

**PREFILED SECOND SUPPLEMENTAL TESTIMONY OF
DONNA ROBICHAUD
ON BEHALF OF SWEETLEAF SOLAR LLC**

NCUC DOCKET NO. EMP-111, SUB 0

INTRODUCTION

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

A. My name is Donna Robichaud. I am senior vice president of development strategy for Geenex Solar LLC (“Geenex Solar”) based in Charlotte, North Carolina. The company’s address has changed to 1000 NC Music Factor Blvd, Suite – C3, Charlotte, NC 28206.

Q. ARE YOU THE SAME DONNA ROBICHAUD WHO CAUSED TO BE FILED PREFILED DIRECT TESTIMONY IN THIS MATTER ON JUNE 2, 2020, AND SUPPLEMENTAL TESTIMONY ON AUGUST 11, 2020 (“2020 SUPPLEMENTAL TESTIMONY”)?

A. I am.

Q. WHAT IS THE PURPOSE OF THIS SUPPLEMENTAL DIRECT TESTIMONY?

A. My testimony is intended to provide additional information related to updated interconnection studies received for the proposed Sweetleaf Solar facility (“the Facility”).

Q. PLEASE LIST THE LATEST INTERCONNECTION STUDIES RECEIVED FOR THE PROPOSED FACILITY.

A. Sweetleaf Solar has received the following studies:

- 1 ○ Generation Interconnection System Impact Study (“SIS”) Report for
2 PJM Generation Interconnection Request Queue Position AD1-056/57
3 (“June 2022 SIS Report”) (**Attachment A**). Previous SIS reports were
4 received in December 2019, December 2021, and March 2022. The
5 December 2019 and December 2021 reports were filed with the
6 Commission in this docket. Per the Commission’s directives, the March
7 2022 Rev 2 and Rev 3 reports are included as **Attachment B and**
8 **Attachment C respectively**, although the results are no longer valid.
9 The June 2022 SIS Report supersedes the previous retooled SIS reports.
10 ○ Affected System Study for Cluster AD1 by Duke Energy Progress LLC
11 (“DEP”) (Apr. 5, 2021), which was filed in this docket on May 27, 2021.
12 ○ Affected System Study for Cluster AD1 by Duke Energy Progress LLC
13 (Sept. 9, 2021) (Revision 1) (“September 2021 Affected System
14 Study”), included as **Attachment D**.
15 ○ Affected System Study for Cluster AD1 by Duke Energy Progress LLC
16 (June 8, 2022) (Revision 2) (“June 2022 Affected System Study”),
17 included as **Attachment E**.

18 Sweetleaf Solar is one of the earliest-queued active projects in the Dominion
19 territory of PJM without an executed Interconnection Service Agreement (“ISA”). As a
20 result, Applicant does not expect any further retools of the SIS due to previously queued
21 projects withdrawing from the PJM queue.

22 **Q. HAS SWEETLEAF SOLAR BEEN ALLOCATED ANY COST FOR**

SHARED NETWORK UPGRADES IN THE JUNE 2022 SIS REPORT?

A. Yes. There are four Network Upgrades identified in the report, although Sweetleaf has cost responsibility for three of them. Sweetleaf Solar is allocated all or a portion of the Upgrade identified as n6618, n6223 and n6114. Another upgrade on which Sweetleaf relies, n6118, was funded by previously queued projects. All upgrades may need to be in-service prior to Sweetleaf Solar reaching commercial operation.

Table 1: PJM Network Upgrades identified in June 2022 SIS Report

Network Upgrade	Descriptions	Cost (\$M)
n6118	Replace Battleboro substation terminal equipment.	0.1
n6618 ¹	Split the 115 kv bus at Hathaway substation. Rebuild line #55 (Tarboro-Anaconda) and close the tie switch between Line 55 & 80. Line #1001 is open at Battleboro thus making Line #1001 radial from Chestnut Substation.	14.074
n6223 ¹	Rebuild 12.8 miles of 230 kV line 2056 from AD1-057 Tap to Hathaway	31.66
n6144	Rebuild 20.32 miles of 230 kV line 218 from Everetts to Greenville	40.35

¹ Network Upgrade may be replaced with a Baseline or Supplemental Upgrade.

