

APPLICATION
FOR
SPECIAL EXCEPTION
FOR THE
WALLER SOLAR PROJECT

LANCASTER COUNTY, VIRGINIA

July 1, 2021

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Table of Contents

- I. Summary 1
- II. Project Description 2
 - A. Project Components 2
 - B. Project Location and Setbacks 3
 - C. Low Visibility 5
 - D. Development Plans..... 10
- III. Decommissioning 12
- IV. Project Benefits 13
 - A. Minimal Use of County Services 13
 - B. New County Revenue 14
 - C. Lancaster’s Contribution to Clean Energy..... 15
- V. Other Regulations and Permits..... 16
 - A. Site Plan 16
 - B. Erosion Control and Stormwater Management 16
 - C. State Solar Approval 17
- VI. Satisfaction of Special Exception Criteria 17
 - A. Conformance with Land Use Plan 18
 - B. Public Health, Safety, Morals and General Welfare 18
 - C. Utilities and Off-Street Parking..... 19
 - D. Surrounding Property, Persons and Neighborhood Values 19
 - E. Applicant’s Proposed Conditions 19

Exhibits

- Exhibit 1 Description of Project Components
- Exhibit 2 Typical Solar Fields from Different Heights
- Exhibit 3 Project Area Map
- Exhibit 4 List of Participating Properties
- Exhibit 5 Participating Properties Map
- Exhibit 6 Zoning Overlay Districts Map
- Exhibit 7a General Development Plan: Zoning & Setback Map
- Exhibit 7b General Development Plan: Environmental Features Map
- Exhibit 7c General Development Plan: Conceptual Layout
- Exhibit 7d General Development Plan: Landscaping Map
- Exhibit 8 Preliminary Decommissioning Plan
- Exhibit 9 Economic & Fiscal Impact Report - Executive Summary
- Exhibit 10 Preliminary Emergency Response Plan
- Exhibit 11 Evidence of Applicant's Right to Use the Property
- Exhibit 12 Applicant's Proposed Conditions

I. Summary

This Application for a Special Exception for the Waller Solar Project (“Application”) is submitted to Lancaster County, Virginia (“County”) by Waller Solar I, LLC (“Applicant”) to construct, operate and decommission the Waller Solar Project (“Project”). The Project will fully comply with the County’s recently-adopted ordinance for utility-scale solar facilities, new Article 28 of the Land Development Code, which becomes effective July 1, 2021 (“Solar Ordinance”). The Application provides the information needed for the County to issue a Special Exception (“SE”) for the Project.

The Project will be a solar electric generation facility with the capacity to deliver up to 131 megawatts (“MW”) of electricity to the existing transmission system. It will consist of a series of separately-fenced fields of ground-mounted solar panels connected by buried cables and access roads to a new point of interconnection on the County’s primary transmission line. The Project will generate electricity with virtually no light, noise, odor, dust or traffic, and it will not produce any air pollution, water pollution or waste or use any pipelines or fuel.

Most of the Project will consist of open space between and around the solar panels. Within the Project’s fence lines, the ground surface will be planted with native turf grass that will preserve the soil, minimize erosion, and improve water quality. The Project will require relatively few changes to the land, with topsoil remaining at the Project and few underground foundations. At the end of the useful life of the solar panels, the equipment will be removed and the land can again be used for forestry or farming (or other uses).

As a highly passive use, the Project compliments the rural character of the area. The solar panels will have a low and consistent visual profile and the Project’s perimeter will include substantial setbacks from parcel lines and public roads, which will contain landscaping consisting of retained existing timber, planted vegetation, or a naturally-grown buffer. The Project will be monitored remotely with workers visiting different areas of the Project only as needed to perform inspections, maintenance and repairs, grounds maintenance, and to occasionally clean the solar panels of accumulated dust and dirt.

The Project will provide at least \$15 million in new revenue to the County over its 40-year life. It also will boost economic activity in the form of additional local spending during construction. Most of the land for the Project will be leased, and the participating

families will earn steady revenue for decades, much of which may be spent and reinvested locally.

