one quick question.

3 EXAMINATION BY MS. LUHR:

4 Q Mr. Lucas, Chair Mitchell asked you about the
5 validity of continuing to use the LCOT as a
6 consideration when reviewing CPCN applications.
7 And just to be sure we clarify, do you believe
8 that the LCOT should be a factor when looking at
9 CPCN applications?

10 A Yeah, it should be one of the factors. Yes.

11 MS. LUHR: And that's all that I have.

12 COMMISSIONER DUFFLEY: Thank you. It looks
13 like -- thank you, Mr. Lucas.

14 (The witness is excused)

15 COMMISSIONER DUFFLEY: It looks like we've
16 come to the end of the day. I want to thank both the
17 witnesses for testifying today.

18 In dealing with proposed orders, we need to
19 work through the Public Staff's motion to hold the
20 record open until PJM's retooling as well as DEP
21 developing a revised Affected System Study.

22 As I understand it, the Applicant consents
23 to hold the record open until PJM releases the
24 retooling of cluster AE1 but does not consent to hold

1 the record open until Duke has time to review and
2 determine any revisions to the Affected System Study.
3 Would either party like to be heard on this motion?

4 MR. EASON: Your Honor, we would like to be
5 heard only to say that our position is that, with a
6 little bit more point on, is that it's premature to
7 make the determination that one must wait until the
8 DEP study is conducted, because we need to get some
9 sense of what the retooling, the magnitude and
10 quantification is before any party should be assuming
11 that it's necessary or not, or advocating that it's
12 unnecessary.

13 Again, it's -- the position of the Applicant
14 is, we believe, because the Facility Study was
15 September, only two months away, that the retooling is
16 not going to have a material or substantial impact,
17 and that it won't be necessary to see the cost numbers
18 in light of what will come from the retooling. But we
19 believe it should be wait -- we should all wait and
20 see that before we make any determination.

21 COMMISSIONER DUFFLEY: Thank you. Ms. Luhr?

22 MS. LUHR: Thank you, Commissioner Duffley.
23 The Public Staff maintains its position in, as stated
24 in the testimony of Witness Lucas. We think it would

1 be prudent to wait to see PJM's retooling and then to
2 see if DEP is going to move forward with an
3 affected -- a revised Affected System Study and, if
4 so, to actually see the results of that study.

5 COMMISSIONER DUFFLEY: Okay. I have lost --
6 okay, you're back. I don't know what's going on with
7 my internet today. Thank you, Ms. Luhr.

8 The Commission will hold the record open
9 until PJM releases its retooling of cluster AE1. The
10 parties, I believe the Applicant stated that they
11 would file the retooling with the Commission and at
12 that time the Commission will determine next steps.

13 MR. EASON: That's satisfactory.

14 COMMISSIONER DUFFLEY: Thank you. And are
15 there any other matters before we adjourn for the day?

16 MS. LUHR: Yes. I believe that the Public
17 Staff needs to move the exhibits of Mr. Lucas into the
18 record and have them marked as premarked.

19 COMMISSIONER DUFFLEY: Okay. Any objection?

20 MR. EASON: No objection.

21 COMMISSIONER DUFFLEY: So moved.

22 (WHEREUPON, Public Staff Lucas
23 Confidential Exhibits 1 - 4 and
24 Public Staff Lucas Exhibit 5 are

1 received into evidence.)

2 MR. EASON: Madam Chair, I want to confirm,
3 I believe I moved all, the Application and all
4 exhibits including -- and the testimony and all
5 exhibits into evidence but -- and as I recall you
6 allowed that, but just to be sure, for the record, I'd
7 renew that motion.

8 COMMISSIONER DUFFLEY: Okay. Any objection?

9 MS. LUHR: (Shakes head no).

10 COMMISSIONER DUFFLEY: So moved. You both
11 did, but we've done it again so we're clear.

12 Thank you everyone. Anything else before we
13 adjourn for the day?

14 (No response)

15 We're so adjourned.

16 (The proceedings were adjourned)

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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

Kim T. Mitchell