Compared to the Upgrade costs described in my 2020 Supplemental Testimony, the allocated Network Upgrade costs for Sweetleaf Solar increased from \$29,882,913 to \$82,962,766. This is a result of cost estimate increases for Network Upgrades (n6223 & n6144), a new Network Upgrade (n6618) that is expected to replace and Affected System Network Upgrade and the full allocation of a Network Upgrade (n6144) instead of a partial allocation.

N6618, a Network Upgrade to which Sweetleaf Solar contributes, is the second step required to address an overload on the DEP side of the Rocky Mt.-Battleboro line (although the upgrade is to Dominion's system, not DEP's). The first step involves upgrades to the DEP system (specifically, DEP's Rocky Mt.-Battleboro 115 kv tie-line), which are the

1 subject of an Affected System Operating Agreement recently entered into by DEP and
2 Edgecombe Solar in May 2022.¹ Unlike the rebuilding of the Rocky Mt.-Battleboro 115
3 kV tie-line, n6618 is on the PJM system and designed to route flow away from the
4 Dominion-DEP tie-line, rather than increase the capacity of the line. Since it is part of the
5 PJM system, there is no cost allocation to DEP's ratepayers.

6 **Q. DO YOU KNOW OF ANY POTENTIAL CHANGES THAT COULD**
7 **REDUCE SWEETLEAF'S SOLAR'S NETWORK UPGRADE COST**
8 **ALLOCATION?**

9 A. Yes. It is possible that Network Upgrade n6618 and n6223 will be
10 incorporated in a Supplemental (also known as a Baseline) Upgrade, meaning the Upgrade
11 is required for reliability purposes, whether or not Sweetleaf Solar interconnects. In a June
12 2021 presentation, Dominion identified a reliability need that could drive this upgrade.² If
13 the solution for this reliability need incorporates the n6618 and n6223 Upgrade and it is
14 approved, the cost will be borne by a subset of PJM ratepayers pursuant to PJM's Open
15 Access Transmission Tariff ("OATT").

16 **Q. DOES THE PROPOSED PJM QUEUE REFORM IMPACT**
17 **SWEETLEAF SOLAR?**

18 A. PJM's Queue Reform proposal will result in minimal impacts to Sweetleaf

¹ See Duke Energy Progress, LLC's Notice of Affected System Operating Agreement, Docket No. E-100, Sub 170 (May 6, 2022).

² See page 5 and 6. PJM's June, 2021 TEAC presentation. <https://www.pjm.com/-/media/committees-groups/committees/teac/2021/20210608/20210608-item-04-dominion-supplemental.ashx>

1 Solar because projects such as Sweetleaf Solar that are in AD2 and prior clusters are
2 grandfathered into the current process. The only expected change is the limit to cost
3 allocation of Network Upgrades above \$5 million to projects in AD2 and prior clusters.
4 Projects in AE1 and later clusters and will no longer receive cost allocations for those
5 upgrades.

6 **Q. DO YOU EXPECT TO RECEIVE ANY FURTHER**
7 **INTERCONNECTION STUDIES OR AGREEMENTS?**

8 A. Yes. The Project anticipates receiving a Facilities Study Report, ISA, and
9 Construction Service Agreement in September 2022. The Facilities Report and these
10 agreements will identify with more precision the timing of the PJM Network Upgrades
11 required for Sweetleaf but will not change the nature or estimated cost of those Network
12 Upgrades.³ Sixty days after receiving the ISA, Applicant will be required to provide
13 security and execute the ISA to remain in the queue. Sweetleaf Solar will file these reports
14 and agreements with the Commission upon receiving them from PJM.

15 **Q. PLEASE CALCULATE THE LEVELIZED COST OF**
16 **TRANSMISSION (LCOT) FOR ANY REQUIRED TRANSMISSION SYSTEM**
17 **UPGRADES OR MODIFICATIONS FOR THE PROJECT.**

18 A. The Applicant has prepared LCOT calculations based on the allocated cost
19 of Network Upgrades provided in the June 2022 SIS Report. If Sweetleaf Solar is the only
20 project that funds n6223 and n6144, the LCOT for allocated Network Upgrade is \$19.54/
21 MWh. The Applicant's LCOT analysis is detailed in Confidential Attachment F.

