

**AGREEMENT FOR THE SALE  
OF ELECTRICAL OUTPUT TO  
VIRGINIA ELECTRIC AND POWER COMPANY**

THIS AGREEMENT, effective this 28th day of April, 2015, (the "Effective Date") by and between VIRGINIA ELECTRIC AND POWER COMPANY, a Virginia public service company with its principal office in Richmond, Virginia, doing business in Virginia as Dominion Virginia Power, and in North Carolina as Dominion North Carolina Power, hereinafter called "Dominion North Carolina Power" or "Company", and AULANDER SOLAR LLC, a Delaware Limited Liability Company, with its principal office in Radnor, Pennsylvania, hereinafter called "Operator", operator of the Aulander Solar Facility, hereinafter called the "Facility":

**RECITALS**

WHEREAS, the North Carolina Utilities Commission has adopted a rate schedule described in this Agreement below as **Schedule 19-FP** applicable to Qualifying Facilities (or "QF" as that term is defined in 18 C.F.R. § 292) which can provide Contracted Capacity (a) up to 5000 kW from a hydroelectric generating facility, (b) up to 5000 kW from a generating facility fueled by trash or methane derived from landfills, hog waste, poultry waste, solar, wind or non-animal forms of biomass, or (c) up to 3000 kW for all other QFs; and

WHEREAS, the parties hereto wish to contract for the sale of electrical output from such a QF to be operated by Operator,

NOW THEREFORE, in consideration of the mutual covenants and agreements herein contained, the parties hereto contract and agree with each other as follows:

**Article 1: Parties' Purchase and Sale Obligations**

Dominion North Carolina Power or its agent, assignee, or successor will purchase from Operator all of the electrical output (energy and Contracted Capacity) made available for sale from the Facility on a simultaneous purchase and sale arrangement. In addition, Operator has elected to contract under the FP Method for determining the Company's avoided cost as described more fully in Exhibit C. Operator elects to operate the Facility in the Mode of Operation as specified in Section IV.C (Firm Mode of Operation) of Schedule 19-FP. The Facility is located in Dominion North Carolina Power's retail service area in Aulander, Hertford County, North Carolina.

## **Article 2: Term and Commercial Operations Date**

This Agreement shall commence on the Effective Date and shall continue in effect for a period of 15 years from the Commercial Operations Date (“COD”). The COD shall be the first date that all of the following conditions have been satisfied:

- a) The Facility has been permanently constructed, synchronized with and has delivered electrical output to the Dominion North Carolina Power system and such action has been witnessed by an authorized Dominion North Carolina Power employee;
- b) After completion of item a) above, Dominion North Carolina Power has received written notice from Operator specifying the Commercial Operations Date and certifying that the Facility is ready to begin commercial operations as a Qualifying Facility;
- c) Operator and Dominion North Carolina Power (or the PJM Interconnection, LLC or other operator of the Dominion North Carolina Power transmission system, as applicable) have executed an Interconnection Agreement to be included herewith as Exhibit A;
- d) Operator has provided to Dominion North Carolina Power Qualifying Facility Certification to be included herewith as Exhibit E; and
- e) Operator either has received from the North Carolina Utilities Commission a Certificate of Public Convenience and Necessity or has filed the notice required by G.S. 62-110.1(g) and Commission Rule 8-65 and is not legally required to obtain such a certificate for the construction and operation of the Facility.

For contract terms of 10 years or more, this Agreement may be renewed at the option of Dominion North Carolina Power on substantially the same terms and conditions and at a rate either (1) mutually agreed upon by the parties negotiating in good faith and taking into consideration Dominion North Carolina Power's then avoided cost rates and other relevant factors or (2) set by arbitration.

### **Article 3: Contracted Capacity**

The Facility, consisting of solar panels and 5 inverters, will have a combined nameplate rating of approximately 6250 kW. The Facility's Contracted Capacity shall be 4999 kW.

### **Article 4: Attachments**

The following documents are attached hereto and are made a part hereof:

- Exhibit A: Executed Interconnection Agreement (attached for information but not as a part of this Agreement)
- Exhibit B: General Terms and Conditions
- Exhibit C: Schedule 19-FP, Power Purchases from Cogeneration and Small Power Production Qualifying Facilities and applicable to the QF who chooses the FP Method (effective March 28, 2014, sometimes referred to as "Schedule 19-FP" herein)
- Exhibit D: Map and related written description identifying the specific location of the Facility in the City or County designated in ARTICLE 1
- Exhibit E: "Qualifying Facility" Certification (if Facility is less than 1 MW, Owner submission that the Facility qualifies as a Qualifying Facility (QF) under federal law)
- Exhibit F: Certificate of Public Convenience and Necessity or evidence that no such certificate was required under North Carolina law in the form of a report of proposed construction to the Commission pursuant to Commission Rule 8-65.

### **Article 5: Price**

Payments for all energy and Contracted Capacity purchased hereunder shall be determined by the provisions for payments in Schedule 19-FP included herewith as Exhibit C and pursuant to Operator elections within such Schedule 19-FP, if any, as stated in Article 1 hereof. Payments for all energy and Contracted Capacity purchased hereunder shall be on a cents per kilowatt-hour basis.

If Operator elects the Firm Mode of Operation, then for the term of this Agreement Operator shall be paid for firm energy, in accordance with Schedule 19 – FP, effective for usage on March 28, 2014, the 15-year Fixed Long-Term Rate as provided for at Section VI.B of Schedule 19-FP. Payments for firm energy will begin on the Commercial Operations Date. All energy delivered per hour above the Contracted Capacity up to 105% of the Contracted Capacity shall be considered non-firm and be paid for at the applicable non-firm rate pursuant to Section V of Schedule 19-FP. No payment shall be made for energy delivered above 105% of the Contracted Capacity. All energy delivered prior to the Commercial Operations Date shall be considered non-firm and paid at the non-firm energy rate. In all cases, such non-firm energy rates will be those in the Schedule 19-FP in effect at the time such energy is delivered.

If Operator elects the Firm Mode of Operation, specified in Section IV.C of Schedule 19-FP, Operator shall be paid for Contracted Capacity on a cents per kilowatt-hour basis as specified in Schedule 19-FP, Section VII. Operator shall not be paid for capacity above the Contracted Capacity level in any hour during which the generation exceeds the Contracted Capacity level specified in Article 3.

#### **Article 6: Reserved**

#### **Article 7: Operator's Pre-COD Obligations**

After execution of this Agreement and until the Commercial Operations Date, Operator shall prepare a quarterly status report for Dominion North Carolina Power showing the current progress on completing the project. This status report shall be delivered to Dominion North Carolina Power on or before the following dates each year, January 15, April 15, July 15, and October 15. Such status report shall discuss the progress of the project in a format which is acceptable to Dominion North Carolina Power.

The Facility will be considered to have commenced construction on the first day upon which all of the following have occurred: (1) the issuance by Operator to its construction contractor for the Facility of a written unconditional Notice-to-Proceed; (2) the mobilization of major construction equipment and construction facilities on the Facility site; and (3) the commencement of major structural excavation and structural concrete work relating to a major component of the Facility such as the power island consistent with having commenced a continuous process of construction relating to the Facility. Dominion North Carolina Power shall have no obligation to accept a declaration of Commercial Operations prior to November 1, 2015 . The anticipated Commercial Operations Date is December 15, 2015.

#### **Article 8: Default and Early Termination**

Operator and Dominion North Carolina Power agree that any of the following will be a material breach by the Operator of this Agreement and shall result in Dominion North Carolina Power having the right to immediate cancellation, without a cure period, of this Agreement: (i) failure to commence construction of the Facility, as defined in Article 7 above, and provide Dominion North Carolina Power with written notice thereof by June 30, 2016, (ii) failure to achieve Commercial Operations Date within thirty months of February 21, 2014; provided, however, an Operator may be allowed additional time to begin deliveries of power to the Company if the QF facilities in question are nearly complete at the end of such thirty month period and the QF is able to demonstrate that it is making a good faith effort to complete its project in a timely manner, (iii) failure to provide two (2) consecutive status reports pursuant to Article 7 above, (iv) delivery or supply of electrical output to any entity other than Dominion North Carolina Power or its agent, assignee or successor, (v) failure to meet those requirements necessary to maintain Qualifying Facility status, (vi) failure at any time to have in effect a valid Interconnection Agreement with Dominion North Carolina Power (or its successor as operator of the Dominion North Carolina transmission system), (vii) failure to generate and deliver power from the Facility to Dominion North Carolina Power for more than 180 consecutive days, at any time after the Commercial Operations Date, or (viii) failure to maintain QF certification. In the event Operator fails to perform in any way, materially or non-materially, any other obligations not specifically listed above, Operator shall be given notice and thirty (30) days to cure such non-performance. Notwithstanding any cure period, Dominion North Carolina Power shall not be obligated to purchase any energy or Contract Capacity under this Agreement while any such breach remains uncured. If Operator fails to cure its non-performance within thirty (30) days of Dominion North Carolina Power's notice, Dominion North Carolina Power shall have the right to cancel this Agreement. Operator agrees that if this Agreement is canceled by Dominion North Carolina Power for Operator's non-performance prior to the end of the initial term of this Agreement, then, Dominion North Carolina Power shall have all rights and remedies available at law or in equity.

### **Article 9: Representations and Warranties**

Operator represents and warrants that it has the right to operate the Facility in accordance with the terms of this Agreement. Operator further represents and warrants that all permits, approvals, and/or licenses necessary for the operation of the Facility will be obtained prior to the Commercial Operations Date and shall be maintained throughout the Term of this Agreement. Operator shall, provide such documentation and evidence of such right, permits, approvals and/or licenses as Dominion North Carolina Power may reasonably request, including without limitation air permits, leases and/or purchase agreements.

**Article 10: Notices and Payments**

All correspondence and payments concerning this Agreement shall be to the addresses below. Either Party may change the address by providing written notice to the other Party.

**OPERATOR:**

Aulander Solar LLC  
Three Radnor Corp Ctr, Suite 300  
100 Matsonford Rd.  
Radnor, PA 19087

**DOMINION NORTH CAROLINA POWER:**

Virginia Electric and Power Company  
Power Contracts (3SE)  
5000 Dominion Boulevard  
Glen Allen, Virginia 23060-6711

**Article 11: Integration of Entirety of Agreement**

This Agreement is intended by the Parties as the final expression of their Agreement and is intended also as a complete and exclusive statement of the terms of their Agreement with respect to the purchase and sale of electrical output generated by the Facility. All prior written or oral understandings, offers or other communications of every kind pertaining to this Agreement are hereby abrogated and withdrawn.

IN WITNESS WHEREOF, the Parties hereto have caused their names to appear below, signed by authorized representatives as of the date first shown above.

AULANDER SOLAR LLC

By: *Sam Beck*

Title: *Manager*

Date: *5/6/15*

VIRGINIA ELECTRIC AND POWER COMPANY

By: *William S. Apple*

Title: *Director of Reg Ops*

Date: *5/6/15*

EXHIBIT A  
GENERATOR INTERCONNECTION GUIDANCE AND AGREEMENT

Dominion North Carolina Power's procedures for generator interconnection are available through the Internet at the Company's website with draft interconnection agreements for non-FERC jurisdictional generators (as approved by the NCUC included as Attachments 1, 2 and 3 thereto). For FERC jurisdictional generators interconnection shall be in accordance with FERC and PJM requirements.

The specific Internet address for these procedures is <https://www.dom.com/dominion-north-carolina-power/customer-service/rates-and-tariffs/pdf/term24.pdf>. The Internet site contains links to the Generator Interconnection Procedures along with the Generator Interconnection Request Form. Once an Interconnection Agreement is executed it will be included herewith as part of this Exhibit A.



**EXHIBIT B**  
**General Terms and Conditions**

**I - Assignments**

Operator agrees not to assign this Agreement without the prior written consent of Dominion North Carolina Power. Dominion North Carolina Power may withhold such consent if it determines, in its sole discretion, that such assignment would not be in the best interests of Dominion North Carolina Power or its customers. Any attempted assignment that Dominion North Carolina Power has not approved in writing shall be null and void and ineffective for all purposes. In the event of assignment by Operator, Operator shall pay Company within thirty (30) days of the effective date of the assignment an amount equal to the actual costs incurred by Company in connection with such assignment up to a maximum amount of \$10,000 per assignment; provided, however, assignment of this Agreement by Operator in connection with an initial financing arrangement which is finalized and for which consent of Company is requested within nine months of the Effective Date of this Agreement shall not be subject to the payment requirement provided herein.

**II - Indemnity**

Operator shall indemnify and save harmless and, if requested by Dominion North Carolina Power, defend Dominion North Carolina Power, its officers, directors and employees from and against any and all losses and claims or demands for damages to real property or tangible personal property (including the property of Dominion North Carolina Power) and injury or death to persons arising out of, resulting from, or in any manner caused by the presence, operation or maintenance of any part of Operator's Facility; provided, however, that nothing herein shall be construed as requiring Operator to indemnify Dominion North Carolina Power for any injuries, deaths or damages caused by the sole negligence of Dominion North Carolina Power. Operator agrees to provide Dominion North Carolina Power written evidence of liability insurance coverage, which is specifically and solely for the Facility, prior to the operation of the Facility. Operator agrees to have Dominion North Carolina Power named as an additional insured, and shall keep such coverage current throughout the term of this Agreement.

**III - QF Certification**

Operator represents and warrants that its Facility meets the Qualifying Facility requirements established as of the Effective Date of this Agreement by the Federal Energy Regulatory Commission's rules (18 Code of Federal Regulations Part 292), and that it will continue to meet those requirements necessary to remain a Qualifying Facility throughout the term of this Agreement. [Dominion North Carolina Power may require "FERC" QF Certification by adding the following: "Operator agrees to obtain, at Operator's expense, a certification as a "QF" from the Federal Energy Regulatory Commission, in accordance with 18 C.F.R. § 292.207 (b)."] Operator agrees to provide copies, at the time of submittal, of all correspondence and

filings with the Federal Energy Regulatory Commission relating to obtaining certification of the Facility as a "QF". Operator will submit prior to delivery of electrical output from the Facility to Dominion North Carolina Power evidence of Qualifying Facility certification. After the Commercial Operations Date, if requested by Dominion North Carolina Power prior to March 1 of any year, Operator agrees to provide July 1 of the same year to Dominion North Carolina Power for the preceding year sufficient for Dominion North Carolina Power to determine the Operator's continuing compliance with its QF requirements, including but not limited to:

- (a) All information required by FERC Form 556.
- (b) Copy of the Facility's QF Certification and any subsequent revisions or amendments,
- (c) Provide a copy of any contract executed with a thermal host.
- (d) Identification of the amount of each type of fuel used per month and average heating value for each type of fuel, which will be used to determine the Total Energy Input. These values should be verifiable by auditing supporting documentation.
- (e) Identification of each of the QF's useful thermal output(s) for each month, including temperature, pressure, amount of thermal output delivered, temperature and amount of condensate returned (if applicable) and the conversion to Btus. These values should be verifiable by auditing supporting documentation.
- (f) Identification of the QF's useful power output for each month. These values should be verifiable by auditing supporting documentation.
- (g) Provide drawings, heat balance diagrams and a sufficiently detailed narrative describing the delivery of useful thermal output including the location, description, and calibration data for all metering equipment used for QF calculations.
- (h) Provide any other information which the QF believes will facilitate Dominion North Carolina Power's monitoring of the QF requirements.
- (i) Dominion North Carolina Power may request additional information, as needed, to monitor the QF requirements.

#### IV - Consequential Damages

In no event shall either Party be liable to the other for any special, indirect, incidental or consequential damages whatsoever, except that the foregoing shall not apply to any promises of indemnity or obligations to reimburse the Parties expressly set forth in this Agreement.

## V - Amendments, Waivers, Severability and Headings

This Agreement, including the appendices thereto, can be amended only by agreement between the Parties in writing. The failure of either Party to insist in any one or more instances upon strict performance of any provisions of this Agreement, or to take advantage of any of its rights hereunder, shall not be construed as a waiver of any such provisions or the relinquishment of any such right or any other right hereunder. In the event any provision of this Agreement, or any part or portion thereof, shall be held to be invalid, void or otherwise unenforceable, the obligations of the Parties shall be deemed to be reduced only as much as may be required to remove the impediment. The headings contained in this Agreement are used solely for convenience and do not constitute a part of the Agreement between the Parties hereto, nor should they be used to aid in any manner in the construction of this Agreement.

## VI - Compliance with Laws

Operator covenants that it shall comply with all applicable provisions of Executive Order 11246, as amended; § 503 of the Rehabilitation Act of 1973, as amended; § 402 of the Vietnam Era Veterans Readjustment Assistance Act of 1974, as amended; and implementing regulations set forth in 41 C.F.R. §§ 60.1, 60-250, and 60-741 and the applicable provisions relating to the utilization of small minority business concerns as set forth in 15 U.S.C. § 637, as amended. Operator agrees that the equal opportunity clause set forth in 41 C.F.R. § 60-1.4 and the equal opportunity clauses set forth in 41 C.F.R. § 250.5 and 41 C.F.R. 60-§741.5 and the clauses relating to the utilization of small and minority business concerns set forth in 15 U.S.C. § 637(d)(3) and 48 C.F.R. § 52-219.9 are hereby incorporated by reference and made a part of this Agreement. If this Agreement has a value of more than \$500,000, Operator shall adopt and comply with a small business and small disadvantaged business subcontracting plan which shall conform to the requirements set forth in 15 U.S.C. § 637(d)(6). The provisions of this section shall apply to Operator only to the extent that:

- (a) such provisions are required of Operator under existing law,
- (b) Operator is not otherwise exempt from said provisions and
- (c) Compliance with said provisions is consistent with and not violative of 42 U.S.C. § 2000 et seq., 42 U.S.C. § 1981 et seq., or other acts of Congress.

## VII - Interconnection and Operation

Operator shall be responsible for the design, installation, and operation of its Facility. Operator shall be responsible for obtaining an Interconnection Agreement. Interconnection guidelines and agreement requirements are set forth in Exhibit A of this Agreement.

Operator shall: (a) maintain the Facility and the Interconnection Facilities on Operator's side of the Interconnection Point, except Dominion North Carolina Power-owned Interconnection Facilities, in conformance with all applicable laws and regulations and in accordance with operating procedures; (b) obtain any governmental authorizations and permits required for the construction and operation thereof and keep all such permits and authorizations current and in effect; and (c) manage the Facility in a safe and prudent manner. If at any time Operator does not hold such authorizations and permits, Dominion North Carolina Power may refuse to accept deliveries of power hereunder.

Dominion North Carolina Power may enter Operator's premises (a) to inspect Operator's protective devices at any reasonable time; (b) to read or test meters and metering equipment; and (c) to disconnect, without notice, the Facility if, in Dominion North Carolina Power's opinion, a hazardous condition exists and such immediate action is necessary to protect persons, or Dominion North Carolina Power facilities or other customers' facilities from damage or interference caused by Operator's Facility or lack of properly operating protective devices. Dominion North Carolina Power will endeavor to notify Operator as quickly as practicable if disconnection occurs as provided in (c) above. Any inspection of Operator's protective devices shall not impose on Dominion North Carolina Power any liabilities with respect to the operation, safety or maintenance of such devices.

Operator shall not operate the Facility in parallel with Dominion North Carolina Power's system prior to (a) an inspection of the installed Interconnection Facilities by an authorized Dominion North Carolina Power representative and (b) receiving written authorization from an authorized Dominion North Carolina Power representative to begin parallel operation.

#### VIII - Metering

Dominion North Carolina Power will meter all electrical output delivered from the Facility on the high voltage side of the step up transformer.

Operator agrees to pay an administrative charge to Dominion North Carolina Power to reflect all reasonable costs incurred by Dominion North Carolina Power for meter reading and billing, also referred to as metering charges. The monthly meter reading and billing charge shall change from time to time when the NCUC approves a different charge in Schedule 19-FP.

In addition, Operator agrees to pay any fees required to provide and maintain leased telephone lines required for meter reading by Dominion North Carolina Power.