II. Project Description

A. Project Components

The Project will consist of long rows (also called “arrays”) of solar panels mounted on metal posts in open fields that are connected with electric cables. The power from each solar panel will be combined, converted from direct current (“DC”) to alternating current (“AC”), and its voltage increased to match that of the existing “Garner DP-Lancaster 115 kV” transmission line (“Transmission Line”), to which the Project will connect. The Project will include the following primary components:

Component	Description
Solar Panels	Devices that generate low-voltage electricity using the photovoltaic effect
Racking	Metal frames to which solar panels and electrical cables are attached
Piles	Metal posts driven into the ground and to which racking is attached
Inverters	Metal cabinets with equipment that converts DC to AC, increases voltage and performs related functions
Collection Lines	Electrical and communication cables either mounted on racking or buried
Substation	A facility that gathers electricity from the inverters, increases the voltage, and delivers it to the transmission system. The Project will have two Substations, a project-owned “Collector Substation” and a utility-owned “Switchyard”
SCADA	“Supervisory Control and Data Acquisition” system that allows for remote monitoring and control of trackers, inverters, and other components
Roads	Unpaved roads, grassy driving aisles, and entrances to the Project from public roads
Pyranometers	Instruments that measure solar energy and weather conditions
Fencing	Metal fencing that meets applicable electric codes and insurance standards
Stormwater controls	Ponds, level spreaders and other structures that manage stormwater run-off

Each of these primary components is described in greater detail and with illustrative photographs in **Exhibit 1**.

Roughly 60-70% of the ground surface within each solar field will be open space. Space is needed between and around the arrays for vehicles and workers to perform inspections, maintenance and repairs and to occasionally clean the solar panels of accumulated dust and dirt.¹ Relatively wide corridors between arrays are needed to prevent them from shading each other, and the open space between the arrays will be wider than the arrays themselves. The series of images included as **Exhibit 2** shows an operating solar project in Virginia and illustrates how most of the land will remain open.

In accordance with the Solar Ordinance (Section 28-5-6), the surface in each solar field—including almost all of the area below the solar panels themselves—will be planted with a robust, low-growing seed mix, primarily native grasses and other low-maintenance varieties. This ground cover will be maintained with regular mowing and supplemented with approved herbicides. The vegetative cover will absorb precipitation, provide wildlife habitat, and improve water quality by filtering stormwater and reducing the use of farm-related pesticides and herbicides. Because it will remain in place at all times, the ground cover also will reduce erosion, run-off and nutrient loss.

B. Project Location and Setbacks

The Project Area (not including buried collection lines and connecting roads) is comprised of approximately 1,400 acres of private land, consisting of medium- to large-sized timber tracts and farm fields in the general vicinity of Alfonso and Lively, surrounded by areas of relatively low population density. The current land uses in the Project Area are predominately timber and agriculture. Solar panels generally must avoid steep slopes and water features such as streams, wetlands and floodplains, and the Project Area readily accommodates the Project because it contains sufficient dry and relatively level upland areas.

A key reason for the Project's location and size is its proximity to the Transmission Line. In the vicinity of Project, the Transmission Line travels parallel to and just east of Route 3. Studies conducted by the manager of the multi-state electrical grid show that the

¹ This "soiling" of solar panels reduces the amount of energy they produce. Typical rainfall in the County should be sufficient to clean the solar panels, but occasional cleaning with soap and water may occur.

Project can deliver its power at this location in a cost-effective manner.² A map of the County depicting the location of the Project Area and the Transmission Line is provided in **Exhibit 3**.

The Project Area consists of 19 parcels owned by 8 different families. A list of participating properties is provided in **Exhibit 4**, and a map of the participating properties is provided in **Exhibit 5**. As required under Section 28-5-2(H) of the Solar Ordinance, evidence of Applicant's right to use the subject property is provided in **Exhibit 11**. Nearly all of the parcels are located within the A-1 or A-2, Agricultural Districts, in which solar projects are permitted with a SE.³ As shown in the map in **Exhibit 6**, the Project is in the vicinity of, but does not overlap with, the Waterfront Overlay District or the Highway Corridor Overlay District. Except for limited access road crossings, all above-ground infrastructure for the Project will avoid water-related features in the area, including wetlands, floodplains and the Resource Protection Area ("RPA"). A map showing various environmental features in the vicinity of the Project is included in the General Development Plan in **Exhibit 7**.

The Project will adhere to the setbacks specified in the Solar Ordinance (Section 28-5-2(C)), which are the following as measured from any above-ground infrastructure (i.e., the fence for the Project):

1. **Property Line Setbacks.** 50 feet from property lines, except 100 feet for residential districts.
2. **Road Setbacks.** 75 feet from public road rights-of-way, except 250 feet from Route 200, 354 or 3.