³ PJM may update cost estimates for Attachment Facilities in the ISA.

1 Regardless of the LCOT, the Project would bear the cost of these Network Upgrades, which
2 would not be reimbursed by PJM or Duke and would not be passed on to Duke ratepayers.

3 The Applicant has also prepared LCOT calculations for Affected System Upgrades
4 on DEP's system that may be triggered by Sweetleaf Solar. These are discussed below.

5 **Q. ARE YOU AWARE OF ANY SYSTEM OTHER THAN THE**
6 **STUDIED SYSTEM THAT IS OR WILL BE AFFECTED BY THE**
7 **INTERCONNECTION OF THE PROJECT? IF SO, EXPLAIN THE IMPACT AND**
8 **BASIS.**

9 A. Yes, Sweetleaf Solar contributes to an overload on DEP portion of the
10 Everetts-Greenville 230 kv tie-line between Dominion as described in the June 2022
11 Affected System Study (Attachment E).⁴

12 The DEP0003 Upgrade originally included reconductoring two miles of 230 kV
13 Everetts-Greenville line, upgraded disconnect switches and CT ratios for a total cost of \$10
14 million. See Attachment D. However, in the June 2022 Affected System Study, Duke
15 states that the rebuilding of the Everetts-Greenville line is required due to the age and
16 condition of the line, and that the rebuild is tentatively scheduled to be completed by June
17 2027 (though that in-service date is subject to change depending upon DEP's construction
18 sequencing priorities for its transmission plan). June 2022 Affected System Study at 4.
19 Reconductoring the line to a higher capacity (as required to alleviate the impacts caused by
20 the AD1 projects) can only be performed during that condition-based rebuild, but the
21 incremental cost of the rebuild is only \$350,000.

⁴ See page 20 of the June 2022 SIS Report.

1 According to Duke, if a generator developer would like an earlier or firm in-service
2 date for the Everetts-Greenville rebuild, the Interconnection Customer would be
3 responsible for paying expediting costs of the rebuild, plus the larger conductor cost.

4 **Q. HAS PJM IDENTIFIED ANY OTHER PROJECTS THAT CAUSE**
5 **IMPACTS TO DEP'S PORTION OF THE EVERETTS-GREENVILLE 230 KV**
6 **LINE, OR THAT MAY BE ALLOCATED COSTS TO UPGRADE THAT LINE?**

7 A. Yes, PJM identified up to three projects that could impact DEP's Everett's-
8 Greenville 230 kv as indicated below. While PJM initially identifies which projects in
9 their interconnection queue potentially impact DEP's system, DEP generally allocates the
10 full cost of an Affected System Upgrade to a single project through an Affected System
11 Operating Agreement ("ASOA") in accordance with their procedures. DEP only works
12 with one project to fund the Affected System Upgrades and has allowed a project other
13 than the first to cause to voluntarily fund the Affected System Network Upgrade.

14 The Macadamia Solar project, which is also being developed by Geenex Solar, is
15 negotiating with Duke regarding an ASOA to fund the DEP0003 Upgrade.⁵ Sweetleaf
16 Solar may enter into a side agreement with Macadamia Solar under which it would agree
17 to fund a proportional share of costs incurred under the ASOA.

18 **Q. WILL DEP RATEPAYERS BEAR THE COST OF THOSE**
19 **AFFECTED SYSTEM UPGRADES?**

20 A. No. As detailed in my Second Supplemental Prefiled Testimony filed in
21 Macadamia Solar's CPCN docket (no. EMP-119, Sub 0) on May 25, 2022, Macadamia

⁵ Macadamia Solar has applied for a CPCN in docket no. EMP-119, Sub 0.

1 Solar is seeking to negotiate an ASOA with DEP to fund that DEP Upgrade, **without**
2 reimbursement from DEP ratepayers. Macadamia Solar has also agreed to accept a
3 condition on its CPCN barring it from seeking reimbursement for costs incurred under that
4 ASOA. Although it will have no rights under any ASOA between Macadamia and DEP,
5 Sweetleaf Solar would nonetheless agree to a similar condition.

