

December 18, 2020

Ms. Tanowa Troupe, Secretary
Ohio Power Siting Board
Docketing Division
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3797

Re: Application

Case No. 20-1362-EL-BGN

In the Matter of the Application of Clearview Solar I, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Champaign County, Ohio.

Dear Ms. Troupe:

Accompanying this letter is an application by Clearview Solar I, LLC (“Applicant”) for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Champaign County, Ohio. The original application was electronically filed, and the required number of copies both in hard copy and electronic have been provided to the Docketing Division.

The Applicant further notes that the information presented in the preapplication notification letter filed on September 17, 2020, regarding a request for waiver, has been revised. Along with the filing of this application, the Applicant is filing a motion for waiver of certain provisions of the Ohio Power Siting Board’s rules contained in Ohio Administrative Code (“O.A.C.”) Chapter 4906-4. All other information in the preapplication notification letter remains unchanged.

In accordance with O.A.C. Rule 4906-2-04, we make the following declarations:

Name of the Applicant:

Clearview Solar I, LLC
1105 Navasota Street
Austin, Texas 78702

Name and location of the facility:

Clearview Solar I, LLC
Adams Township
Champaign County, Ohio

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Name of authorized representative:

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Notarized Statement:

See attached Affidavit of David Savage,
Vice President of Clearview Solar I, LLC

Respectfully submitted,

/s/ Christine M.T. Pirik
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(Counsel agree to receive service by email.)

Attorneys for Clearview Solar I, LLC

CMTP:AP
Enclosures

4810-4043-8740 v1 [85890-4]

BEFORE THE
OHIO POWER SITING BOARD

In the Matter of the Application of Clearview Solar)
I, LLC for a Certificate of Environmental)
Compatibility and Public Need to Construct a) Case No: 20-1362-EL-BGN
Solar-Powered Electric Generation Facility in)
Champaign County, Ohio.)

OFFICER'S AFFIDAVIT FOR
CLEARVIEW SOLAR I, LLC

STATE OF Texas :
 : ss
COUNTY OF Texas :

I, David Savage, being duly sworn and cautioned, state that I am over 18 years of age and competent to testify to the matters stated in this affidavit and further state the following based on my personal knowledge:

- 1. I am the Vice President of Clearview Solar I, LLC, which is the applicant under this Application.
- 2. I have reviewed Clearview Solar I, LLC's Application for a Certificate to Construct a Solar-Powered Electric Generation Facility in Adams Township, in Champaign County, Ohio, in Case No. 20-1362-EL-BGN.
- 3. To the best of my knowledge, information, and belief, the information and materials contained in the above-referenced Application are true and accurate.
- 4. To the best of my knowledge, information, and belief, the above-referenced Application is complete.

[Signature]
David Savage, Vice President of
Clearview Solar I, LLC

Sworn to before and signed in my presence this 16 day of December, 2020.

4827-5237-0132 v1 [85890-4]
[Notary Seal] CATHERINE COX
Notary Public, State of Texas
Comm. Expires 06-16-2023
Notary ID 124591138 [Signature]
Notary Public

APPLICATION
TO THE
OHIO POWER SITING BOARD
FOR A
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
FOR THE
CLEARVIEW SOLAR PROJECT
Adams Township, Champaign County
Case No. 20-1362-EL-BGN
December 2020

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ACRONYMS and ABBREVIATIONS

AC	Alternating Current
Board	Ohio Power Siting Board
DC	Direct Current
DSM	Digital Surface Model
EMF	Electromagnetic Field
EMS	Emergency Medical Services
ESA	Environmental Site Assessment
FAA	Federal Aviation Administration
HDD	Horizontal Directional Drilling
ISA	Interconnection Service Agreement
kV	Kilovolt
kw	Kilowatt
LIDAR	Light Detection and Ranging
MW	Megawatt
MW-ac	Megawatt-alternating current
NPDES	National Pollutant Discharge and Elimination System
ODNR	Ohio Department of Natural Resources
Ohio EPA	Ohio Environmental Protection Agency
O&M	Operation & Maintenance
PILOT	Payment in lieu of taxes
PV	Photovoltaic
PJM	PJM Interconnection, LLC
QEP	Qualified Energy Project
RUMA	Road Use and Maintenance Agreement
SWPA	Source Water Protection Area
SWP3	Storm-water Pollution Prevention Plan

I. INTRODUCTION

This Application for a Certificate of Environmental Compatibility and Public Need (“Application”) is submitted to the Ohio Power Siting Board (“Board”) by Clearview Solar I, LLC (“Applicant”) pursuant to Ohio Administrative Code (“O.A.C.”) Chapters 4906-3 and 4906-4. The Application seeks a Certificate of Environmental Compatibility and Public Need (“Certificate”) to construct and operate the Clearview Solar Project, which is a proposed solar-powered electric generation facility of up to 144 megawatts (“MW”) in capacity in Adams Township, Champaign County, Ohio (“Project”).

The Project will generate power without the need for any pipelines or using any fuel. The Project will not use any appreciable amount of water, and it will not generate any air pollution, water pollution, or hazardous waste. The components of the Project will have very few moving parts and will make almost no sound. With only minimal disturbance of topsoil and few underground foundations, the Project will require very few changes to the land surface, and will productively use farm fields to diversify the income sources of several area families.

This Application addresses each of the substantive requirements of O.A.C. Chapter 4906-4. For ease of review, the Application quotes in italics each of the relevant specific regulatory requirements (under the heading “Application Requirement”) for each subject addressed in O.A.C. Chapter 4906-4. The Application then provides, under the heading “Response,” information responsive to that specific requirement. In some instances, the Application notes that the requirement does not apply to the Project.

II. PROJECT SUMMARY AND APPLICANT INFORMATION

A. SUMMARY OF PROPOSED PROJECT

Application Requirement [4906-4-02(A)]:

“(A) The applicant shall provide a summary of the proposed project. The summary should be suitable as a reference for state and local governments and for the public. The summary shall include the following:

- (1) A statement explaining the general purpose of the facility.*
- (2) A description of the general location, size, and operating characteristics of the proposed facility.*
- (3) A discussion of the suitability of the site for the proposed facility.*
- (4) An explanation of the project schedule (a Gantt chart is acceptable).”*

Response:

[4906-4-02(A)(1)]

The general purpose of the Project is to use rows of ground-mounted photovoltaic (“PV”) modules, commonly known as solar panels, to generate clean and quiet renewable

electricity for use by consumers in southwestern Ohio. The Project will provide “on peak” power during the high demand period of mid-day and late afternoon. It also will provide employment opportunities throughout the region and State, as well as substantial new revenues to the taxing units in Adams Township and Champaign County.

[4906-4-02(A)(2)]

The Project will be located in the northwest corner of Adams Township, Champaign County, Ohio, approximately 2 miles northwest of Rosewood, Ohio. It will supply wholesale power to an existing transmission line owned and operated by Dayton Power and Light (“DP&L”). The power will be delivered at a location adjacent to Champaign-Logan Road between State Route 235 and Snapptown Road. The Project will occupy most of a 1,195-acre area of private land (“Project Area”).

The Project will generate electricity using solar panels. Photons in sunlight will strike the semiconducting material in the solar panels, which will excite electrons and generate direct electric current (“DC”). DC will be converted to alternating electric current (“AC”) and the voltage will be increased. The electricity will be gathered through a network of buried wires at a Project-level electric substation, which will further increase the voltage and deliver the power through a short transmission line to DP&L.

[4906-4-02(A)(3)]

The Project Area is ideal for a utility-scale solar facility because it is adjacent to a point in the regional transmission system at which power can be supplied without the need for substantial and costly upgrades to that system. Use of the Project Area will enable the generation of large amounts of solar power because it is generally level, open and dry. Level terrain is conducive to rows of solar panels because it avoids the costs and land disruption caused by substantial grading. The Project also will minimize impacts to natural resources because most of the Project Area is annually disturbed by active farming. Finally, each of the landowners participating in the Project has determined that the Project is a suitable use for their land.

[4906-4-02(A)(4)]

The schedule for development of the Project, which began in 2018, is well-advanced. Acquisition of the necessary land rights is nearly complete, and with limited exceptions discussed below, studies and associated field surveys are complete. The key interconnection studies by the grid manager are complete and favorable. It is anticipated that the interconnection process for the Project will be concluded in early 2021, and an interconnection agreement will be in place in mid-2021. Pending receipt of the Certificate and other required authorizations, Applicant plans to begin construction of the Project near the end of 2021, and construction would proceed throughout most of the next year. The Project is expected to start commercial operations near the end of 2022.

B. FUTURE PLANS FOR ADDITIONAL GENERATION UNITS IN REGION

Application Requirement [4906-4-02(B)]:

“(B) The applicant shall provide information regarding its future plans for additional generation units or facilities in the region, if any.

(1) The applicant shall provide a description of any plans for future additions of electric power generation units for the site (including the type and timing) and the maximum electric power generation capacity anticipated for the site.

(2) The applicant shall provide a brief description of the applicant's history, affiliate relationships and current operations, and a description of the company that will construct and operate the facility, if different from the applicant.”