#### IX - Billing and Payment

Dominion North Carolina Power shall read the meter in accordance with its normal meter reading schedule. Within twenty-eight (28) days thereafter, Dominion North Carolina Power shall send Operator payment for energy and Contracted Capacity delivered. At Dominion North Carolina Power's option, (i) Dominion North Carolina Power may make such payments net of the monthly metering charges, Interconnection Facilities charges, and charges for sales of

electricity to the Operator, or (ii) Dominion North Carolina Power may invoice Operator for such charges separately. Payment by Dominion North Carolina Power shall include verification showing the billing month's ending meter reading, on-peak and off-peak kWh, and the amount paid. If in any month the monthly metering and Interconnection Facilities charges are in excess of any payments due Operator, Dominion North Carolina Power shall bill Operator for the difference and Operator shall make such payment within 28 days of the invoice date. Failure by Operator to make such payments may result in disconnection of the Facility. In no event shall such disconnection relieve Operator of its obligation to pay monthly metering charges and Interconnection Facilities charges under this Agreement.

In the event that any data required for billing purposes hereunder are unavailable when required for such billing, the unavailable data shall be estimated by Dominion North Carolina Power, based upon historical data. Such billing shall be subject to any required adjustment in a subsequent billing month.

Operator agrees that Dominion North Carolina Power shall be entitled to withhold sufficient amounts due pursuant to this Agreement to offset (a) any damages to Dominion North Carolina Power resulting from any breach of this Agreement by Operator, and (b) any other amounts Operator owes Dominion North Carolina Power, including amounts arising from sales of electricity by Dominion North Carolina Power to Operator, metering charges and Interconnection Facilities charges.

In no event shall Dominion North Carolina Power be liable to Operator for any Contracted Capacity payments in excess of the amounts contracted for herein, regardless of the ultimate length of this Agreement or revisions to Schedule 19-FP or successor schedules. Operator hereby agrees to accept the Contracted Capacity payments as set forth herein as its sole and complete compensation for delivery of Contracted Capacity to Dominion North Carolina Power.

#### X - Force Majeure

Neither Party shall be considered in default under this Agreement or responsible to the other Party in tort, strict liability, contract or other legal theory for damages of any description for any interruption or failure of service or deficiency in the quality or quantity of service or any other failure to perform any of its obligations hereunder to the extent such failure occurs without fault or negligence on the part of that Party and is caused by factors beyond that Party's reasonable control, which by the exercise of reasonable diligence that Party is unable to prevent, avoid, mitigate or overcome, including without limitation storm, flood, lightning, earthquake, explosion, equipment failure, civil disturbance, labor dispute, act of God or public enemy, action or inaction of a court or public authority, fire, sabotage, war, explosion, curtailments, unscheduled withdrawal of facilities from operation for maintenance or repair or any other cause of similar nature beyond the reasonable control of that Party (any such event, "Force Majeure"). Solely economic hardship of either Party shall not constitute Force Majeure under this Agreement. Nor shall anything contained in this paragraph or elsewhere in this Agreement

excuse Operator or Dominion North Carolina Power from strict compliance with the obligation of the Parties to comply with the terms of Article IX of this Exhibit B relating to timely payments.

Each Party shall have the obligation to operate in accordance with Good Utility Practice (as defined below) at all times and to use due diligence to overcome and remove any cause of failure to perform.

If a Party relies on the occurrence of an event of Force Majeure described above as a basis for being excused from performance of its obligations under this Agreement, then the Party relying on the Force Majeure event shall:

- a) Provide within forty-eight (48) hours written notice of such Force Majeure event or potential Force Majeure to the other Party, giving an estimate of its expected duration and the probable impact on the performance of its obligations hereunder;
- b) Exercise all reasonable efforts to continue to perform its obligations under this Agreement;
- c) Expeditiously take action to correct or cure the Force Majeure event excusing performance; provided, however, that settlement of strikes or other labor disputes will be completely within the sole discretion of the Party affected by such strike or labor dispute;
- d) Exercise all reasonable efforts to mitigate or limit damages to the other Party; and
- e) Provide prompt notice to the other Party of the cessation of the Force Majeure event giving rise to its excuse from performance. All performance obligations hereunder shall be extended by a period equal to the term of the resultant delay.

If a Party responding to a Force Majeure event has the ability to obtain, for additional expenditures, expedited material deliveries or labor production which would allow a response to the event in a manner that is above and beyond Good Utility Practice, and such a response could shorten the duration of the Force Majeure event, the Party responding to the event may, at its discretion, present the other Party with the option of funding the expenditures for expediting material deliveries or labor production in an effort to reduce the duration of the event and economic hardship. Each such opportunity will be negotiated on a case-by-case basis by the Parties.

For purposes of this Agreement, "Good Utility Practice" shall mean any of the applicable practices, methods, standards, guides or acts: required by any governmental authority, regional or national reliability council, or national trade organization, including NERC, SERC, or the successor of any of them, as they may be amended from time to time whether or not the Party whose conduct is at issue is a member thereof; otherwise engaged in or approved by a significant portion of the electric utility industry during the relevant time period which in the exercise of

reasonable judgment in light of the facts known or that should have been known at the time a decision was made, could have been expected to accomplish the desired result in a manner consistent with law, regulation, good business practices, generation, transmission and distribution reliability, safety, environmental protection, economy and expediency. Good Utility Practice is intended to be acceptable practices, methods, or acts generally accepted in the region, or any other acts or practices as are reasonably necessary to maintain the reliability of the Transmission System (as defined in the Interconnection Agreement), or of the Facility, and is not intended to be limited to the optimum practices, methods, or acts to the exclusion of all others.

## EXHIBIT C

Exhibit C is a copy of Schedule 19-FP.



## EXHIBIT D

Exhibit D is a map and written description identifying the specific location of the Facility and is provided by the Operator.

## EXHIBIT E

Exhibit E is the "Qualifying Facility" Certification to be provided by the Operator.

OR

If Facility is less than 1MW, Owner may submit the following statement as Exhibit E that the Facility qualifies as a Qualifying Facility (QF) under federal law.

Federal law exempts small power production or cogeneration facilities with net power production capacities of 1 MW or less from certain certification requirements in order to qualify as a qualifying facility ("QF" or "Qualifying Facility"). Therefore, [QF Name Here] submits the Facility is exempt from the certification requirements, but submits that the Facility qualifies as a Qualifying Facility under federal law set forth in the Public Utility Regulatory Policies Act of 1978 ("PURPA") (codified at 16 U.S.C. § 824a-3).

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Name

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Title

## EXHIBIT F

Exhibit F is the Certificate of Public Convenience and Necessity to be provided by the Operator, or evidence that no such certificate is required under North Carolina law in the form of a report of proposed construction to the Commission pursuant to Commission Rule 8-65.

**NORTH CAROLINA  
INTERCONNECTION AGREEMENT**

**Aulander Solar, LLC**

**NC13040**

**5 MW**

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This Interconnection Agreement ("Agreement") is made and entered into this 11<sup>th</sup> day of March, 2015, by Virginia Electric and Power Company, doing business as Dominion North Carolina Power ("Utility"), and Aulander Solar, LLC ("Interconnection Customer") each hereinafter sometimes referred to individually as "Party" or both referred to collectively as the "Parties."

### Utility Information

Utility: Virginia Electric and Power Company  
Attention: Mike Nester  
Address: 200 Vepco Street  
City, State, Zip: Roanoke Rapids, NC 27870  
Phone: (252) 308-1077 Fax: (252) 308-1078

### Interconnection Customer Information

Interconnection Customer: Aulander Solar, LLC  
Attention: Eric Blank  
Address: Three Radnor Corporate Center, Suite 300, 100 Matsonford Rd.  
City, State, Zip: Radnor, PA 19087  
Phone: (303) 544-1900 Fax: (484) 654-2136

Interconnection Request ID No: NC13040

In consideration of the mutual covenants set forth herein, the Parties agree as follows:

## Article 1. Scope and Limitations of Agreement

### 1.1 Applicability

This Agreement shall be used for all Interconnection Requests submitted under the North Carolina Interconnection Procedures except for those submitted under the 10 kW Inverter Process in Section 2 of the Interconnection Procedures.

### 1.2 Purpose

This Agreement governs the terms and conditions under which the Interconnection Customer's Generating Facility will interconnect with, and operate in parallel with, the Utility's System.

### 1.3 No Agreement to Purchase or Deliver Power or RECs

This Agreement does not constitute an agreement to purchase or deliver the Interconnection Customer's power or Renewable Energy Certificates (RECs). The purchase or delivery of power, RECs that might result from the operation of the Generating Facility, and other services that the Interconnection Customer may require will be covered under separate agreements, if any. The Interconnection Customer will be responsible for separately making all necessary arrangements (including scheduling) for delivery of electricity with the applicable Utility.

### 1.4 Limitations

Nothing in this Agreement is intended to affect any other agreement between the Utility and the Interconnection Customer.

### 1.5 Responsibilities of the Parties

- 1.5.1 The Parties shall perform all obligations of this Agreement in accordance with all Applicable Laws and Regulations, Operating Requirements, and Good Utility Practice.
- 1.5.2 The Interconnection Customer shall construct, interconnect, operate and maintain its Generating Facility and construct, operate, and maintain its Interconnection Facilities in accordance with the applicable manufacturer's recommended maintenance schedule, and in accordance with this Agreement, and with Good Utility Practice.
- 1.5.3 The Utility shall construct, operate, and maintain its System and Interconnection Facilities in accordance with this Agreement, and with Good Utility Practice.
- 1.5.4 The Interconnection Customer agrees to construct its facilities or systems in accordance with applicable specifications that meet or exceed those provided by the National Electrical Safety Code, the American National Standards Institute, IEEE, Underwriters' Laboratories, and Operating Requirements in effect at the time of construction and other applicable national and state codes and standards. The Interconnection Customer agrees to design, install, maintain, and operate its Generating Facility so as to reasonably minimize the likelihood of a disturbance adversely affecting or impairing the System or equipment of the Utility and any Affected Systems.
- 1.5.5 Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for the facilities that it now or subsequently may own unless otherwise specified in the Appendices to this Agreement. Each



Party shall be responsible for the safe installation, maintenance, repair and condition of their respective lines and appurtenances on their respective sides of the point of change of ownership. The Utility and the Interconnection Customer, as appropriate, shall provide Interconnection Facilities that adequately protect the Utility's System, personnel, and other persons from damage and injury. The allocation of responsibility for the design, installation, operation, maintenance and ownership of Interconnection Facilities shall be delineated in the Appendices to this Agreement.

- 1.5.6 The Utility shall coordinate with all Affected Systems to support the interconnection.

1.6 Parallel Operation Obligations

Once the Generating Facility has been authorized to commence parallel operation, the Interconnection Customer shall abide by all rules and procedures pertaining to the parallel operation of the Generating Facility in the applicable control area, including, but not limited to: 1) any rules and procedures concerning the operation of generation set forth in Commission-approved tariffs or by the applicable system operator(s) for the Utility's System and; 2) the Operating Requirements set forth in Appendix 5 of this Agreement.

1.7 Metering

The Interconnection Customer shall be responsible for the Utility's reasonable and necessary cost for the purchase, installation, operation, maintenance, testing, repair, and replacement of metering and data acquisition equipment specified in Appendices 2 and 3 of this Agreement. The Interconnection Customer's metering (and data acquisition, as required) equipment shall conform to applicable industry rules and Operating Requirements.

1.8 Reactive Power

- 1.8.1 The Interconnection Customer shall design its Generating Facility to maintain a composite power delivery at continuous rated power output at the Point of Interconnection at a power factor within the range of 0.95 leading to 0.95 lagging, unless the Utility has established different requirements that apply to all similarly situated generators in the control area on a comparable basis. The requirements of this paragraph shall not apply to wind generators.
- 1.8.2 The Utility is required to pay the Interconnection Customer for reactive power that the Interconnection Customer provides or absorbs from the Generating Facility when the Utility requests the Interconnection Customer to operate its Generating Facility outside the range specified

in Article 1.8.1. In addition, if the Utility pays its own or affiliated generators for reactive power service within the specified range, it must also pay the Interconnection Customer.

- 1.8.3 Payments shall be in accordance with the Utility's applicable rate schedule then in effect unless the provision of such service(s) is subject to a regional transmission organization or independent system operator FERC-approved rate schedule. To the extent that no rate schedule is in effect at the time the Interconnection Customer is required to provide or absorb reactive power under this Agreement, the Parties agree to expeditiously file such rate schedule and agree to support any request for waiver of any prior notice requirement in order to compensate the Interconnection Customer from the time service commenced.

## 1.9 Capitalized Terms

Capitalized terms used herein shall have the meanings specified in the Glossary of Terms in Attachment 1 of the North Carolina Interconnection Procedures or the body of this Agreement.

## Article 2. **Inspection, Testing, Authorization, and Right of Access**

### 2.1 Equipment Testing and Inspection

- 2.1.1 The Interconnection Customer shall test and inspect its Generating Facility and Interconnection Facilities prior to interconnection. The Interconnection Customer shall notify the Utility of such activities no fewer than five Business Days (or as may be agreed to by the Parties) prior to such testing and inspection. Testing and inspection shall occur on a Business Day, unless otherwise agreed to by the Parties. The Utility may, at its own expense, send qualified personnel to the Generating Facility site to inspect the interconnection and observe the testing. The Interconnection Customer shall provide the Utility a written test report when such testing and inspection is completed.
- 2.1.2 The Utility shall provide the Interconnection Customer written acknowledgment that it has received the Interconnection Customer's written test report. Such written acknowledgment shall not be deemed to be or construed as any representation, assurance, guarantee, or warranty by the Utility of the safety, durability, suitability, or reliability of the Generating Facility or any associated control, protective, and safety devices owned or controlled by the Interconnection Customer or the quality of power produced by the Generating Facility.

## 2.2 Authorization Required Prior to Parallel Operation

- 2.2.1 The Utility shall use Reasonable Efforts to list applicable parallel operation requirements in Appendix 5 of this Agreement. Additionally, the Utility shall notify the Interconnection Customer of any changes to these requirements as soon as they are known. The Utility shall make Reasonable Efforts to cooperate with the Interconnection Customer in meeting requirements necessary for the Interconnection Customer to commence parallel operations by the in-service date.
- 2.2.2 The Interconnection Customer shall not operate its Generating Facility in parallel with the Utility's System without prior written authorization of the Utility. The Utility will provide such authorization once the Utility receives notification that the Interconnection Customer has complied with all applicable parallel operation requirements. Such authorization shall not be unreasonably withheld, conditioned, or delayed.

## 2.3 Right of Access

- 2.3.1 Upon reasonable notice, the Utility may send a qualified person to the premises of the Interconnection Customer at or immediately before the time the Generating Facility first produces energy to inspect the interconnection, and observe the commissioning of the Generating Facility (including any required testing), startup, and operation for a period of up to three Business Days after initial start-up of the unit. In addition, the Interconnection Customer shall notify the Utility at least five Business Days prior to conducting any on-site verification testing of the Generating Facility.
- 2.3.2 Following the initial inspection process described above, at reasonable hours, and upon reasonable notice, or at any time without notice in the event of an emergency or hazardous condition, the Utility shall have access to the Interconnection Customer's premises for any reasonable purpose in connection with the performance of the obligations imposed on it by this Agreement or if necessary to meet its legal obligation to provide service to its customers.
- 2.3.3 Each Party shall be responsible for its own costs associated with following this Article.

## **Article 3. Effective Date, Term, Termination, and Disconnection**

### 3.1 Effective Date

This Agreement shall become effective upon execution by the Parties.

### 3.2 Term of Agreement

This Agreement shall become effective on the Effective Date and shall remain in effect for a period of ten years from the Effective Date or such other longer period as the Interconnection Customer may request and shall be automatically renewed for each successive one-year period thereafter, unless terminated earlier in accordance with Article 3.3 of this Agreement.

### 3.3 Termination

No termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination.

3.3.1 The Interconnection Customer may terminate this Agreement at any time by giving the Utility 20 Business Days written notice and physically and permanently disconnecting the Generating Facility from the Utility's System.

3.3.2 Either Party may terminate this Agreement after Default pursuant to Article 7.6.

3.3.3 Upon termination of this Agreement, the Generating Facility will be disconnected from the Utility's System. All costs required to effectuate such disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this Agreement or such non-terminating Party otherwise is responsible for these costs under this Agreement.

3.3.4 The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of the termination.

3.3.5 The provisions of this article shall survive termination or expiration of this Agreement.

### 3.4 Temporary Disconnection

Temporary disconnection shall continue only for so long as reasonably necessary under Good Utility Practice.

#### 3.4.1 Emergency Conditions

"Emergency Condition" shall mean a condition or situation: (1) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or (2) that, in the case of the Utility, is imminently likely (as determined in a non-discriminatory manner) to

cause a material adverse effect on the security of, or damage to the Utility's System, the Utility's Interconnection Facilities or the systems of others to which the Utility's System is directly connected; or (3) that, in the case of the Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or the Interconnection Customer's Interconnection Facilities. Under Emergency Conditions, the Utility may immediately suspend interconnection service and temporarily disconnect the Generating Facility. The Utility shall notify the Interconnection Customer promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Interconnection Customer's operation of the Generating Facility. The Interconnection Customer shall notify the Utility promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Utility's System or any Affected Systems. To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of both Parties' facilities and operations, its anticipated duration, and the necessary corrective action.

#### 3.4.2 Routine Maintenance, Construction, and Repair

The Utility may interrupt interconnection service or curtail the output of the Generating Facility and temporarily disconnect the Generating Facility from the Utility's System when necessary for routine maintenance, construction, and repairs on the Utility's System. The Utility shall provide the Interconnection Customer with five Business Days notice prior to such interruption. The Utility shall use Reasonable Efforts to coordinate such reduction or temporary disconnection with the Interconnection Customer.

#### 3.4.3 Forced Outages

During any forced outage, the Utility may suspend interconnection service to effect immediate repairs on the Utility's System. The Utility shall use Reasonable Efforts to provide the Interconnection Customer with prior notice. If prior notice is not given, the Utility shall, upon request, provide the Interconnection Customer written documentation after the fact explaining the circumstances of the disconnection.

#### 3.4.4 Adverse Operating Effects

The Utility shall notify the Interconnection Customer as soon as practicable if, based on Good Utility Practice, operation of the Generating Facility may cause disruption or deterioration of service to

other customers served from the same electric system, or if operating the Generating Facility could cause damage to the Utility's System or Affected Systems. Supporting documentation used to reach the decision to disconnect shall be provided to the Interconnection Customer upon request. If, after notice, the Interconnection Customer fails to remedy the adverse operating effect within a reasonable time, the Utility may disconnect the Generating Facility. The Utility shall provide the Interconnection Customer with five Business Day notice of such disconnection, unless the provisions of Article 3.4.1 apply.

**3.4.5      Modification of the Generating Facility**

The Interconnection Customer must receive written authorization from the Utility before making any change to the Generating Facility that may have a material impact on the safety or reliability of the Utility's System. Such authorization shall not be unreasonably withheld. Modifications shall be done in accordance with Good Utility Practice. If the Interconnection Customer makes such modification without the Utility's prior written authorization, the latter shall have the right to temporarily disconnect the Generating Facility.

**3.4.6      Reconnection**

The Parties shall cooperate with each other to restore the Generating Facility, Interconnection Facilities, and the Utility's System to their normal operating state as soon as reasonably practicable following a temporary or emergency disconnection.

**Article 4.      Cost Responsibility for Interconnection Facilities and Distribution Upgrades**

**4.1      Interconnection Facilities**

4.1.1      The Interconnection Customer shall pay for the cost of the Interconnection Facilities itemized in Appendix 2 of this Agreement. The Utility shall provide a best estimate cost, including overheads, for the purchase and construction of its Interconnection Facilities and provide a detailed itemization of such costs. Costs associated with Interconnection Facilities may be shared with other entities that may benefit from such facilities by agreement of the Interconnection Customer, such other entities, and the Utility.

4.1.2      The Interconnection Customer shall be responsible for its share of all reasonable expenses, including overheads, associated with (1) owning, operating, maintaining, repairing, and replacing its own Interconnection



Facilities, and (2) operating, maintaining, repairing, and replacing the Utility's Interconnection Facilities.

#### 4.2 Distribution Upgrades

The Utility shall design, procure, construct, install, and own the Distribution Upgrades described in Appendix 6 of this Agreement. If the Utility and the Interconnection Customer agree, the Interconnection Customer may construct Distribution Upgrades that are located on land owned by the Interconnection Customer. The actual cost of the Distribution Upgrades, including overheads, shall be directly assigned to the Interconnection Customer.

