

**PREFILED SUPPLEMENTAL TESTIMONY OF  
DONNA ROBICHAUD  
ON BEHALF OF SUMAC SOLAR LLC**

**NCUC DOCKET NO. EMP-110, SUB 0**

**INTRODUCTION**

1  
2       **Q.     PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.**

3       A.     My name is Donna Robichaud. I am senior vice president of development strategy  
4 for Geenex Solar LLC (“Geenex Solar”) based in Charlotte, North Carolina. The company’s  
5 address is 1930 Abbott Street, Suite 402, Charlotte, NC 28203.

6       **Q.     ARE YOU THE SAME DONNA ROBICHAUD WHO CAUSED TO BE**  
7 **FILED PREFILED DIRECT TESTIMONY IN THIS MATTER ON MAY 12, 2020?**

8       A.     I am.

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

11       A.     My testimony is intended to provide additional information in response to the  
12 Commission’s June 22, 2020, *Order Cancelling Expert Witness Hearing and Requiring Additional*  
13 *Testimony*, which directed the Applicant to file additional testimony addressing issues related to  
14 interconnection costs and the Applicant’s plans to sell the energy and capacity generated by the  
15 Project.

16       **Q.     PLEASE DESCRIBE ALL INTERCONNECTION STUDIES RECEIVED**  
17 **FOR THE PROPOSED FACILITY.**

18       A.     Sumac Solar has received the following studies:

- 19           o Generation Interconnection Feasibility Study Report For PJM Generation  
20           Interconnection Request Queue Position AD1-022/AD1-023 (Feb. 2018)

1                    (Attachment A)

- 2                    o Generation Interconnection System Impact Study Report For PJM Generation  
3                    Interconnection Request Queue Position AD1-022 /AD1-023 (Dec. 2019)

4                    (Attachment B)

5                    Sumac Solar has two positions in the PJM queue, with a total installed capacity of 120 MW  
6 (the capacity of the generating facility for which a CPCN is sought in this proceeding). Queue No.  
7 AD1-022 represents a total installed capacity of 80 MW, and AD1-023 represents 40 MW of  
8 capacity. Both queue positions are behind the same point of interconnection and are being studied  
9 by PJM as a single combined project. Submitting simultaneous interconnection applications at the  
10 same POI is permissible under PJM procedures, though it requires the Interconnection Customer  
11 to pay additional application and study fees. Geenex has filed applications in this way in order to  
12 provide additional flexibility in adjusting the size of the project to avoid triggering significant  
13 Network Upgrades.

14                    PJM uses a cluster study process which allocates cost responsibility for Network Upgrades  
15 among the projects that, taken together, trigger the Network Upgrade. As projects withdraw from  
16 the queue, or as other conditions change, that cost allocation changes and some Network Upgrades  
17 may no longer be necessary. Consequently, the results of a System Impact Study (“SIS”) for a  
18 particular project, both in terms of required Network Upgrades and in terms of the allocation of  
19 costs for those Network Upgrades, may not be indicative of the project’s actual Network Upgrade  
20 costs. This is discussed further on pages 4-5 of my Direct Pre-filed Testimony.

21                    Although PJM does not generally update the results of SIS Reports until a final  
22 Interconnection Service Agreement (“ISA”) is issued and only does so if necessary, the results of  
23 SIS Reports prepared for later-queued projects may provide insight into the status of Network

1 Upgrades as conditions change. For example, while the SIS Report for Sumac allocates  
2 approximately \$34,417,840 in Network Upgrade costs to the Project, the most recently-issued SIS  
3 Report for a North Carolina PJM project (AE2-147) that shares Dominion’s side of the Everetts-  
4 Greenville 230 kv Network Upgrade indicates that additional projects in the AD1, AD2, AE1 and  
5 AE2 clusters will share cost allocation for that Network Upgrades.<sup>1</sup> Based on this more recent  
6 information, the total cost of Sumac’s Network Upgrades would be \$3,045,085. Both of these SIS  
7 Reports may be updated when PJM retools its studies prior to issuing ISAs for these project, but  
8 this represents a “snapshot” of the current allocation.

9 Note that in any case, as discussed on pages 5-6 of my Pre-Filed Direct Testimony, costs  
10 for these Network Upgrades would not be reimbursed by ratepayers.