In accordance with the above requirements, the Project will include 50-foot setbacks between the fence and parcel lines of adjacent parcels, except in the few locations where Project parcels abut residential districts and the setback therefore will be

² See the study results available from PJM Interconnection for new generation request nos. AD2-074 and AF1-042 at <https://pjm.com/planning/services-requests/interconnection-queues.aspx>.

³ As of the date this Application was submitted, two parcels (6-47 and 13-160) are zoned R-1, Residential General. The property owner, with assistance from Applicant, plans to submit an application to the Board of Supervisors to rezone these two parcels to one of the Agricultural Districts. Applicant and owner anticipate that the rezoning will be approved prior to the Board's consideration of this Application. In the event the re-zoning applications are not approved, these two parcels will be removed from the Project Area and withdrawn from this Application.

100 feet. The Project also will incorporate a 75-foot setback between the fence and the edge of the right-of-way of public roads, except for a small portion along Route 3, where the setback will be 250 feet.

C. Low Visibility

Owing to the nature and location of the Project, solar development “best practices,” and the County’s comprehensive Solar Ordinance, the Project will have very low to virtually no visual impact on surrounding residents and landowners. It will have even less visibility to the general public, including the travelling public.

First, the Project is located in an area of the County with relatively low population density. Within this larger area, the individual solar fields themselves are mostly removed from roads and homes. As a general rule, the Project components are “out of sight, out of mind.”

Second, as noted above, the Project will incorporate substantial setbacks between all above-ground components and neighboring land, residential districts, and roads. These include a very substantial setback (250 feet) from Route 3. These robust setbacks will reduce the visual impact of Project infrastructure by moving it further away from neighbors, area residents, and visitors.

Third, per the Solar Ordinance, the Project will incorporate robust, 40-foot-wide vegetative buffering along its entire perimeter. Specifically, the Project will comply with the highly-detailed vegetative buffer requirements of the Solar Ordinance (Section 28-45-2(D)). It provides for these three types of buffer:

- 1. Planted Buffer.** 4 parallel rows (8 to 10 feet apart) consisting of medium-to-large shrubs (planted at least 12 inches high and 3 to 4 feet apart) and evergreen trees (planted at least 4 feet high and 10 feet apart).
- 2. Existing Vegetation.** Existing vegetation or forest that is functionally equivalent to a Planted Buffer.
- 3. Natural Buffer.** At locations that are at least 1,000 feet from homes, the cessation of mowing and natural recruitment of shrubs and trees that reach at least 10 feet high in 24 months/2 seasons.

Like much of the Northern Neck, the Project Area is heavily forested. In accordance with the Solar Ordinance (Section 28-5-3), the maximum height of all of the equipment within

a given solar field (solar panels, inverters and pyranometers) will be 15 feet. The relatively low profile of the equipment combined with significant existing vegetation means that most of the Project will be naturally obscured from view even without a Planted Buffer.

Finally, the Project will include, as required by the Solar Ordinance, a number of other features to further reduce its visibility. These include minimization of any glare (Section 28-5-2(E)), limited signage (Section 28-5-4), and limited and controlled lighting (Section 28-5-5).

Taken together, these factors mean that the Project will only modestly affect the scenic quality of the rural landscape, mainly by adding vegetation where there traditionally has been none. This will be especially true for neighboring homes and busy roads. There are relatively few homes along substantial portions of the Project's perimeter. Those along the perimeter tend to cluster along Route 600 (Lara Road), Route 617 (Alfonso Road), Route 622 (Morattico Road), and Route 3 (Mary Ball Road) with a few along Route 201 (Courthouse Road). Existing timber, vegetation on neighboring parcels, and other existing homes and structures will largely obscure views of the solar panels from most occupied locations.

As discussed above and as depicted in the General Development Plan, the Applicant anticipates that most of the Project will be naturally obscured from view by existing vegetation and tree stands. Below are two examples of locations along public roads where the Applicant anticipates that the Project will be largely or entirely obscured from view by existing vegetation.



Figure 1: View of Project with Existing Vegetation on Alfonso Road. Solar panels will be at least 100 feet away from the road at this location.

