STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. EMP-110, SUB 0

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of the Application of Sumac Solar LLC for a Certificate of Public Convenience and Necessity	))))))	**APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR A MERCHANT PLANT**

Sumac Solar LLC ("Sumac Solar" or the "Applicant"), by and through counsel, hereby applies to the North Carolina Utilities Commission (the "Commission") pursuant to G.S. § 62-110.1 and Commission Rule R8-63 for a Certificate of Public Convenience and Necessity authorizing construction of a solar photovoltaic ("PV") facility with a capacity of 120 megawatts ("MW") to be located in Bertie County (the "Facility"). In support of its application, Applicant provides the Commission the attached exhibits in compliance with Rule R8-63.

WHEREFORE, Applicant respectfully requests that the Commission issue a Certificate of Public Convenience and Necessity pursuant to G.S. § 62-110.1 and Commission Rule R8-63 for the Facility, as more specifically described herein.

Respectfully submitted this 16th day of April, 2020.

KILPATRICK TOWNSEND & STOCKTON LLP

By: /s/_____

Benjamin L. Snowden
N.C. Bar No. 51745
4208 Six Forks Road, Suite 1400
Raleigh, North Carolina 27609
Telephone: (919) 420-1700
Email: bsnowden@kilpatricktownsend.com

Attorney for Sumac Solar, LLC

Sumac Solar LLC
Application Exhibit 1 [R8-63(b)(1)]

(i) The full and correct name, business address, business telephone number, and electronic mailing address of the Applicant are:

Sumac Solar LLC
1930 Abbott Street, Suite 402
Charlotte, NC 28203
(980) 237-7926
kara.price@geenexsolar.com

(ii) Description of Applicant:

Sumac Solar LLC, formed August 12, 2016, is a North Carolina Limited Liability Company with its principal place of business located in Charlotte, North Carolina. A true and correct copy of Sumac Solar's Limited Liability Company Articles of Organization is attached as **Schedule 1**. The principal participants of this Sumac Solar entity are the two officers of Geenex Solar, LLC ("Geenex Solar"): Georg Veit, Chief Executive Officer and Juergen Fehr, Managing Director.

Geenex Solar is a Delaware limited liability company with its principal place of business in Charlotte, North Carolina. Geenex Solar was formed on July 18, 2013. Sumac Solar LLC and Geenex Solar LLC are wholly-owned subsidiaries of the same parent company, Geenex Holding LLC ("Geenex Holding"). An organizational chart depicting the relationship among Sumac Solar and Geenex Solar and Geenex Holding are attached as **Schedule 2**.

Geenex Solar, the direct owner of Sumac Solar, is a solar developer based in Charlotte NC. Geenex Solar has been focused on solar development in the southeastern U.S. since 2012 and currently has more than 25 solar PV facilities in various stages of development in North Carolina, Virginia, Kentucky, Ohio and Indiana. Geenex Solar has an aggregate pipeline of more than 4 GW of additional projects in the United States with the majority being PJM-interconnected

projects. Geenex-sourced projects are valued by the country's largest solar developers, investors and utilities for their well-sited locations, their adherence to best-development practices and their standards that meet and usually exceed county and state requirements.

Geenex Solar has proven experience to prepare a site for development as a solar facility. Its experts serve to lead important aspects of the development process including land acquisition, site analysis, environmental assessments, facility permitting, utility interconnection and power purchase agreements. Our partners and investors understand that our projects will be developed on-time, on-budget, and in accordance with all local, state and federal permitting requirements. As mentioned in this application, Geenex Solar has developed or is developing 28 solar facilities throughout the United States including projects in Kentucky, Virginia, Ohio, Indiana, and North Carolina. With the completion of these additional projects and the Project, Geenex Solar expects to develop approximately 4 gigawatts ("GW") of capacity across the United States. Geenex Solar's business model is ultimately to sell its solar projects to collaborating partners for construction and operation of the facilities.