### **Article 5. Cost Responsibility for Network Upgrades**

#### 5.1 Applicability

No portion of this Article 5 shall apply unless the interconnection of the Generating Facility requires Network Upgrades.

#### 5.2 Network Upgrades

The Utility shall design, procure, construct, install, and own the Network Upgrades described in Appendix 6 of this Agreement. If the Utility and the Interconnection Customer agree, the Interconnection Customer may construct Network Upgrades that are located on land owned by the Interconnection Customer. Unless the Utility elects to pay for Network Upgrades, the actual cost of the Network Upgrades, including overheads, shall be borne by the Interconnection Customer.

### **Article 6. Billing, Payment, Milestones, and Financial Security**

#### 6.1 Billing and Payment Procedures and Final Accounting

6.1.1 The Utility shall bill the Interconnection Customer for the design, engineering, construction, and procurement costs of Interconnection Facilities and Upgrades contemplated by this Agreement on a monthly basis, or as otherwise agreed by the Parties. The Interconnection Customer shall pay each bill within 30 calendar days of receipt, or as otherwise agreed to by the Parties.

6.1.2 Within three months of completing the construction and installation of the Utility's Interconnection Facilities and/or Upgrades described in the Appendices to this Agreement, the Utility shall provide the Interconnection Customer with a final accounting report of any difference between (1) the Interconnection Customer's cost responsibility for the actual cost of such facilities or Upgrades, and

(2) the Interconnection Customer's previous aggregate payments to the Utility for such facilities or Upgrades. If the Interconnection Customer's cost responsibility exceeds its previous aggregate payments, the Utility shall invoice the Interconnection Customer for the amount due and the Interconnection Customer shall make payment to the Utility within 30 calendar days. If the Interconnection Customer's previous aggregate payments exceed its cost responsibility under this Agreement, the Utility shall refund to the Interconnection Customer an amount equal to the difference within 30 calendar days of the final accounting report.

- 6.1.3 If the Interconnection Customer elects the payment procedures in Articles 6.1.1 and 6.1.2, the Utility may also bill the Interconnection Customer periodically for the costs associated with operating, maintaining, repairing and replacing the Utility's Interconnection Facilities, as set forth in Appendix 2 of this Agreement.
- 6.1.4 The Interconnection Customer may elect to be billed the costs in Articles 6.1.1 and 6.1.2 and for on-going operations, maintenance, repair and replacement of the Utility's Interconnection Facilities under a Utility rate schedule, tariff, rider or service regulation providing for extra facilities charges, as set forth in Appendix 2 of this Agreement, such monthly charges to continue throughout the entire life of the interconnection.

## 6.2 Milestones

The Parties shall agree on milestones for which each Party is responsible and list them in Appendix 4 of this Agreement. A Party's obligations under this provision may be extended by agreement. If a Party anticipates that it will be unable to meet a milestone for any reason other than a Force Majeure Event, it shall immediately notify the other Party of the reason(s) for not meeting the milestone and (1) propose the earliest reasonable alternate date by which it can attain this and future milestones, and (2) request appropriate amendments to Appendix 4. The Party affected by the failure to meet a milestone shall not unreasonably withhold agreement to such an amendment unless (1) it will suffer significant uncompensated economic or operational harm from the delay, (2) attainment of the same milestone has previously been delayed, or (3) it has reason to believe that the delay in meeting the milestone is intentional or unwarranted notwithstanding the circumstances explained by the Party proposing the amendment.

## 6.3 Financial Security Arrangements

At least 20 Business Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of the Utility's



Interconnection Facilities and Upgrades, the Interconnection Customer shall provide the Utility, at the Interconnection Customer's option, a guarantee, a surety bond, letter of credit or other form of security that is reasonably acceptable to the Utility and is consistent with the Uniform Commercial Code of North Carolina. Such security for payment shall be in an amount sufficient to cover the costs for constructing, designing, procuring, and installing the applicable portion of the Utility's Interconnection Facilities and Upgrades and shall be reduced on a dollar-for-dollar basis for payments made to the Utility under this Agreement during its term. In addition:

- 6.3.1 The guarantee must be made by an entity that meets the creditworthiness requirements of the Utility, and contain terms and conditions that guarantee payment of any amount that may be due from the Interconnection Customer, up to an agreed-to maximum amount.
- 6.3.2 The letter of credit or surety bond must be issued by a financial institution or insurer reasonably acceptable to the Utility and must specify a reasonable expiration date.
- 6.3.3 The Utility may waive the security requirements if its credit policies show that the financial risks involved are de minimus, or if the Utility's policies allow the acceptance of an alternative showing of creditworthiness from the Interconnection Customer.

## **Article 7. Assignment, Liability, Indemnity, Force Majeure, Consequential Damages, and Default**

### **7.1 Assignment**

- 7.1.1 This Agreement shall not survive the transfer of ownership of the Generating Facility to a new owner. The new owner must complete a new Interconnection Request and submit it to the Utility within 20 Business Days of the transfer of ownership or the Utility's Interconnection Facilities shall be removed or disabled and the Generating Facility disconnected from the Utility's System. The Utility shall not study or inspect the Generating Facility unless the new owner's Interconnection Request indicates that a Material Modification has occurred or is proposed.
- 7.1.2 The Interconnection Customer shall have the right to assign this Agreement, without the consent of the Utility, for collateral security purposes to aid in providing financing for the Generating Facility, provided that the Interconnection Customer will promptly notify the Utility of any such assignment. Assignment shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof.

7.1.3 Any attempted assignment that violates this article is void and ineffective.

7.2 Limitation of Liability

Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either Party be liable to the other Party for any indirect, special, incidental, consequential, or punitive damages of any kind, except as authorized by this Agreement.

7.3 Indemnity

7.3.1 This provision protects each Party from liability incurred to third parties as a result of carrying out the provisions of this Agreement. Liability under this provision is exempt from the general limitations on liability found in Article 7.2.

7.3.2 The Parties shall at all times indemnify, defend, and save the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or inaction of its obligations under this Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

7.3.3 If an indemnified Party is entitled to indemnification under this Article as a result of a claim by a third party, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under this Article, to assume the defense of such claim, such indemnified Party may at the expense of the indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

7.3.4 If an indemnifying Party is obligated to indemnify and hold any indemnified Party harmless under this Article, the amount owing to the indemnified Party shall be the amount of such indemnified Party's actual loss, net of any insurance or other recovery.

7.3.5 Promptly after receipt by an indemnified Party of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in this Article may apply, the indemnified Party shall notify the indemnifying Party of such fact. Any failure of or delay in such notification shall not affect a

Party's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying Party.

#### 7.4 Consequential Damages

Other than as expressly provided for in this Agreement, neither Party shall be liable under any provision of this Agreement for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided, however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

#### 7.5 Force Majeure

7.5.1 As used in this article, a Force Majeure Event shall mean any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure Event does not include an act of negligence or intentional wrongdoing.

7.5.2 If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, the Party affected by the Force Majeure Event (Affected Party) shall promptly notify the other Party, either in writing or via the telephone, of the existence of the Force Majeure Event. The notification must specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the Affected Party is taking to mitigate the effects of the event on its performance. The Affected Party shall keep the other Party informed on a continuing basis of developments relating to the Force Majeure Event until the event ends. The Affected Party will be entitled to suspend or modify its performance of obligations under this Agreement (other than the obligation to make payments) only to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of Reasonable Efforts. The Affected Party will use Reasonable Efforts to resume its performance as soon as possible.

#### 7.6 Default

7.6.1 No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of a Force Majeure Event as defined in this Agreement or the result of an act or omission

of the other Party. Upon a Default, the non-defaulting Party shall give written notice of such Default to the defaulting Party. Except as provided in Article 7.6.2, the defaulting Party shall have 60 calendar days from receipt of the Default notice within which to cure such Default; provided however, if such Default is not capable of cure within 60 calendar days, the defaulting Party shall commence such cure within 20 calendar days after notice and continuously and diligently complete such cure within six months from receipt of the Default notice; and, if cured within such time, the Default specified in such notice shall cease to exist.

- 7.6.2 If a Default is not cured as provided in this Article, or if a Default is not capable of being cured within the period provided for herein, the non-defaulting Party shall have the right to terminate this Agreement by written notice at any time until cure occurs, and be relieved of any further obligation hereunder and, whether or not that Party terminates this Agreement, to recover from the defaulting Party all amounts due hereunder, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this article will survive termination of this Agreement.

## **Article 8. Insurance**

- 8.1 The Interconnection Customer shall obtain and retain, for as long as the Generating Facility is interconnected with the Utility's System, liability insurance which protects the Interconnection Customer from claims for bodily injury and/or property damage. The amount of such insurance shall be sufficient to insure against all reasonably foreseeable direct liabilities given the size and nature of the generating equipment being interconnected, the interconnection itself, and the characteristics of the system to which the interconnection is made. This insurance shall be primary for all purposes. The Interconnection Customer shall provide certificates evidencing this coverage as required by the Utility. Such insurance shall be obtained from an insurance provider authorized to do business in North Carolina. The Utility reserves the right to refuse to establish or continue the interconnection of the Generating Facility with the Utility's System, if such insurance is not in effect.
- 8.1.1 For an Interconnection Customer that is a residential customer of the Utility proposing to interconnect a Generating Facility no larger than 250 kW, the required coverage shall be a standard homeowner's insurance policy with liability coverage in the amount of at least \$100,000 per occurrence.
- 8.1.2 For an Interconnection Customer that is a non-residential customer of the Utility proposing to interconnect a Generating Facility no larger than 250 kW, the required coverage shall be comprehensive general

liability insurance with coverage in the amount of at least \$300,000 per occurrence.

- 8.1.3 An Interconnection Customer of sufficient credit-worthiness may propose to provide this insurance via a self-insurance program if it has a self-insurance program established in accordance with commercially acceptable risk management practices, and such a proposal shall not be unreasonably rejected.
- 8.2 The Utility agrees to maintain general liability insurance or self-insurance consistent with the Utility's commercial practice. Such insurance or self-insurance shall not exclude coverage for the Utility's liabilities undertaken pursuant to this Agreement.
- 8.3 The Parties further agree to notify each other whenever an accident or incident occurs resulting in any injuries or damages that are included within the scope of coverage of such insurance, whether or not such coverage is sought.

#### **Article 9. Confidentiality**

- 9.1 Confidential Information shall mean any confidential and/or proprietary information provided by one Party to the other Party that is clearly marked or otherwise designated "Confidential." For purposes of this Agreement all design, operating specifications, and metering data provided by the Interconnection Customer shall be deemed Confidential Information regardless of whether it is clearly marked or otherwise designated as such.
- 9.2 Confidential Information does not include information previously in the public domain, required to be publicly submitted or divulged by Governmental Authorities (after notice to the other Party and after exhausting any opportunity to oppose such publication or release), or necessary to be divulged in an action to enforce this Agreement. Each Party receiving Confidential Information shall hold such information in confidence and shall not disclose it to any third party nor to the public without the prior written authorization from the Party providing that information, except to fulfill obligations under this Agreement, or to fulfill legal or regulatory requirements.
  - 9.1.1 Each Party shall employ at least the same standard of care to protect Confidential Information obtained from the other Party as it employs to protect its own Confidential Information.
  - 9.1.2 Each Party is entitled to equitable relief, by injunction or otherwise, to enforce its rights under this provision to prevent the release of Confidential Information without bond or proof of damages, and may seek other remedies available at law or in equity for breach of this provision.

- 9.3 If information is requested by the Commission from one of the Parties that is otherwise required to be maintained in confidence pursuant to this Agreement, the Party shall provide the requested information to the Commission within the time provided for in the request for information. In providing the information to the Commission, the Party may request that the information be treated as confidential and non-public in accordance with North Carolina law and that the information be withheld from public disclosure.

#### **Article 10. Disputes**

- 10.1 The Parties agree to attempt to resolve all disputes arising out of the interconnection process according to the provisions of this Article.
- 10.2 In the event of a dispute, either Party shall provide the other Party with a written notice of dispute. Such notice shall describe in detail the nature of the dispute.
- 10.3 If the dispute has not been resolved within two Business Days after receipt of the notice, either Party may contact the Public Staff for assistance in informally resolving the dispute. If the Parties are unable to informally resolve the dispute, either Party may then file a formal complaint with the Commission.
- 10.4 Each Party agrees to conduct all negotiations in good faith.

#### **Article 11. Taxes**

- 11.1 The Parties agree to follow all applicable tax laws and regulations, consistent with North Carolina and federal policy and revenue requirements.
- 11.2 Each Party shall cooperate with the other to maintain the other Party's tax status. Nothing in this Agreement is intended to adversely affect the Utility's tax exempt status with respect to the issuance of bonds including, but not limited to, local furnishing bonds.

#### **Article 12. Miscellaneous**

##### **12.1 Governing Law, Regulatory Authority, and Rules**

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of North Carolina, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.



## 12.2 Amendment

The Parties may amend this Agreement by a written instrument duly executed by both Parties, or under Article 12.12 of this Agreement.

## 12.3 No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

## 12.4 Waiver

12.4.1 The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

12.4.2 Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from the Utility. Any waiver of this Agreement shall, if requested, be provided in writing.

## 12.5 Entire Agreement

This Agreement, including all Appendices, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this Agreement.

## 12.6 Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

#### 12.7 No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

#### 12.8 Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

#### 12.9 Security Arrangements

Infrastructure security of electric system equipment and operations and control hardware and software is essential to ensure day-to-day reliability and operational security. All Utilities are expected to meet basic standards for electric system infrastructure and operational security, including physical, operational, and cyber-security practices.

#### 12.10 Environmental Releases

Each Party shall notify the other Party, first orally and then in writing, of the release of any hazardous substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall (1) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than 24 hours after such Party becomes aware of the occurrence, and (2) promptly furnish to the other Party copies of any publicly available reports filed with any Governmental Authorities addressing such events.

#### 12.11 Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.



12.11.1 The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the Utility be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

12.11.2 The obligations under this article will not be limited in any way by any limitation of subcontractor's insurance.

## 12.12 Reservation of Rights

The Utility shall have the right to make a unilateral filing with the Commission to modify this Agreement with respect to any rates, terms and conditions, charges, or classifications of service, and the Interconnection Customer shall have the right to make a unilateral filing with the Commission to modify this Agreement; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before the Commission in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties except to the extent that the Parties otherwise agree as provided herein.

## Article 13. Notices

### 13.1 General

Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement (Notice) shall be deemed properly given if delivered in person, delivered by recognized national courier service, or sent by first class mail, postage prepaid, to the person specified below:

If to the Interconnection Customer:

Interconnection Customer: Aulander Solar, LLC

Attention: Eric Blank

Address: Three Radnor Corporate Center, Suite 300, 100 Matsonford Rd.

City, State, Zip: Radnor, PA 19087

Phone: (303) 544-1900

Fax: (484) 654-2136

If to the Utility:

Utility: Virginia Electric and Power Company

Attention: Mike Nester

Address: 200 Vepco Street

City, State, Zip: Roanoke Rapids, NC 27870

Phone: (252) 308-1077 Fax: (252) 308-1078

### 13.2 Billing and Payment

Billings and payments shall be sent to the addresses set out below:

If to the Interconnection Customer:

Interconnection Customer: Aulander Solar, LLC

Attention: Eric Blank

Address: Three Radnor Corporate Center, Suite 300, 100 Matsonford Rd.

City, State, Zip: Radnor, PA 19087

Phone: (303) 544-1900 Fax: (484) 654-2136

If to the Utility:

Utility: Virginia Electric and Power Company

Attention: Remittance Processing Services

Address: P.O. Box 26543

City, State, Zip: Richmond, Virginia 23290

### 13.3 Alternative Forms of Notice

Any notice or request required or permitted to be given by either Party to the other and not required by this Agreement to be given in writing may be so given by telephone, facsimile or e-mail to the telephone numbers and e-mail addresses set out below:

If to the Interconnection Customer:

Interconnection Customer: Aulander Solar, LLC

Attention: Eric Blank

Address: Three Radnor Corporate Center, Suite 300, 100 Matsonford Rd.

City, State, Zip: Radnor, PA 19087

Phone: (303) 544-1900 Fax: (484) 654-2136

If to the Utility:

Utility: Virginia Electric and Power Company

Attention: Mike Nester

Address: 200 Vepco Street

City, State, Zip: Roanoke Rapids, NC 27870

Phone: (252) 308-1077 Fax: (252) 308-1078

#### 13.4 Designated Operating Representative

The Parties may also designate operating representatives to conduct the communications which may be necessary or convenient for the administration of this Agreement. This person will also serve as the point of contact with respect to operations and maintenance of the Party's facilities.

Interconnection Customer's Operating Representative:

Interconnection Customer: Aulander Solar, LLC

Attention: Eric Blank

Address: Three Radnor Corporate Center, Suite 300, 100 Matsonford Rd.

City, State, Zip: Radnor, PA 19087

Phone: (303) 544-1900 Fax: (484) 654-2136

Utility's Operating Representative:

Utility: Virginia Electric and Power Company

Attention: ROC Shift Supervisor

Address: 2700 Cromwell Rd.

City, State, Zip: Norfolk, Virginia 23509

Phone: (757) 857-6702 Fax: (757) 857-2633

#### 13.5 Changes to the Notice Information

Either Party may change this information by giving five Business Days written notice prior to the effective date of the change.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For the Utility

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

For the Interconnection Customer

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## **Glossary of Terms**

See Glossary of Terms, Attachment 1 to the North Carolina Interconnection Procedures.

## **Description and Costs of the Generating Facility, Interconnection Facilities, and Metering Equipment**

### **Generating Facility**

Generating facility will be a 5 MWac of Solar-Photovoltaic (PV) Generation units located on Hwy 11 South in Aulander, North Carolina 27805. The Distributed Generation (DG) owner desires to export power into the Dominion North Carolina Power (DNCP) utility source and provide site power (during daylight hours) via site solar generation. This is an inverter (UL1741/IEEE 1547 certified) based interconnection which consists of a total of ten (10) Advanced Energy Solaron 500 inverter units rated 500 kW and operating at 480 V. The inverter system is installed in blocks of two (2) 500 kW inverters connected to a three (3) phase 1,000 kVA pad mounted transformer for a total of five (5) PV Inverters-Transformer systems. The DG owner specified that all step-up transformers will be rated 277/480 V – 19.9/34.5 kV with a wye-ground (secondary) – wye-ground (primary) winding configuration. The DG owner will include the installation of a ground bank transformer at (near) the point where the generation is connected.

### **Customer Interconnection Facilities**

Interconnect Customer will be responsible for all associated solar panels, inverters, transformers and all items listed below:

#### Customer Responsibilities for 5 MWac of Generation

- Installation of all conductors between the generating facility and POI
- Installation of step-up pad mounted transformer(s) with a ground bank transformer at (near) the POI
- Installation of a three phase disconnect switch
- Installation of all generator breakers and associated equipment
- Communication lines for all metering
- Communication between customer breaker and Utility recloser if required
- If and when the aggregate generation interconnected to this circuit is greater than 10 MW, the Customer must provide generator status and generator instantaneous MW output to PJM per Manual 14A of the PJM OATT via communication links installed, owned, and maintained by the Customer.