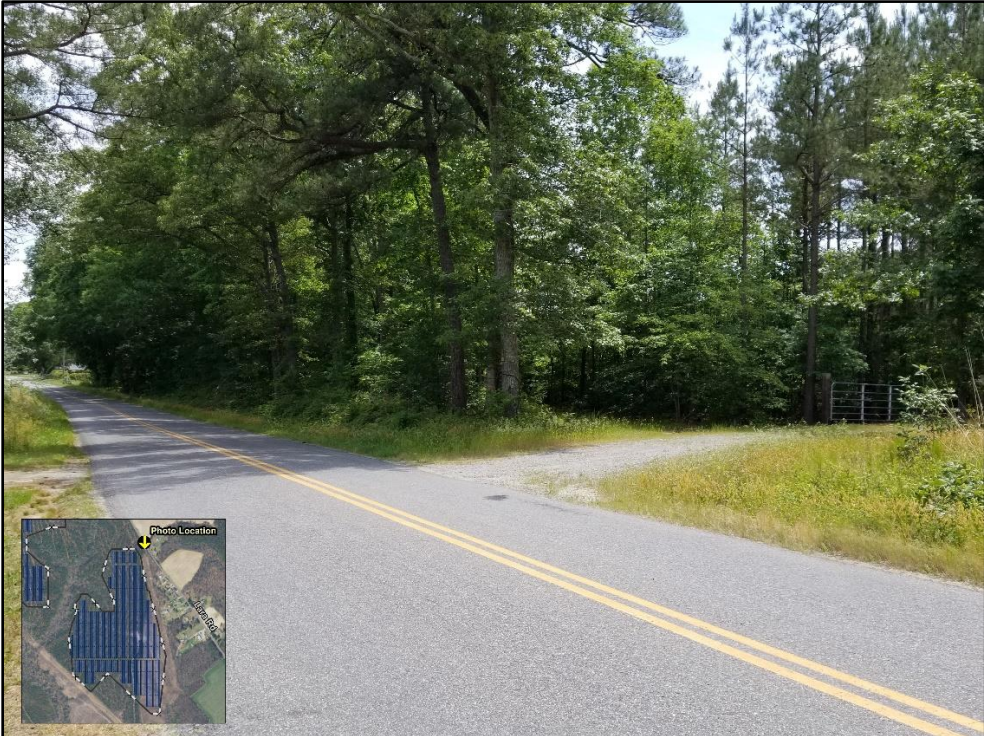


Figure 2: View of Project with Existing Vegetation on Lara Road. Solar panels will be at least 120 ft away from the road at this location.

In areas where existing vegetation is insufficient to effectively screen the view of the Project from nearby roads or residences, the Applicant will install landscaping (the Planted Buffer) to screen the Project from view. Figures 3 through 6 below depict locations along the Project perimeter where the Applicant anticipates installing Planted Buffers. The images feature simulations of plantings at two points in time following completion of construction of the Project: 1-2 years after planting and 6-7 years after planting. As can be seen, view of the solar panels is partially obscured within 1-2 years after the buffer is installed and almost entirely obscured after 6-7 years. The Project will be obscured to an even greater degree when the buffer reaches full maturity.



Figure 3: View of the Project from Mary Ball Road with Planted Buffer within 1-2 years after completion of construction. Solar panels will be at least 320 ft away from the road at this location.



Figure 4: View of the Project from Mary Ball Road with Planted Buffer 6-7 years after planting.



Figure 5: View of the Project near a group of houses along Morattico Road with Planted Buffer within 1-2 years after completion of construction. Solar panels will be at least 300 ft away from the road at this location.



Figure 6: View of the Project near a group of houses along Morattico Road with Planted Buffer 6-7 years after planting.

D. Development Plans

Accompanying the Application are a series of maps (over-sized versions provided separately) designed to assist the County in the review of this Application (Exhibit 7, the “General Development Plan” or “GDP”). The Zoning and Setback Map (**Exhibit 7a**) illustrates the zoning classifications of participating and neighboring parcels as well as the setbacks listed in the Solar Ordinance and applicable to the Project. The Environmental Features Map (**Exhibit 7b**) shows the locations of wetlands, streams, floodplains, and the RPA relative to the Project Area.

The Conceptual Layout (**Exhibit 7c**) depicts the parcels on which the Project will be constructed, the areas within these parcels that will host the solar fields, probable locations of entrances from public roads, the approximate routes of the buried collection lines, and location of the Substations (the “Proposed Substation Area”). These features are shown against a background of the public roads, neighboring parcels, and homes in the vicinity of the Project. The GDP also includes indicative locations for solar panel arrays

and indicative fence lines inside which the panels, inverters, and other surface equipment will be located.⁴ Note that the Project Area (the area within the “Project Boundary”) shown on the GDP encompasses approximately 1,400 acres, whereas the indicative fence line (the area likely to be encompassed within the eventual Site Plan) encompasses considerably less: about 1,029 acres.