Response:

[4906-4-02(B)(1)]

Applicant seeks a Certificate to construct and operate the Project at up to 144 MWac in capacity within the Project Area. Applicant has no current plans to increase the generation capacity to be constructed within the Project Area. Any future plans to use land outside the Project Area would be the subject of a separate application, and any such application would be to deliver power to same location on the electric grid. (Wholly apart from Applicant, the Project and this grid location, the Partners (defined below), are pursuing other solar energy opportunities in the wider region.)

[4906-4-02(B)(2)]

Applicant is owned by Clean Planet Renewable Energy, LLC, which in turn is a joint venture partnership between MAP Energy, Inc. (“MAP”) and Open Road Renewables, LLC (“Open Road”) (together, the “Partners”). MAP is one of the most experienced private renewable energy investors in the U.S. with successful investments to date in thousands of MW of operating wind and solar projects. Open Road is a focused developer of utility-scale solar projects whose principals successfully originated the 200 MW Hillcrest Solar Project (Case No. 17-1152-EL-BGN), which is now under construction in Brown County, Ohio, as well as approximately 100 MW of operating solar projects in California and a number of operating projects in the regional transmission area served by PJM Interconnection, LLC (“PJM”), including a 75 MW solar project in Maryland. MAP has worked with Open Road’s principals on a variety of utility-scale renewable energy projects for almost 10 years.

The Partners invest in and develop renewable energy projects, but Applicant does not plan to construct and operate the Project. Rather, Applicant anticipates selecting the company that will construct the Project through a competitive process. Likewise, it has not selected the firm that will operate the Project, but Applicant plans to make the selection from a well-known group of top tier providers. The Partners have collaborated with most of the leading construction and operation companies active in the utility-scale renewable energy industry in the U.S.

III. DETAILED PROJECT DESCRIPTION AND SCHEDULE

A. DESCRIPTION OF PROJECT AREA

Application Requirement [4906-4-03(A)]:

“(A) The applicant shall provide a description of the project area's geography, topography, population centers, major industries, and landmarks.

(1) The applicant shall provide a map of at least 1:24,000 scale containing a two-mile radius from the project area and showing the following features:

- (a) The proposed facility.*
- (b) Population centers and administrative boundaries.*
- (c) Transportation routes and gas and electric transmission corridors.*
- (d) Named rivers, streams, lakes, and reservoirs.*
- (e) Major institutions, parks, and recreational areas.*

(2) The applicant shall provide the area, in acres, of all owned and leased properties that will be used for construction and/or operation of the project, and the number of properties.”

Response:

[4906-4-03(A)(1)]

The Project Area is located Adams Township in Champaign County, Ohio. It is located west of State Route 235, south of Champaign-Logan Road, east of Champaign-Logan-Shelby Road, and north of Shanley Road. Snaptown Road bisects the Project Area from north to south.

Almost all of the land within the Project Area has been cleared for farming and is extremely level, and the predominant industry is farming. The Project Area is rural and is largely characterized by large-sized farm fields with some pockets of trees and tree lines along one stream and property lines. Undeveloped land includes actively cultivated fields and small blocks and rows of trees and other vegetation. Existing features in the Project Area include electric transmission and distribution lines, public roads, single family homes and farm buildings. A particularly prominent feature is a segment of one of DP&L's large transmission lines known as the East Sidney-Quincy 138 kilovolt (“kV”) transmission line (“Transmission Line”), which bisects the Project Area from east to west. The Project will supply power to the Transmission Line. The Project Area itself does not include any population centers, major industries or notable landmarks.

A map depicting the 2-mile area surrounding the Project Area and including each of the features required above is attached as **Figure 1**. Two hydrocarbon pipelines lines are located within a 2-mile radius of the Project Area.

The Project has been designed to avoid most water features, including rivers, streams, lakes, and reservoirs, as well as substantial blocks of trees or potential wildlife habitat. With the exception of Indian Creek, the Project Area includes virtually no open water or wetlands, and direct impacts to these resources will be avoided or minor and authorized by the appropriate agencies. A number of substantial blocks of trees within the Project Area will be avoided.

[4906-4-03(A)(2)]

Up to approximately 1,075 acres of the Project Area will be used for construction and operation, and is comprised of all or part of 23 separate properties.

B. DESCRIPTION OF PROPOSED PROJECT

Application Requirement [4906-4-03(B)]:

“(B) The applicant shall provide a detailed description of the proposed generation facility.”

Response:

Information responsive to this overall requirement is provided in responses to the detailed requirements listed below.

1. DESCRIPTION OF GENERATION EQUIPMENT

Application Requirement [4906-4-03(B)(1)]:

“(1) The applicant shall submit the following for each generation equipment alternative, where applicable:

- (a) Type, number of units, estimated net demonstrated capacity, heat rate, annual capacity factor, and hours of annual generation.*
- (b) For wind farms, the turbine hub height, tip height, rotor diameter, and blade length for each model under consideration.*
- (c) Fuel quantity and quality (i.e., ash, sulfur, and British thermal unit value).*
- (d) A list of types of pollutant emissions and estimated quantities.*
- (e) Water volume requirement, source of water, treatment, quantity of any discharge and names of receiving streams.”*

Response:

[4906-4-03(B)(1)(a)]

The generation equipment to be used by the Project are solar panels, and no alternatives are being considered. The basic components of the Project will be solar panels mounted on metal racking, inverters to convert DC to AC, including medium-voltage transformers to increase the electric voltage, a network of buried cables to collect the power and provide data, an electric substation, roads, a control structure, pyranometers, and fencing. Each of these components is described below.

Solar Panels and Racking

The Project will generate electricity with conventional solar panels, which will be affixed to metal racking. The racking will be mounted on metal piles driven or rotated into the ground in long rows. The piles are expected to be driven to a depth of about 5 to 10 feet. The rows generally will follow the existing topography of the land in the Project Area, although some minor grading may occur. The rows will be grouped into large, separately-fenced clusters, often called “solar fields.”

The rows will run in a north-south direction and be equipped with electric motors that very slowly rotate the panels throughout the day to keep them facing the sun. At the beginning and ending of each day, the low end of the solar panels will be approximately 1 to 3 feet, and the high end of the solar panels will be approximately 8 to 14 feet, above the ground. The high end of the solar panels will be less than 15 feet at all times except when temporarily stowed vertically, for example, to perform inspections, maintenance and repair or to manage vegetation below the solar panels.

The solar panel technology for the Project will be one of two basic types: crystalline or thin-film. Crystalline modules are silicon-based. Thin-film modules use one of several alternative semi-conducting compositions (such as cadmium telluride or copper indium gallium selenide).

The Project will use approximately 360,000 to 620,308 solar panels, depending on final engineering and design considerations such as the DC-to-AC ratio and the power output rating of the solar panels. (There is no heat rate associated with solar panels.) The Project will operate 8,760 hours per year, although it will produce no electricity at night and little during periods of heavy clouds and significant snowfall. Depending on the choice of models for racking and solar panels, the Project’s annual net capacity factor is anticipated to be 25% to 28%, which would generate between 315,360 to 353,203 megawatt-hours (“MWh”) of electricity, with an expected annual decline of about 0.5%.

Inverters and Pyranometers

The Project will include a number of related groups of electronic components: a DC-to-AC inverter, a step-up transformer that increases the voltage to 34.5 kV, and a cabinet containing power control electronics (“Inverter”). Each Inverter will be mounted on a pre-fabricated foundation, such as a metal skid or concrete block, or a gravel pad.

Each Inverter will be less than 15 feet high. Each Inverter and related groups of electronic components will be located in a gravel area of up to 2,800 square feet in size.

The Project also will include up to 6 stations containing a group of related measuring instruments, including a pyranometer for measuring the solar resource, an anemometer, a wind vane, a barometer, a rain bucket and a temperature probe, as well as associated communications equipment (“Pyranometer”). Each Pyranometer will be installed on a pre-fabricated foundation, a gravel pad or directly on the ground, and occupy less than 100 square feet. Each Pyranometer will be less than 15 feet high. Each Pyranometers may be in the same location as an Inverter.

Collection System

Within each solar field, a network of electric lines and associated data lines commonly called “collection lines” will collect and transmit the power from the solar panels to the Inverters (“DC Collection System”). Separate groups of solar panels rows will be combined into circuits that are routed, through cable trays on the racking, to combiner boxes. Power from one or more of the combiner boxes then will be transmitted, through buried collection lines, to an Inverter. The underground portions of the DC Collection System are expected to be buried less than 4 feet.

After it converts the power to AC and increases its voltage, each Inverter will deliver the power through a separate network of buried collection lines to the Project-level substation (“AC Collection System”). Each line that is part of the AC Collection System will originate at one of the Inverters and terminate at the Project-level substation (“Substation”). Any portions of the AC Collection System lying outside of the fence of the solar field and the fence of the Substation will be buried at least 3 feet (but generally not more than 4 feet) below grade to ensure no interference with farming.

Substation and Gen-tie

The Substation will be similar in function, size and appearance to other electrical substations that are common in the State. Among the major components of the Substation will be the following:

- (1) collection line feeders and breakers;
- (2) 34.5 kV bus;
- (3) main power transformer (to increase the voltage from 34.5 kV to 138 kV);
- (4) high-voltage breaker;
- (5) metering/relaying transformers;
- (6) disconnect switches;
- (7) equipment enclosure containing power control electronics; and
- (8) lightning masts.