11 **Q. DO YOU EXPECT TO RECEIVE ANY FURTHER INTERCONNECTION**  
12 **STUDIES?**

13 A. Yes. The Project anticipates receiving a Facilities Study Report, updated System  
14 Impact Study Report (if necessary), and Interconnection Service Agreement on April 30, 2021.  
15 Duke Energy Progress (“DEP”) has also indicated that it expects to release an Affected System  
16 Study for an Upgrade to the Everetts-Greenville 230 kV transmission line (discussed below) in  
17 September or October 2020.

18 **Q. PLEASE CALCULATE THE LEVELIZED COST OF TRANSMISSION**  
19 **(LCOT) FOR ANY REQUIRED TRANSMISSION SYSTEM UPGRADES OR**  
20 **MODIFICATIONS FOR THE PROJECT.**

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<sup>1</sup> This Study is available from PJM at [https://www.pjm.com/pub/planning/project-queues/impact\\_studies/ae2147\\_imp.pdf](https://www.pjm.com/pub/planning/project-queues/impact_studies/ae2147_imp.pdf).

1           A.     Because (as discussed above) it is not yet clear what Network Upgrade costs will  
2 be allocated to Sumac, it is not possible to prepare a definitive LCOT analysis for the Project at  
3 this time. Instead, the Applicant has prepared alternative LCOT calculations based on: (1) the  
4 allocated cost of Network Upgrades provided in Sumac’s System Impact Study; and (2) the  
5 allocated cost of Network Upgrades for Sumac based on the updated information provided in the  
6 SIS Report for AE2-147 and further refined for withdrawn projects, as discussed above. Scenario  
7 (1) yields an LCOT of \$5.57 / MWh. Scenario (2) results in an LCOT of \$0.49/ MWh. The  
8 Applicant’s LCOT analysis is detailed in Confidential Attachment C. Neither of these figures is  
9 likely to reflect the actual LCOT for Sumac’s Network Upgrades, although the latter figure is likely  
10 much closer. In either scenario, the Project would bear the cost of these Network Upgrades, which  
11 would not be passed on to ratepayers.

12           The Applicant has also prepared LCOT calculations for Affected System Upgrades on  
13 DEP’s system that might need to be completed before the Project can be fully deliverable. These  
14 are discussed below.

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

18           A.     Yes. As discussed on page 6 of my Pre-Filed Direct Testimony, the SIS Report for  
19 Sumac identifies potential constraints on the following Dominion-Duke Energy Progress (“DEP”)  
20 tie lines:

- 21           • Battleboro – Rocky Mt. 115 kV line
- 22           • Everetts - Greenville 230 kV line
- 23           • Rocky Mt. – Hathaway 230 kV line

1 System Impact Study Report at 19-20. However, this does not necessarily mean that the Project  
2 will impact each of these components of DEP’s system, for at least two reasons. First, as discussed  
3 above, these results presume that all projects currently in queue, both in the AD1 cluster and also  
4 in previous clusters, will go into operation, and that no other system or planning assumption  
5 changes occur. It is almost certain that some projects will withdraw from the queue and/or other  
6 system and planning changes will occur, which may resolve the constraints.

7 Second, the results reported above represent the results of PJM’s modeling of its own  
8 system and DEP’s, not Duke’s. When an SIS Report determines that a project may impact another  
9 system, it is PJM’s responsibility to notify the Affected System, which will conduct further studies  
10 to determine whether there are any impacts and if so what Upgrades are needed to resolve such  
11 impacts. At a high level, the requirements for PJM’s coordination with Affected Systems are set  
12 forth in PJM Manual 14A.<sup>2</sup> However, to the best of Applicant’s knowledge PJM does not have  
13 specified procedures for coordinating Affected System studies with DEP.<sup>3</sup>

14 Prior to the spring of 2020, DEP relied upon results from PJM planning assumptions and  
15 models to determine the projects that affected DEP’s system. DEP simply determined the work,  
16 schedule, and cost estimates for the Upgrades. However, PJM has informed the Applicant that  
17 going forward, DEP will use its own planning assumptions and models (which are likely to differ

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<sup>2</sup> Manual 14A is available online at <https://www.pjm.com/-/media/documents/manuals/m14a.ashx>.

<sup>3</sup> In an Order issued last year, FERC required PJM, MISO, and SPP to revise their tariffs and Joint Operating Agreements (“JOAs”) to clarify their procedures for coordinating Affected System Studies with other RTO/ISOs, finding that a lack of clarity regarding those procedures rendered the tariffs and JOAs unjust and unreasonable. EDF Renewable Energy, Inc. v. Midcontinent Independent System Operator, Inc., Southwest Power Pool, Inc., and PJM Interconnection, L.L.C., *Order on Complaint and Technical Conference*, 168 FERC ¶ 61,173 (Sept. 19, 2019). However, the Order did not address coordination with traditionally regulated utilities such as DEP.