All of these features in the GDP plus considerable additional detail will be included in the preliminary and final site plans that will be submitted for review and approval prior to construction by the Zoning Administrator under Article 22 (“Site Plan”). The Site Plan will depict the various components of the Project within the solar fields, including the arrays, inverters, roads, and pyranometers. The precise number and location of these components will be based on final engineering and design using the model of each type of component selected. In contrast to the Site Plan, the GDP shows for purposes of the SE the “buildable area” that will contain all above-ground equipment and, therefore, shows the Project’s “maximum extent” relative to the public. The only features of the Project outside this buildable area will be the driveways from the public roads to the gates, access roads connecting panel array areas, buried collection lines, and vegetative buffering.

The 40-foot-wide perimeter landscaping buffer shown on the Landscaping Map (**Exhibit 7d**) is color-coded to distinguish between areas designed for a Planted Buffer, Existing Vegetation, or Natural Buffer. As noted above, under the Solar Ordinance an applicant for a solar facility may propose to establish a Natural Buffer where the nearest home is 1,000 feet or more away (more than the length of three football fields) from the facility. For the Project, in those locations along the fence of a solar field where the establishment of a Natural Buffer is indicated, the nearest home shown on the GDP is at least 1,000 feet away. The locations of the various buffers and the type of deployed in each area depicted in Exhibit 7d are based on existing site conditions and the final buffer type in each area will be determined based on site conditions at the time of Site Plan Approval.

⁴ The locations of panels and fences in the GDP are for illustrative purposes only. Panel arrays and other surface equipment may be located anywhere within the project boundary.

III. Decommissioning

At the end of the Project's useful life, with the exception of the Switchyard (i.e., the Substation to be constructed by the existing electric utility), the equipment will be removed and the land can be returned to farming and forestry (if desired by the land owner at that time). This is possible because the Project will have a minimal impact on the land. The piles are simple galvanized steel posts that typically are driven into the ground (typically to a depth of about 10 feet), which are easily removed. The inverters and pyranometers are installed on gravel pads, metal skids, or small concrete foundations. Although portions of the Substations will be installed on poured concrete, they will cover only a small area. Roads will be constructed of aggregate material or covered in grass, not paved.

As noted by N.C. State University, "[d]ecommissioning is basically the construction process in reverse: it involves removal of the solar panels, break-up of support pads, removal of access roads, replacement of any displaced spoil, and revegetation."⁵ N.C. State has recognized that farm fields hosting solar panels essentially preserve farmland:

Modern solar facilities may be considered a temporary, albeit long-term, use of the land, in the sense that the systems can be readily removed from the site at the end of their productive life. At this point, the site can be returned to agricultural use, albeit with a potential for some short-term reduction in productivity due to loss of topsoil, compaction, change in pH, and change in available nutrients. Leasing farmland for solar PV, particularly land that is not actively being farmed today, is a viable way to preserve land for potential future agricultural use.⁶

The Solar Ordinance (Sections 28-5-2(I) and 28-5-9) contains comprehensive provisions requiring and governing the decommissioning of the Project at the end of the useful life of the Project (expected to be 40 years). These provisions require the approval of a decommissioning plan prior to the start of construction. It must detail the method and manner of decommissioning, estimate the cost of decommissioning (net of re-sale and salvage values), and be updated every five years with adjustments for inflation. To ensure decommissioning is funded in the unlikely event that the owner/operator does not meet

⁵ N.C. Clean Energy Technology Center, N.C. State University "Balancing Agricultural Productivity with Ground-Based Solar Photovoltaic (PV) Development" (August 2017), p. 4.

⁶ Same as above.

its obligations, the plan must include financial surety that complies with State law, is in a form acceptable to the County, and is from an issuer with a sufficient credit rating.