The Substation will be constructed on a concrete foundation that is expected to be a maximum of 50,000 square feet, e.g., 200 feet by 250 feet, in size.

In order to accommodate the Project's power on the electrical grid, DP&L is expected to separately construct, own and operate a new substation ("Utility Substation") adjacent to the Transmission Line. The Utility Substation is expected to be similar in function, size and appearance to other electrical substations common throughout Ohio. Applicant does not seek approval to construct and operate the Utility Substation, but describes it here for completeness. (More information about the Utility Substation is provided below regarding interconnection.)

A very short 138 kV transmission line ("Gen-tie") will connect the Substation to the Utility Substation. The Gen-tie likely will be only 100-200 feet in length. A self-supporting, steel structure commonly known as a "dead-end structure" will be located at the Utility Substation and connect the Gen-tie to the equipment at the Utility Substation. The dead-end structure is expected to be 20-25 feet high.

Roads

The Project will include a network of roads and pathways connecting public roads to the entrances and gates and, within the fences, to access the components. The roads will be either grassy driving aisles or constructed of aggregate material, but will not be paved. They will be used for the operations, maintenance, repair, and replacement of the components, as well as to provide emergency response access. The roads will be a maximum of 16 feet wide, although some may temporarily be up to approximately 25 feet wide during construction.

SCADA

The Project will include, on the same parcel that hosts the Substation, a single masonry or metal structure that will house supervisory control and data acquisition ("SCADA") equipment. It will contain computers, communications and other data devices to assist in the monitoring and operation of the Project. The SCADA structure will have electrical service, but will not include offices or be occupied, and will not include water or sewer service. It will be constructed on a poured or pre-fabricated concrete foundation, occupy less than 400 square feet, and be less than 15 feet high.

Fencing and Setbacks

All above-ground components of the Project will be fenced for safety and security. All fenced areas will include vehicle entrances, with locking gates that, during operations, will remain locked when not in use. Each solar field and the Substation will be separately fenced. The fence will be a standard, metal fence at least 6 feet in height.

To provide appropriate buffers between all of the above-ground components and the public and the environment, each solar field will incorporate certain minimum setbacks from the fence. These setbacks are the following:

- (1) 25 feet from the edge of right-of-way of any public road;

(2) 25 feet from the property line of any parcel whose owner is not participating in the Project;

(3) 25 feet from the edge of any waterbody or wetland; and

(4) 150 feet from any home on a parcel whose owner is not participating in the Project.

In addition, the Project will include a minimum setback of 500 feet between any Inverter and any home on a parcel whose owner is not participating in the Project. These are *minimum* setbacks: in many cases, especially with regard to the distance between the fence and homes, the actual setbacks will be much greater.

Lighting and Signage

The Project may include minimal lighting at a limited number of locations: entrances, Inverters, the Substation and the SCADA structure. Any lights will be designed to provide only the amount of light needed for safety and security. All lights will be shielded, directed either downward or inward toward the Project, and motion-activated to operate only when needed.

The Project will include minimal perimeter signage at entrances and along the fences. All signs will be only for the purpose of safety, security, or to provide contact information for the Project. There will be no advertising.

Preliminary-Maximum Site Plan

On behalf of Applicant, Westwood prepared a preliminary site plan that depicts, within the Project Area, the maximum extent and impact of the components comprising the Project (“**Preliminary-Maximum Site Plan**”), which is attached as **Exhibit A**. The Preliminary-Maximum Site Plan is based on the preliminary design and engineering currently available for the Project but also conservatively represents the Project’s maximum extent relative to the public and the environment. It establishes the envelope for the final design and engineering of the Project across all dimensions and depicts all of the major types of components to be constructed within that envelope. The Preliminary-Maximum Site Plan depicts the possible locations of all of the major components of the Project described above: solar panels, racking, Inverters, collection lines, the Substation, the SCADA structure, roads, Pyranometers, and fencing.

Because all the above-ground components of the Project will be fenced, the fence lines depicted on the Preliminary-Maximum Site Plan represent the maximum boundary of the components with respect to neighboring parcels and public roads. Although the fences, and therefore the components within them, may be constructed *farther away* from neighbors and roads than as shown in the Preliminary-Maximum Site Plan, they will not be closer. Likewise, apart from the Substation and any above-ground collection lines (which are common features on the landscape), no component inside the fence will be higher than 15 feet. Although the height of certain components as constructed may be

lower than 15 feet, they will not be higher. As part of the final site plan to be reviewed by the Board's Staff ("Staff") prior to construction start, Applicant will identify the specific models of component to be used, provide the final engineering and design plans, and identify the precise locations and heights of all the components.

Different models of the key components of the Project—solar panels, racking and Inverters—are virtually identical in function and highly similar in appearance. They are largely interchangeable commodities manufactured by scores of companies in highly competitive, global markets. Although subtle technical differences among models will have no effect on the public or the environment, they can significantly affect final design. For example, the electric generating capacity of individual solar panels currently ranges from 325 to 480 watts, and the number of solar panels will be determined by the specific wattages selected. Similarly, the specific model of solar panel chosen will limit the available options for racking and Inverters. To optimize the Project both technologically and economically, multiple combinations of models of solar panels, racking, and Inverters must be evaluated at the time the selections of those components are made.

Because of the necessary length of the certification process and market realities for utility-scale solar facilities, it is not economically feasible for Applicant, at this time, to identify the models of components to be used or provide their precise locations within the fence. Rapidly advancing technology (both as to cost and performance) and dynamic markets necessitate that the final model selections occur close to construction start. Indeed, the financing for procurement and construction of the Project will be attracted by, and based on, those selections and the final engineering and design that flow from them. Only after the models have been selected and final engineering and design is completed can the precise locations of the components within the fence be identified. Those locations, in turn, will drive the specific locations of the ancillary components, including the piles, collection lines, and roads. Any final site plan submitted in this Application would reflect decisions that are obsolete by the time of financing and construction start, if not before the Certificate is issued.

Because of the similarity of function and appearance of the key components, the maximum extent depicted in the Preliminary-Maximum Site Plan make it a sound basis for evaluating the Application against the applicable statutory criteria for certification. That is, the Preliminary-Maximum Site Plan presents a conservative and comprehensive scenario for the Board to assess all of the Project's potential impacts on the public and the environment per the Board's rules: air and water quality, solid waste generation, aviation, health and safety, ecological resources, land use, cultural and archeological resources, and agricultural districts and agricultural land. The model selections and final engineering and design in the final site plan will merely refine the Preliminary-Maximum Site Plan in ways that do not affect the Board's assessments of those impacts.

Representative models of the three key types of components have been used for the purposes of the developing the Preliminary-Maximum Site Plan. The representative models are as follows:

- (1) Solar Panels – Series 6 Plus manufactured by First Solar, Inc.
- (2) Racking – NX Gemini manufactured by Nextracker, Inc.
- (3) Inverter – Sunny Central 4600 manufactured by SMA America, LLC

Specifications of these **Representative Component Models** are included in **Exhibit B**.

Preliminary Vegetation Management Plan

Notably, within the fences of the solar fields, most of the land surface will not be occupied by any components, but will be open ground. The open space is necessary to separate the rows of solar panels sufficiently to minimize their shading each other from sunlight. The open space also provides room for vehicle and worker access to perform inspections and maintenance, and for emergency response.

The open ground surface, as well as the ground surface under the solar panels themselves, will be planted with robust, non-invasive vegetation that will be maintained over the life of the Project. Within the solar fields, the only areas that will not be vegetated will be roads with an aggregate surface, the Inverters, the Pyranometers, the fencing and the specific locations where the pilings for the racking are installed. Each piling will occupy less than one square foot of land surface.

This vegetative cover will have a variety of benefits for the land, including absorbing precipitation, providing stable wildlife habitat, and improving water quality. The cover will reduce erosion and run-off and it will be in place even in winter, when the fields hosting it normally may otherwise have remained unplanted, and therefore subject to erosion and nutrient loss. As a result, the area topsoil will remain largely intact for participating land owners who chose to return their fields to crop production following the Project's useful life. Finally, the vegetative cover will enhance the aesthetic qualities of the Project.

Because the vast majority of the ground surface within the fences will not be occupied by any components, vegetation management is an important facet of the Project. On behalf of Applicant, Hull prepared a **Preliminary Vegetation Management Plan** for the Project, which is attached as **Exhibit C**. It reviews the current land use in the area and sets forth preliminary plans for planting and maintaining the vegetative ground cover for the life of the Project. The Preliminary Vegetation Management Plan addresses subjects such as seed mix, maintenance, and invasive weed control, which are relevant to stormwater management and decommissioning for the Project. Prior to the start of construction, the document will be finalized based on the final engineering and design for the Project.

[4906-4-03(B)(1)(b)-(d)]

The Project will not use wind turbines or fuel, and will not emit any air pollution.

[4906-4-03(B)(1)(e)]

At most, the Project will use only an extremely small volume of water for occasional cleaning of solar panels, which will be trucked to the Project or acquired from a nearby source. Natural precipitation is expected to be sufficient to clean the solar panels of accumulated dirt and dust. Except for stormwater as authorized by applicable law, the Project will have no wastewater discharges, and it will not include any wastewater treatment or discharge into streams.

