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September 14, 2021

Ms. A. Shonta Dunston  
Interim Chief Clerk  
North Carolina Utilities Commission  
430 N. Salisbury Street  
Raleigh, NC 27603

**RE: *In the matter of the Application for Certificate of Public Convenience  
and Necessity for Juno Solar, LLC to Construct a 275-MW<sub>AC</sub> Solar  
Facility in Richmond County, North Carolina  
NCUC Docket No. EMP-116, Sub 0  
PRE-FILED SUPPLEMENTAL DIRECT TESTIMONY  
OF PIPER MILLER (REDACTED - PUBLIC VERSION)***

Dear Ms. Dunston:

Juno Solar, LLC ("Juno Solar") provides herewith the Redacted Pre-Filed Supplemental Testimony of Piper Miller that responds to the questions presented by the North Carolina Utilities Commission in the *Order Scheduling Hearings, Filing of Testimony, Establishing Procedural Guidelines, and Requiring Public Notice* issued on August 31, 2021.

Should you have any questions concerning this filing, please do not hesitate to contact me.

Sincerely,

*Karen M. Kemeraite*  
Karen M. Kemeraite

pbb

cc: All parties of record

A Pennsylvania Limited Liability Partnership

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Sep 14 2021

**BEFORE THE  
NORTH CAROLINA UTILITIES COMMISSION  
JUNO SOLAR, LLC  
DOCKET NO. EMP-116, SUB 0**

**PUBLIC / REDACTED  
PRE-FILED SUPPLEMENTAL DIRECT TESTIMONY  
OF  
PIPER MILLER**

**September 14, 2021**

1     **Q.     Please state your name, title, and business address.**

2     .A.     My name is Piper Miller. I am Vice President of Development for Pine Gate  
3             Renewables, LLC (“Pine Gate Renewables”), and my business address is 130  
4             Roberts Street, Asheville, North Carolina 28801. Juno Solar, LLC (“Juno Solar”  
5             or “Applicant”) is wholly owned by Birch Creek Development, LLC (“Birch  
6             Creek”) and operated in collaboration with Pine Gate Renewables, which  
7             manages the development of Juno Solar’s proposed utility-scale solar  
8             photovoltaic (“PV”) generating facility.

9

10    **Q.     Are there any network upgrades to DEP’s or any affected system’s**  
11            **transmission system required to accommodate the operation of the**  
12            **Applicant’s proposed facility? If so, provide the amount of network upgrades**  
13            **on DEP’s or any affected system’s transmission system, if any, required to**  
14            **accommodate the operation of the Applicant’s proposed facility.**

15    A.     Juno Solar’s Interconnection Request is currently on-hold due to interdependency  
16             in Duke’s Transmission Interconnection Queue. Juno Solar will participate in the  
17             Transitional Cluster Study process approved by the Federal Energy Regulatory  
18             Commission (“FERC”) on August 16th, 2021. Because Juno Solar is not  
19             expecting to receive study results from Duke until March 2022, Birch Creek  
20             performed a steady-state load flow study utilizing a Summer Peak 2024 system  
21             representation as provided by Duke Energy Progress, LLC (“DEP”) and Duke  
22             Energy Carolinas, LLC (“DEC”) (together, “Duke”) to determine the network

1 upgrades that would be required to accommodate the full output of the  
2 interconnection request in DEP's transmission system. All Interconnection  
3 Requests and Transmission Projects with firm transmission commitments were  
4 subsequently modeled in the system representation, as well as active queue  
5 projects currently in DEP's Transmission Interconnection Queue that could  
6 potentially participate in the Transitional Cluster, were modeled and dispatched at  
7 their respective nameplate capacity. Study results suggest that in order for the 275  
8 MW Interconnection Request to reliably interconnect to Duke's transmission  
9 system, it is estimated that approximately 17.56 miles of Duke's transmission  
10 facilities would have to be upgraded to accommodate the full output of the  
11 Interconnection Request amounting to approximately \$16.84M. The  
12 Interconnection Request would only be allocated a portion of the total cost based  
13 on its individual impact on the identified limiting elements. The rest of the  
14 upgrade costs is going to be distributed amongst all the projects in the  
15 Transitional Cluster that meet cost allocation criteria based on their individual  
16 impact on the identified limiting elements. At this point it is still unknown which  
17 projects will participate in the Transitional Cluster.