Correspondence, documents, and filings regarding this application should be addressed as follows:

Kara Price
Geenex Solar, LLC
1930 Abbott Street, Suite 402
Charlotte, North Carolina 28203
(980) 237-7926
kara.price@geenexsolar.com

with copies to:

Benjamin L. Snowden
Kilpatrick Townsend & Stockton
4208 Six Forks Road, Suite 1400
Raleigh, North Carolina 27609
(919) 420-1700
bsnowden@kilpatricktownsend.com

(iii) A copy of Geenex Solar's most recent balance sheet and income statement is attached as **Confidential Schedule 3**.

(iv) Applicant's other affiliated generating facilities: Geenex Solar has developed nine solar generating facilities currently operational in the Southeastern Electric Reliability Council ("SERC") region, with an aggregate system capacity of 311 MW. These projects interconnect with Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina ("Dominion"), as described in the following chart.

Geenex Solar Projects Operating in the SERC Region

Project	**Location**	**System Size (MWac)**	**Interconnecting Utility**	**Offtaker**	**Commercial Operation Date**
Halifax	Halifax County, NC	20	Dominion	PJM	2014 (Sold)
Halifax New Airport	Halifax County, NC	10	Dominion	PJM	2016 (Sold)
Hemlock	Northampton County, NC	5	Dominion	PJM	2016 (Sold)
Sunflower	Halifax County, NC	16	Dominion	PJM	2017 (Sold)
Cork Oak	Halifax County, NC	20	Dominion	PJM	2017 (Sold)
Cottonwood	Northampton County, NC	3	Dominion	PJM	2018 (Sold)
Northern Cardinal	Halifax County, NC	2	Dominion	PJM	2018 (Sold)
Pecan	Northampton County, NC	75	Dominion	PJM	2018 (Sold)
Gutenberg	Northampton County, NC	80	Dominion	PJM	2019 (Sold)
Chestnut	Halifax County, NC	80	Dominion	PJM	2020 (Sold)
TOTAL		311			

In addition to the completed projects, Geenex Solar either has or had an ownership interest in and is involved in developing the following 18 solar generating facilities with an aggregate

capacity of 2,903 MW in the SERC region, and each of the development projects is expected to interconnect to Dominion.

Geenex Solar Projects Under Development in the SERC Region

Project	Location	System Size (MWac)	Development Status	COD (estimated)
Fern	Edgecombe County, NC	100	Construction	Q2 2020 (Sold)
Bluebird	Harrison County, KY	80	Local use permit application process ongoing	Q4 2022 (Sold)
American Beech	Halifax County, NC	110	CPCN process ongoing	Q4 2022 (Sold)
Grasshopper	Mecklenburg County, VA	80	Construction	Q4 2020 (Sold)
Water Strider Solar	Halifax County, VA	80	Construction	Q4 2020 (Sold)
Dragonfly Solar	Campbell County, VA	80	Construction	Q4 2020 (Sold)
Sweetleaf Solar	Halifax County, NC	94	Local Permitting Secured; CPCN to be filed soon	TBD
Macadamia Solar	Washington County, NC	484	Local Permitting Secured; CPCN to be filed soon	TBD
Firefly Solar	Pittsylvania County, VA	150	Development	TBD
Monarch Butterfly Solar	Mecklenburg County, VA	80	Development	TBD
Hummingbird	Fleming County, KY	200	Development	TBD (Sold)
Northern Bobwhite	Marion County, KY	96	Development	TBD
Woodpecker	Barren County, KY	325	Development	TBD
Gray Kingbird	Clark County, KY	350	Development	TBD
Cassius Blue	Sussex County, VA	394	Development	TBD
Winter Wren	Madison County, KY	90	Development	TBD
Purple Martin	Henry County, KY	70	Development	TBD

Little Gull	Boyle County, KY	40	Development	TBD
TOTAL		2,903		

Sumac Solar LLC
Application Exhibit 2 [R8-63(b)(2)]

(i) Nature of proposed generating facility: Sumac Solar is proposing to construct a 120 MW solar PV facility that will interconnect to Dominion Energy North Carolina's transmission system. The nameplate generating capacity of the facility will be 120 MW, with anticipated gross capacity of approximately 124.09 MW and anticipated generation of 270 GWh per year. Because solar power is subject to intermittent solar irradiance, Sumac Solar's maximum dependable capacity is projected to be 0 MW during some hours of the day.