1 from PJM's) to determine what projects affect their system. Future DEP studies may draw different  
2 conclusions about whether any particular Upgrades are required on its System.

3 It is important to note that when an SIS and Affected System Study identify impacts on an  
4 Affected System, the need for an Affected System Upgrade is generally attributable to a project  
5 and subsequent projects contribute to the overload. Where an Upgrade is constructed as a result of  
6 impacts from one project, subsequent project in the interconnection queue benefit from the  
7 Upgrade. For example, if the DEP Rocky Mount-Battleboro 115 kV line is constructed because of  
8 impacts from the AC1 cluster, projects in the AC2, AD1, and later clusters will benefit from that  
9 Upgrade.

10 With respect to the Battleboro – Rocky Mt. 115 kV Upgrade to DEP's system, the SIS  
11 states that the need for an Affected System Upgrade to the DEP portion of that line was identified  
12 prior to the AD1 cluster. SIS Report at 16. The Applicant is aware that DEP has conducted two  
13 Affected System Studies for the Battleboro-Rocky Mt. 115 kV line, one for the AB2 cluster in  
14 December 2016 and one for the AC1 cluster in May 2020. Although the Affected System Studies  
15 provide estimates for the cost of the Upgrade, to the best of the Applicant's knowledge there are  
16 no funding commitments made to construct that Upgrade. In any event, Sumac's System Impact  
17 Study indicates that neither Sumac in particular, nor the AD1 cluster more generally, "trigger" the  
18 need for an Upgrade. Rather, the interconnection of these projects would contribute to an existing  
19 overload initially caused by prior Queue positions. SIS Report at 15-16. Even though projects in  
20 the AD1 cluster are not expected to initially fund the Rocky Mt.-Battleboro 115 kV Affected  
21 System Upgrade, they would benefit from the upgraded line.

22 To the best of Applicant's knowledge, no Affected System Studies have been conducted  
23 for the potential overloads on the DEP portion of the Everetts-Greenville 230 kV line or the DEP

1 portion of the Rocky Mt.-Hathaway 230 kV line. DEP has indicated that it expects to release an  
2 Affected System Study for the Upgrade to the Everetts-Greenville 230 kV transmission line  
3 (discussed below) in September or October 2020, although it is not clear which PJM cluster DEP  
4 intends to study. Presumably DEP will eventually conduct an Affected System Study for the Rocky  
5 Mt.-Hathaway 230 kV line when appropriate to do so.

6 The Applicant has found additional information about DEP's potential Everetts-Greenville  
7 230 kV line Upgrade by reviewing interconnection studies for later queued projects. The System  
8 Impact Study Report for AE1-088, a project in the AE1 cluster,<sup>4</sup> states that this Upgrade will  
9 include replacing the Greenville substation disconnect switches and reconductoring/rebuilding  
10 1.87 miles of the Everetts-Greenville 230 kV line, at an estimated cost of \$8,500,000. This study  
11 is dated August 2019 and so this cost estimate is relatively recent.

12 As discussed in my Direct Pre-Filed Testimony, Sumac was not expected to contribute to  
13 Dominion's portion of the Everetts-Greenville 230 kv overload due to the retirement of the  
14 Edgecomb coal-fired Non-Utility Generator plant in April 2019. Since the filing of my Direct Pre-  
15 Filed Testimony, PJM has informed the Applicant that the Edgecomb Generator would remain in  
16 their models. As a result, Sumac could contribute to the overload and receive cost allocations for  
17 the Network Upgrade as indicated in the SIS. Future retools of the SIS may show different results.

18 Applicant was also able to find additional information on the potential overload on DEP's  
19 Rocky Mt.-Hathaway 230 kV line. The SIS for AE1-024 (dated June 2020)<sup>5</sup> indicates that  
20 Dominion has a baseline project, b3121, which will upgrade the Dominion-owned portion of the

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<sup>4</sup> [https://www.pjm.com/pub/planning/project-queues/impact\\_studies/ae1088\\_imp.pdf](https://www.pjm.com/pub/planning/project-queues/impact_studies/ae1088_imp.pdf)

<sup>5</sup> [https://www.pjm.com/pub/planning/project-queues/impact\\_studies/ae1024\\_imp.pdf](https://www.pjm.com/pub/planning/project-queues/impact_studies/ae1024_imp.pdf)

1 Hathaway to Rocky Mount 230 kV line. The current line has a 374 mega volt ampere (“MVA”)  
2 rating, while the DEP line is rated at 542 MVA and has a significantly higher capacity. Since AE1  
3 is later in the queue than Sumac and does not cause an overload on the DEP line, the Applicant  
4 surmises that Sumac does not cause an overload on DEP’s transmission lines connecting to  
5 Hathaway substation.