2. CONSTRUCTION AND RECLAMATION METHODS

Application Requirement [4906-4-03(B)(2)]:

“(2) The applicant shall describe, in as much detail as is available at the time of submission of the application, the construction method, site preparation and reclamation method, materials, color and texture of surfaces, and dimensions of all facility components, including the following:

- (a) Electric power generation plant or wind-powered electric generation turbines, including towers and foundations.*
- (b) Fuel, waste, water, and other storage facilities.*
- (c) Fuel, waste, water, and other processing facilities.*
- (d) Water supply, effluent, and sewage lines.*
- (e) Associated electric transmission and distribution lines and gas pipelines.*
- (f) Electric collection lines.*
- (g) Substations, switching substations, and transformers.*
- (h) Temporary and permanent meteorological towers.*
- (i) Transportation facilities, access roads, and crane paths.*
- (j) Construction laydown areas.*
- (k) Security, operations, and maintenance facilities or buildings.*
- (l) Other pertinent installations.”*

Response:

[4906-4-03(B)(2)(a) & (e)-(k)]

The Project will include one or more of the components listed in subsections (a) and (e) through (k) above.

The methods that will be used to construct the Project will be similar to that generally used in the U.S. to construct similar, large-scale, ground-mounted solar facilities generating wholesale power. The primary steps will be the following:

- (1) installation of fencing and securing of the perimeter of each of the areas in which construction will occur;
- (2) installation of stormwater management and erosion and sediment controls;
- (3) clearing of some vegetation;

- (4) creation of laydown areas;
- (5) minor grading;
- (6) construction of roads; and
- (7) delivery, staging and installation of components (piles, racking, solar panels, collection lines, Inverters, the Substation, the SCADA structure and Pyranometers).

Other than the Substation, and because the solar panels will be affixed to racking largely using hand tools, the major equipment used to construct the Project will include bulldozers and dump trucks (primarily to build roads), small pile drivers (primarily to install piles), trenchers (primarily to lay the buried portions of the collection lines), and equipment for horizontal directional drilling (“HDD”) (to route short sections of the collection lines under one stream or public roads). A more detailed description of the steps comprising construction is provided below in connection with the schedule for the Project.

For several reasons, the land in the Project Area that will host the components will require relatively little work to prepare it for construction. First, relatively little land will need to be cleared of vegetation. Most of the Project Area consists of previously disturbed land that has been actively farmed for years. Also, the design of the solar fields will obviate the need to remove the vast majority of trees in the Project Area. Finally, only minimal grading will be required because the Project Area already is extremely level. Specific methods to be used to remove trees and vegetation and perform minimal grading have not been determined but will be standard, accepted methods for the commercial construction industry. As provided in the Preliminary Vegetation Management Plan, the vast majority of the land surface within each solar field, including almost all of the area below the solar panels themselves, will be planted with vegetation.

The construction of the Project is expected to require approximately 5-7 temporary laydown areas for construction staging, equipment storage, and parking for workers. The laydown areas generally will be located adjacent to public roads, and usually will be located adjacent to the entrances to the solar fields. Each of the laydown areas will range from approximately 1 to 5 acres in size, and collectively are expected to occupy up to 10.3 acres. All of the laydown yards are temporary features used to construct the Project that will feature temporary gravel surfaces and will be restored following construction to the extent the area does not host components of the Project.

The Project will include several narrow corridors of land to host the collection lines outside of fence lines. The collection lines will be buried at least 3 feet deep. The collection lines will be installed via open cut method or HDD, depending on the location. HDD will be used to install collection lines under one stream.

Up to 8.5 miles of roads will be utilized for construction, operation and maintenance of the Project. Roads will be comprised of aggregate material and/or grass. Roads will be only be as long and as wide as necessary to accommodate construction and operational

activities. All permanent roads will be a maximum of 16 feet wide, although a number of them may be up to 25 feet wide during construction.

The specific materials, and the associated textures and colors, to be used in the components of the Project have not yet been determined, but will be typical of other large-scale, ground-mounted solar projects in the U.S. Racking will be largely metal, such as aluminum, and will have a smooth texture and be of a grey or silver color. Panels will be comprised of the materials described above, with the exterior layer consisting of a glass cover within a metal frame. The solar panels will have a relatively smooth texture and be black, dark blue or another dark color. Buried collection lines will be made of copper or other materials standard in the electric utility industry. Fencing will be largely standard, chain-link material. The dimensions of the components of the Project have been provided above.

Applicant holds land rights to operate the Project for up to 40 years, and the Project is expected to operate for that period of time. At the end of that period, Applicant will remove the Project and return the land to substantially its original condition so that it can be farmed again. With very few concrete foundations, the components less than 3 feet below grade can be removed and the land restored to essentially its original condition. The used components and materials will be reused or recycled to the extent possible, and the remaining materials disposed of in a landfill in accordance with applicable law.

[4906-4-03(B)(2)(b), (c), (d) & (l)]

Subsections (b), (c), and (d) are not applicable to the Project. With respect to (k), the SCADA structure may be considered a non-occupied operations building. Regarding subsection (l), there are no significant installations associated with the Project not otherwise addressed above.

3. NEED FOR NEW TRANSMISSION

Application Requirement [4906-4-03(B)(3)]:

“(3) The applicant shall submit a brief description of the need for new electric transmission lines(s) or gas pipelines associated with the proposed facility.”

Response:

The only new transmission line associated with the Project will be the Gen-tie. (Applicant is including the Gen-tie as part of the Project, not in a separate Construction Notice.) The Gen-tie line will transmit the energy from the Substation to DP&L. The Project will not use natural gas or include any gas pipelines.

4. PROJECT MAP

Application Requirement [4906-4-03(B)(4)]:

“(4) The applicant shall supply a map of at least 1:12,000 scale of the project area, showing the following features:

(a) An aerial photograph.

(b) The proposed facility, including all components listed in paragraph (B)(2) of this rule.

(c) Road names.

(d) Property lines.”

Response:

Applicant seeks authorization to construct the Project, at a capacity of up to 144 MWac, within the Project Area. The Project Area is divided into three different use categories. First, the Substation and SCADA structure will be located on a specific parcel of land to be subdivided from a parcel that currently is about 10 acres in size. Second, several narrow strips of land will host only buried portions of collection lines located outside fence lines. Finally, the remaining portions of the Project Area are available to host the solar fields, which will include all of the remaining components of the Project.

A map with a satellite-generated aerial photograph background showing a maximum layout of the Project is attached as **Figure 2**. The map shows the locations of the parcel that will host the Substation and SCADA structure, the corridors for the collection lines and the solar fields. The map also shows the road names, property lines, and each of the major features of the Project in relation to the above three categories of land. (Consistent with the Preliminary-Maximum Site Plan, the solar fields are depicted at their maximum aerial extent, but in one or more areas may not extend as far as indicated. Similarly, the depictions of the specific components within each solar field are illustrative only; the final locations will be determined by the final engineering and design for the Project.)

Prior to the start of construction, Applicant will submit to Staff for its review final designs for the Project. These final designs will address all of the following:

- (1) the locations of the Substation, the Gen-tie and the terminations of the AC Collection System at the Substation;
- (2) the location of portions of the AC Collection System within the corridors outside fence lines;
- (3) the perimeters of each solar field;
- (4) the orientation (north-south or east-west) of the rows within each solar field;
- (5) the location of the rows, collection lines, Inverters, and roads in each solar field;
- (6) the final racking design;
- (7) the solar panel technology (crystalline and/or thin-film);

- (8) the location of roads; and
- (9) the specific component manufacturers and models.

As noted above, although not reflected in the scale of the above map, most of the land surface within each solar field will be open space.

C. PROJECT SCHEDULE

Application Requirement [4906-4-03(C)]:

“(C) The applicant shall provide a detailed project schedule.

(1) The applicant shall provide a proposed project schedule in Gantt chart format covering all major activities and milestones, including:

- (a) Acquisition of land and land rights.*
- (b) Wildlife and environmental surveys/studies.*
- (c) Receipt of grid interconnection studies and other critical path milestones for project construction.*
- (d) Preparation of the application.*
- (e) Submittal of the application for certificate.*
- (f) Issuance of the certificate.*
- (g) Preparation of the final design.*
- (h) Construction of the facility.*
- (i) Placement of the facility in service.*

(2) The applicant shall describe the proposed construction sequence.

(3) The applicant shall describe the potential impact of critical delays on the in-service date.”

Response:

[4906-4-03(C)(1)]

A detailed schedule for the Project in “Gantt chart” format that includes each of the elements listed above is attached as **Figure 3**.

[4906-4-03(C)(2)]

The proposed sequence of construction of the Project is as follows:

- (1) surveying and staking of sensitive areas, perimeters, roads, and component locations;
- (2) clearing, minor leveling, and grading;
- (3) installation of drainage and erosion control;
- (4) installation of perimeter fencing;
- (5) construction of roads;

- (6) installation of temporary power;
- (7) delineation of laydown areas;
- (8) installation of temporary facilities;
- (9) installation of foundations (for Substation, SCADA structure, Inverters, and Pyranometers);
- (10) installation of Substation and SCADA structure;
- (11) installation of piles, racking and solar panels;
- (12) installation of Inverters;
- (13) installation of collection lines;
- (14) installation of Pyranometers;
- (15) installation of lighting and signage;
- (16) clean-up of work areas;
- (17) planting of ground vegetation; and
- (18) planting of perimeter landscaping.