Project construction is expected to begin on or about the second quarter of 2021, with an estimated date of commercial operation in fourth quarter of 2022. An itemized estimate of the construction costs is included as **Confidential Schedule 5**.[1] The expected service life of the facility is 20 years, with an additional 15-year service life, assuming equipment updates are made, for a total of 35 years.

(ii) Site plan: A color site plan map ("Site Plan") showing the proposed site boundary and layout with all major equipment, planned and existing roads, and planned and existing electric facilities is attached as **Schedule 6**.

(iii) Locational information: The Sumac Solar Project is made up of portions of land owned by seven (7) different landowners who in total own 3,420.32 acres of privately-owned land outside of Town of Windsor in Bertie County, North Carolina. The Project is located generally on and around Woodard Road near Morning Road on its western side and Middle Tract Road to the east outside of Windsor. It will include approximately 1,269 fenced acres of this privately-owned land plus land outside the fence that will be used for screening and other project needs. The GPS

[1] Schedule 5 has been designated as confidential because the construction estimate contains confidential information within the scope of G.S. § 132.1.2.

coordinates of the approximate center of the facility are latitude 35.913104; longitude -76.862995.

The main project Substation location will be 1022 Woodard Road, Town of Windsor, NC 27983. There will be 16 access points located off the main roads for the Facility.

(iv) The Facility is not a natural gas-fired facility.

(v) Required approvals: The following is a list of all necessary federal, state, and local approvals related to the Facility and the site and the status of such approval or a copy thereof, if obtained.

Federal:

1. Sumac Solar has submitted a wetlands delineation study to the U.S. Army Corps of Engineers ("Corps") to determine whether any of the streams and wetlands on the site are jurisdictional waters and/or Waters of the United States, requiring a permit for construction under Section 404 of the federal Clean Water Act. Sumac Solar has submitted a wetlands study to the Corps, but no jurisdictional determination has been made at this time.
2. Prior to commencing operation, Sumac Solar may apply for Market-Based Rate Authorization from the Federal Energy Regulatory Commission ("FERC"), pursuant to Sections 205 and 206 of the Federal Power Act.
3. Sumac Solar may seek to self-certify with FERC as an Exempt Wholesale Generator pursuant to the Public Utility Holding Company Act of 2005.

State:

1. Sumac Solar will likely require the approval of an erosion and sedimentation control plan for its construction activities from the North Carolina Department of Environmental Quality.

2. Sumac Solar will require a driveway permits from the North Carolina Department of Transportation.

Local:

1. Sumac Solar will submit an application for a stormwater permit to Bertie County, and will need to confirm that the Facility has satisfied all of the requirements for a stormwater permit application.
2. Sumac Solar will require a Building Permit from Bertie County.
3. Sumac Solar will require an Electrical Permit from Bertie County.

Other:

1. Sumac Solar will register as a Generator-Owner with the North American Electric Reliability Council ("NERC").

Although Bertie County, where the project will be located, does not have a solar zoning ordinance, the county does have other solar facilities in operation. Bertie County Commissioners and the County Administration have expressed their desire to continue to allow for solar facilities in the future without the application of any particular zoning requirements through rulemaking.

Despite the lack of particular zoning requirements, the Project site is buffered from view from most roadways by natural vegetative buffering and continuing farm operations, and significant setbacks and buffering consideration has been given to neighboring landowners. A decommissioning plan is part of each Landowner's site control agreement, and is attached as **Schedule 7**. The decommissioning plan provides that at the end of the Facility's useful life, the Site will be stabilized and restored in such a manner to ensure it is clean, safe, and environmentally

stable. Environmentally conscious practices are developing so that solar PV panels can be collected and recycled at the end of their useful life rather than deposited in a landfill.[2]

(vi) Description of transmission facilities: The Sumac Solar Project will interconnect with the transmission grid owned by Dominion Energy North Carolina. AD1-022_023 will interconnect with the PJM transmission system via a new three breaker ring bus switching station that connects on the Cashie-Trowbridge 230kV line after a new step-up transformer. A color map showing the location of the interconnection points and transmission facilities is included in the Site Plan attached as **Schedule 6.** The transmission facilities are further described below.