6 **Q. HAVE YOU PREPARED LCOT CALCULATIONS FOR THIS**
7 **AFFECTED SYSTEM UPGRADE?**

8 A. Yes, I have prepared LCOT calculations for the Everetts-Greenville
9 Affected System Upgrade. According to the June 2022 Affected System Study, the
10 estimated incremental cost of the Everetts-Greenville 115 kV Upgrade is \$350,000. The
11 total capacity of the three projects in the AD1 cluster that contribute to the need for the
12 upgrade (Sumac, Macadamia, and Sweetleaf Solar) is 658 MW. Based on this capacity
13 and the estimated cost of the upgrade, I have calculated an LCOT of \$.01/MWh. If only
14 the capacity of Sweetleaf Solar and Sumac Solar were considered, the LCOT would be
15 \$.04/MWh. Both of these LCOT figures well below the benchmark LCOT figures based
16 on a Lawrence Berkeley National Laboratory (LBNL) Study cited by the Public Staff in
17 prior testimony as indicative of reasonable upgrade costs, and previously relied on by the
18 Commission in ruling on other merchant CPCN applications.

19 **Q. DO YOU HAVE ANY RESPONSE TO THE CONCERNS RAISED**
20 **BY PUBLIC STAFF WITNESS LUCAS IN HIS SEPTEMBER 18, 2020**
21 **TESTIMONY REGARDING THE FACILITY AND OTHER MERCHANT**
22 **POWER FACILITIES IN DENC TERRITORY ON THEIR POTENTIAL**

1 **EFFECTS ON DEP?**

2 A. I do. On page 5 of his testimony, Mr. Lucas articulated several concerns
3 about merchant plant development in PJM. He testified that:

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

18 I would first note that Mr. Lucas's concerns, however legitimate, relate to the
19 overall volume of merchant plant development in the region (including in Virginia) and
20 have little or nothing to do with the question of whether the proposed Sweetleaf Solar
21 facility is consistent with the public convenience and necessity.

22 Although Mr. Lucas raises important questions about the possible impacts of
23 merchant plant development on DEP ratepayers, Sweetleaf Solar does not trigger any
24 Upgrade on PJM or DEP's system that will be reimbursed by North Carolina ratepayers.
25 Mr. Lucas's general concerns are therefore not applicable here.

26 I also believe that Mr. Lucas's concerns about DEP upgrades needing to be replaced
27 are speculative. I have no reason to believe that DEP is planning upgrades that will soon
28 need to be replaced, and there are several reasons to think that this will not occur in the
29 foreseeable future. First, PJM's recently-announced queue reform proposal is likely to

1 significantly reduce the number of projects in the PJM queue, by increasing readiness
2 requirements and financial commitments for interconnection customers. Second, even
3 where new projects do cause impacts to DEP-Dominion tie lines, interconnection solutions
4 may be developed to avoid adding load those lines, like the n6618 network upgrade listed
5 above. Rather than increase the capacity of the tie-line to handle flow, this upgrade is
6 intended to direct flow away from the tie-line, reducing the likelihood that additional
7 upgrades will be needed to accommodate additional generation on the system. Third, the
8 development of additional solar projects in DEP territory (which will likely be required to
9 meet the decarbonization mandates of North Carolina H.B. 951) may result in additional
10 power flows in DEP territory that will “push back” against flow from PJM, alleviating
11 those tie-line constraints. In light of these factors I do not think it is reasonable to assume
12 that additional merchant plant development in PJM’s North Carolina territory will
13 necessarily result in unreasonable impacts on North Carolina ratepayers.

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

15 **A. Yes.**

CERTIFICATE OF SERVICE

This is to certify that the undersigned has this day served the foregoing
**PREFILED SECOND SUPPLEMENTAL TESTIMONY OF DONNA
ROBICHAUD** upon the following by electronic mail as follows:

Christopher Ayers, Esq.
Executive Director - NC Public Staff
Chris.Ayers@psncuc.nc.gov

Nadia Luhr
NC Public Staff - Legal Division
nadia.luhr@psncuc.nc.gov

Robert Josey
NC Public Staff - Legal Division
Robert.josey@psncuc.nc.gov

NC Public Staff - Legal Division
4326 Mail Service Center
Raleigh, NC 27599

This the 24th day of June, 2022.