6 **Q. HAVE YOU PREPARED LCOT CALCULATIONS FOR THESE**  
7 **AFFECTED SYSTEM UPGRADES?**

8 A. Yes, I have prepared LCOT calculations using the most complete information I  
9 have available at this time. Although I have prepared these LCOT calculations, it is important to  
10 note that: (1) neither the Sumac project nor the AD1 cluster (in which Sumac is being studied) has  
11 been deemed “first to cause” any of these Upgrades, or allocated any cost responsibility for them;  
12 and (2) with regard to the Everetts-Greenville 230 kV line Upgrade and the Rocky Mount-  
13 Hathaway 230 kV line Upgrade, there is no affected system study and it is not clear when (or if)  
14 those Upgrades will be needed.

15 According to the May 2020 Affected System Study, the estimated cost of the Rocky  
16 Mount-Battleboro 230 kV Upgrade is \$23,204,593. In my view the following projects currently in  
17 the PJM interconnection queue (starting in the AC1 cluster) will rely on this Upgrade, and it is  
18 appropriate to include them in an LCOT calculation for this Upgrade: AC1-034, AC1-086, AC1-  
19 089, AC1-098/99, AC1-189, AC1-208, AC2-083/84, AD1-022/33 and AD1-056/57. Based on this  
20 assumption I have calculated an LCOT of \$0.57 / MWh for a total of 789 MW of projects. I note  
21 that in connection with a pending CPCN application in another docket (EMP-108 Sub 0), the  
22 Public Staff calculated an LCOT of \$.90 / MWh for this Upgrade, assuming that only the 495 MW  
23 of projects in the AC1 cluster (which does not include Sumac) would rely on the Upgrade.



1 I have also calculated an LCOT for the potential Upgrade to DEP's Everetts-Greenville  
2 230 kV line, based on the \$8,500,000 cost estimate for this Affected System Upgrade detailed in  
3 the System Impact Study Report for AE1-088. Again, it should be emphasized that DEP has **not**  
4 concluded that the Sumac project (or the AD1 cluster) will require this Upgrade, and has not  
5 assigned responsibility for this Upgrade to any project or cluster.

6 But based on a hypothetical scenario in which a retooled SIS or Affected System Study  
7 later indicates that the Applicant is responsible for funding this Upgrade on DEP's system, an  
8 LCOT was calculated. If the Sumac project were to initially fund this Upgrade on its own, the  
9 LCOT would be \$1.37 / MWh.<sup>6</sup> In a second scenario, where projects in the AD1 through AE2-147  
10 (with a total output of 1372.9 MW) initially fund the Upgrade, I have calculated an LCOT of  
11 \$0.12/MWh. These LCOT values are comparable to (if not considerably lower than) the  
12 benchmark LCOT values presented by the Public Staff and relied on by the Commission in the  
13 Friesian CPCN docket (EMP-105 Sub 0).

14 Because there are no publicly-available cost estimates for a potential Rocky Mt.-Hathaway  
15 230 kV line Upgrade, an LCOT cannot be calculated for this Upgrade.

16 **Q. CAN SUMAC SOLAR ACHIEVE COMMERCIAL OPERATION**  
17 **WITHOUT THE COMPLETION OF THESE UPGRADES TO DEP'S SYSTEM?**

18 A. Potentially. As discussed on pages 3 and 6 of my Pre-Filed Direct Testimony, the  
19 Project could physically connect without completing the Upgrades required for contingent

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<sup>6</sup> Geenex Solar is also developing the Sweetleaf Solar Project, which is also being studied in the AD1 cluster (queue position AD1-056/057) and is seeking a CPCN from the Commission in docket no. EMP-111, Sub 0. Sweetleaf Solar is on a similar development schedule to Sumac and has been found by PJM to have similar impacts on the grid to Sweetleaf. If the Sweetleaf and Sumac Solar projects were to initially fund this Upgrade to DEP's system on their own, the LCOT would be \$0.77 / MWh.