Many of the above activities may occur concurrently.

[4906-4-03(C)(3)]

Certain critical delays in the development of the Project may have a material, adverse effect on Applicant's efforts to secure equity investment and finance its construction by the planned in-service date. These critical delays could include Applicant's inability to timely acquire solar panels, racking, Inverters, as well as permitting delays and labor shortages. Postponement of the start of construction could affect the Project's eligibility for certain financial incentives, such as the full value of federal tax credits. It also could delay the benefits to the community, including substantial revenues for taxing entities, such as local schools, and income for participating landowners.

IV. PROJECT AREA SELECTION AND SITE DESIGN

A. SELECTION OF PROJECT AREA

Application Requirement [4906-4-04(A)]:

“(A) The applicant shall describe the selection of the project area.

(1) The applicant shall provide a description of the study area or the geographic boundaries of the area considered for development of the project, including the rationale for the selection.

(2) The applicant shall provide a map of suitable scale that depicts the boundary of the study area and the general sites which were evaluated.

(3) The applicant shall provide a comprehensive list and description of all qualitative and quantitative siting criteria utilized by the applicant, including any weighting values assigned to each.

(4) The applicant shall provide a description of the process by which the applicant utilized the siting criteria to determine the proposed project area and any alternative area(s).

(5) The applicant shall provide a description of the project area(s) selected for evaluation, and the factors and rationale used by the applicant for selecting the proposed project area and any alternative area(s)."

Response:

[4906-4-04(A)(1) & (2)]

Applicant chose to develop the Project in southwestern Ohio for several reasons, including an attractive combination of strong electricity demand, a robust transmission system, and a strong solar resource. First, the Project is close to the metropolitan areas of Dayton and Columbus, which represent a strong regional demand for electricity. A map depicting the general location of the Project Area is attached as **Figure 4**. Second, transmission resources in the area have sufficient capacity to accommodate the Project. Finally, as shown on the map attached as **Figure 5**, the solar resource in southwestern Ohio is among the best in the State.

Within this region, the study area was determined largely by the location of the Transmission Line. Economically feasible solar facilities must be located where the power can be supplied without costly upgrades to the existing transmission system. Applicant's preliminary studies indicated that delivering power to the Transmission Line would be highly cost-effective. As addressed further below, this has been confirmed by the formal and independent transmission analysis conducted by PJM.

A map depicting the study area boundary and general sites that were evaluated for the Project is attached as **Figure 6**. The selection of the Transmission Line as the part of the transmission system to supply new power necessarily limited the study area to the properties within a radius of approximately 2 miles of the Transmission Line. Siting the Project in proximity to the Transmission Line avoided the need to construct a lengthy transmission line connecting the solar panels to the transmission system. It also reduced the potential electrical losses of generating the power far from the point of delivery to the transmission system.

[4906-4-04(A)(3), (4) & (5)]

Once the Transmission Line was selected as the point of interconnection, the location of the Project largely was determined by four siting criteria. First, the land needed to be relatively level, previously disturbed, and dry. Second, the land needed to be contiguous to or in close proximity to other, similarly suitable parcels. Third, Applicant wanted to minimize any impacts to sensitive features such as streams, wetlands and potential wildlife habitat. Finally, individual property owners made their own personal decisions of whether to host the Project. These criteria were not assigned particular

weights; rather, each played a similar role in determining the location of the Project within the study area.

As noted above, the critical factor in determining the study area was the identification of the Transmission Line as a promising point of interconnection serving southwest Ohio. Having made this determination, the siting process was to determine the location of the Project, within the study area, based on the more parcel-specific criteria set forth above. From this two-step process, Applicant decided to pursue development of the Project within the immediate vicinity of the Project Area itself.

Applicant is not presenting for consideration any alternative locations for the Project, either within the study area or southwestern Ohio generally. Rather, the only proposed location for the Project is the Project Area.

B. PROCESS OF DESIGNING PROJECT LAYOUT

Application Requirement [4906-4-04(B)]:

“(B) The applicant shall describe the process of designing the facility layout.

(1) The applicant shall provide a constraint map showing setbacks from residences, property lines, utility corridors, and public rights-of-way, and any other constraints of the site design.

(2) The applicant shall provide a description of the criteria used to determine the facility layout and site design, and a comparison of any site design alternatives considered, including equipment alternatives where the use of such alternatives influenced the site design.

(3) The applicant shall provide a description of how many and what types of comments were received.”

Response:

[4906-4-04(B)(1)]

A map showing constraints that influenced the design of the Project is provided in **Figure 7**. The constraints shown on the map include those listed above plus additional constraints Applicant considered, such as streams, wetlands, and larger woodlots that could be potential wildlife habitat.

[4906-4-04(B)(2)]

The Project Area was designed to work with interested landowners to accommodate solar panels that will produce electricity at the lowest cost while also accounting for a variety of site-specific constraints. The specific parcels chosen to host

the Project reflect the same factors that favored the Project Area within the large study area:

- (1) relatively level, previously cleared and disturbed, and dry;
- (2) close to other parcels; and
- (3) avoidance or minimization of impacts to sensitive features (such as streams, wetlands and larger blocks of potential wildlife habitat).

Also, the layout necessarily was significantly influenced by the decisions of individual landowners whether to participate in the Project. It also was influenced by the decisions of individual landowners whether to make all or a portion of particular parcels available for solar. Several landowners chose to put only some of their parcels in solar and to continue farming substantial portions of certain large parcels.

Because ground-mounted solar panels are modular in nature, they are well-suited to accommodating a variety of spatial site constraints. It was not necessary, therefore, for Applicant to consider alternative site designs or equipment. Rather, within the larger areas surrounding the Project Area, which is generally level, cleared and dry, it was merely necessary for the Project Area to conform to the various constraints.

[4906-4-04(B)(3)]

As explained further below, prior to the Board-required public information meetings, Applicant reached out to landowners adjacent to and near the Project Area to brief them on the Project and receive their feedback. This outreach included maps that incorporated Applicant minimum setbacks, as well as the decisions by the participating landowners to keep certain fields in cultivation. Most of the meeting participants preferred that the Project incorporate additional setbacks, especially from their homes and water wells. The Preliminary-Maximum Site Plan features additional setbacks, partly in response to this feedback, which were presented to the neighbors in follow-up meetings after the public information meetings.

V. ELECTRIC GRID INTERCONNECTION

A. CONNECTION OF PROJECT TO REGIONAL ELECTRIC GRID

Application Requirement [4906-4-05(A)]:

“(A) The applicant shall describe how the facility will be connected to the regional electric grid.”

Response:

The Project will connect to the regional electric grid through a new substation that Applicant expects DP&L to construct adjacent to the Transmission Line. Applicant anticipates subdividing a portion of the parcel on which Applicant’s Substation for the

Project will be constructed and transferring it to DP&L for this purpose. Although separately fenced, Applicant anticipates that the public will perceive the two side-by-side installations to be a single new substation added to and adjacent to the (existing) Transmission Line. Through the Transmission Line and other transmission and distribution lines, the power will be supplied in part to the Electric Service Area of DP&L, which covers substantial portions of Ohio and is part of the multi-state, regional transmission system managed by PJM.

B. INFORMATION ON INTERCONNECTION OF PROJECT

Application Requirement [4906-4-05(B)]:

“(B) The applicant shall provide information on interconnection of the facility to the regional electric power grid.

(1) The applicant shall provide information relating to their generation interconnection request, including interconnection queue name, number, date, and website.

(2) The applicant shall provide system studies on their generation interconnection request. The studies shall include, but are not limited to, the feasibility study and system impact study.”

Response:

[4906-4-05(B)(1)]

Applicant applied in June 2019 to PJM to interconnect 99 MWac of solar generation to the DP&L transmission system. PJM assigned the application Queue No. AE2-206 under the name “East Sidney-Quincy 138 kV.” In August 2019, Applicant applied to PJM to interconnect an additional 45 MWac of solar generation to the DP&L transmission system. PJM assigned application Queue No. AF1-078 also under the name “East Sidney-Quincy 138 kV.” Information on these queue positions is available at:

<https://www.pjm.com/planning/services-requests/interconnection-queues.aspx>

[4906-4-05(B)(2)]

PJM issued its feasibility study reports for AE2-206 and AF1-078 in July 2019 and January 2020, respectively (“**Feasibility Reports**”), copies of which are attached as **Exhibit D**. PJM issued its system impact study reports for AE2-206 and AF1-078 in February 2020 and August, 2020, respectively (“**System Impact Reports**”), copies of which are attached as **Exhibit E**. Based on these reports, Applicant believes that the Project can be constructed and operated at 144 MWac without requiring costly or disruptive changes to the regional transmission system.