The Facility will install approximately 120 MW of mono- or poly-crystalline photovoltaic solar modules on single-axis trackers. These trackers are installed on a north-south axis tilting in an east-west direction to enable the modules to follow the sun throughout the day. Trackers consist of galvanized steel and are anchored on H-shaped steel posts that are driven about 6 feet into the ground. The trackers do not have a concrete foundation. The total number of modules will be roughly 395,720 for these 3.2 MW inverters.

Forty (40) inverters will transform DC power generated by the solar modules into 120 MW of AC capacity. Forty transformers will step the voltage of generated power up from 550 – 600V at the inverters to 34.5kV. Power from these 40 step-up transformers will be collected at the main power transformer, which will further increase voltage to 230kV, so as to align with the voltage at the switching station which will be built for the project. The switching station will connect to the existing 230kV transmission lines crossing the project site. Note that this electrical configuration

[2] NC Clean Energy Technology Center, "Health and Safety Impacts of Solar Photovoltaics" (May 2017), available at https://nccleantech.ncsu.edu/wp-content/uploads/2018/10/Health-and-Safety-Impacts-of-Solar-Photovoltaics-2017_white-paper.pdf.

may change prior to construction due to factors such as changes in component characteristics and availability, as well as site engineering issues.

Because the land for the Facility consists of adjacent and non-adjacent parcels, individual blocks of trackers with solar modules will be connected through medium-voltage cable runs between the parcels. These connections will be using either overhead poles or buried cable, installed in culverts or via directional boring. Where projects parcels are not immediately adjacent, easements with neighboring landowners have been secured to allow for installation of power lines.

Sumac Solar, LLC
Exhibit 3 [R8-63(b)(3)]
Description of the need for the facility in the state and/or region

Sumac Solar and its collaborators on this Project, Geenex Solar, expect North Carolina and its surrounding region to benefit from the Project by satisfying a growing demand for renewable power in the region, and by providing economic development and other benefits in Bertie County.

The Sumac Solar Project will interconnect with the Dominion Energy transmission grid, affording it access to the PJM Interconnection ("PJM"), a Regional Transmission Organization ("RTO") in which Dominion participates. There are several opportunities to sell the output (i.e., offtake) and services from the project, including 1) the PJM Interconnection wholesale market, 2) ancillary services sales under the PJM tariffs; and 3) Corporate Agreements. These are discussed in turn below.

In regard to 1) above, PJM Interconnection wholesale markets provide opportunities to sell output through the energy and capacity market. Through the energy markets, low-cost solar resources compete to meet the demand throughout the PJM footprint. PJM capacity market provides opportunities to sell capacity.

In regard to 2) above, FERC Rate Schedule No. 1 sets forth the cost-based revenue requirements for the provision of Reactive Supply and Voltage Control from Generation Source Service under Schedule 2 of PJM's Open Access Transmission Tariff. Multiple solar projects have applied and are now eligible to receive revenue under this provision. Other solar projects aggregating to more than 300 MW of capacity that have already qualified for Tariff filings. Geenex expects the Project also to qualify for this tariff and to generate revenue from the sale of reactive power and voltage control services.

For Corporate Agreements, according to Renewable Energy World, Corporate buyers led the efforts of over 7 GW of renewable energy purchase in 2019 and the trend continues to escalate.[3] Given the robust demand for corporate purchases, solar projects in PJM's southern portion with higher solar resources are uniquely positioned to attract buyers and many similar projects have secured agreements. Geenex expects this trend to continue.

Geenex Solar has substantial experience with offtake in the PJM market and the expectations for power purchase from the PJM market in the southeast United States are strong. Geenex Solar, with its partners/investors, has previously secured and is actively negotiating for over 1800 MW of offtake within the PJM market, and is using this experience to secure offtake for the Sumac Solar Project. Geenex Solar is actively fielding inquiries from investors interested in Sumac Solar's purchase and/or offtake.

