



**NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION**

October 19, 2021

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

Re: Docket No. EMP-117, Sub 0 – Shawboro East Ridge Solar, LLC
CPCN to Construct a 150-MW Solar Facility in Currituck County,
North Carolina.

Dear Ms. Dunston:

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

By copy of this letter, I am forwarding a copy of the public version to all parties of record by electronic delivery. The confidential version will be provided to those parties that have entered into a confidentiality agreement.

Sincerely,

Electronically submitted
s/ Nadia L. Luhr
Staff Attorney
nadia.luhr@psncuc.nc.gov

NLL/cb

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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.

Docket No. EMP-117, Sub 0

Confidential Exhibit 1

Public Staff's Testimony of Jay B. Lucas,
Manager, Electric Section – Operations and
Planning, Energy Division

Docket No. EMP-117, Sub 0

Confidential Exhibit 2

Public Staff's Testimony of Jay B. Lucas,
Manager, Electric Section – Operations and
Planning, Energy Division

Docket No. EMP-117, Sub 0

Confidential Exhibit 3

Public Staff's Testimony of Jay B. Lucas,
Manager, Electric Section – Operations and
Planning, Energy Division

Docket No. EMP-117, Sub 0

Confidential Exhibit 4

Public Staff's Testimony of Jay B. Lucas,
Manager, Electric Section – Operations and
Planning, Energy Division

Recent EMP solar facility proceedings before the Commission in PJM's queue for North Carolina						
EMP-	Sub	Applicant Name	Filing Date	Approval Date	Capacity, MW _{AC}	County
101	0	Edgecombe Solar LLC	10-05-18		75	Edgecombe
102	1	Pitt Solar, LLC	08-10-20		150	Pitt
103	0	Albemarle Beach Solar, LLC	09-21-15		80	Washington
104	0	Fern Solar LLC	11-27-18	03-16-20	100	Edgecombe
107	0	Halifax County Solar LLC	08-30-19	09-02-20	80	Halifax
108	0	American Beech Solar LLC	01-28-20		110	Halifax
109	0	Camden Solar LLC	04-01-20	09-14-20	20	Camden
110	0	Sumac Solar LLC	04-16-20		120	Bertie
111	0	Sweetleaf Solar LLC	06-02-20		94	Halifax
112	0	Oak Solar, LLC	07-15-20		120	Northampton
114	0	Oak Trail Solar, LLC	09-17-20	10-08-21	100	Currituck
115	0	Cherry Solar, LLC	11-13-20		180	Northampton
117	0	Shawboro East Ridge Solar, LLC	06-22-21		150	Currituck
119	0	Macadamia Solar, LLC	08-30-21		484	Washington

Total = 1863