A draft plan for decommissioning the Project consistent with the above requirements is included in **Exhibit 8** (“Preliminary Decommissioning Plan”). It outlines the responsible parties, methodologies, regulatory framework, and financial assurance for decommissioning the Project and restoring the area to substantially its pre-construction condition. The Preliminary Decommissioning Plan provides for the safe removal and sale, re-deployment, recycling, or proper disposal of all components of the Project, including components containing rare or valuable materials.⁷ Restoration will include decompaction of soil, and seeding with an appropriate, low-growing vegetative cover to stabilize the soil and increase its fertility. The final Decommissioning Plan with detailed procedures, timelines, and projected costs will be submitted, along with the building permit application under Article 22, for review and approval by the Zoning Administrator prior to construction.

IV. Project Benefits

A. Minimal Use of County Services

Many types of new development, such residential subdivisions or road-side strips of commercial establishments, bring economic and fiscal benefits but also can stress local services and resources, and therefore fiscal resources. A uniquely positive feature of the Project relative to most other kinds of development is that it will require no taxpayer-supported services and will have minimal-to-no impact on existing service levels. The Project will not use any public water, require any extension of sewer, or upon completion of construction activities, add to the daily traffic load. The only County-supplied services needed are coordination with fire and rescue personnel to ensure the proper response in

⁷ The Preliminary Decommissioning Plan prioritizes reuse and recycling over disposal. Reuse may be an option because solar panels typically are warranted to produce about 80% of their original power after 25 years. Recycling also is an option because most of the materials making up a solar project are recyclable; solar panels themselves are comprised mostly of commonly-recycled materials such as glass and aluminum. Although there has been little recycling to date in the U.S. due to the relative youth of the industry, the Solar Energy Industry Association launched a program in 2016 to develop a national recycling program with the ultimate goal of making the entire U.S. solar industry landfill-free. Even if the solar panels are not fully recyclable in 40 years, it is highly unlikely that they would present any disposal concerns because the vast majority of models now qualify as non-hazardous waste eligible for disposal in municipal landfills.

the unlikely event of an emergency.⁸ A sample Emergency Response Plan is provided in **Exhibit 9**.

B. New County Revenue

The Project will represent a total investment of approximately \$145-160 million and will make very significant revenue contributions to the County over its 40-year life: approximately **\$13.9 million**.⁹ Pursuant to the County’s “revenue share” ordinance, the county will assess annual payments of \$1,400 per MW (131 MW for the Project x \$1,400 = \$183,400 in the first year of operation). The fiscal benefits to the County will be 35 to 40 times more than the approximately \$400,000 in taxes that are expected to be paid for the unimproved properties over the same 40-year period.¹⁰

To determine the economic and fiscal benefits that the County and its taxpayers will receive from this investment, the Applicant commissioned a study from Virginia-based Mangum Economics.¹¹ A copy of the Executive Summary of Mangum’s report is attached as **Exhibit 10**. The Mangum study found that, in addition to the \$14 million in new County revenue, the Project will result in the creation of approximately 139 jobs from the one-time “pulse” of economic activity during construction of the Project and 4 permanent jobs during the operations phase of the Project.

The Project also offers a unique opportunity for participating families to diversify their land use and secure a robust and stable long-term source of revenue for a portion of their land. The long-term operating costs of solar facilities can be estimated with confidence because the amount of solar energy that can be produced by a particular area is a known amount (both now and in the future), and because there is no fuel price

⁸ The Project would be served by the Upper Lancaster Volunteer Fire Department and the Upper Lancaster Volunteer Rescue Squad.

⁹ This revenue estimate assumes the County elects to assess payments pursuant to the “Revenue Share for Solar Energy Projects and Energy Storage Systems,” approved by the Board of Supervisors on June 24, 2021, in lieu of the traditional “machinery and tools” (M&T) taxation.

¹⁰ These figures are conservative since they do not include additional, voluntary payments that Applicant could be in a position to make to the County under a “solar siting agreement” authorized under recent state legislation.

¹¹ Mangum has decades of experience assessing the economic consequences of proposed regulations and government policies, economic impact assessment, workforce issues and economic development. The firm’s principal serves on the Governor’s and General Assembly’s Joint Advisory Board of Economists and is past president of the Virginia Association of Economists.

volatility (the only “fuel” is the sun). This predictability enables participating land owners to be paid fixed amounts over decades. In contrast to farm and timber income, which can vary significantly based on weather, commodity prices and tariffs, this certainty of income allows participating families to manage their land and revenue-producing activities over a generation.