The Applicant anticipates contracting the sale of energy, capacity, and Renewable Energy Credits ("RECs") through PJM. PJM is an RTO that coordinates the movement of electricity through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia. Load growth for the PJM RTO as a whole, and more specifically for the Dominion Virginia power zone, which serves parts of Eastern North Carolina and Virginia, is expected to increase over the next ten to fifteen years as described below for both winter and summer months.

Summer peak load in PJM is expected to grow by 0.3% per year over the next ten years, and by 0.3% over the next 15 years.[4] For the Dominion Virginia Power zone, summer peak load growth is expected to grow by 0.9% per year over the next ten years, and 0.8% per year over the

[3] https://www.renewableenergyworld.com/2019/10/29/reba-corporate-renewable-energy-buyers-set-new-record-in-2019/

[4] 2019 PJM Load Forecast Report (Mar. 2019 – RPM Update), available at https://www.pjm.com/-/media/library/reports-notices/load-forecast/2019-rpm-load-forecast.ashx?la=en. , at 43-44.

next fifteen years.[5] The anticipated ten-year summer peak load growth in the Dominion Virginia Power zone represents 1.4% growth over the January 2018 load forecast report.[6]

Winter peak load growth in PJM is projected to average 0.4% per year over the next 10-year period, and 0.4% over the next 15-years.[7] Winter peak load growth for the Dominion Virginia Power zone is expected to grow by 0.9% per year over the ten years, and 0.9% per year over the next nine to fifteen years.[8] The anticipated ten-year winter peak load growth in the Dominion Virginia Power zone represents 1.4% growth over the January 2018 load forecast report.[9]

The PJM service area of North Carolina has slightly higher projected load growth than Virginia. North Carolina is expected to average between 0.9 and 1.1% per year over the next 10 years versus the PJM RTO load growth projections to average between 0.3% and 0.4% over the next ten years.[10]

As demonstrated by the chart produced by the Business Renewables Center and attached as **Schedule 4**, projections for corporate purchase of energy and renewable energy credits ("RECs") from solar facilities in the southeast market of PJM is expected to increase over the next few years. The Applicant believes that healthy market conditions will create sustainable offtake for its production.

Demand for renewable power is expected to increase in the Southeast over the expected lifetime of the Project. Dominion Energy has committed to increasing its use of renewable power to generate 5,000 MW of electricity by 2028. As noted on **Schedule 4**, the Business Renewables

[5] *Id.*
[6] *Id.* at 40.
[7] *Id.* at 47-48.
[8] *Id.*
[9] *Id.*
[10] PJM, 2018 North Carolina State Infrastructure Report (January 1, 2018 – December 31, 2018), May 2019, 21, available at https://www.pjm.com/-/media/library/reports-notices/state-specific-reports/2018/2018-north-carolina-state-data.ashx?la=en.

Center, a non-profit initiative that is the leading industry convener between corporate renewable energy buyers and renewable energy developers, predicts that the demand for renewable energy in the PJM market, described below, will increase over the next year as shared in a chart with its members in April 2018. Projections from PJM indicate that the demand for power, particularly in the Southeast, will increase as described below.

Dominion's commitment is consistent with state-level policy set by the Virginia General Assembly, which affirmed the growing importance of renewable energy generation in passing the Grid Transformation and Security Act of 2018 (the "GTSA"), signed into law by Governor Ralph Northam on March 9, 2018. The GTSA finds that up to an additional 5,000 MW of utility-scale electric generating facilities powered by solar and wind energy is in the public interest, along with up to an additional 500 MW of non-utility scale solar or wind generating facilities, including rooftop solar installations. In addition, on March 6, 2020 the Virginia General Assembly passed Virginia SB 851, which dramatically accelerates and increases the need for solar power facilities in that state.[11] The law calls for Dominion Energy Virginia and the smaller Appalachian Power Co. to supply 30 percent of their power from renewables by 2030, and to close all carbon-emitting power plants by 2045 for Dominion and by 2050 for Appalachian. These laws will ensure a robust market for renewable resources in PJM territory over the lifetime of the Project.