/s/ Benjamin L. Snowden
Benjamin L. Snowden
Fox Rothschild LLP
434 Fayetteville Street
Suite 2800
Raleigh, NC 27601
Telephone: 919-719-1257 (Direct)
E-mail: BSnowden@Foxrothschild.com

NCUC DOCKET NO. EMP-111, SUB 0

**PREFILED SECOND SUPPLEMENTAL TESTIMONY OF
DONNA ROBICHAUD
ON BEHALF OF SWEETLEAF SOLAR LLC**

ATTACHMENTS

A	Generation Interconnection System Impact Report For PJM Generation Interconnection Request Queue Position AD1-056/57 Rev 4 (June 2022)
B	Generation Interconnection System Impact Report For PJM Generation Interconnection Request Queue Position AD1-056/57 Rev 3 (March 2022)
C	Generation Interconnection System Impact Report For PJM Generation Interconnection Request Queue Position AD1-056/57 Rev 2 (March 2022)
D	DEP Affected System Study Report for the AD1 Cluster dated September 9, 2021 Rev 1 (September 2021 Affected System Study)
E	DEP Affected System Study Report for the AD1 Cluster dated June 8, 2022 Rev 2 (June 2022 Affected System Study)
F	LCOT Analysis for Network Upgrades potentially required for Sweetleaf Solar Project and for Potential DEP Affected System Upgrades **CONFIDENTIAL**

Pre-filed Second Supplemental Testimony of Donna Robichaud
Sweetleaf Solar LLC
EMP-111, Sub 0

NCUC DOCKET NO. EMP-111, SUB 0

**PREFILED SECOND SUPPLEMENTAL TESTIMONY OF
DONNA ROBICHAUD
ON BEHALF OF SWEETLEAF SOLAR LLC**

ATTACHMENT A

OFFICIAL COPY

JUN 24 2022

Pre-filed Second Supplemental Testimony of Donna Robichaud
Sweetleaf Solar LLC
EMP-111, Sub 0

NCUC DOCKET NO. EMP-111, SUB 0

**PREFILED SECOND SUPPLEMENTAL TESTIMONY OF
DONNA ROBICHAUD
ON BEHALF OF SWEETLEAF SOLAR LLC**

ATTACHMENT B

OFFICIAL COPY

JUN 24 2022

Pre-filed Second Supplemental Testimony of Donna Robichaud
Sweetleaf Solar LLC
EMP-111, Sub 0

NCUC DOCKET NO. EMP-111, SUB 0

**PREFILED SECOND SUPPLEMENTAL TESTIMONY OF
DONNA ROBICHAUD
ON BEHALF OF SWEETLEAF SOLAR LLC**

ATTACHMENT C

OFFICIAL COPY

JUN 24 2022

NCUC DOCKET NO. EMP-111, SUB 0

**PREFILED SECOND SUPPLEMENTAL TESTIMONY OF
DONNA ROBICHAUD
ON BEHALF OF SWEETLEAF SOLAR LLC**

ATTACHMENT D

Pre-filed Second Supplemental Testimony of Donna Robichaud
Sweetleaf Solar LLC
EMP-111, Sub 0

NCUC DOCKET NO. EMP-111, SUB 0

**PREFILED SECOND SUPPLEMENTAL TESTIMONY OF
DONNA ROBICHAUD
ON BEHALF OF SWEETLEAF SOLAR LLC**

ATTACHMENT E

OFFICIAL COPY

JUN 24 2022

Pre-filed Second Supplemental Testimony of Donna Robichaud
Sweetleaf Solar LLC
EMP-111, Sub 0

NCUC DOCKET NO. EMP-111, SUB 0

**PREFILED SECOND SUPPLEMENTAL TESTIMONY OF
DONNA ROBICHAUD
ON BEHALF OF SWEETLEAF SOLAR LLC**

ATTACHMENT F

OFFICIAL COPY

JUN 24 2022