1 overloads (as described in the SIS Report), but may not be able to inject power into Dominion's  
2 grid unless confirmed by PJM with a Deliverability Study. The same holds true of this Upgrade to  
3 DEP's system; a PJM Deliverability Study will also assess whether the output of the Project would  
4 be fully or partially deliverable prior to the construction of the DEP Upgrade, and whether the  
5 Project might be subject to operational restrictions such as curtailment if it goes online before the  
6 Upgrade is completed.

7 **Q. DOES THE FACILITY PROPOSE TO SELL ITS ENERGY AND**  
8 **CAPACITY TO A DISTRIBUTION UTILITY REGULATED BY THE COMMISSION?**

9 A. No.

10 **Q. DOES THE FACILITY PROPOSE TO SELL ITS ENERGY AND**  
11 **CAPACITY TO A DISTRIBUTION UTILITY NOT REGULATED BY THE**  
12 **COMMISSION BUT SERVING RETAIL CUSTOMERS IN NORTH CAROLINA?**

13 A. No.

14 **Q. DOES THE FACILITY PROPOSE TO SELL ITS ENERGY AND**  
15 **CAPACITY TO A PURCHASER WHO IS SUBJECT TO A STATUTORY OR**  
16 **REGULATORY MANDATE WITH RESPECT TO ITS ENERGY SOURCING?**

17 A. No.

18 **Q. ARE THERE ANY PPA AGREEMENTS, REC SALE CONTRACTS, OR**  
19 **CONTRACTS FOR COMPENSATION FOR ENVIRONMENTAL ATTRIBUTES FOR**  
20 **THE OUTPUT OF THIS FACILITY?**

21 A. No.

22 **Q. WHAT ARE GEENEX'S PLANS FOR OFFTAKE FROM THE FACILITY?**

23 A. As stated in the Prefiled Direct Testimony of Kara Price submitted in support of the

1 Application, Geenex Solar’s business model is conduct all early-stage development activities on  
2 its projects, and then to sell those solar projects to collaborating partners for further development,  
3 construction, and operation of the facilities. Generally speaking the development partner to whom  
4 the project is sold will arrange for offtake from the Project. Some development partners may have  
5 a specific offtake opportunity (e.g. an RFP by a corporate offtaker) in mind when they purchase  
6 the project. Geenex has had considerable success with this model in North Carolina; there are  
7 currently three (3) Geenex developed projects totaling 230 MW in operation in the state, and five  
8 (5) additional projects totaling 340 MW under construction, one of which is in North Carolina.

9 Attachment D is a letter from CustomerFirst Renewables (“CustomerFirst”), an energy  
10 advisory consultant that assists commercial and industrial (“C&I”), higher education, and  
11 government clients in procuring renewable power to meet their corporate or other clean energy  
12 goals. As discussed in the letter, CustomerFirst confirms that there is substantial demand among  
13 the large C&I clients that they serve for utility-scale solar projects located in PJM. Because the  
14 North Carolina solar resource is the best available in PJM, there is high demand for cost-  
15 competitive solar projects in the PJM portion of northeastern North Carolina.

16 Geenex negotiated with a range of potential acquirers for the Project. In July 2020, Geenex  
17 selected an exclusive partner to perform final due diligence and complete negotiations. The sale  
18 of the Project is expected to be completed by October. Geenex expects to continue partnering with  
19 the acquirer to complete development of the Project. The selected partner has a rich history of  
20 negotiating power purchase agreements and wants to acquire the Project due to the demand they  
21 see for low-cost solar energy in the marketplace.

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

23 A. Yes.

**CERTIFICATE OF SERVICE**

This is to certify that the undersigned has this day served the foregoing **PREFILED 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

Megan Jost  
NC Public Staff - Legal Division  
megan.jost@psncuc.nc.gov

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

This the 12<sup>th</sup> day of August, 2020.

/s/ \_\_\_\_\_

Benjamin L. Snowden

**NCUC DOCKET NO. EMP-110, SUB 0**

**SUPPLEMENTAL PRE-FILED DIRECT TESTIMONY OF  
DONNA ROBICHAUD  
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**ATTACHMENTS**

A	Generation Interconnection Feasibility Study Report For PJM Generation Interconnection Request Queue Position AD1-022 /AD1-023 (Feb. 2018)
B	Generation Interconnection System Impact Study Report For PJM Generation Interconnection Request Queue Position AD1-022 /AD1-023 (Dec. 2019)
C	LCOT Analysis for Network Upgrades potentially required for Sumac Solar Project and for Potential DEP Affected System Upgrades <b>**CONFIDENTIAL**</b>
D	Letter from CustomerFirst Renewables