**Interconnection Facilities and Metering**

The Interconnection Facilities required to be provided by the Utility will include:

**New Attachment Facilities for 5 MWac of Generation**

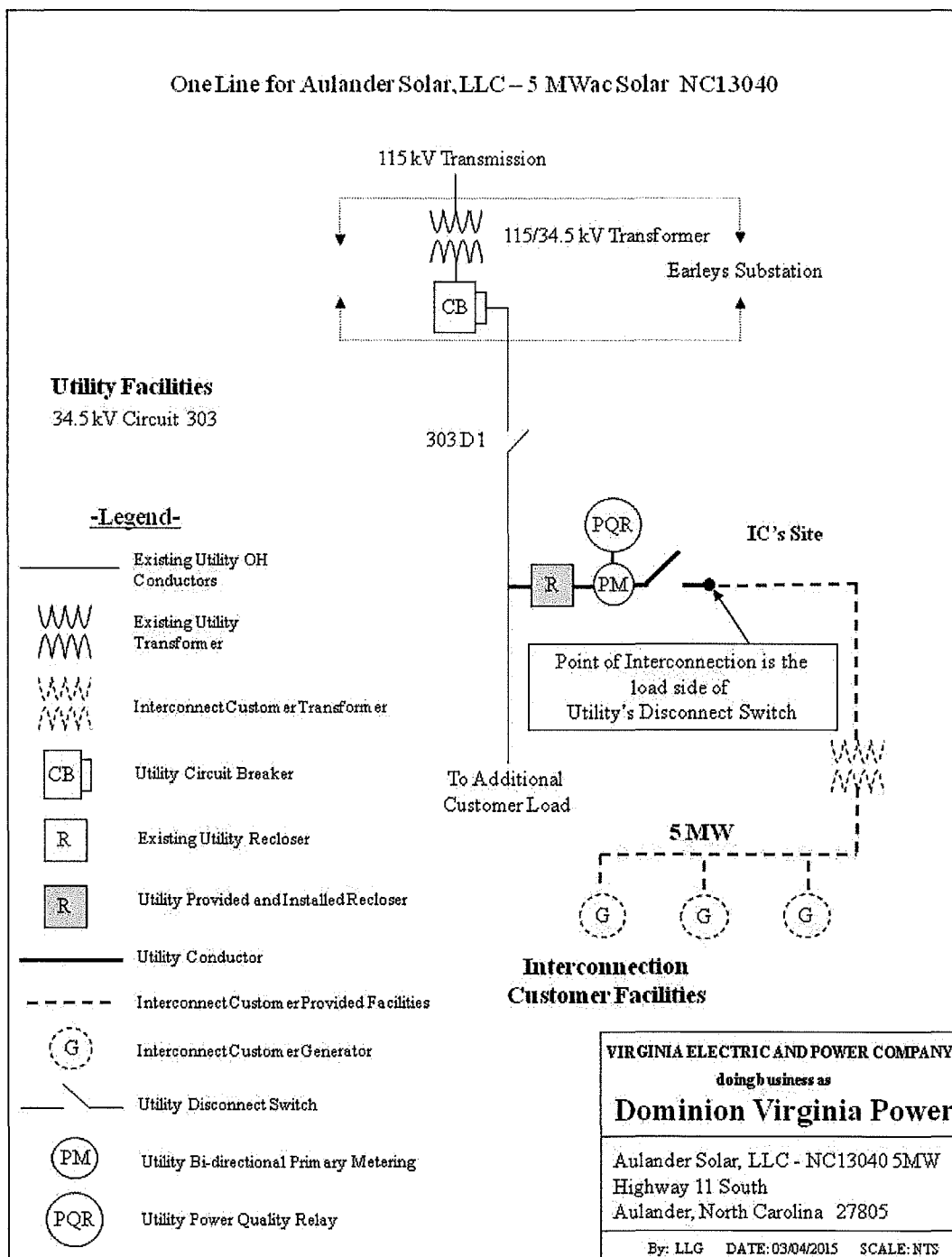
- Installation of four (4) new poles and guying needed
- Installation of G & W Viper Recloser with a 651R-2 Recloser Control
- Approximately 160 feet of three (3) phase overhead 477 Al. conductor
- The Utility will also provide a Power Monitor (SEL-735 or equivalent device) at the Point of Common Coupling with all required metering/relay functionality. The Utility will also provide a transformer and secondary voltage conductors to provide source voltage for the Utility owned Power Monitor.
- All metering needed for interconnection of generation and auxiliary load
- One Disconnect Switch

The estimated cost of the installation of the new attachment facilities to provide the interconnection is \$170,997.34.

The customer will also be responsible for an ongoing monthly operation and maintenance cost of 0.45 percent of the estimated cost of the new facilities of \$170,997.34. The calculation will be:  $\$170,997.34 \times 0.0045 = \$769.49$

Utility will bill the Interconnect Customer the actual amount for all construction work after the work has been completed and subtract any upfront payments from the total.

**One-line Diagram Depicting the Generating Facility,  
Interconnection Facilities, Metering Equipment, and Upgrades**





**Milestones**

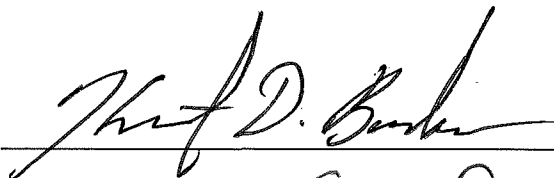
In-Service Date: Nine (9) months from Execution of this Interconnection Agreement and Payment of Construction Costs contained herein

Critical milestones and responsibility as agreed to by the Parties:

Milestone/Date	Responsible Party
1) <u>Final Execution of Interconnection Agreement / TBD</u>	<u>Interconnect Customer</u>
2) <u>Dominion Easements / TBD</u>	<u>Interconnect Customer</u>
3) <u>Private Facilities to POI / TBD</u>	<u>Interconnect Customer</u>
4) <u>POTS and/or Communication Lines / TBD</u>	<u>Interconnect Customer</u>
5) <u>Distribution Upgrades &amp; Attachment Facilities / TBD</u>	<u>Dominion</u>
6) <u>Substation Upgrades / TBD</u>	<u>Dominion</u>
7) <u>PQ Baseline Monitoring / TBD</u>	<u>Dominion</u>
8) <u>Commissioning Procedure Submittal / TBD</u>	<u>Interconnect Customer</u>
9) <u>Final Electrical Inspection / TBD</u>	<u>Interconnect Customer</u>
10) <u>Site Energization / TBD</u>	<u>Dominion</u>
11) <u>Witness / Anti-Islanding Testing / TBD</u>	<u>Interconnect Customer</u> <u>and Dominion</u>

Agreed to by:

For the Utility



Date

4-1-15

For the Interconnection Customer



Date

3/30/15

**\*Note:** In-Service Date is based on the date the ISA and Payment is received by Dominion

**Additional Operating Requirements for the Utility's  
System and Affected Systems Needed to Support  
the Interconnection Customer's Needs**

**Aulander Solar, LLC Interconnection Protection Requirements  
for Exporting Energy (NC13040)**

The Utility has reviewed the Aulander Solar, LLC (NC13040) request for interconnection of 5 MWac of Solar-Photovoltaic (PV) Generation units located on Hwy 11 South in Aulander, North Carolina 27805. The Distributed Generation (DG) owner desires to export power into the Dominion North Carolina Power (DNCP) utility source and provide site power (during daylight hours) via site solar generation. This is an inverter (UL1741/IEEE 1547 certified) based interconnection which consists of a total of ten (10) Advanced Energy Solaron 500 inverter units rated 500 kW and operating at 480 V. The inverter system is installed in blocks of two (2) 500 kW inverters connected to a three (3) phase 1,000 kVA pad mounted transformer for a total of five (5) PV Inverters-Transformer systems. The DG owner specified that all step-up transformers will be rated 277/480 V – 19.9/34.5 kV with a wye-ground (secondary) – wye-ground (primary) winding configuration. The resulting protection requirements are based on the following information:

- No more than 5 MWac of total generation will be in parallel with the DNCP system at any one time.
- The DG owner's generation facility will be paralleled with the DNCP system by the following connections:
  - The DG owner generation facility will be connected to the Earleys Distribution Circuit 303 via a new installed Automatic Line Recloser (ALR) 303RXXX. Circuit 303 is sourced by Earleys Transformer #2.
- Earleys Circuit 303 feeder breaker has reclosing times at 10 seconds and 45 seconds after the first trip.
- The load data for the pertinent sectionalizing devices are as follows:
  - Earleys Circuit 303 (30362) has a typical "light" loading of 0.91 MVA
  - Earleys Transformer #2 and Bus #2 have a typical "light" loading of 1.05 MVA
- DG owner parallel operation will not be limited to any particular time or utility circuit-loading condition (daylight is required for generation to be available); however, DG owner parallel operation will not be permitted during periods when the source circuit is switched into an abnormal configuration.
- The DG owner will be contracted to export power into the DNCP distribution system.

Based on the minimum loads given for the utility sectionalizing devices, the following minimum "Local Load to DG owner Generation Capacity" ratios will apply for this installation:

<i>Utility Device</i>	<i>Minimum Ratio</i>
CB 30362	0.095
Bus #2	0.142
Transformer #2	0.142

**Table 1.** Light Load to Generation Ratio

Based on the size and type of this generation, the applicable DNCP Standards and the minimum load ratios applicable for this installation, the following requirements must be met in their entirety before permission to parallel operations can be granted:

1. Installation of a Dominion owned Automatic Line Recloser (ALR) at the point of common coupling (PCC) with all required relaying (described in table 4 below) at the DG owner expense. The ALR should provide another isolation point by taking the DG owner off-line during hot line work.
2. Installation of an additional Dominion owned Protective Relaying (SEL-735 Power Quality package) at the PCC (Dominion Metering Instrument Transformer Cabinet) with all required metering/relay functionality at the DG owner expense. **The power source (single phase, 120 V ac) to this Power Monitor shall be supplied from a 2 kVA or larger Station Service (19.919kV – 120 V ac) source (low exposure) independent of any other generation, load or exposure.** Such Protective Relaying should aid in the determination of on-going harmonic levels among other information regarding the interconnection site as well as providing a trip initiation to the ALR when either harmonic standard limits are exceeded or other undesirable conditions are detected.
3. The following additional substation upgrades will be required (if not currently existing) prior to Parallel Operation:
  - a. Installation of a three (3) Phase Bus Potential (PTs) on Bus #2
  - b. Upgrade of relaying on circuit 303 to include the directionality function
  - c. Modification to the Transformer #2 lockout (86T2) relay functionality (as well as relay resets) to remove all sources for a Bus and Transformer lockout.
  - d. Addition of SEL-451 DG relay panel to be used with the existing 115 kV, three phase, line couplers at the high side of Transformer #2 (SC3P1) to provide  $3E_0/3V_0$  functionality. The Line PTs will be used as an input to trip the Circuit 303 relay for  $3E_0/3V_0$  to clear all potential sources to a fault. Additionally, PT will be applied to the distribution line (like a Dead Line Reclosing PT) and used in conjunction with the Bus #2 PTs to allow circuit breakers, after a  $3E_0/3V_0$  Trip, to reclose for the condition of a Hot high side bus and a dead distribution line (requiring circuit relay logic)

In addition, as we gain more knowledge about the inverter technology and the effect of inverter based DG on DNCP Electric Power System (EPS), we may call for additional review of existing and/or pending interconnection requests. We have learned through recent IEEE/PES/PSRC work, WG C-17 Report as well as through our participation in the IEEE 1547 Standard working groups, that Photovoltaic (PV) or Solar (inverter-based) generation marketed to North America utilize back-to-back converters/inverters similar to a Type 4 Wind Turbine Generator (WTG). One characteristic, that is of particular concern, is the inverter manufacturer's design choice to not produce any zero sequence current  $I_0$ . Since  $I_0 = V_0 / Z_0$ , the  $Z_0$  (further represented by  $R_0 + jX_0$ ) in effect becomes very (or infinitely) large. Even though a wye-ground – wye-ground transformer connection passes zero sequence current, there will be no zero sequence current to pass to the fault location with inverter based generation. **Essentially, effective grounding cannot be maintained with such a transformer winding configuration and DNCP's effectively grounded EPS must remain effectively grounded** (Reference: IEEE 1547 [2003] – Section 4.1.2).

With that established, for a condition where the utility opens all three phases to a system segment of its EPS to clear a phase-to-ground fault and the DG remains connected to the islanded segment of the EPS for a period of time, phase-neutral voltages on the un-faulted phases will rise to near phase-to-phase values. To mitigate this issue, the DG owner must install a **ground bank transformer [zig-zag or wye (utility side) – delta (float)]** at (near) the point where the generation is connected. It will be the responsibility of the DG owner's engineering/technical representatives to select and apply the properly sized ground bank. While DNCP may recommend a range for the fault current or base impedance of the ground bank, DNCP will not size the equipment for the DG owner. DNCP will only review the selected equipment and grant approval of the design from our perspective. Additionally, it is important that the details of the proposed grounding bank be provided to DNCP as soon as possible for review due to both the importance of maintaining an effectively grounded EPS and providing appropriate coordination of protective relaying for ground faults. The objective is to obtain a balance of the ground fault current such that effective grounding is maintained on the utility ( $R_0/X_1 \leq 1$  and  $X_0/X_1 \leq 3$ ) without adversely impacting ground fault protection and coordination (IEEE 1547 [2003] – Section 4.1.2). This design will pass enough zero sequence current to keep the circuitry effectively grounded in all cases; but not introduce so much zero sequence current that coordination (pick-up, time, and reach) cannot be successfully achieved. It should be noted by the DG owner's Engineering/Technical representative that if a ground bank installation is utilized, the Protection and Control scheme design must remove/prevent the connection of all/any inverters with the DNCP EPS at ALL times when the ground bank is off-line (not in service), for any reason.

With respect to inverter protection, the voltage and frequency "Default Max" clearing times, listed in Table 2, are derived from IEEE-1547a-2014 (Amendment to IEEE Standard 1547-2003). The overall anti-islanding "Default Max" clearing time, listed in Table 2, is derived from IEEE Standard 1547-2003 (R2008). The DG owner will be required to apply all the enabled protection settings and not exceed the Default Max

clearing times (Table 2) on “all inverters”. If the DG owner proposes to adhere to IEEE 1547 default maximum clearing times and not the DNCP standards, the DG owner shall provide detailed, manufacturer-supplied computer simulation models (Aspen OneLiner, MatLab, PSS/E, and PSCAD) of the PV plant, to include full control and hardware details, needed to investigate DG impacts. This detailed investigation of DG impacts shall be completed prior to the implementation of the physical Interconnection of the DG with the Dominion EPS. If the DG owner adheres to the DNCP clearing times, test results from a nationally recognized laboratory will need to be provided to DNCP for review.

Currently, this site is not intended to operate for grid support functionality. Therefore, the following inverter functions, in Table 2, are to be disabled: LVRT, HVRT, LFRT, ZVRT, VAR Support, and Voltage Regulation.

Function		Set Point	Clearing Time (sec)	
			Default Max	DNCP
27	Under-voltage	$V < 45\%$ nominal voltage	0.16	0.083
		$45\% \leq V < 60\%$	1.00	0.083
		$60\% \leq V < 88\%$	2.00	0.083
59	Over-voltage	$110\% < V < 120\%$	1.00	0.083
		$V \geq 120\%$ nominal voltage	0.16	0.083
81U	Under-frequency	$F < 57.0$ Hz	0.16	0.083
		$F < 59.5$ Hz	2.00	0.083
81O	Over-frequency	$F > 60.5$ Hz	2.00	0.083
		$F > 62.0$ Hz	0.16	0.083
	Overall Anti-Islanding	Disconnect inverter from system (PCC)	2.00	0.083
	Steady State Power Factor ( $\pm 0.95$ Control Range)	DISABLE		
LVRT	Low Voltage Ride Through	DISABLE		
HVRT	High Voltage Ride Through	DISABLE		
LFRT	Low Frequency Ride Through	DISABLE		
ZVRT	Impedance Voltage Ride Through	DISABLE		
	VAR Support	DISABLE		
	Voltage Regulation	DISABLE		

**Table 2: DG Inverter Settings**

All the data requested in Table 3 must be provided by the DG owner for DNCP to perform short-circuit studies. If the inverter manufacturer provides Aspen OneLiner parameters, a detailed test report must be provided to DNCP for review. The test report should include test environment and method, sequence impedance calculations, and any assumptions used.

Inverter Data (Valid for Widest Range of Faults up to 6 Cycles)	P.U. Value
Inverter Equivalent MVA Base	
Short-Circuit Equivalent Positive Sequence Resistance (R1)	
Short-Circuit Equivalent Positive Sequence Reactance (XL1)	
Short-Circuit Equivalent Negative Sequence Resistance (R2)	
Short-Circuit Equivalent Negative Sequence Reactance (XL2)	
Short-Circuit Equivalent Zero Sequence Resistance (R0)	
Short-Circuit Equivalent Zero Sequence Reactance (XL0)	

**Table 3: DG Inverter Data provided in per-unit of inverter MVA base.**

The required relay functions and the corresponding set points, with each sectionalizing all of the DG owner's generation and always enabled on the ALR regardless of the operating condition, are listed in the following table:

	Function	Set Point	Duration to Disconnection (sec)
27	Undervoltage	75 % of nominal operating voltage	2.0
59	Overvoltage	110% of nominal operating voltage	2.0
81U	Underfrequency	59.5 Hz	2.0
81O	Overfrequency	60.5 Hz	2.0
51	Phase Time-delay Overcurrent	Set for minimum, with adequate load allowance	Maintain proper coordination with DG owner high side fuse

**Table 4: ALR Set Points**

Moreover, harmonics (voltage and current) if not controlled can be a source of problems on the DNCP network. Though it is definitive that small scale PV systems (i.e. about 5 kW dc or less) have little to no significant Harmonics effects on the system provided their associated converter meet the IEEE standard 519 (Guideline for Harmonic Control and Reactive Compensation of Static Power Converter), the impacts of larger scale PV systems is far less certain. It is a general consensus that a concentration of small sources of harmonic or demand distortion - as little as they could be - can have a significant effect on the overall utility network's power quality as the effect of harmonics are cumulative thus making it imperative not to ignore the Harmonics in this particular 5 MWac interconnection request.



In Summary, **Power Quality baseline readings** will be required at the point of common coupling (PCC) before and after the interconnection is completed in order to monitor the Harmonic effects of the Generation unit and will be obtained at the DG owner expense. Also, if there is evidence that the Total Harmonic Distortion (THD) or Total Demand Distortion (TDD) is greater than or equal to 5%, or harmonic distortion for any single harmonic is greater than or equal to 3%, the DG owner would be required to add a filtering system to its installation to meet the requirements of IEEE 519.

Furthermore, in the advent of changes in IEEE guidelines for interconnection of Distributed Generation (DG) system and/or changes in system condition (i.e. penetration level of DG on that part of the system), DNCP reserves the right to re-evaluate the protection application and require upgrade(s) as it deems necessary at the DNCP and/or the DG owner end. Any upgrades necessary will be assigned according to how the changes impact the DG owners' generation and interconnection to the grid. In accordance with Article 3 of this Interconnection Agreement, for any future adverse operating conditions, should they occur, DNCP reserves the right to require that the DG owner, at the DG owner's expense, remedy any adverse operating conditions.

In addition, in the advent of changes in IEEE guidelines for interconnection of Distributed Generation (DG) system and/or changes in system condition (i.e. penetration level of DG on that part of the system), DNCP reserves the right to re-evaluate the protection application and require upgrade(s) as it deems necessary at the DNCP and/or the DG owner end. Any necessary upgrades will be assigned according to how the changes impact the DG owner's generation and interconnection to the grid.

Since the installation of the line recloser at the PCC and the associated relaying as well as the additional substation, relay work and resets are all provided at the DG owner expense and have associated engineering, equipment acquisition and installation lead-time, we would need to work out all of those details to coordinate with the planned interconnection. Please note that the DG owner will not be allowed to interconnect until all permanent facilities and associated relaying are installed, tested and fully functional.

Finally, please send us details concerning the DG owner's final inverter model and interface transformer specifications (i.e. winding configuration, impedance, load losses, etc.), the applied inverter trip points as well as the high side fuse make, model and rating information as soon as possible.

Please contact the Utility at (804) 257-4797 if you have any questions or need additional information.

**Utility's Description of its Upgrades**Distribution Upgrades for 5 MWac of Generation

- One (1), 34.5kV, 175/300:1 Potential Transformers.
- One (1), 34.5kV, SMD-20 fuses and one (1), 22kV, 12A current limiting fuses
- Three (3), 89-812000 Beckwith regulator controller
- Three (3), 89-889600 Adapter panels for Beckwith controller
- Conductor, connectors, conduit, control cable, foundations and grounding material as per engineering standards.
- One (1), DG Support Panel (3V<sub>0</sub> Protection Only)
- Modify Transformer #2 protection to trip CB #2
- One (1), 1 PH Potential MU Box.

Total cost for all distribution upgrades equals \$117,920.00.

The cost for all work necessary to facilitate the interconnection will be \$288,917.34 and must be paid prior to starting work.



Schedule 19 - FP  
POWER PURCHASES FROM  
COGENERATION AND SMALL POWER PRODUCTION  
QUALIFYING FACILITIES

I. APPLICABILITY AND AVAILABILITY

This schedule is applicable to any qualifying Cogenerator or Small Power Producer (Qualifying Facility) which desires to deliver all of its net electrical output to the Company, has either (1) generating facilities designated as new capacity as defined by 18 C.F.R. § 292.304(b)(1), or (2) hydroelectric generating facilities that meet the criteria of being owned or operated by a small power producer as defined in G.S. 62-3(27a), and enters into an agreement for the sale of net electrical output to the Company (Agreement).