VI. ECONOMIC IMPACT AND PUBLIC INTERACTION

A. CURRENT AND PROPOSED OWNERSHIP STATUS OF PROJECT

Application Requirement [4906-4-06(A)]:

“(A) The applicant shall state the current and proposed ownership status of the proposed facility, including leased and purchased land, rights-of-way, structures, and equipment.”

Response:

Applicant owns or will own all of the assets that comprise the Project or will be used to construct, own and operate the Project. Applicant holds all the development rights (leases, options-to-purchase, and easements) for over 90% of the land in the Project Area and informal rights of access to the remainder. Applicant has either the right to buy the land or exclusively occupy it for 40 years to construct, operate and decommission the Project. Other assets comprising the Project include contracts, solar data, studies, and reports. All of the physical components that will comprise the Project will be acquired after the issuance of the Certificate and prior to the start of construction.

Applicant will own the Project but plans to hire third parties to construct and to operate it.

B. CAPITAL AND INTANGIBLE COSTS

Application Requirement [4906-4-06(B)]:

“(B) The applicant shall provide information regarding capital and intangible costs.

(1) The applicant shall provide estimates of applicable capital and intangible costs for the various alternatives. The data submitted shall be classified according to federal energy regulatory commission uniform system of accounts prescribed by the public utilities commission of Ohio for utility companies, unless the applicant is not an electric light company, a gas company or a natural gas company as defined in Chapter 4905. of the Revised Code (in which case, the applicant shall file the capital and intangible costs classified in the accounting format ordinarily used by the applicant in its normal course of business).

(2) The applicant shall provide a comparison of the total costs per kilowatt with the applicant's similar facilities, and explain any substantial differences.

(3) *The applicant shall provide a tabulation of the present worth and annualized cost for capital costs and any additional cost details as required to compare capital cost of alternates (using the start of construction date as reference date), and describe techniques and all factors used in calculating present worth and annualized costs.”*

Response:

[4906-4-06(B)(1)]

The Project’s total estimated capital and intangible costs is expected to range between approximately \$850-\$950/kilowatts (“kW”), inclusive of intangible costs and dependent on the models of solar panel, racking, and Inverters used. These costs are broken out in the table below, with the assumed cost of the Project within the estimated range.

Expense Description	Cost (\$/kW)
<u>Tangible Costs</u>	
Modules and Racking	\$495
Balance of Plant & Civil	\$300
Substation and Gen-Tie	\$14
Interconnection Upgrades	\$21
<i>Total Tangible Costs</i>	<u>\$830</u>
<u>Intangible Costs</u>	
Legal & Development Costs	\$40
Financing & Transaction Fees	\$27
Other	\$35
<i>Total Intangible Costs</i>	<u>\$102</u>
<i>Total Capital Expenses</i>	<u><u>\$932</u></u>

As described above, Applicant is not proposing alternatives to the Project Area. Therefore, no cost comparisons between alternatives is included.

[4906-4-06(B)(2)]

Installed project costs compiled by Lazard’s Levelized Cost of Energy Analysis – Version 14.0 indicate that the capital costs of the Project are consistent with recent industry trends (Lazard, 2020). Lazard indicates that solar facilities installed in 2020 using thin-film technology have a capital cost between \$825-\$975/kW. By way of further comparison, the costs of solar generation projects under development by the Partners in other states in the mid-Atlantic region have similar capital costs averaging \$925/kW. Variances in capital costs across the projects are due to a variety of factors, including

solar resource, topography and other site-specific characteristics, project scale, proximity to equipment suppliers, and climate.

[4906-4-06(B)(3)]

Capital costs for the Project include development costs, construction design and planning, equipment costs, and construction related costs. The costs will be incurred within 2 years following the start of construction. Therefore, a present worth analysis is essentially the same as the costs presented above. Because alternatives to the Project are not under consideration, the capital cost information presented is limited to the Project.

C. OPERATION AND MAINTENANCE EXPENSES

Application Requirement [4906-4-06(C)]:

“(C) The applicant shall provide information regarding operation and maintenance expenses.

(1) The applicant shall provide applicable estimated annual operation and maintenance expenses for the first two years of commercial operation. The data submitted shall be classified according to federal energy regulatory commission uniform system of accounts prescribed by the public utilities commission of Ohio for utility companies, unless the applicant is not an electric light company, a gas company or a natural gas company as defined in Chapter 4905. of the Revised Code (in which case, the applicant shall file the operation and maintenance expenses classified in the accounting format ordinarily used by the applicant in its normal course of business).

(2) The applicant shall provide a comparison of the total operation and maintenance cost per kilowatt with applicant's similar facilities and explain any substantial differences.

(3) The applicant shall provide a tabulation of the present worth and annualized expenditures for operating and maintenance costs as well as any additional cost breakdowns as required to compare alternatives, and describe techniques and factors used in calculating present worth and annualized costs.”

Response:

[4906-4-06(C)(1)]

For the first 2 years of commercial operation, the annual operations and maintenance (“O&M”) cost of the Project at 144 MWac nameplate capacity are expected to be approximately \$1.1 million, or \$9/kW. These costs can be categorized as solar plant O&M, balance of plant O&M, site maintenance, and unplanned maintenance reserves.

Solar plant O&M is expected to cost \$650,000-\$750,000/year, balance of plant is expected to cost \$50,000-\$90,000/year, site maintenance is expected to cost \$135,000-\$160,000/year, and unplanned maintenance reserves are expected to cost \$100,000-\$140,000/year.

[4906-4-06(C)(2)]

O&M expenses are significant components of the overall cost of solar projects and can vary widely among facilities. As with capital costs, annual O&M expenses vary across geographies and by project scale. Key activities include monitoring and supervision, grid regulation, corrective maintenance, preventative maintenance, and site maintenance.

Solar facilities recently installed often enjoy lower O&M costs than industry reports indicate. Industry competition and consolidation of O&M providers has led to significant cost reductions as the solar industry continues to mature. The Sandia National Laboratory reported in 2016 that utility scale solar facilities in 2015 signed O&M contracts for between \$20.50/kW for fixed-tilt crystalline silicon facilities to \$21.50/kW for facilities using thin film solar modules, on average (Sandia, 2015). The use of single axis trackers (which the Project will use) typically adds roughly \$1.00/kW to O&M costs. The National Renewable Energy Laboratory (“NREL”) estimates that, due to optimized project layouts, economies of scale, and component improvements, O&M for utility-scale solar PV projects will be approximately \$8/kW-year in 2020 (NREL 2016).

The annual O&M costs for the Project are estimated to be approximately \$9/kW in the first year of operations and increase at a rate of approximately 2% per annum over the life of the Project. These estimated costs exclude property taxes, land rent payments, and other ongoing expenses not directly related to the efficient operation of the Project. The O&M costs are similar to costs expected at other facilities under development by the Partners in other states in the mid-Atlantic region of \$10-13/kW, and will likely be lower on a per kW cost than the costs reported by Sandia National Laboratory.

[4906-4-06(C)(3)]

The annual O&M costs itemized above will be subject to real and inflationary increases. Therefore, these costs are expected to at least increase with inflation over the life of the Project. The net present value of the O&M costs per kW, using an inflation rate of 2% and assuming a 7% discount rate, is \$11.50-12.50/kW. Because alternatives to the Project are not under consideration, the above O&M cost information is limited to the Project.

D. COST FOR A DELAY

Application Requirement [4906-4-06(D)]:

“(D) The applicant shall submit an estimate of the cost for a delay prorated to a monthly basis beyond the projected in-service date.”

Response:

The cost of month-to-month delays beyond the anticipated in-service date would depend on a number of factors. If the delay were to occur during Project development (including the process for obtaining the Certificate), the losses would primarily be those attributable to the time value of money associated with the delayed earning of power sale revenue. Such a loss is estimated to be approximately \$1 million/month. Delays beyond the planned in-service date also could incur costs pursuant to one or more power purchase agreements under which the Project is expected to deliver power on a date certain. Finally, delays that extended the in-service date could jeopardize the Project's expected eligibility for the applicable value of the federal Investment Tax Credit.

E. ECONOMIC IMPACT OF PROJECT

Application Requirement [4906-4-06(E)]:

“(E) The applicant shall provide information regarding the economic impact of the project.

(1) The applicant shall provide an estimate of the annual total and present worth of construction and operation payroll.

(2) The applicant shall provide an estimate of the construction and operation employment and estimate the number that will be employed from the region.

(3) The applicant shall provide an estimate of the increase in county, township, and municipal tax revenue accruing from the facility.

(4) The applicant shall provide an estimate of the economic impact of the proposed facility on local commercial and industrial activities.”

Response:

[4906-4-06(E)(1) & (2)]

On behalf of Applicant, the Economics Center of the University of Cincinnati estimated the economic and fiscal impact of the construction and operation of the Project. A copy the University's report (“**Socioeconomic Report**”) is attached as **Exhibit F**.

The Socioeconomic Report forecasts jobs that the Project would create including both direct and indirect employment. It estimates that, depending on Applicant's ability to source content manufactured in Ohio, the Project will create 737-3,312 direct and indirect construction-related jobs with corresponding payroll of \$46-\$170 million. For the operation phase of the Project, depending on the percentage of locally sourced content for maintenance activities, the Socioeconomic Report estimates that the Project will create

11-12 direct and indirect jobs with corresponding annual payroll of approximately \$395,000-\$516,000.