In addition to satisfying in part the growing demand for renewable energy, Geenex Solar also anticipates bringing economic benefits to Bertie County. While the operation of the Facility

[11] See Jeff St. John, Virginia Mandates 100% Clean Power by 2045, The Clean Economy Act will drive utility Dominion to procure gigawatts of solar, offshore wind and energy storage," Mar. 6, 2020, Greentech Media, available at https://www.greentechmedia.com/articles/read/virginia-100-clean-energy-by-2050-mandate-law; Gregory S. Schneider, "Virginia passes sweeping law to mandate clean energy amid questions about cost," Mar. 6, 2020, available at https://www.washingtonpost.com/local/virginia-politics/virginia-dominion-energy-bill/2020/03/06/4524cd20-5fc1-11ea-b29b-9db42f7803a7_story.html.

will allow many of the landowners to live and farm nearby, the landowners will gain income that will allow them to continue agricultural activities on their remaining properties.

Sumac Solar expects to generate a significant amount of property taxes for Bertie County. First, by leasing land, with purchase options to acquire the site on which the Facility is located, Sumac Solar estimates generating approximately $3,276,000 of real property tax revenue for Bertie County over the thirty-five (35) year project life.[12] "Rollback taxes," or the amount owed for three year agriculture deferral, will amount to approximately $26,752 and business property taxes are estimated to reach $4,623,091 over the life of the project. Totaling these property taxes, the estimated property tax revenue resulting from the project is $8,000,000.

The Applicant also anticipates that the proposed Project will require the hiring of 150 to 200 local positions during construction, consistent with similar projects of this type and size. Construction materials will need to be purchased, delivered, and installed during construction as well. In addition, there will be a demand for locally-sourced contractors during facility operation (landscaping, grounds keepers, maintenance etc.). Contractors and employees traveling from outside Bertie County to assist with the Project will require the services of local accommodation providers and local restaurants/grocery stores. Solar also will bring employment opportunity and development for the local Bertie County workforce. For a project of this size, the cumulative spending in the area from the development and construction process is anticipated to be in the millions of dollars.

Solar also will bring employment opportunity and development for the local Bertie County workforce.

[12] Assumed value after solar of $8,000 per acre.

With these efforts, Geenex Solar anticipates bringing positive community benefits to Bertie County while also generating renewable power to meet the region's increasing demand.

Sumac Solar LLC
Application for a Certificate of Public Convenience and Necessity
for a Merchant Plant
Docket No. EMP-110, Sub 0

Schedules

Schedule 1 – Limited Liability Articles of Organization

Schedule 2 – Organizational Chart

Schedule 3 – Balance Sheet and Income Statement for Geenex Solar ***CONFIDENTIAL***

Schedule 4 – Chart of Renewables Offtake Projections

Schedule 5 – Estimated Construction Costs ***CONFIDENTIAL***

Schedule 6 – Site Plan

Schedule 7 – Decommissioning Plan

VERIFICATION

STATE OF North Carolina COUNTY OF Mecklenburg

Kara W. Price — SVP of Permitting & Development

Signature of Owner's Representative or Agent — Title of Representative or Agent

Kara W. Price

Typed or Printed Name of Representative or Agent

The above named person personally appeared before me this day and, being first duly sworn, says that the facts stated in the foregoing application and any exhibits, documents, and statements thereto attached are true as he or she believes.

WITNESS my hand and notarial seal, this 16 day of April, 2020.

My Commission Expires: June 6, 2022

Signature of Notary Public

BRETT MOULTON
My Commission Expires
NOTARY PUBLIC
June 6, 2022
MECKLENBURG COUNTY, NC

Brett Moulton

Name of Notary Public – Typed or Printed

This original verification must be affixed to the original application, and a copy of this verification must be affixed to each of the copies that are also submitted to the Commission.

CERTIFICATE OF SERVICE

This is to certify that the undersigned has this day served the foregoing **APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR A MERCHANT PLANT** upon the following by electronic mail as follows:

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

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

Layla Cummings
NC Public Staff - Legal Division
Layla.cummings@psncuc.nc.gov

This the 16th day of April, 2020.

/s/_____

Benjamin L. Snowden