Unless otherwise provided by a Commission order setting forth different availability dates, this schedule is available to any Qualifying Facility (otherwise eligible pursuant to the terms hereof) that by November 1, 2014 or the date upon which proposed rates are filed in Docket No. E-100 Sub 140, if later than November 1, 2014, (a) has obtained a certificate of public convenience and necessity for its facility from the Commission or filed a report of proposed construction with the Commission pursuant to Commission Rule 8-65, and (b) has indicated to the Company in writing that it is committed to selling the output of the facility to the Company pursuant to the terms of this schedule.

Where the Qualifying Facility (QF) elects to be compensated for firm deliveries in accordance with this schedule, the amount of capacity under contract and the initial term of contract shall be limited as follows:

- A. Where the QF operates hydroelectric generating facilities that meet the criteria of being owned or operated by a small power producer as defined in G.S. 62-3(27a), or where the QF operates non-hydroelectric QFs fueled by trash or methane derived from landfills, hog waste, poultry waste, solar, wind, and non-animal forms of biomass, the amount of capacity subject to compensation shall be no greater than 5,000 kW, and the amount of energy purchased during a given hour at rates applicable to firm deliveries shall be no greater than 5,000 kWh. The initial term of contract for such a QF shall be for a period of 5, 10, or 15 years, at the option of the QF.
- B. Where the QF is not defined under Paragraph I.A., the amount of capacity subject to compensation shall be no greater than 3,000 kW, and the amount of energy purchased during a given hour at rates applicable to firm deliveries shall be no greater than 3,000 kWh. The initial term of contract for such a QF shall be for a period of 5 years.

(Continued)

Filed 10-30-14  
Electric-North Carolina

Amending Filing Effective For Usage On and After  
03-28-14. This Filing Effective For Usage On and  
After 03-28-14.

Docket No. E-100, Sub 136

OFFICIAL COPY

Mar 30 2016

Virginia Electric and Power Company

Schedule 19 - FP  
POWER PURCHASES FROM  
COGENERATION AND SMALL POWER PRODUCTION  
QUALIFYING FACILITIES

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(Continued)

I. APPLICABILITY AND AVAILABILITY (Continued)

Where the QF elects to be compensated for firm or non-firm deliveries in accordance with this schedule, the QF must begin deliveries to the Company within thirty months of February 21, 2014 to retain eligibility for the rates contained in this schedule; provided, however, a QF may be allowed additional time to begin deliveries of power to the Company if the QF facilities in question are nearly complete at the end of such thirty month period and the QF is able to demonstrate that it is making a good faith effort to complete its project in a timely manner. Where the QF elects an initial contract term of 10 or more years, such contract may be renewed for subsequent term(s), at the Company's option, based on substantially the same terms and provisions and at a rate either (1) mutually agreed upon by the parties negotiating in good faith and taking into consideration the Company's then avoided cost rates and other relevant factors or (2) set by arbitration.

This schedule is not applicable to a QF owned by a developer, or affiliate of a developer, who sells power to the Company from another facility located within one-half mile unless: (1) each facility provides thermal energy to different, unaffiliated hosts; (2) each facility provides thermal energy to the same host, and the host has multiple operations with distinctly different or separate thermal needs; or (3) each facility utilizes a renewable resource which may be subject to geographic siting limitations, such as hydroelectric, solar, or wind power facilities.

II. MONTHLY BILLING TO THE QF

All sales to the QF will be in accordance with any applicable filed rate schedule. In addition, where the QF contracts for sales to the Company, the QF will be billed a monthly charge equal to one of the following to cover the cost of meter reading and processing:

(Continued)

Filed 10-30-14  
Electric-North Carolina

Amending Filing Effective For Usage On and After  
03-28-14. This Filing Effective For Usage On and  
After 03-28-14.

Virginia Electric and Power Company

Schedule 19 - FP  
POWER PURCHASES FROM  
COGENERATION AND SMALL POWER PRODUCTION  
QUALIFYING FACILITIES

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(Continued)

## II. MONTHLY BILLING TO THE QF (Continued)

<u>Metering required</u>	<u>Charge</u>
One non-time-differentiated meter	\$17.24
One time-differentiated meter	\$35.55
Two time-differentiated meters	\$41.16

## III. DEFINITION OF ON- AND OFF-PEAK HOURS

## A. For Option A Rates the On-Peak Hours are:

Summer

- (i) For the periods beginning at 12:00 midnight March 31 and ending at 12:00 midnight September 30:

The on-peak hours are defined as the hours between 10:00 am and 10:00 pm., Monday through Friday, excluding holidays considered as off-peak.

Non-Summer

- (ii) For the periods beginning at 12:00 midnight September 30 and ending at 12:00 midnight March 31:

The on-peak hours are defined as those hours between 6:00 am and 1:00 pm., plus 4:00 p.m. through 9:00 p.m., Monday through Friday, excluding holidays considered as off-peak.

(Continued)

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Electric-North Carolina

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(Continued)

III. DEFINITION OF ON- AND OFF-PEAK HOURS (Continued)

B. For Option B Rates the On-Peak Hours are:

Summer

- (i) For the periods beginning at 12:00 midnight May 31 and ending at 12:00 midnight September 30:

The on-peak hours are defined as the hours between 1:00 pm and 9:00 pm., Monday through Friday, excluding holidays considered as off-peak.

Non-Summer

- (ii) For the periods beginning at 12:00 midnight September 30 and ending at 12:00 midnight May 31:

The on-peak hours are defined as those hours between 6:00 am and 1:00 pm. Monday through Friday, excluding holidays considered as off-peak.

C. Off-Peak Hours:

The off-peak hours in any month are defined as all hours not specified above as on-peak hours. All hours for the following holidays will be considered as off-peak: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the day after Thanksgiving, and Christmas Day. When one of the above holidays falls on a Saturday, the Friday before the holiday will be considered off-peak; when the holiday falls on a Sunday, the following Monday will be considered off-peak.

(Continued)

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(Continued)

IV. CONTRACT OPTIONS FOR DESIGNATING MODE OF OPERATION

The QF shall designate under contract its Mode of Operation from the following options, each of which determines the Company's method of payment.

- A. The QF may contract for the delivery of energy to the Company without reimbursement, designated as the Non-reimbursement Mode of Operation; or,
- B. The QF may contract for the delivery of non-firm energy to the Company (no payment for capacity). This option includes QFs that elect to contract to deliver non-firm energy to the Company on an as-available basis. Where the QF's generation facilities have an aggregate nameplate rating of 100 kW or less the QF may designate the Non-firm, Non-time-differentiated Mode of Operation. Regardless of nameplate rating the QF may designate the Non-firm, Time-differentiated Mode of Operation.
- C. The QF may contract for the delivery of firm energy and capacity to the Company. The level of capacity which the QF contracts to sell to the Company shall not exceed 5,000 kW, where the QF is defined under Paragraph I.A., or 3,000 kW otherwise. This capacity level, in kW, shall be referred to as the Contracted Capacity. When the QF elects to sell firm energy and capacity, the QF shall designate the Firm Mode of Operation.

V. PAYMENT FOR COMPANY PURCHASES OF NON-FIRM ENERGY

The QF may contract to receive payment for energy at rates to be determined with each revision of this schedule. These rates will be based upon the QF's Mode of Operation as described below. There are no capacity payments for the QFs that contract for non-firm energy.

(Continued)

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(Continued)

V. PAYMENT FOR COMPANY PURCHASES OF NON-FIRM ENERGY  
(Continued)

- A. Non-reimbursement Mode of Operation. Where the QF designates the Non-Reimbursement Mode of Operation, no payment will be made for energy delivered.
- B. Non-time-differentiated Mode of Operation. Where the QF's generation facilities have an aggregate nameplate rating of 100 kW or less and the QF designates the Non-Firm, Non-time-differentiated Mode of Operation, the following rates in cents per kWh are applicable:

3.843

- C. Time-differentiated Mode of Operation. Where the QF designates the Time-differentiated Mode of Operation, the following On- and Off-peak rates in cents per kWh are applicable:

On-peak	4.541
Off-peak	3.455

All energy purchase rates will be further increased by 3.0% to account for line losses avoided by the Company, except that upon the effective date of any Schedule 19 that is subsequently amended and approved by the Commission, the line loss percentage applied shall be the percentage stated in the then-current Schedule 19. In lieu of 3.0% or the line loss percentage stated in the then-current Schedule 19, the QF may request that a site specific line loss percentage be determined with the QF bearing the cost of the study required.

(Continued)

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## Virginia Electric and Power Company

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(Continued)

## VI. PAYMENT FOR COMPANY PURCHASES OF FIRM ENERGY

QFs designating the Firm Mode of Operation will be eligible to receive purchase payments for the delivery of firm energy by the QF to the Company. The QF may contract to receive payments for firm energy based on A or B, below. Contract terms for 10 or 15 years are available only where the QF is defined under Paragraph I.A.

The QF may contract to receive payment for firm time-differentiated energy at rates to be determined with each revision of this schedule (Variable Rate). These rates in cents per kWh, which reflect the Company's estimated avoided energy cost for delivery of firm energy during 2013 or 2014, are as shown in the price tables below:

- A. Option A: The QF may contract to receive energy purchase payments for the delivery of firm energy based upon fixed prices, as shown below in cents per kWh:

		<u>Fixed Long-Term Rate</u>		
	<u>Variable Rate</u>	<u>5-Year</u>	<u>10-Year</u>	<u>15-Year</u>
On-Peak (¢/kWh)	4.541	5.055	5.526	5.813
Off-Peak (¢/kWh)	3.455	3.964	4.388	4.661

- B. Option B: The QF may contract to receive energy purchase payments for the delivery of firm energy based upon fixed prices, as shown below in cents per kWh:

(Continued)

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(Continued)

## VI. PAYMENT FOR COMPANY PURCHASES OF FIRM ENERGY (Continued)

		<u>Fixed Long-Term Rate</u>		
	<u>Variable Rate</u>	<u>5-Year</u>	<u>10-Year</u>	<u>15-Year</u>
On-Peak (¢/kWh)	4.663	5.194	5.675	5.962
Off-Peak (¢/kWh)	3.614	4.119	4.549	4.824

Any energy delivered above 100% up to 105% of QF's Contracted Capacity in any hour will be purchased at the then applicable non-firm energy rates under Schedule 19-FP. There will be no reimbursement for any energy delivered above 105% of QF's Contracted Capacity.

All energy purchase rates will be further increased by 3.0% to account for line losses avoided by the Company, except upon the effective date of any Schedule 19 that is subsequently amended and approved by the Commission, the line loss percentage applied shall be the percentage stated in the then-current Schedule 19. In lieu of 3.0% or the line loss percentage stated in the then-current Schedule 19, the QF may request that a site specific line loss percentage be determined with the QF bearing the cost of the study required.

## VII. PAYMENT FOR COMPANY PURCHASES OF CAPACITY

Company purchases of capacity are applicable only where the QF elects the Firm Mode of Operation. Capacity payments are applicable during on-peak hours only. Such QFs shall receive capacity purchase payments based on the applicable levelized capacity purchase price below, in cents per kWh, corresponding to the contract length in years. Contract terms for 10 or 15 years are available only where the QF is defined under Paragraph I.A.

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(Continued)

## VII. PAYMENT FOR COMPANY PURCHASES OF CAPACITY (Continued)

**Option A:**

For hydroelectric facilities with no storage capability and no other type of generation:

	<u>Capacity Price</u>		
	<u>5-Year</u>	<u>10-Year</u>	<u>15-Year</u>
On-Peak (¢/kWh) Summer	5.895	6.095	6.263
On-Peak (¢/kWh) Non-summer	3.930	4.063	4.175

For all other facilities:

	<u>Capacity Price</u>		
	<u>5-Year</u>	<u>10-Year</u>	<u>15-Year</u>
On-Peak (¢/kWh) Summer	3.537	3.657	3.758
On-Peak (¢/kWh) Non-summer	2.358	2.438	2.505

**Option B:**

For hydroelectric facilities with no storage capability and no other type of generation:

	<u>Capacity Price</u>		
	<u>5-Year</u>	<u>10-Year</u>	<u>15-Year</u>
On-Peak (¢/kWh) Summer	13.524	13.982	14.368
On-Peak (¢/kWh) Non-summer	5.214	5.390	5.539

For all other facilities:

	<u>Capacity Price</u>		
	<u>5-Year</u>	<u>10-Year</u>	<u>15-Year</u>
On-Peak (¢/kWh) Summer	8.115	8.389	8.621
On-Peak (¢/kWh) Non-summer	3.128	3.234	3.323

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(Continued)

VII. PAYMENT FOR COMPANY PURCHASES OF CAPACITY (Continued)

Payments will be made to the QF by applying the appropriate levelized capacity purchase price above to all kWh delivered to the Company during each on-peak hour, up to the 100% of the Contracted Capacity in such hour. There will be no compensation for capacity in excess of the QF's Contracted Capacity in an hour. This capacity price will be in accordance with the length of rate term for capacity sales so established in the contract.

VIII. PROVISIONS FOR COMPANY PURCHASE OF THE QF GENERATION

- A. The QF shall own and be fully responsible for the costs and performance of the QF's:
  - 1. Generating facility in accordance with all applicable laws and governmental agencies having jurisdiction;
  - 2. Control and protective devices as required by the Company on the QF's side of the meter.
- B. The sale of power to the Company by a QF at avoided cost rates pursuant to this Schedule 19-FP does not convey ownership to the Company of the renewable energy credits or green tags associated with the QF facility.
- C. Upon request by the Company, the Cogenerator or Small Power Producer must demonstrate that the facility is a Qualifying Facility as defined by PURPA.
- D. Interconnection procedures for the QF's generation interconnection are provided through the Internet at the Company's website;  
<http://www.dom.com/dominion-north-carolina-power/customer-service/rates-and-tariffs/pdf/term24.pdf>.

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(Continued)

IX. MODIFICATION OF RATES AND OTHER PROVISIONS HEREUNDER

The provisions of this schedule, including the rates for purchase of energy and Contracted Capacity by the Company, are subject to modification at any time in the manner prescribed by law, and when so modified, shall supersede the rates and provisions hereof. However, payments to QFs with contracts for a specified term at payments established at the time the obligation is incurred shall remain at the payment levels established in their contract with the exception of the line loss percentage applied which shall be the percentage stated in the then-current Schedule 19.

If the QF terminates its contract to provide Contracted Capacity and energy to the Company prior to the expiration of the contract term, the QF shall, in addition to other liabilities, be liable to the Company for excess capacity and energy payments.

Such excess payments will be calculated by taking the difference between (1) the total capacity and energy payments already made by the Company to the QF and (2) capacity and energy payments calculated based on the levelized capacity and energy purchase price found in Paragraph VI and VII corresponding to the highest term option completed by the QF. These excess payments shall also include interest, from the time such excess payments were made, compounded annually at the rate equal to the Company's most current issue of long-term debt at the time of the contract's effective date.

X. TERM OF CONTRACT

The term of contract shall be such as may be mutually agreed upon but for not less than one year.

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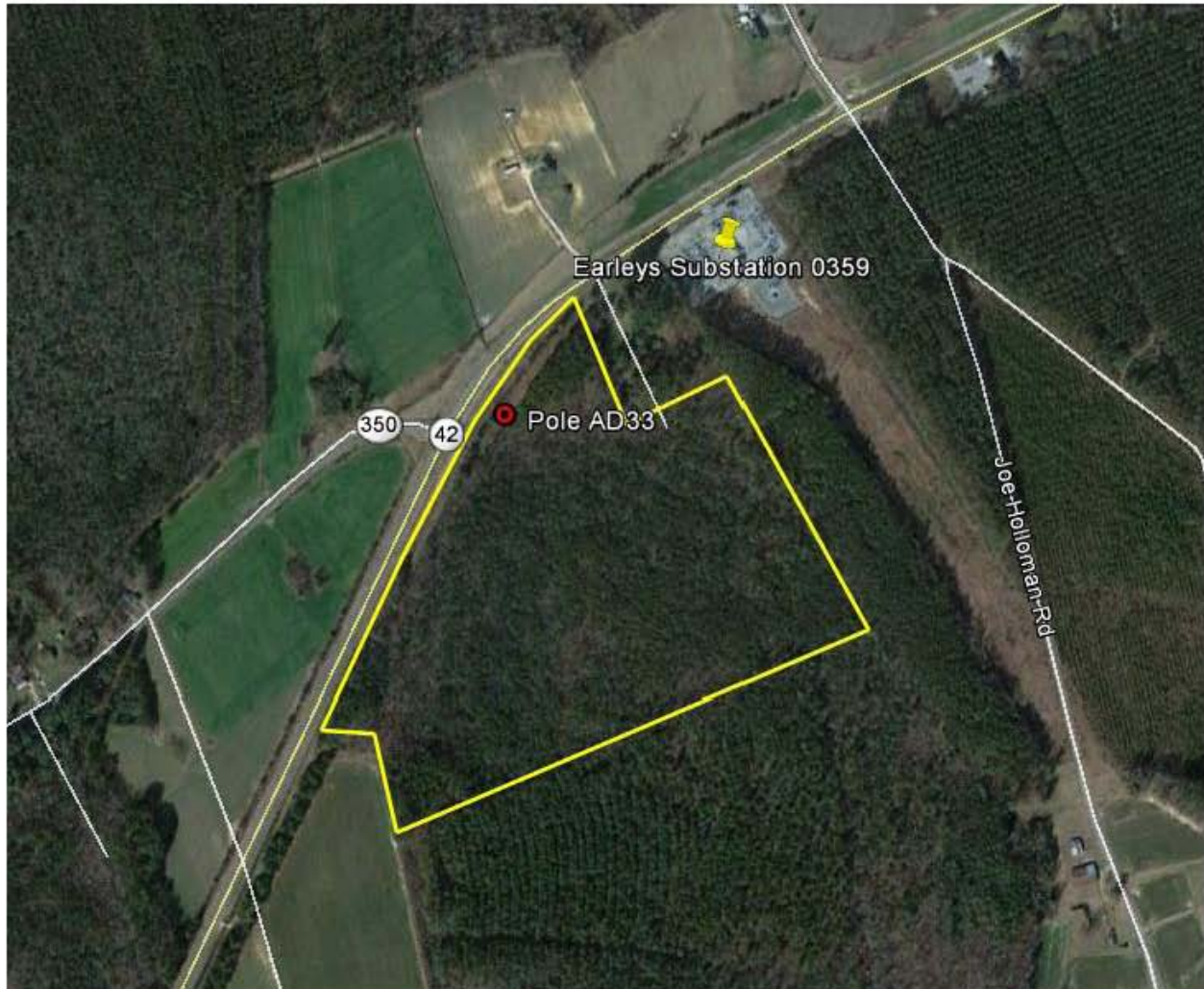
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**Aulander Solar LLC**

Facility address is: NC Hwy 11 South, Aulander, NC 27805

Coordinates are: 36°15'9.43"N 77° 4'52.46"W



FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, DC

**Exhibit E**

OMB Control # 1902-0075  
Expiration 5/31/2013

# Form 556

Certification of Qualifying Facility (QF) Status for a Small Power  
Production or Cogeneration Facility


## General

Questions about completing this form should be sent to [Form556@ferc.gov](mailto:Form556@ferc.gov). Information about the Commission's QF program, answers to frequently asked questions about QF requirements or completing this form, and contact information for QF program staff are available at the Commission's QF website, [www.ferc.gov/QF](http://www.ferc.gov/QF). The Commission's QF website also provides links to the Commission's QF regulations (18 C.F.R. § 131.80 and Part 292), as well as other statutes and orders pertaining to the Commission's QF program.

## Who Must File

Any applicant seeking QF status or recertification of QF status for a generating facility with a net power production capacity (as determined in lines 7a through 7g below) greater than 1000 kW must file a self-certification or an application for Commission certification of QF status, which includes a properly completed Form 556. Any applicant seeking QF status for a generating facility with a net power production capacity 1000 kW or less is exempt from the certification requirement, and is therefore not required to complete or file a Form 556. See 18 C.F.R. § 292.203.