Applicant's goal is for at least 80% of the full-time equivalent employees who are employed for the construction or installation of the Project be domiciled in Ohio. In particular, many of the construction jobs calling for general trade skills, such as laborers and electricians, will be available to those in the region. These general skills include those sufficient to fulfill positions for the construction of roads and fencing, the performance of landscaping services, performing general labor and providing security. Many of the positions requiring more specialized skills, such as panel assemblers, operators of specialized excavators, and high-voltage electrical specialists, are likely to be filled by those outside the general region, although many are expected to live in Ohio.

[4906-4-06(E)(3)]

The Socioeconomic Report also estimates the Project's contributions to local tax revenues. Applicant hopes the Project will be designated as a "qualified energy project" ("QEP") and securing a related arrangement for payments in lieu of taxes ("PILOT") with the County pursuant to Ohio Revised Code ("R.C.") Section 5727.75 and procedures developed by the Ohio Development Services Agency. Based on an assumption of a PILOT of \$9,000/MW for 144 MWac, it is estimated that the Project will generate almost \$1.3 million in annual revenue—each year for up to 40 years—for Graham Local Schools, Champaign County, Fire and Emergency Medical Service, Adams Township, and other Project Area-related taxing entities.

[4906-4-06(E)(4)]

The Project is expected to have a number of positive economic impacts on commercial activities in the local area. The Socioeconomic Report estimates that the Project will generate new economic output of approximately \$105-\$277 million during construction and \$1.8-2.5 million annually from operation. A substantial portion of this total is expected to represent induced impacts, which in part reflect spending at local commercial establishments of substantial construction-related wages. In addition, additional local employment during the construction period is expected in supporting commercial sectors, such as restaurants and hotels. Similar induced impacts benefiting local commerce are expected to occur from operation-related employment spending, albeit to a much smaller degree than during construction. Finally, land lease payments to land owners participating in the Project are expected to supplement local income, which will result in increased demand for local commercial services.

F. PUBLIC RESPONSIBILITY

1. PUBLIC INTERACTION

Application Requirement [4906-4-06(F)]:

“(F) The applicant shall provide information regarding public responsibility.”

Response:

Information responsive to this overall requirement is provided in responses to the detailed requirements listed below.

Application Requirement [4906-4-06(F)(1)]:

“(1) The applicant shall describe the applicant's program for public interaction during the siting, construction, and operation of the proposed facility. This description shall include detailed information regarding the applicant's public information and complaint resolution programs as well as how the applicant will notify affected property owners and tenants about these programs at least seven days prior to the start of construction.”

Response:

With respect to the siting of the Project, as part of determining the best location for the Project, Applicant mailed letters to and called many landowners in an area of several square miles near the Transmission Line. After a demonstration of sufficient interest from landowners and confirmation in early 2020 from PJM that the Project could be economically interconnected to the electric grid, Applicant briefed local officials. Applicant then initiated a public outreach effort to inform and educate potential neighbors of the Project and receive their input. Applicant's interaction with the community about the Project and its pre-application public information program, including its Public Information Meetings held pursuant to the Board's rules, has been extensive. A summary of this effort is provided in the **Summary of Public Outreach** attached as **Exhibit G**.

For construction, Applicant will identify a person to address any complaints, concerns or comments from the public. Applicant also will publicly post contact information for submitting complaints, concerns or comments regarding construction. Prompt responses will be made to any such complaints, concerns or comments (for which a response either is requested or clearly implied). Finally, Applicant will make commercially reasonable efforts to expeditiously resolve any complaints or concerns. These and other measures for public interaction during construction are captured in a **Complaint Resolution Program** for the Project is attached as **Exhibit H**.

No later than 7 days prior to the start of construction, Applicant will mail a notice of start of construction to the following persons:

- (1) affected landowners and tenants who were provided notice of the Public Information Meetings;
- (2) attendees of the public information meetings who requested updates regarding the Project and provided a mailing address for that purpose; and

(3) any other person who requests updates regarding the Project and provides a mailing address for that purpose.

The notice of construction will summarize upcoming construction activities, describe where construction will occur, including the main routes of component delivery, and provide the name and contact information of a Project representative to whom any complaints, concerns or comments may be addressed.

For operations, Applicant will post its contact information at or near the entrance of each solar field and the Substation. Applicant also will post information to provide the public with contact information for submitting complaints, concerns or comments regarding operation. A prompt response will be made to any for which a response either is requested or clearly implied. Per its Complaint Resolution Program, Applicant will make commercially reasonable efforts to expeditiously resolve any complaints or concerns that may arise.

2. INSURANCE

Application Requirement [4906-4-06(F)(2)]:

“(2) The applicant shall describe any insurance or other corporate programs for providing liability compensation for damages to the public resulting from construction, operation, or decommissioning of the proposed facility.”

Response:

Applicant will maintain a comprehensive package of liability insurance to protect the public in connection with the Project. Throughout the construction, operation and decommissioning of the Project, Applicant will maintain insurance against claims and liability for personal injury, death and property damage arising from the construction, operation or decommissioning of the Project. At a minimum, the coverage limits of such insurance will be \$1 million per occurrence and \$2 million in the aggregate. Applicant also will maintain umbrella insurance coverage against claims and liability for personal injury, death and property damage arising from the construction, operation or decommissioning of the Project in the amounts of \$10 million per occurrence and \$10 million in the aggregate.

Applicant also is prepared to post a road bond or similar surety, if needed, to ensure the repair of any roads damaged by construction of the Project. Applicant will work with the local authorities to develop a common understanding for the use and protection of area roads. This may include a road use and maintenance agreement or a similar arrangement (“RUMA”) providing that any construction-related damages to roads be expeditiously repaired. As part of a RUMA, Applicant expects to establish appropriate surety to guarantee funds to fulfill its road-related obligations.

3. TRANSPORTATION IMPACTS

Application Requirement [4906-4-06(F)(3)]:

“(3) The applicant shall evaluate and describe the anticipated impact to roads and bridges associated with construction vehicles and equipment delivery. Describe measures that will be taken to improve inadequate roads and repair roads and bridges to at least the condition present prior to the project.”

Response:

On behalf of Applicant, Hull evaluated the anticipated impact of the construction of the Project on road and bridges and any needed improvements prior to construction or likely repairs needed following construction, as well as to advise Applicant regarding any required transportation-related permits and local traffic coordination. A copy of Hull’s **Transportation Assessment** is attached as **Exhibit I**.

The Transportation Assessment includes an on-site study of the transportation routes to the Project Area and the conditions of the local roads adjacent to and near the Project Area. It concludes that the roads and bridges generally are in good condition, that they are of a type and width sufficient to accommodate the deliveries for the construction of the Project, and that no major repairs or upgrades are needed for construction. Some of the smaller roads in the Project Area exhibit some cracking and other signs of wear and deterioration. The Transportation Assessment concludes that these can readily be addressed with local authorities so that their post-construction condition is as good as or better than their pre-construction condition. Applicant will work with local officials to repair any damage to roads resulting from construction, likely through a RUMA.

Anticipated impacts during construction will likely include increased vehicle traffic on main and ancillary roads due to component and construction equipment deliveries and movement of the construction workforce to and around the Project Area. The Transportation Assessment does not identify any bridges on the expected delivery routes or in the vicinity of the Project Area that will be impacted by the Project. The Applicant will work with the county engineers in Champaign, Logan and Shelby Counties, the Trustees for the affected townships, and the Ohio Department of Transportation (“ODOT”) to ensure that any impacts to road surface conditions and traffic flow are accounted for and rectified.

4. TRANSPORTATION PERMITS

Application Requirement [4906-4-06(F)(4)]:

“(4) The applicant shall list all transportation permits required for construction and operation of the project, and describe any necessary coordination with appropriate authorities for temporary or permanent road closures, lane closures, road access restrictions, and traffic control necessary for construction and operation of the proposed facility.”

Response:

The Transportation Assessment examines whether the construction or operation of the Project will necessitate any transportation-related permits. It concludes that no special hauling permits are likely to be needed because all of the vehicles needed for construction are anticipated to be within legal heights, weights and widths for the applicable roads and bridges. The Transportation Assessment notes that driveway permits will be required for the entrances and utility permits will be required for any crossings of roads with collection lines. As with road and culvert repairs and traffic coordination, these routine permits can be secured through consultation with the appropriate State and local officials.

The Transportation Assessment also describes current traffic conditions in and near the Project Area and addresses the effect of the likely volume of construction-related traffic. It concludes that the travelling public is likely to experience, at most, minor delays and inconveniences during the construction of the Project. The Transportation Assessment concludes that these matters that can readily be addressed by Applicant in cooperation with local authorities.

5. DECOMMISSIONING

Application Requirement [4906-4-06(F)(5)]:

“(5) The applicant shall describe the plan for decommissioning the proposed facility, including a discussion of any financial arrangements designed to assure the requisite financial resources.”