C. Lancaster’s Contribution to Clean Energy

In response to concerns about worsening air pollution and the climate, the Virginia General Assembly recently declared that “it shall be the policy of the Commonwealth to . . . [p]romote the use of . . . renewable energy sources . . . [and] . . . the generation of electricity through technologies that do not contribute to greenhouse gases and global warming.”¹² This policy reflects and advances a national trend toward clean energy, primarily wind and solar energy, as power plants using older technology retire.¹³ In Virginia, the clean energy trend consists primarily of new solar facilities. Although only a small fraction of Virginia’s energy currently comes from renewable sources, a number of solar energy facilities have been commissioned and many more are being developed.

The Project would represent a significant contribution by the County to this statewide goal. The Project will generate roughly the same the amount of power consumed by the County.¹⁴ It will have significant environmental benefits because “[e]ven when considering lifecycle greenhouse gas emissions—those that occur from

¹² Va. Code Ann. § 67-102.A.

¹³ The U.S. Environmental Protection Agency reports that electricity generation is currently the largest industrial source of air emissions in the country. Emissions of carbon dioxide, nitrogen oxides, and sulfur dioxide contribute to the formation of smog and haze, and are associated with a variety of health problems. Greenhouse gases, such as carbon dioxide, increase the risk of climate change. National Renewable Energy Lab, “Energy, Economic, and Environmental Benefits of the Solar America Initiative” NREL/SR-640-41998 (August 2007), p. 21.

¹⁴ Conservatively, one MW of electricity can power 164 average homes. <https://www.seia.org/initiatives/whats-megawatt>. Thus, using 131 MW, the Project will produce enough energy for 21,484 homes (164 x 131 = 21,484). The County’s population is about 12,000, and so conservatively assuming two persons per home, it has about 6,000 homes. Generally homes use about one-third of electricity for any given area, with another one-third used by commercial establishments and one-third used by industry. Thus, the County’s total electrical usage can roughly be calculated as the equivalent used by about 18,000 homes.

manufacturing, operation and maintenance and decommissioning of solar facilities—solar generation produces less than one twentieth of the emissions of coal generation.”¹⁵

V. Other Regulations and Permits

A. Site Plan

After the SE process and after final design and engineering is complete, but before construction begins, Applicant will submit to the Zoning Administrator for review and approval a Site Plan pursuant to Article 22 of the Land Development Code. Section 28-5-2 of Solar Ordinance reiterates this requirement and adds certain solar-specific information that must be provided in the Site Plan. Thus, the Site Plan submitted by Applicant will build on the GDP, incorporate all the requirements of the Solar Ordinance, and meet all the usual specifications of Article 22.

B. Erosion Control and Stormwater Management

The Project will disturb a significant amount of land surface over the period of construction, but Applicant appreciates the importance of being a good steward of the soil and area streams and will submit for approval the final design for Erosion and Sediment Control to either the County or DEQ, as applicable. The plan will conform to the Virginia Erosion and Sedimentation Control Regulations and the Virginia Erosion and Sedimentation Control Handbook (3rd Ed. 1992). Stormwater Management design will be approved by DEQ and the approved design and plan will be reflected in Site Plan. Construction will start only after the posting of surety to guarantee performance of the required control measures and a land-disturbing permit has been issued.

For permanent storm-water controls during operations of the Project, Applicant also will obtain, prior to construction, a Virginia Stormwater Management Program Permit from the Virginia Department of Environmental Quality (“DEQ”). This state-issued permit, which typically takes solar facilities the size of the Project 8 to 10 months to obtain, will be based on near-final engineering and design and involves detailed computer modeling of potential future stormwater flows. The state permit builds on the Erosion and Sediment Control approvals by the County to ensure that the Project is designed to protect area water resources from stormwater.

¹⁵ Southern Environmental Law Center, “The Environmental Review of Solar Farms in the Southeast U.S.” (March 2017), p. 6, citing studies published in 2012 by the National Renewable Energy Laboratory.

Although the Project will entail substantial ground disturbance, erosion management during construction will be facilitated by several factors. First, solar arrays do not require perfectly flat land; the rows of solar panels can be constructed so as to conform to modest slopes (5%-10%), thereby reducing the scope of earth-moving activities. Second, the vast majority of the racking used to support the panels will be secured to posts that are merely driven down through the existing surface, without excavation. Also, Applicant will not remove any topsoil from the Project Area, but will use it to expeditiously establish ground cover.