## How to Complete the Form 556

This form is intended to be completed by responding to the items in the order they are presented, according to the instructions given. If you need to back-track, you may need to clear certain responses before you will be allowed to change other responses made previously in the form. If you experience problems, click on the nearest help button (  ) for assistance, or contact Commission staff at [Form556@ferc.gov](mailto:Form556@ferc.gov).

Certain lines in this form will be automatically calculated based on responses to previous lines, with the relevant formulas shown. You must respond to all of the previous lines within a section before the results of an automatically calculated field will be displayed. If you disagree with the results of any automatic calculation on this form, contact Commission staff at [Form556@ferc.gov](mailto:Form556@ferc.gov) to discuss the discrepancy before filing.

You must complete all lines in this form unless instructed otherwise. Do not alter this form or save this form in a different format. Incomplete or altered forms, or forms saved in formats other than PDF, will be rejected.

## How to File a Completed Form 556

Applicants are required to file their Form 556 electronically through the Commission's eFiling website (see instructions on page 2). By filing electronically, you will reduce your filing burden, save paper resources, save postage or courier charges, help keep Commission expenses to a minimum, and receive a much faster confirmation (via an email containing the docket number assigned to your facility) that the Commission has received your filing.

If you are simultaneously filing both a waiver request and a Form 556 as part of an application for Commission certification, see the "Waiver Requests" section on page 3 for more information on how to file.

## Paperwork Reduction Act Notice

This form is approved by the Office of Management and Budget (OMB Control No. 1902-0075, expiration 05/31/2013). Compliance with the information requirements established by the FERC Form No. 556 is required to obtain or maintain status as a QF. See 18 C.F.R. § 131.80 and Part 292. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The estimated burden for completing the FERC Form No. 556, including gathering and reporting information, is as follows: 3 hours for self-certification of a small power production facility, 8 hours for self-certifications of a cogeneration facility, 6 hours for an application for Commission certification of a small power production facility, and 50 hours for an application for Commission certification of a cogeneration facility. Send comments regarding this burden estimate or any aspect of this collection of information, including suggestions for reducing this burden, to the following: Information Clearance Officer, Office of the Executive Director (ED-32), Federal Energy Regulatory Commission, 888 First Street N.E., Washington, DC 20426; and Desk Officer for FERC, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503 ([oir\\_submission@omb.eop.gov](mailto:oir_submission@omb.eop.gov)). Include the Control No. 1902-0075 in any correspondence.

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## Electronic Filing (eFiling)

To electronically file your Form 556, visit the Commission's QF website at [www.ferc.gov/QF](http://www.ferc.gov/QF) and click the eFiling link.

If you are eFiling your first document, you will need to register with your name, email address, mailing address, and phone number. If you are registering on behalf of an employer, then you will also need to provide the employer name, alternate contact name, alternate contact phone number and alternate contact email.

Once you are registered, log in to eFiling with your registered email address and the password that you created at registration. Follow the instructions. When prompted, select one of the following QF-related filing types, as appropriate, from the Electric or General filing category.

Filing category	Filing Type as listed in eFiling	Description
Electric	(Fee) Application for Commission Cert. as Cogeneration QF	Use to submit an application for Commission certification or Commission recertification of a cogeneration facility as a QF.
	(Fee) Application for Commission Cert. as Small Power QF	Use to submit an application for Commission certification or Commission recertification of a small power production facility as a QF.
	Self-Certification Notice (QF, EG, FC)	Use to submit a notice of self-certification of your facility (cogeneration or small power production) as a QF.
	Self-Recertification of Qualifying Facility (QF)	Use to submit a notice of self-recertification of your facility (cogeneration or small power production) as a QF.
	Supplemental Information or Request	Use to correct or supplement a Form 556 that was submitted with errors or omissions, or for which Commission staff has requested additional information. Do <i>not</i> use this filing type to report new changes to a facility or its ownership; rather, use a self-recertification or Commission recertification to report such changes.
General	(Fee) Petition for Declaratory Order (not under FPA Part 1)	Use to submit a petition for declaratory order granting a waiver of Commission QF regulations pursuant to 18 C.F.R. §§ 292.204(a) (3) and/or 292.205(c). A Form 556 is not required for a petition for declaratory order unless Commission recertification is being requested as part of the petition.

You will be prompted to submit your filing fee, if applicable, during the electronic submission process. Filing fees can be paid via electronic bank account debit or credit card.

During the eFiling process, you will be prompted to select your file(s) for upload from your computer.

## Filing Fee

No filing fee is required if you are submitting a self-certification or self-recertification of your facility as a QF pursuant to 18 C.F.R. § 292.207(a).

A filing fee is required if you are filing either of the following:

- (1) an application for Commission certification or recertification of your facility as a QF pursuant to 18 C.F.R. § 292.207(b), or
- (2) a petition for declaratory order granting waiver pursuant to 18 C.F.R. §§ 292.204(a)(3) and/or 292.205(c).

The current fees for applications for Commission certifications and petitions for declaratory order can be found by visiting the Commission's QF website at [www.ferc.gov/QF](http://www.ferc.gov/QF) and clicking the Fee Schedule link.

You will be prompted to submit your filing fee, if applicable, during the electronic filing process described on page 2.

## Required Notice to Utilities and State Regulatory Authorities

Pursuant to 18 C.F.R. § 292.207(a)(ii), you must provide a copy of your self-certification or request for Commission certification to the utilities with which the facility will interconnect and/or transact, as well as to the State regulatory authorities of the states in which your facility and those utilities reside. Links to information about the regulatory authorities in various states can be found by visiting the Commission's QF website at [www.ferc.gov/QF](http://www.ferc.gov/QF) and clicking the Notice Requirements link.

## What to Expect From the Commission After You File

An applicant filing a Form 556 electronically will receive an email message acknowledging receipt of the filing and showing the docket number assigned to the filing. Such email is typically sent within one business day, but may be delayed pending confirmation by the Secretary of the Commission of the contents of the filing.

An applicant submitting a self-certification of QF status should expect to receive no documents from the Commission, other than the electronic acknowledgement of receipt described above. Consistent with its name, a self-certification is a certification *by the applicant itself* that the facility meets the relevant requirements for QF status, and does not involve a determination by the Commission as to the status of the facility. An acknowledgement of receipt of a self-certification, in particular, does not represent a determination by the Commission with regard to the QF status of the facility. An applicant self-certifying may, however, receive a rejection, revocation or deficiency letter if its application is found, during periodic compliance reviews, not to comply with the relevant requirements.

An applicant submitting a request for Commission certification will receive an order either granting or denying certification of QF status, or a letter requesting additional information or rejecting the application. Pursuant to 18 C.F.R. § 292.207(b)(3), the Commission must act on an application for Commission certification within 90 days of the later of the filing date of the application or the filing date of a supplement, amendment or other change to the application.

## Waiver Requests

18 C.F.R. § 292.204(a)(3) allows an applicant to request a waiver to modify the method of calculation pursuant to 18 C.F.R. § 292.204(a)(2) to determine if two facilities are considered to be located at the same site, for good cause. 18 C.F.R. § 292.205(c) allows an applicant to request waiver of the requirements of 18 C.F.R. §§ 292.205(a) and (b) for operating and efficiency upon a showing that the facility will produce significant energy savings. A request for waiver of these requirements must be submitted as a petition for declaratory order, with the appropriate filing fee for a petition for declaratory order. Applicants requesting Commission recertification as part of a request for waiver of one of these requirements should electronically submit their completed Form 556 along with their petition for declaratory order, rather than filing their Form 556 as a separate request for Commission recertification. Only the filing fee for the petition for declaratory order must be paid to cover both the waiver request and the request for recertification *if such requests are made simultaneously*.

18 C.F.R. § 292.203(d)(2) allows an applicant to request a waiver of the Form 556 filing requirements, for good cause. Applicants filing a petition for declaratory order requesting a waiver under 18 C.F.R. § 292.203(d)(2) do not need to complete or submit a Form 556 with their petition.



## Geographic Coordinates

If a street address does not exist for your facility, then line 3c of the Form 556 requires you to report your facility's geographic coordinates (latitude and longitude). Geographic coordinates may be obtained from several different sources. You can find links to online services that show latitude and longitude coordinates on online maps by visiting the Commission's QF webpage at [www.ferc.gov/QF](http://www.ferc.gov/QF) and clicking the Geographic Coordinates link. You may also be able to obtain your geographic coordinates from a GPS device, Google Earth (available free at <http://earth.google.com>), a property survey, various engineering or construction drawings, a property deed, or a municipal or county map showing property lines.

## Filing Privileged Data or Critical Energy Infrastructure Information in a Form 556

The Commission's regulations provide procedures for applicants to either (1) request that any information submitted with a Form 556 be given privileged treatment because the information is exempt from the mandatory public disclosure requirements of the Freedom of Information Act, 5 U.S.C. § 552, and should be withheld from public disclosure; or (2) identify any documents containing critical energy infrastructure information (CEII) as defined in 18 C.F.R. § 388.113 that should not be made public.

If you are seeking privileged treatment or CEII status for any data in your Form 556, then you must follow the procedures in 18 C.F.R. § 388.112. See [www.ferc.gov/help/filing-guide/file-ceii.asp](http://www.ferc.gov/help/filing-guide/file-ceii.asp) for more information.

Among other things (see 18 C.F.R. § 388.112 for other requirements), applicants seeking privileged treatment or CELL status for data submitted in a Form 556 must prepare and file both (1) a complete version of the Form 556 (containing the privileged and/or CELL data), and (2) a public version of the Form 556 (with the privileged and/or CELL data redacted). Applicants preparing and filing these different versions of their Form 556 must indicate below the security designation of this version of their document. If you are *not* seeking privileged treatment or CELL status for any of your Form 556 data, then you should not respond to any of the items on this page.

<input type="checkbox"/>	<p><b>Non-Public:</b> Applicant is seeking privileged treatment and/or CEII status for data contained in the Form 556 lines indicated below. This non-public version of the applicant's Form 556 contains all data, including the data that is redacted in the (separate) public version of the applicant's Form 556.</p>
<input type="checkbox"/>	<p><b>Public (redacted):</b> Applicant is seeking privileged treatment and/or CEII status for data contained in the Form 556 lines indicated below. This public version of the applicants's Form 556 contains all data <u>except</u> for data from the lines indicated below, which has been redacted.</p>
<p><b>Privileged:</b> Indicate below which lines of your form contain data for which you are seeking privileged treatment</p>	
<p><b>Critical Energy Infrastructure Information (CEII):</b> Indicate below which lines of your form contain data for which you are seeking CEII status</p>	

The eFiling process described on page 2 will allow you to identify which versions of the electronic documents you submit are public, privileged and/or CEI. The filenames for such documents should begin with "Public", "Priv", or "CEI", as applicable, to clearly indicate the security designation of the file. Both versions of the Form 556 should be unaltered PDF copies of the Form 556, as available for download from [www.ferc.gov/QF](http://www.ferc.gov/QF). To redact data from the public copy of the submittal, simply omit the relevant data from the Form. For numerical fields, leave the redacted fields blank. For text fields, complete as much of the field as possible, and replace the redacted portions of the field with the word "REDACTED" in brackets. Be sure to identify above all fields which contain data for which you are seeking non-public status.

The Commission is not responsible for detecting or correcting filer errors, including those errors related to security designation. If your documents contain sensitive information, make sure they are filed using the proper security designation.



**FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, DC**

**Exhibit E**  
OMB Control # 1902-0075  
Expiration 5/31/2013

# Form 556

Certification of Qualifying Facility (QF) Status for a Small Power  
Production or Cogeneration Facility

OFFICIAL COPY

Mar 30 2016

Application Information

<b>1a</b> Full name of applicant (legal entity on whose behalf qualifying facility status is sought for this facility) Aulander Solar LLC		
<b>1b</b> Applicant street address Three Radnor Corporate Center, Suite 300 100 Matsonford Rd.		
<b>1c</b> City Radnor	<b>1d</b> State/province PA	
<b>1e</b> Postal code 19087	<b>1f</b> Country (if not United States)	<b>1g</b> Telephone number (866) 946-3123
<b>1h</b> Has the instant facility ever previously been certified as a QF? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
<b>1i</b> If yes, provide the docket number of the last known QF filing pertaining to this facility: QF ____ - ____ - ____		
<b>1j</b> Under which certification process is the applicant making this filing? <input checked="" type="checkbox"/> Notice of self-certification (see note below) <input type="checkbox"/> Application for Commission certification (requires filing fee; see "Filing Fee" section on page 3) Note: a notice of self-certification is a notice by the applicant itself that its facility complies with the requirements for QF status. A notice of self-certification does not establish a proceeding, and the Commission does not review a notice of self-certification to verify compliance. See the "What to Expect From the Commission After You File" section on page 3 for more information.		
<b>1k</b> What type(s) of QF status is the applicant seeking for its facility? (check all that apply) <input checked="" type="checkbox"/> Qualifying small power production facility status <input type="checkbox"/> Qualifying cogeneration facility status		
<b>1l</b> What is the purpose and expected effective date(s) of this filing? <input checked="" type="checkbox"/> Original certification; facility expected to be installed by <u>9/29/14</u> and to begin operation on <u>9/30/14</u> <input type="checkbox"/> Change(s) to a previously certified facility to be effective on _____ (identify type(s) of change(s) below, and describe change(s) in the Miscellaneous section starting on page 19) <input type="checkbox"/> Name change and/or other administrative change(s) <input type="checkbox"/> Change in ownership <input type="checkbox"/> Change(s) affecting plant equipment, fuel use, power production capacity and/or cogeneration thermal output <input type="checkbox"/> Supplement or correction to a previous filing submitted on _____ (describe the supplement or correction in the Miscellaneous section starting on page 19)		
<b>1m</b> If any of the following three statements is true, check the box(es) that describe your situation and complete the form to the extent possible, explaining any special circumstances in the Miscellaneous section starting on page 19. <input type="checkbox"/> The instant facility complies with the Commission's QF requirements by virtue of a waiver of certain regulations previously granted by the Commission in an order dated _____ (specify any other relevant waiver orders in the Miscellaneous section starting on page 19) <input type="checkbox"/> The instant facility would comply with the Commission's QF requirements if a petition for waiver submitted concurrently with this application is granted <input type="checkbox"/> The instant facility complies with the Commission's regulations, but has special circumstances, such as the employment of unique or innovative technologies not contemplated by the structure of this form, that make the demonstration of compliance via this form difficult or impossible (describe in Misc. section starting on p. 19)		



Contact Information	<b>2a</b> Name of contact person Eric Blank, Manager		<b>2b</b> Telephone number (866) 946-3123	
	<b>2c</b> Which of the following describes the contact person's relationship to the applicant? (check one) <input type="checkbox"/> Applicant (self) <input checked="" type="checkbox"/> Employee, owner or partner of applicant authorized to represent the applicant <input type="checkbox"/> Employee of a company affiliated with the applicant authorized to represent the applicant on this matter <input type="checkbox"/> Lawyer, consultant, or other representative authorized to represent the applicant on this matter			
	<b>2d</b> Company or organization name (if applicant is an individual, check here and skip to line 2e) <input type="checkbox"/> Aulander Solar LLC			
	<b>2e</b> Street address (if same as Applicant, check here and skip to line 3a) <input checked="" type="checkbox"/>			
	<b>2f</b> City		<b>2g</b> State/province	
	<b>2h</b> Postal code		<b>2i</b> Country (if not United States)	
Facility Identification and Location	<b>3a</b> Facility name Aulander Solar			
	<b>3b</b> Street address (if a street address does not exist for the facility, check here and skip to line 3c) <input type="checkbox"/> NC Hwy 11 South			
	<b>3c</b> Geographic coordinates: If you indicated that no street address exists for your facility by checking the box in line 3b, then you must specify the latitude and longitude coordinates of the facility in degrees (to three decimal places). Use the following formula to convert to decimal degrees from degrees, minutes and seconds: decimal degrees = degrees + (minutes/60) + (seconds/3600). See the "Geographic Coordinates" section on page 4 for help. If you provided a street address for your facility in line 3b, then specifying the geographic coordinates below is optional.  Longitude <input type="checkbox"/> East (+) _____ 77.081 degrees      Latitude <input checked="" type="checkbox"/> North (+) _____ 36.253 degrees <input checked="" type="checkbox"/> West (-) _____ <input type="checkbox"/> South (-) _____			
	<b>3d</b> City (if unincorporated, check here and enter nearest city) <input type="checkbox"/> Aulander		<b>3e</b> State/province NC	
	<b>3f</b> County (or check here for independent city) <input type="checkbox"/> Hertford		<b>3g</b> Country (if not United States)	
Transacting Utilities	Identify the electric utilities that are contemplated to transact with the facility.			
	<b>4a</b> Identify utility interconnecting with the facility Virginia Electric and Power Company d/b/a Dominion North Carolina Power			
	<b>4b</b> Identify utilities providing wheeling service or check here if none <input checked="" type="checkbox"/>			
	<b>4c</b> Identify utilities purchasing the useful electric power output or check here if none <input type="checkbox"/> Virginia Electric and Power Company d/b/a Dominion North Carolina Power			
	<b>4d</b> Identify utilities providing supplementary power, backup power, maintenance power, and/or interruptible power service or check here if none <input type="checkbox"/> Virginia Electric and Power Company d/b/a Dominion North Carolina Power			



## Ownership and Operation

**5a** Direct ownership as of effective date or operation date: Identify all direct owners of the facility holding at least 10 percent equity interest. For each identified owner, also (1) indicate whether that owner is an electric utility, as defined in section 3(22) of the Federal Power Act (16 U.S.C. 796(22)), or a holding company, as defined in section 1262(8) of the Public Utility Holding Company Act of 2005 (42 U.S.C. 16451(8)), and (2) for owners which are electric utilities or holding companies, provide the percentage of equity interest in the facility held by that owner. If no direct owners hold at least 10 percent equity interest in the facility, then provide the required information for the two direct owners with the largest equity interest in the facility.

Full legal names of direct owners	Electric utility or holding company		If Yes, % equity interest
1) Aulander Solar LLC	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____ %
2) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	_____ %
3) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	_____ %
4) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	_____ %
5) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	_____ %
6) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	_____ %
7) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	_____ %
8) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	_____ %
9) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	_____ %
10) _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>	_____ %

☐ Check here and continue in the Miscellaneous section starting on page 19 if additional space is needed

**5b** Upstream (i.e., indirect) ownership as of effective date or operation date: Identify all upstream (i.e., indirect) owners of the facility that both (1) hold at least 10 percent equity interest in the facility, and (2) are electric utilities, as defined in section 3(22) of the Federal Power Act (16 U.S.C. 796(22)), or holding companies, as defined in section 1262(8) of the Public Utility Holding Company Act of 2005 (42 U.S.C. 16451(8)). Also provide the percentage of equity interest in the facility held by such owners. (Note that, because upstream owners may be subsidiaries of one another, total percent equity interest reported may exceed 100 percent.)