18  
19 **Q. Provide any information and supporting documentation regarding the**  
20 **proposed Levelized Cost of Transmission (LCOT) of \$4.00/MWh upon which**  
21 **you ask the Commission to condition any CPCN granted in this case.**

1 A. A Levelized Cost of Transmission (“LCOT”) of \$4.00/MWh represents the  
2 amount that Birch Creek believes to be a just and reasonable threshold which will  
3 serve to facilitate the state and Duke’s renewable energy goals while not  
4 burdening ratepayers with reimbursement of unduly high network upgrade costs.

5  
6 In the Friesian Holdings, LLC (“Friesian”) CPCN hearing (Docket No. EMP-105,  
7 Sub 0), Public Staff witnesses Evan Lawrence and Dustin Metz testified that a  
8 2019 Lawrence Berkeley National Laboratory (LBNL) study examining solar  
9 network upgrade costs found a \$1.56/MWh LCOT in MISO, a \$3.22 LCOT value  
10 in PJM, and a \$2.21/MWh LCOT in the other locations studied, which are  
11 presumably appropriate LCOT values for new solar projects at the time of the  
12 study, which were contrasted with a \$62.94/MWh LCOT finding for Friesian.  
13 Subsequent to the Friesian CPCN proceeding, transmission costs have generally  
14 risen, due to 1) increasing materials and labor costs, and 2) the tendency of these  
15 costs to increase with increased solar penetration on the system.

16  
17 In line with these ranges and trends, Birch Creek believes that a \$4.00/MWh  
18 LCOT cap is appropriate to allow for just and reasonable network upgrade costs.

19  
20 **Q. Is there any interconnection study available for the proposed facility? If so,**  
21 **provide any interconnection study received for the proposed facility. If the**



1       **Applicant has not received a study, provide a date by when the study is**  
2       **expected to be completed.**

3     A.     Juno Solar is currently being studied in Duke's transition cluster study, with  
4           Phase I study results expected in March 2022, Phase II results expected in  
5           September 2022, and Facilities Study results expected in the first quarter of 2023.

6  
7           In lieu of interconnection study results from Duke, Birch Creek has conducted its  
8           own injection studies seeking to replicate Duke's internal study methodology, as  
9           detailed in responses to questions 1 and 4.

10  
11    **Q.     Is the Applicant aware of any system other than the studied system that is or**  
12       **will be affected by the interconnection? If yes, explain the impact and basis.**

13    A.     Due to the proximity of the interconnection facilities to PJM's service territory  
14           that ties DEP with Dominion Virginia Power, PJM is likely to be notified as a  
15           potential affected system during the study process. Once PJM is notified, the  
16           potential Transmission Owner in coordination with PJM will determine if further  
17           affected system studies are required.

18  
19    **Q.     Is the Applicant proposing to sell energy and capacity from the facility to a**  
20       **distribution facility regulated by the Commission? If so, provide a discussion**  
21       **of how the facility's output conforms to or varies from the regulated utility's**  
22       **most recent integrated resource plan (IRP).**

1 A. Birch Creek has no plans at this time to sell energy or capacity from the Juno  
2 Solar facility to a distribution facility regulated by the Commission.

3  
4 **Q. Is the Applicant proposing to sell energy and capacity from the proposed**  
5 **facility to a purchaser who is subject to a statutory or regulatory mandate**  
6 **with respect to its energy sourcing (e.g., a REPS requirement or Virginia's**  
7 **new statutory mandate for renewables)? If so, explain how, if at all, the**  
8 **proposed facility will assist or enable compliance with that mandate. In**  
9 **addition, provide any contracts that support that compliance.**

10 A. Birch Creek has no plans at this time to sell energy or capacity from the Juno  
11 Solar facility to a purchaser who is subject to a statutory or regulatory renewable  
12 energy mandate.

13  
14 **Q. Does the Applicant have a Power Purchase Agreement (PPA), REC sale**  
15 **contracts or contracts for compensation for environmental attributes for the**  
16 **output of the proposed facility? If so, provide any PPA agreements, REC sale**  
17 **contracts, or contracts for compensation for environmental attributes for the**  
18 **output of the facility.**

19 A. Juno Solar does not have a PPA, REC sale contract, or any such contract for  
20 compensation for the output of the facility at this time in its development  
21 lifecycle. [REDACTED]

22 [REDACTED]

1

2

3

4 **Q. Does this conclude your testimony?**

5 A. Yes, at this time.

6