C. State Solar Approval

In addition to the above, the Project will require either approval by the State Corporation Commission (“SCC”) or the DEQ under a regulatory program the General Assembly has put in place for solar generation facilities called the “permit-by-rule” or PBR program. The requirements of the SCC and PBR processes are extensive. They relate to a variety of subjects, including studies and approvals for interconnection to the electric grid, confirmation of maximum generating capacity, and the results of studies regarding air quality, wildlife, wetlands, other natural resources, and historic resources. These processes require that the proponent of the project make all these relevant studies and materials about the project available for public review and comment. Only if all of these requirements of the program are satisfied will the project will obtain the necessary clearance to proceed.

VI. Satisfaction of Special Exception Criteria

Applicant believes that the Project satisfies all of the County’s criteria for a SE. Section 13-3 of the Zoning Ordinance provides that a SE shall be approved only if:

- The location is appropriate and not in conflict with the land use plan
- The public health, safety, morals and general welfare will not be adversely affected
- Adequate utilities and off-street parking facilities will be provided; and
- Necessary safeguards will be provided for the protection of surrounding property, persons, and neighborhood values

Each of these elements is discussed below.

A. Conformance with Land Use Plan

In addition to this Application, the Applicant is requesting a determination that the Project is “substantially in accord” (“SIA”) with the County’s Comprehensive Plan under Va. Code § 15.2-2232 (“2232”). Because of the similarity between the standard provided in Section 2232 and the Comprehensive Plan element of Section 13-1 of the County’s Land Development Code, the Applicant is addressing the Comprehensive Plan solely in the SIA request. That discussion in the SIA request is incorporated by reference in this Application.

B. Public Health, Safety, Morals and General Welfare

The Project will not adversely affect the public health, safety, morals and general welfare of the County.

The only aspect of construction that needs to be managed for public safety is construction traffic. Construction is expected to take 12-15 months and may be inconvenient at times to area residents, but is expected to have only very modest impacts on traffic and roads in the community. Although there will be a number of component-related deliveries, almost all of these will be by conventional road trucks, not over-sized vehicles. There will be a substantial increase in worker-related traffic during the construction period, but not so much as to cause significant adverse effects in the area as a whole. Construction traffic will be manageable and can readily be addressed by Applicant in cooperation with VDOT and the County.

With regard to operations, solar energy is based on well-established technology developed in the 1950s and is safe. Solar panels are made mostly of metal, glass, and plastic. Within these common materials, a thin layer of solid-state semi-conducting material is encapsulated within a water-tight envelope (to avoid air moisture from adversely affecting the function and warranty of the solar panels). Even if a solar panel is broken open, and the semi-conducting material exposed, which is very difficult to do, there are no liquids that can spill. A recent study from N.C. State University concluded as follows: “Photovoltaic (PV) technologies and solar inverters are not known to pose any significant health dangers to their neighbors.”¹⁶ Virginia-based Southern Environmental

¹⁶ N.C. Clean Energy Technology Center, N.C. State University “Health and Safety Impacts of Solar Photovoltaics” (May 2017), p. 3.

Law Center has noted that “[t]here are no confirmed public health impacts from solar panels at levels encountered by the public.”¹⁷

C. Utilities and Off-Street Parking

Adequate utilities and off-street parking will be provided for the Project with no burden on the County. With the exception of obtaining distribution-level electric power from the existing electric utility for the SCADA facility, the Project will require no utilities. It will not require County-supplied water or sewer. All parking will be provided for within the footprint of the Project itself and, during operations, needed parking will be almost negligible as there will be no office or retail or other operations open to the public.

D. Surrounding Property, Persons and Neighborhood Values

By complying with the Solar Ordinance, the Project will include the necessary safeguard to protect surrounding property, persons, and neighborhood values. As noted above, the Project will generate electricity with virtually no light, noise, odor, dust or traffic, and it will not produce any air pollution, water pollution or waste. To further protect neighbors and minimize adverse impacts, the Solar Ordinance requires perimeter-wide setbacks and vegetative buffering. It also minimizes off-site noise during construction and operation, limits construction hours, requires an emergency response plan that is coordinated with local emergency responders and is regularly updated, and requires liability insurance.

E. Applicant’s Proposed Conditions

Based on Applicant’s discussions with staff during its pre-application meeting on June 3, Applicant proposes conditions for consideration by the Board of Supervisors. The proposed conditions are included in **Exhibit 12**.

¹⁷ Southern Environmental Law Center, “The Environmental Review of Solar Farms in the Southwest U.S.” (March 2017), p. 6.