Check here if no such upstream owners exist. ☒

Full legal names of electric utility or holding company upstream owners	% equity interest
1) _____	_____ %
2) _____	_____ %
3) _____	_____ %
4) _____	_____ %
5) _____	_____ %
6) _____	_____ %
7) _____	_____ %
8) _____	_____ %
9) _____	_____ %
10) _____	_____ %

☐ Check here and continue in the Miscellaneous section starting on page 19 if additional space is needed

**5c** Identify the facility operator

Aulander Solar LLC



Energy Input

**6a** Describe the primary energy input: (check one main category and, if applicable, one subcategory)

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Biomass (specify)                     | <input checked="" type="checkbox"/> Renewable resources (specify)          | <input type="checkbox"/> Geothermal                                 |
| <input type="checkbox"/> Landfill gas                          | <input type="checkbox"/> Hydro power - river                               | <input type="checkbox"/> Fossil fuel (specify)                      |
| <input type="checkbox"/> Manure digester gas                   | <input type="checkbox"/> Hydro power - tidal                               | <input type="checkbox"/> Coal (not waste)                           |
| <input type="checkbox"/> Municipal solid waste                 | <input type="checkbox"/> Hydro power - wave                                | <input type="checkbox"/> Fuel oil/diesel                            |
| <input type="checkbox"/> Sewage digester gas                   | <input checked="" type="checkbox"/> Solar - photovoltaic                   | <input type="checkbox"/> Natural gas (not waste)                    |
| <input type="checkbox"/> Wood                                  | <input type="checkbox"/> Solar - thermal                                   | <input type="checkbox"/> Other fossil fuel<br>(describe on page 19) |
| <input type="checkbox"/> Other biomass (describe on page 19)   | <input type="checkbox"/> Wind  | <input type="checkbox"/> Other (describe on page 19)                |
| <input type="checkbox"/> Waste (specify type below in line 6b) | <input type="checkbox"/> Other renewable resource<br>(describe on page 19) |   |

**6b** If you specified "waste" as the primary energy input in line 6a, indicate the type of waste fuel used: (check one)

- ☐ Waste fuel listed in 18 C.F.R. § 292.202(b) (specify one of the following)
- ☐ Anthracite culm produced prior to July 23, 1985
  - ☐ Anthracite refuse that has an average heat content of 6,000 Btu or less per pound and has an average ash content of 45 percent or more
  - ☐ Bituminous coal refuse that has an average heat content of 9,500 Btu per pound or less and has an average ash content of 25 percent or more
  - ☐ Top or bottom subbituminous coal produced on Federal lands or on Indian lands that has been determined to be waste by the United States Department of the Interior's Bureau of Land Management (BLM) or that is located on non-Federal or non-Indian lands outside of BLM's jurisdiction, provided that the applicant shows that the latter coal is an extension of that determined by BLM to be waste
  - ☐ Coal refuse produced on Federal lands or on Indian lands that has been determined to be waste by the BLM or that is located on non-Federal or non-Indian lands outside of BLM's jurisdiction, provided that applicant shows that the latter is an extension of that determined by BLM to be waste
  - ☐ Lignite produced in association with the production of montan wax and lignite that becomes exposed as a result of such a mining operation
  - ☐ Gaseous fuels (except natural gas and synthetic gas from coal) (describe on page 19)
  - ☐ Waste natural gas from gas or oil wells (describe on page 19 how the gas meets the requirements of 18 C.F.R. § 2.400 for waste natural gas; include with your filing any materials necessary to demonstrate compliance with 18 C.F.R. § 2.400)
  - ☐ Materials that a government agency has certified for disposal by combustion (describe on page 19)
  - ☐ Heat from exothermic reactions (describe on page 19)
  - ☐ Residual heat (describe on page 19)
  - ☐ Used rubber tires
  - ☐ Plastic materials
  - ☐ Refinery off-gas
  - ☐ Petroleum coke
- ☐ Other waste energy input that has little or no commercial value and exists in the absence of the qualifying facility industry (describe in the Miscellaneous section starting on page 19; include a discussion of the fuel's lack of commercial value and existence in the absence of the qualifying facility industry)

**6c** Provide the average energy input, calculated on a calendar year basis, in terms of Btu/h for the following fossil fuel energy inputs, and provide the related percentage of the total average annual energy input to the facility (18 C.F.R. § 292.202(j)). For any oil or natural gas fuel, use lower heating value (18 C.F.R. § 292.202(m)).

Fuel	Annual average energy input for specified fuel	Percentage of total annual energy input
Natural gas	0 Btu/h	0 %
Oil-based fuels	0 Btu/h	0 %
Coal	0 Btu/h	0 %

## Technical Facility Information

Indicate the maximum gross and maximum net electric power production capacity of the facility at the point(s) of delivery by completing the worksheet below. Respond to all items. If any of the parasitic loads and/or losses identified in lines 7b through 7e are negligible, enter zero for those lines.

<b>7a</b> The maximum gross power production capacity at the terminals of the individual generator(s) under the most favorable anticipated design conditions	4,999 kW
<b>7b</b> Parasitic station power used at the facility to run equipment which is necessary and integral to the power production process (boiler feed pumps, fans/blowers, office or maintenance buildings directly related to the operation of the power generating facility, etc.). If this facility includes non-power production processes (for instance, power consumed by a cogeneration facility's thermal host), do not include any power consumed by the non-power production activities in your reported parasitic station power.	2 kW
<b>7c</b> Electrical losses in interconnection transformers	10 kW
<b>7d</b> Electrical losses in AC/DC conversion equipment, if any	0 kW
<b>7e</b> Other interconnection losses in power lines or facilities (other than transformers and AC/DC conversion equipment) between the terminals of the generator(s) and the point of interconnection with the utility	0 kW
<b>7f</b> Total deductions from gross power production capacity = 7b + 7c + 7d + 7e	12.0 kW
<b>7g</b> Maximum net power production capacity = 7a - 7f	4,987.0 kW

**7h** Description of facility and primary components: Describe the facility and its operation. Identify all boilers, heat recovery steam generators, prime movers (any mechanical equipment driving an electric generator), electrical generators, photovoltaic solar equipment, fuel cell equipment and/or other primary power generation equipment used in the facility. Descriptions of components should include (as applicable) specifications of the nominal capacities for mechanical output, electrical output, or steam generation of the identified equipment. For each piece of equipment identified, clearly indicate how many pieces of that type of equipment are included in the plant, and which components are normally operating or normally in standby mode. Provide a description of how the components operate as a system. Applicants for cogeneration facilities do not need to describe operations of systems that are clearly depicted on and easily understandable from a cogeneration facility's attached mass and heat balance diagram; however, such applicants should provide any necessary description needed to understand the sequential operation of the facility depicted in their mass and heat balance diagram. If additional space is needed, continue in the Miscellaneous section starting on page 19.

The generating system will be comprised of approximately 21,550 PV modules, attached to a ground-mounted single-axis tracking system. Each module will have a nominal power capacity of 290 Wp (DC). The entire system will have a nominal power capacity of 6,249,500 Wp (DC) with a DC/AC ratio of 1.25, yielding a maximum gross power production capacity of 4,999,600 Wp (AC). The system will utilize 10 pad-mounted inverters, each with a nominal power capacity of 500 kW (AC). The system will be interconnected to the electrical distribution network operated by Dominion North Carolina Power. The entire facility will be enclosed within a security fence.



# Information Required for Small Power Production Facility

If you indicated in line 1k that you are seeking qualifying small power production facility status for your facility, then you must respond to the items on this page. Otherwise, skip page 10.

<b>Certification of Compliance with Size Limitations</b>	<p>Pursuant to 18 C.F.R. § 292.204(a), the power production capacity of any small power production facility, together with the power production capacity of any other small power production facilities that use the same energy resource, are owned by the same person(s) or its affiliates, and are located at the same site, may not exceed 80 megawatts. To demonstrate compliance with this size limitation, or to demonstrate that your facility is exempt from this size limitation under the Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990 (Pub. L. 101-575, 104 Stat. 2834 (1990) <i>as amended by</i> Pub. L. 102-46, 105 Stat. 249 (1991)), respond to lines 8a through 8e below (as applicable).</p>																
	<p><b>8a</b> Identify any facilities with electrical generating equipment located within 1 mile of the electrical generating equipment of the instant facility, and for which any of the entities identified in lines 5a or 5b, or their affiliates, holds at least a 5 percent equity interest.</p>																
	<p>Check here if no such facilities exist. <input checked="" type="checkbox"/></p>																
	<table border="1"> <thead> <tr> <th>Facility location (city or county, state)</th> <th>Root docket # (if any)</th> <th>Common owner(s)</th> <th>Maximum net power production capacity</th> </tr> </thead> <tbody> <tr> <td>1) _____</td> <td>QF - _____</td> <td>_____</td> <td>_____ kW</td> </tr> <tr> <td>2) _____</td> <td>QF - _____</td> <td>_____</td> <td>_____ kW</td> </tr> <tr> <td>3) _____</td> <td>QF - _____</td> <td>_____</td> <td>_____ kW</td> </tr> </tbody> </table>	Facility location (city or county, state)	Root docket # (if any)	Common owner(s)	Maximum net power production capacity	1) _____	QF - _____	_____	_____ kW	2) _____	QF - _____	_____	_____ kW	3) _____	QF - _____	_____	_____ kW
	Facility location (city or county, state)	Root docket # (if any)	Common owner(s)	Maximum net power production capacity													
	1) _____	QF - _____	_____	_____ kW													
2) _____	QF - _____	_____	_____ kW														
3) _____	QF - _____	_____	_____ kW														
<p><input type="checkbox"/> Check here and continue in the Miscellaneous section starting on page 19 if additional space is needed</p>																	
<p><b>8b</b> The Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990 (Incentives Act) provides exemption from the size limitations in 18 C.F.R. § 292.204(a) for certain facilities that were certified prior to 1995. Are you seeking exemption from the size limitations in 18 C.F.R. § 292.204(a) by virtue of the Incentives Act?</p> <p><input type="checkbox"/> Yes (continue at line 8c below) <input checked="" type="checkbox"/> No (skip lines 8c through 8e)</p>																	
<p><b>8c</b> Was the original notice of self-certification or application for Commission certification of the facility filed on or before December 31, 1994? Yes <input type="checkbox"/> No <input type="checkbox"/></p>																	
<p><b>8d</b> Did construction of the facility commence on or before December 31, 1999? Yes <input type="checkbox"/> No <input type="checkbox"/></p>																	
<p><b>8e</b> If you answered No in line 8d, indicate whether reasonable diligence was exercised toward the completion of the facility, taking into account all factors relevant to construction? Yes <input type="checkbox"/> No <input type="checkbox"/> If you answered Yes, provide a brief narrative explanation in the Miscellaneous section starting on page 19 of the construction timeline (in particular, describe why construction started so long after the facility was certified) and the diligence exercised toward completion of the facility.</p>																	
<b>Certification of Compliance with Fuel Use Requirements</b>	<p>Pursuant to 18 C.F.R. § 292.204(b), qualifying small power production facilities may use fossil fuels, in minimal amounts, for only the following purposes: ignition; start-up; testing; flame stabilization; control use; alleviation or prevention of unanticipated equipment outages; and alleviation or prevention of emergencies, directly affecting the public health, safety, or welfare, which would result from electric power outages. The amount of fossil fuels used for these purposes may not exceed 25 percent of the total energy input of the facility during the 12-month period beginning with the date the facility first produces electric energy or any calendar year thereafter.</p>																
	<p><b>9a</b> Certification of compliance with 18 C.F.R. § 292.204(b) with respect to uses of fossil fuel:</p> <p><input checked="" type="checkbox"/> Applicant certifies that the facility will use fossil fuels <i>exclusively</i> for the purposes listed above.</p>																
	<p><b>9b</b> Certification of compliance with 18 C.F.R. § 292.204(b) with respect to amount of fossil fuel used annually:</p> <p><input checked="" type="checkbox"/> Applicant certifies that the amount of fossil fuel used at the facility will not, in aggregate, exceed 25 percent of the total energy input of the facility during the 12-month period beginning with the date the facility first produces electric energy or any calendar year thereafter.</p>																





## Information Required for Cogeneration Facility

If you indicated in line 1k that you are seeking qualifying cogeneration facility status for your facility, then you must respond to the items on pages 11 through 13. Otherwise, skip pages 11 through 13.

General Cogeneration Information	Pursuant to 18 C.F.R. § 292.202(c), a cogeneration facility produces electric energy and forms of useful thermal energy (such as heat or steam) used for industrial, commercial, heating, or cooling purposes, through the sequential use of energy. Pursuant to 18 C.F.R. § 292.202(s), "sequential use" of energy means the following: (1) for a topping-cycle cogeneration facility, the use of reject heat from a power production process in sufficient amounts in a thermal application or process to conform to the requirements of the operating standard contained in 18 C.F.R. § 292.205(a); or (2) for a bottoming-cycle cogeneration facility, the use of at least some reject heat from a thermal application or process for power production.	
	<b>10a</b> What type(s) of cogeneration technology does the facility represent? (check all that apply)	
	<input type="checkbox"/> Topping-cycle cogeneration	<input type="checkbox"/> Bottoming-cycle cogeneration
	<b>10b</b> To help demonstrate the sequential operation of the cogeneration process, and to support compliance with other requirements such as the operating and efficiency standards, include with your filing a mass and heat balance diagram depicting average annual operating conditions. This diagram must include certain items and meet certain requirements, as described below. You must check next to the description of each requirement below to certify that you have complied with these requirements.	
	Check to certify compliance with indicated requirement	Requirement
	<input type="checkbox"/>	Diagram must show orientation within system piping and/or ducts of all prime movers, heat recovery steam generators, boilers, electric generators, and condensers (as applicable), as well as any other primary equipment relevant to the cogeneration process.
	<input type="checkbox"/>	Any average annual values required to be reported in lines 10b, 12a, 13a, 13b, 13d, 13f, 14a, 15b, 15d and/or 15f must be computed over the anticipated hours of operation.
	<input type="checkbox"/>	Diagram must specify all fuel inputs by fuel type and average annual rate in Btu/h. Fuel for supplementary firing should be specified separately and clearly labeled. All specifications of fuel inputs should use lower heating values.
	<input type="checkbox"/>	Diagram must specify average gross electric output in kW or MW for each generator.
	<input type="checkbox"/>	Diagram must specify average mechanical output (that is, any mechanical energy taken off of the shaft of the prime movers for purposes not directly related to electric power generation) in horsepower, if any. Typically, a cogeneration facility has no mechanical output.
<input type="checkbox"/>	At each point for which working fluid flow conditions are required to be specified (see below), such flow condition data must include mass flow rate (in lb/h or kg/s), temperature (in °F, R, °C or K), absolute pressure (in psia or kPa) and enthalpy (in Btu/lb or kJ/kg). Exception: For systems where the working fluid is <i>liquid only</i> (no vapor at any point in the cycle) and where the type of liquid and specific heat of that liquid are clearly indicated on the diagram or in the Miscellaneous section starting on page 19, only mass flow rate and temperature (not pressure and enthalpy) need be specified. For reference, specific heat at standard conditions for pure liquid water is approximately 1.002 Btu/(lb*R) or 4.195 kJ/(kg*K).	
<input type="checkbox"/>	Diagram must specify working fluid flow conditions at input to and output from each steam turbine or other expansion turbine or back-pressure turbine.	
<input type="checkbox"/>	Diagram must specify working fluid flow conditions at delivery to and return from each thermal application.	
<input type="checkbox"/>	Diagram must specify working fluid flow conditions at make-up water inputs.	

EPAct 2005 Requirements for Fundamental Use of Energy Output from Cogeneration Facilities

EPAct 2005 cogeneration facilities: The Energy Policy Act of 2005 (EPAct 2005) established a new section 210(n) of the Public Utility Regulatory Policies Act of 1978 (PURPA), 16 USC 824a-3(n), with additional requirements for any qualifying cogeneration facility that (1) is seeking to sell electric energy pursuant to section 210 of PURPA and (2) was either not a cogeneration facility on August 8, 2005, or had not filed a self-certification or application for Commission certification of QF status on or before February 1, 2006. These requirements were implemented by the Commission in 18 C.F.R. § 292.205(d). Complete the lines below, carefully following the instructions, to demonstrate whether these additional requirements apply to your cogeneration facility and, if so, whether your facility complies with such requirements.

**11a** Was your facility operating as a qualifying cogeneration facility on or before August 8, 2005? Yes ☐ No ☐

**11b** Was the initial filing seeking certification of your facility (whether a notice of self-certification or an application for Commission certification) filed on or before February 1, 2006? Yes ☐ No ☐

If the answer to either line 11a or 11b is Yes, then continue at line 11c below. Otherwise, if the answers to both lines 11a and 11b are No, skip to line 11e below.

**11c** With respect to the design and operation of the facility, have any changes been implemented on or after February 2, 2006 that affect general plant operation, affect use of thermal output, and/or increase net power production capacity from the plant's capacity on February 1, 2006?

☐ Yes (continue at line 11d below)

☐ No. Your facility is not subject to the requirements of 18 C.F.R. § 292.205(d) at this time. However, it may be subject to these requirements in the future if changes are made to the facility. At such time, the applicant would need to recertify the facility to determine eligibility. Skip lines 11d through 11j.

**11d** Does the applicant contend that the changes identified in line 11c are not so significant as to make the facility a "new" cogeneration facility that would be subject to the 18 C.F.R. § 292.205(d) cogeneration requirements?

☐ Yes. Provide in the Miscellaneous section starting on page 19 a description of any relevant changes made to the facility (including the purpose of the changes) and a discussion of why the facility should not be considered a "new" cogeneration facility in light of these changes. Skip lines 11e through 11j.

☐ No. Applicant stipulates to the fact that it is a "new" cogeneration facility (for purposes of determining the applicability of the requirements of 18 C.F.R. § 292.205(d)) by virtue of modifications to the facility that were initiated on or after February 2, 2006. Continue below at line 11e.

**11e** Will electric energy from the facility be sold pursuant to section 210 of PURPA?

☐ Yes. The facility is an EPAct 2005 cogeneration facility. You must demonstrate compliance with 18 C.F.R. § 292.205(d)(2) by continuing at line 11f below.

☐ No. Applicant certifies that energy will *not* be sold pursuant to section 210 of PURPA. Applicant also certifies its understanding that it must recertify its facility in order to determine compliance with the requirements of 18 C.F.R. § 292.205(d) *before* selling energy pursuant to section 210 of PURPA in the future. Skip lines 11f through 11j.

**11f** Is the net power production capacity of your cogeneration facility, as indicated in line 7g above, less than or equal to 5,000 kW?

☐ Yes, the net power production capacity is less than or equal to 5,000 kW. 18 C.F.R. § 292.205(d)(4) provides a rebuttable presumption that cogeneration facilities of 5,000 kW and smaller capacity comply with the requirements for fundamental use of the facility's energy output in 18 C.F.R. § 292.205(d)(2). Applicant certifies its understanding that, should the power production capacity of the facility increase above 5,000 kW, then the facility must be recertified to (among other things) demonstrate compliance with 18 C.F.R. § 292.205(d)(2). Skip lines 11g through 11j.

☐ No, the net power production capacity is greater than 5,000 kW. Demonstrate compliance with the requirements for fundamental use of the facility's energy output in 18 C.F.R. § 292.205(d)(2) by continuing on the next page at line 11g.





# EPAct 2005 Requirements for Fundamental Use of Energy Output from Cogeneration Facilities (continued)

Lines 11g through 11k below guide the applicant through the process of demonstrating compliance with the requirements for "fundamental use" of the facility's energy output. 18 C.F.R. § 292.205(d)(2). Only respond to the lines on this page if the instructions on the previous page direct you to do so. Otherwise, skip this page.

18 C.F.R. § 292.205(d)(2) requires that the electrical, thermal, chemical and mechanical output of an EPAct 2005 cogeneration facility is used fundamentally for industrial, commercial, residential or institutional purposes and is not intended fundamentally for sale to an electric utility, taking into account technological, efficiency, economic, and variable thermal energy requirements, as well as state laws applicable to sales of electric energy from a qualifying facility to its host facility. If you were directed on the previous page to respond to the items on this page, then your facility is an EPAct 2005 cogeneration facility that is subject to this "fundamental use" requirement.

The Commission's regulations provide a two-pronged approach to demonstrating compliance with the requirements for fundamental use of the facility's energy output. First, the Commission has established in 18 C.F.R. § 292.205(d)(3) a "fundamental use test" that can be used to demonstrate compliance with 18 C.F.R. § 292.205(d)(2). Under the fundamental use test, a facility is considered to comply with 18 C.F.R. § 292.205(d)(2) if at least 50 percent of the facility's total annual energy output (including electrical, thermal, chemical and mechanical energy output) is used for industrial, commercial, residential or institutional purposes.

Second, an applicant for a facility that does not pass the fundamental use test may provide a narrative explanation of and support for its contention that the facility nonetheless meets the requirement that the electrical, thermal, chemical and mechanical output of an EPAct 2005 cogeneration facility is used fundamentally for industrial, commercial, residential or institutional purposes and is not intended fundamentally for sale to an electric utility, taking into account technological, efficiency, economic, and variable thermal energy requirements, as well as state laws applicable to sales of electric energy from a qualifying facility to its host facility.

Complete lines 11g through 11j below to determine compliance with the fundamental use test in 18 C.F.R. § 292.205(d)(3). Complete lines 11g through 11j *even if you do not intend to rely upon the fundamental use test to demonstrate compliance with 18 C.F.R. § 292.205(d)(2)*.

<b>11g</b> Amount of electrical, thermal, chemical and mechanical energy output (net of internal generation plant losses and parasitic loads) expected to be used annually for industrial, commercial, residential or institutional purposes and not sold to an electric utility	MWh
<b>11h</b> Total amount of electrical, thermal, chemical and mechanical energy expected to be sold to an electric utility	MWh
<b>11i</b> Percentage of total annual energy output expected to be used for industrial, commercial, residential or institutional purposes and not sold to a utility = $100 * 11g / (11g + 11h)$	0 %

**11j** Is the response in line 11i greater than or equal to 50 percent?

Yes. Your facility complies with 18 C.F.R. § 292.205(d)(2) by virtue of passing the fundamental use test provided in 18 C.F.R. § 292.205(d)(3). Applicant certifies its understanding that, if it is to rely upon passing the fundamental use test as a basis for complying with 18 C.F.R. § 292.205(d)(2), then the facility must comply with the fundamental use test both in the 12-month period beginning with the date the facility first produces electric energy, and in all subsequent calendar years.

No. Your facility does not pass the fundamental use test. Instead, you must provide in the Miscellaneous section starting on page 19 a narrative explanation of and support for why your facility meets the requirement that the electrical, thermal, chemical and mechanical output of an EPAct 2005 cogeneration facility is used fundamentally for industrial, commercial, residential or institutional purposes and is not intended fundamentally for sale to an electric utility, taking into account technological, efficiency, economic, and variable thermal energy requirements, as well as state laws applicable to sales of electric energy from a QF to its host facility. Applicants providing a narrative explanation of why their facility should be found to comply with 18 C.F.R. § 292.205(d)(2) in spite of non-compliance with the fundamental use test may want to review paragraphs 47 through 61 of Order No. 671 (accessible from the Commission's QF website at [www.ferc.gov/QF](http://www.ferc.gov/QF)), which provide discussion of the facts and circumstances that may support their explanation. Applicant should also note that the percentage reported above will establish the standard that that facility must comply with, both for the 12-month period beginning with the date the facility first produces electric energy, and in all subsequent calendar years. See Order No. 671 at paragraph 51. As such, the applicant should make sure that it reports appropriate values on lines 11g and 11h above to serve as the relevant annual standard, taking into account expected variations in production conditions.

## Information Required for Topping-Cycle Cogeneration Facility

If you indicated in line 10a that your facility represents topping-cycle cogeneration technology, then you must respond to the items on pages 14 and 15. Otherwise, skip pages 14 and 15.

Usefulness of Topping-Cycle Thermal Output	The thermal energy output of a topping-cycle cogeneration facility is the net energy made available to an industrial or commercial process or used in a heating or cooling application. Pursuant to sections 292.202(c), (d) and (h) of the Commission's regulations (18 C.F.R. §§ 292.202(c), (d) and (h)), the thermal energy output of a qualifying topping-cycle cogeneration facility must be useful. In connection with this requirement, describe the thermal output of the topping-cycle cogeneration facility by responding to lines 12a and 12b below.		
	<b>12a</b> Identify and describe each thermal host, and specify the annual average rate of thermal output made available to each host for each use. For hosts with multiple uses of thermal output, provide the data for each use <i>in separate rows</i> .		
	Name of entity (thermal host) taking thermal output	Thermal host's relationship to facility; Thermal host's use of thermal output	Average annual rate of thermal output attributable to use (net of heat contained in process return or make-up water)
	1)	Select thermal host's relationship to facility Select thermal host's use of thermal output	Btu/h
	2)	Select thermal host's relationship to facility Select thermal host's use of thermal output	Btu/h
	3)	Select thermal host's relationship to facility Select thermal host's use of thermal output	Btu/h
	4)	Select thermal host's relationship to facility Select thermal host's use of thermal output	Btu/h
	5)	Select thermal host's relationship to facility Select thermal host's use of thermal output	Btu/h
	6)	Select thermal host's relationship to facility Select thermal host's use of thermal output	Btu/h
	<input type="checkbox"/> Check here and continue in the Miscellaneous section starting on page 19 if additional space is needed		
<b>12b</b> Demonstration of usefulness of thermal output: At a minimum, provide a brief description of each use of the thermal output identified above. In some cases, this brief description is sufficient to demonstrate usefulness. However, if your facility's use of thermal output is not common, and/or if the usefulness of such thermal output is not reasonably clear, then you must provide additional details as necessary to demonstrate usefulness. Your application may be rejected and/or additional information may be required if an insufficient showing of usefulness is made. (Exception: If you have previously received a Commission certification approving a specific use of thermal output related to the instant facility, then you need only provide a brief description of that use and a reference by date and docket number to the order certifying your facility with the indicated use. Such exemption may not be used if any change creates a material deviation from the previously authorized use.) If additional space is needed, continue in the Miscellaneous section starting on page 19.			

**Topping-Cycle Operating and  
Efficiency Value Calculation**

Applicants for facilities representing topping-cycle technology must demonstrate compliance with the topping-cycle operating standard and, if applicable, efficiency standard. Section 292.205(a)(1) of the Commission's regulations (18 C.F.R. § 292.205(a)(1)) establishes the operating standard for topping-cycle cogeneration facilities: the useful thermal energy output must be no less than 5 percent of the total energy output. Section 292.205(a)(2) (18 C.F.R. § 292.205(a)(2)) establishes the efficiency standard for topping-cycle cogeneration facilities for which installation commenced on or after March 13, 1980: the useful power output of the facility plus one-half the useful thermal energy output must (A) be no less than 42.5 percent of the total energy input of natural gas and oil to the facility; and (B) if the useful thermal energy output is less than 15 percent of the total energy output of the facility, be no less than 45 percent of the total energy input of natural gas and oil to the facility. To demonstrate compliance with the topping-cycle operating and/or efficiency standards, or to demonstrate that your facility is exempt from the efficiency standard based on the date that installation commenced, respond to lines 13a through 13l below.

If you indicated in line 10a that your facility represents *both* topping-cycle and bottoming-cycle cogeneration technology, then respond to lines 13a through 13l below considering only the energy inputs and outputs attributable to the topping-cycle portion of your facility. Your mass and heat balance diagram must make clear which mass and energy flow values and system components are for which portion (topping or bottoming) of the cogeneration system.

<b>13a</b> Indicate the annual average rate of useful thermal energy output made available to the host(s), net of any heat contained in condensate return or make-up water	Btu/h
<b>13b</b> Indicate the annual average rate of net electrical energy output	kW
<b>13c</b> Multiply line 13b by 3,412 to convert from kW to Btu/h	0 Btu/h
<b>13d</b> Indicate the annual average rate of mechanical energy output taken directly off of the shaft of a prime mover for purposes not directly related to power production (this value is usually zero)	hp
<b>13e</b> Multiply line 13d by 2,544 to convert from hp to Btu/h	0 Btu/h
<b>13f</b> Indicate the annual average rate of energy input from natural gas and oil	Btu/h
<b>13g</b> Topping-cycle operating value = $100 * 13a / (13a + 13c + 13e)$	0 %
<b>13h</b> Topping-cycle efficiency value = $100 * (0.5 * 13a + 13c + 13e) / 13f$	0 %
<b>13i</b> Compliance with operating standard: Is the operating value shown in line 13g greater than or equal to 5%? <input type="checkbox"/> Yes (complies with operating standard) <input type="checkbox"/> No (does not comply with operating standard)	
<b>13j</b> Did installation of the facility in its current form commence on or after March 13, 1980? <input type="checkbox"/> Yes. Your facility is subject to the efficiency requirements of 18 C.F.R. § 292.205(a)(2). Demonstrate compliance with the efficiency requirement by responding to line 13k or 13l, as applicable, below. <input type="checkbox"/> No. Your facility is exempt from the efficiency standard. Skip lines 13k and 13l.	
<b>13k</b> Compliance with efficiency standard (for low operating value): If the operating value shown in line 13g is less than 15%, then indicate below whether the efficiency value shown in line 13h greater than or equal to 45%: <input type="checkbox"/> Yes (complies with efficiency standard) <input type="checkbox"/> No (does not comply with efficiency standard)	
<b>13l</b> Compliance with efficiency standard (for high operating value): If the operating value shown in line 13g is greater than or equal to 15%, then indicate below whether the efficiency value shown in line 13h is greater than or equal to 42.5%: <input type="checkbox"/> Yes (complies with efficiency standard) <input type="checkbox"/> No (does not comply with efficiency standard)	

## Information Required for Bottoming-Cycle Cogeneration Facility

If you indicated in line 10a that your facility represents bottoming-cycle cogeneration technology, then you must respond to the items on pages 16 and 17. Otherwise, skip pages 16 and 17.

Usefulness of Bottoming-Cycle Thermal Output	<p>The thermal energy output of a bottoming-cycle cogeneration facility is the energy related to the process(es) from which at least some of the reject heat is then used for power production. Pursuant to sections 292.202(c) and (e) of the Commission's regulations (18 C.F.R. § 292.202(c) and (e)), the thermal energy output of a qualifying bottoming-cycle cogeneration facility must be useful. In connection with this requirement, describe the process(es) from which at least some of the reject heat is used for power production by responding to lines 14a and 14b below.</p>			
	<p><b>14a</b> Identify and describe each thermal host and each bottoming-cycle cogeneration process engaged in by each host. For hosts with multiple bottoming-cycle cogeneration processes, provide the data for each process <i>in separate rows</i>.</p>			
	Name of entity (thermal host) performing the process from which at least some of the reject heat is used for power production		Thermal host's relationship to facility; Thermal host's process type	Has the energy input to the thermal host been augmented for purposes of increasing power production capacity? (if Yes, describe on p. 19)
	1)		Select thermal host's relationship to facility	Yes <input type="checkbox"/> No <input type="checkbox"/>
			Select thermal host's process type	
	2)		Select thermal host's relationship to facility	Yes <input type="checkbox"/> No <input type="checkbox"/>
			Select thermal host's process type	
	3)		Select thermal host's relationship to facility	Yes <input type="checkbox"/> No <input type="checkbox"/>
			Select thermal host's process type	
	<p><input type="checkbox"/> Check here and continue in the Miscellaneous section starting on page 19 if additional space is needed</p>			
<p><b>14b</b> Demonstration of usefulness of thermal output: At a minimum, provide a brief description of each process identified above. In some cases, this brief description is sufficient to demonstrate usefulness. However, if your facility's process is not common, and/or if the usefulness of such thermal output is not reasonably clear, then you must provide additional details as necessary to demonstrate usefulness. Your application may be rejected and/or additional information may be required if an insufficient showing of usefulness is made. (Exception: If you have previously received a Commission certification approving a specific bottoming-cycle process related to the instant facility, then you need only provide a brief description of that process and a reference by date and docket number to the order certifying your facility with the indicated process. Such exemption may not be used if any material changes to the process have been made.) If additional space is needed, continue in the Miscellaneous section starting on page 19.</p>				

# Bottoming-Cycle Operating and Efficiency Value Calculation

Applicants for facilities representing bottoming-cycle technology and for which installation commenced on or after March 13, 1990 must demonstrate compliance with the bottoming-cycle efficiency standards. Section 292.205(b) of the Commission's regulations (18 C.F.R. § 292.205(b)) establishes the efficiency standard for bottoming-cycle cogeneration facilities: the useful power output of the facility must be no less than 45 percent of the energy input of natural gas and oil for supplementary firing. To demonstrate compliance with the bottoming-cycle efficiency standard (if applicable), or to demonstrate that your facility is exempt from this standard based on the date that installation of the facility began, respond to lines 15a through 15h below.

If you indicated in line 10a that your facility represents *both* topping-cycle and bottoming-cycle cogeneration technology, then respond to lines 15a through 15h below considering only the energy inputs and outputs attributable to the bottoming-cycle portion of your facility. Your mass and heat balance diagram must make clear which mass and energy flow values and system components are for which portion of the cogeneration system (topping or bottoming).

**15a** Did installation of the facility in its current form commence on or after March 13, 1980?

- ☐ Yes. Your facility is subject to the efficiency requirement of 18 C.F.R. § 292.205(b). Demonstrate compliance with the efficiency requirement by responding to lines 15b through 15h below.
- ☐ No. Your facility is exempt from the efficiency standard. Skip the rest of page 17.

**15b** Indicate the annual average rate of net electrical energy output

kW

**15c** Multiply line 15b by 3,412 to convert from kW to Btu/h

0 Btu/h

**15d** Indicate the annual average rate of mechanical energy output taken directly off of the shaft of a prime mover for purposes not directly related to power production (this value is usually zero)

hp

**15e** Multiply line 15d by 2,544 to convert from hp to Btu/h

0 Btu/h

**15f** Indicate the annual average rate of supplementary energy input from natural gas or oil

Btu/h

**15g** Bottoming-cycle efficiency value =  $100 * (15c + 15e) / 15f$

0 %

**15h** Compliance with efficiency standard: Indicate below whether the efficiency value shown in line 15g is greater than or equal to 45%:

☐ Yes (complies with efficiency standard)

☐ No (does not comply with efficiency standard)



## Certificate of Completeness, Accuracy and Authority

Applicant must certify compliance with and understanding of filing requirements by checking next to each item below and signing at the bottom of this section. Forms with incomplete Certificates of Completeness, Accuracy and Authority will be rejected by the Secretary of the Commission.

Signer identified below certifies the following: (check all items and applicable subitems)

- ☒ He or she has read the filing, including any information contained in any attached documents, such as cogeneration mass and heat balance diagrams, and any information contained in the Miscellaneous section starting on page 19, and knows its contents.
- ☒ He or she has provided all of the required information for certification, and the provided information is true as stated, to the best of his or her knowledge and belief.
- ☒ He or she possess full power and authority to sign the filing; as required by Rule 2005(a)(3) of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2005(a)(3)), he or she is one of the following: (check one)
- ☐ The person on whose behalf the filing is made
  - ☒ An officer of the corporation, trust, association, or other organized group on behalf of which the filing is made
  - ☐ An officer, agent, or employee of the governmental authority, agency, or instrumentality on behalf of which the filing is made
  - ☐ A representative qualified to practice before the Commission under Rule 2101 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2101) and who possesses authority to sign
- ☒ He or she has reviewed all automatic calculations and agrees with their results, unless otherwise noted in the Miscellaneous section starting on page 19.
- ☒ He or she has provided a copy of this Form 556 and all attachments to the utilities with which the facility will interconnect and transact (see lines 4a through 4d), as well as to the regulatory authorities of the states in which the facility and those utilities reside. See the Required Notice to Public Utilities and State Regulatory Authorities section on page 3 for more information.

Provide your signature, address and signature date below. Rule 2005(c) of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2005(c)) provides that persons filing their documents electronically may use typed characters representing his or her name to sign the filed documents. A person filing this document electronically should sign (by typing his or her name) in the space provided below.

Your Signature

Your address

Date

Eric Blank

Three Radnor Corporate Center,  
Suite 300 Radnor, PA 19087

9/25/2013

Audit Notes

Commission Staff Use Only:



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## Miscellaneous

Use this space to provide any information for which there was not sufficient space in the previous sections of the form to provide. For each such item of information *clearly identify the line number that the information belongs to*. You may also use this space to provide any additional information you believe is relevant to the certification of your facility.

Your response below is not limited to one page. Additional page(s) will automatically be inserted into this form if the length of your response exceeds the space on this page. Use as many pages as you require.

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**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

DOCKET NO. SP-2993, SUB 0

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

<p>In the Matter of Application by Aulander Solar LLC, for a Certificate of Public Convenience and Necessity to Construct a 4.99-MW Solar Facility in Hertford County, North Carolina, and Registration Statement</p>	<p>) ) ) ) )</p>	<p>ORDER ISSUING CERTIFICATE AND ACCEPTING REGISTRATION OF NEW RENEWABLE ENERGY FACILITY</p>
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BY THE COMMISSION: On September 26, 2013, Aulander Solar LLC (Applicant), filed an application with the Commission seeking a certificate of public convenience and necessity pursuant to G.S. 62-110.1 for construction of a 4.99-MW<sub>AC</sub> solar photovoltaic electric generating facility to be located in Hertford County on NC Highway 11 South, near Aulander, North Carolina. The Applicant plans to sell the electricity generated by this facility to Dominion North Carolina Power (DNCP).

Contemporaneously with the application, the Applicant filed a registration statement for a new renewable energy facility. The registration statement included certified attestations that (1) the facility is in substantial compliance with all federal and state laws, regulations, and rules for the protection of the environment and conservation of natural resources; (2) the facility will be operated as a new renewable energy facility; (3) the Applicant will not remarket or otherwise resell any renewable energy certificates (RECs) sold to an electric power supplier to comply with G.S. 62-133.8; and (4) the Applicant will consent to the auditing of its books and records by the Public Staff insofar as those records relate to transactions with North Carolina electric power suppliers. The Applicant plans to participate in the PJM Generation Attribute Tracking System for the issuance of RECs.

On October 3, 2013, the Commission issued an Order Requiring Publication of Notice, which required the Applicant to (1) publish notice of the application as required by G.S. 62-82(a) and file an affidavit of publication with the Commission, (2) mail a copy of the application and notice, no later than the first date that such notice is published, to the electric utility to which the Applicant plans to sell and distribute the electricity, and (3) file a certificate of service of the mailing to the utility. The Order also specified that if a complaint was received within 10 days after the last date of the publication of the notice, the Commission would schedule a public hearing to determine whether a certificate of public convenience and necessity should be awarded. The Order further specified that if the Commission received no complaints within the time specified above and if the Commission did not order a hearing upon its own initiative, it would enter an order awarding the certificate.



On November 14, 2013, the State Clearinghouse filed comments. Because of the nature of the comments, the cover letter indicated that no further State Clearinghouse review action by the Commission was required for compliance with the North Carolina Environmental Policy Act.

On August 14, 2014, the Applicant filed a certificate of service stating that the public notice and a copy of the application were provided to DNCP.

On September 5, 2014, the Applicant filed an affidavit of publication from the Roanoke-Chowan News-Herald stating that the publication of notice was completed on August 28, 2014. No complaints have been received.

The Public Staff presented this matter to the Commission at its Regular Staff Conference on September 22, 2014. The Public Staff recommended that the Commission approve the application, issue the requested certificate, and accept the registration statement.

After careful consideration, the Commission finds good cause to approve the application and issue the attached certificate of public convenience and necessity for the proposed solar photovoltaic electric generating facility. The Commission further finds good cause, based upon the foregoing and the entire record in this proceeding, to accept registration of the facility as a new renewable energy facility. The Applicant shall annually file the information required by Commission Rule R8-66 on or before April 1 of each year. To the extent that the Applicant is not otherwise participating in a REC tracking system, the Applicant will be required to participate in the NC-RETS REC tracking system in order to facilitate the issuance of RECs.

IT IS, THEREFORE, ORDERED as follows:

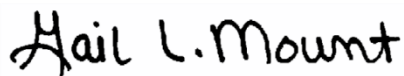
1. That the application filed by Aulander Solar LLC, for a certificate of public convenience and necessity shall be, and is hereby, approved.
2. That Appendix A shall constitute the certificate of public convenience and necessity issued to Aulander Solar LLC, for the 4.99-MWAC solar photovoltaic electric generating facility located in Hertford County on NC Highway 11 South, near Aulander, North Carolina.
3. That the registration statement filed by Aulander Solar LLC, for its solar photovoltaic facility located in Hertford County, North Carolina, as a new renewable energy facility shall be, and is hereby, accepted.

4. That Aulander Solar LLC, annually file the information required by Commission Rule R8-66 on or before April 1 of each year.

ISSUED BY ORDER OF THE COMMISSION.

This the 23<sup>rd</sup> day of September, 2014.

NORTH CAROLINA UTILITIES COMMISSION

A handwritten signature in black ink that reads "Gail L. Mount". The signature is written in a cursive, flowing style.

Gail L. Mount, Chief Clerk

**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

DOCKET NO. SP-2993, SUB 0

Aulander Solar LLC  
Three Radnor Corporate Center, Suite 300  
100 Matsonford Road  
Radnor, Pennsylvania 19087

is hereby issued this

**CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY  
PURSUANT TO G.S. 62-110.1**

for a 4.99-MW<sub>AC</sub> solar photovoltaic electric generating facility

located in

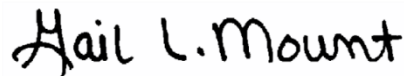
Hertford County on NC Highway 11 South, near Aulander, North Carolina,

subject to all orders, rules, regulations and conditions  
as are now or may hereafter be lawfully made  
by the North Carolina Utilities Commission.

ISSUED BY ORDER OF THE COMMISSION.

This the 23<sup>rd</sup> day of September, 2014.

NORTH CAROLINA UTILITIES COMMISSION



Gail L. Mount, Chief Clerk