Response:

The Project will have only modest impacts to the land and will be relatively easy to decommission. The solar panels and racking will be installed on simple piles driven or rotated into the ground, likely to a depth of only 5-10 feet. Inverters and Pyranometers will be installed on pre-fabricated foundations, which can be lifted out of place, or gravel pads that can be removed. The Substation will be installed on poured concrete but will not cover a large area. Roads will be constructed of aggregate material or covered in grass,

not paved, and participating land owners may choose to retain roads for their own use following decommissioning. Buried portions of the AC Collection System outside of fences will be more than 3 to 4 feet below grade and, therefore, need not be removed to return fields to farming.

Decommissioning the Project should not require any soil or groundwater remediation. Operation of the Project will not create any hazardous waste or wastewater. The only materials that may be left at the Project Area are roads desired by landowners, collection lines buried below 3 feet, and possibly piles that break off more than 3 feet below grade. Solar panels typically contain only exceedingly small amounts of potentially hazardous materials, all of which are safely encased in polymer and tempered glass within an aluminum frame. Even if damaged by breakage or fire, solar panels are extremely unlikely to release any material necessitating soil or water remediation.

On behalf of Applicant, Hull prepared a **Preliminary Decommissioning Plan**, which is included as **Exhibit J**. The Preliminary Decommissioning Plan specifies the responsible parties, schedules, and projected costs for decommissioning and restoring the Project Area to substantially its pre-construction condition. It provides for the removal and sale, re-use, recycling or proper disposal of all components of the Project, including those containing rare or valuable materials. Decommissioning is expected to take 6 to 9 months.

The Preliminary Decommissioning Plan prioritizes reuse and recycling over land disposal as waste. Most of the materials used in state-of-the-art solar generating facilities are reusable or recyclable. Given recent and expected trends, it is likely that the percentage of reusable/recyclable components will only increase over time. Solar panels are comprised mostly (almost 80%) of commonly recycled materials: glass, aluminum and copper. Although little recycling has occurred to date due to the relative youth of the solar industry, a national recycling program was launched in 2016 with the goal of making the solar industry in the U.S. landfill-free. (SEIA, 2016). One of the top U.S.-based solar panel manufacturers is a leader in this area (First Solar, 2013).

Even if the Project's solar panels are not fully recyclable in 40 years, it is unlikely they will constitute "hazardous" or dangerous waste at disposal. Most solar panel suppliers have demonstrated that their products pass U.S. Environmental Protection Agency's ("EPA") "Toxic Characteristic Leaching Procedure," which qualifies them to be disposed of as routine waste such as household garbage. This includes the Ohio-made solar panels based on cadmium telluride chemistry (Lagunas, January 2017). As a result, solar panels generally may be disposed of in standard landfills. The Preliminary Decommissioning Plan calls for the decommissioning effort to work closely with manufacturers, local subcontractors, and waste management firms to segregate—based on the prevailing standards and practices at the time—materials that can be reused and recycled from those that must be land-disposed as solid waste.

The Preliminary Decommissioning Plan provides for the Project Area to be restored to use for cultivation, unless circumstances prevailing shortly in advance of the start of decommissioning indicate that another use is more appropriate or explicitly desired by the land owner. Restoration will include a return to the same or functionally similar pre-construction drainage patterns, including farm drainage tiles, decompaction of soil, and seeding with an appropriate, low-growing vegetative cover, such as clover, to stabilize soil, enhance soil structure, and increase soil fertility. As addressed with respect to impacts to agricultural resources, the Preliminary Decommissioning Plan also calls for the repair of any damage to drain tile systems.

The Preliminary Decommissioning Plan also provides for financial security to ensure that funds are available for decommissioning. The Preliminary Decommissioning Plan estimates the total cost of fully implementing the Decommissioning Plan. This consists of estimates of the following:

- (1) gross cost of decommissioning, without regard to the resale value of the components, plus 10% to cover contingencies; less
- (2) resale value, less 10% to cover contingencies (“Net Decommissioning Cost”).

The Preliminary Decommissioning Plan calls for a professional engineer to re-calculate the Net Decommissioning Costs approximately every 5 years over the life of the Project.

The Preliminary Decommissioning Plan provides that, if and when the Net Decommissioning Cost is a positive number, Applicant will post and maintain a bond or similar financial assurance instrument in the amount of the Net Decommissioning Cost. If and when a subsequent estimate of the Net Decommissioning Cost increases the Net Decommissioning Cost, the financial assurance instrument will be increased to that amount. Except as it may be drawn upon to implement the final decommissioning plan, however, the amount of the financial assurance will not be reduced.

Following the selection of component models and the completion of final engineering and design, Applicant will review and revise the Preliminary Decommissioning Plan to account for the final design and then-current market conditions. In advance of the start of construction, the Applicant will submit a final decommissioning plan for the Project to Staff for review.

VII. COMPLIANCE WITH AIR, WATER, SOLID WASTE, AND AVIATION REGULATIONS

A. PURPOSES OF RULE

Application Requirement [4906-4-07(A)]:

“(A) The information requested in this rule shall be used to determine whether the facility will comply with regulations for air and water pollution, solid and hazardous wastes, and aviation. Where appropriate, the applicant may substitute all or portions of documents filed to meet federal, state, or local regulations. Existing data may be substituted for physical measurements.”

Response:

Because of the nature of utility-scale solar facilities, several of the requirements on these subjects, especially with regard to air pollution regulations, do not apply to the Project. The specific instances in which a particular requirement does not apply are identified below.

B. AIR QUALITY

Application Requirement [4906-4-07(B)]:

“(B) The applicant shall provide information on compliance with air quality regulations.”

Response:

Information responsive to this overall requirement is provided in responses to the detailed requirements listed below.

1. PRECONSTRUCTOIN AIR QUALITY AND PERMITS

Application Requirement [4906-4-07(B)(1)]:

“(1) The applicant shall submit information regarding preconstruction air quality and permits.

(a) Provide available information concerning the ambient air quality of the proposed project area and any proposed alternative project area(s).

(b) Describe the air pollution control equipment for the proposed facility.

Stack gas parameters including temperature and all air pollutants regulated by the federal or state environmental protection agency shall be described for each proposed fuel. These parameters shall be included for each electric power generation unit proposed for the facility. Include tabulations of expected efficiency, power consumption, and operating costs for supplies and maintenance. Describe the reliability of the equipment and the reduction in efficiency for partial failure.

(c) Describe applicable federal and/or Ohio new source performance standards (NSPS), applicable air quality limitations, applicable national ambient air quality standards (NAAQS), and applicable prevention of significant deterioration (PSD) increments.

(d) Provide a list of all required permits to install and operate air pollution sources. If any such permit(s) have been issued more than thirty days prior to the submittal of the certificate application, the applicant shall provide a list of all special conditions or concerns attached to the permit(s).

(e) Except for wind farms, provide a map of at least 1:100,000 scale containing:

(i) The location and elevation (ground and sea level) of Ohio environmental protection agency primary and secondary air monitoring stations or mobile vans which supplied data used by the applicant in assessing air pollution potential.

(ii) The location of major present and anticipated air pollution point sources.

(f) Describe how the proposed facility will achieve compliance with the requirements identified in paragraphs (B)(1)(c) and (B)(1)(d) of this rule.”

Response:

[4906-4-07(B)(1)(a)]

The Project will be located in northwest Champaign County about a 45-minute drive north of Dayton and an hour drive northwest of Columbus. The ambient air in Champaign County currently complies with all applicable air quality requirements. Air quality conditions in the large metropolitan areas of Dayton and Columbus, however, often is poor. For instance, the air quality in the 4-county Columbus area only recently attained national ambient air quality standards for ground-level ozone promulgated by the U.S. EPA, and is designated a “maintenance area.” With the continued growth in the economies and populations of the Columbus and Dayton metropolitan areas, the quality of the multi-county region’s air can be characterized as marginal.

Urban ozone problems result chiefly from emissions of nitrogen oxides and volatile organic compounds from a variety of stationary and mobile sources, including factories, chemical processes, and motor vehicles. These precursor pollutants mix in the

atmosphere to form ground-level ozone, which is commonly known as “smog.” Traditional electric generation methods combusting coal and natural gas contribute to this problem primarily by emitting nitrogen oxides. The Project will provide electricity to Champaign County and the surrounding region, including Columbus and Dayton, without also exacerbating the ozone problem. Over time, a transition to clean energy sources such as solar facilities may help all of Ohio attain and maintain air quality standards.

[4906-4-07(B)(1)(b)-(f)]

Subsections (b) through (f) do not apply to the Project because the Project will not include any air pollution point sources or produce any air emissions from stationary or point sources of air pollution.

2. AIR EMISSIONS AND DUST DURING CONSTRUCTION

Application Requirement [4906-4-07(B)(2)]:

“(2) The applicant shall describe plans to control emissions and fugitive dust during the site clearing and construction phase.”

Response:

Due to the nature of construction, some emissions of fugitive dust necessarily will be generated by the construction of the Project, particularly roads. The amount of dust generated, however, will be relatively low for the Project’s acreage because little topsoil will be moved and there will be minimal grading and other earth-moving activities, and virtually no excavation except for efficient trenching, road-building, and HDD activities. Best management practices in the construction industry will be used to minimize the amount of dust created by construction. These will include the following:

- (1) retention of qualified and experienced construction firms that are knowledgeable about the importance of minimizing dust creation during construction activities;
- (2) maintenance of construction vehicles in proper working condition; and
- (3) use of water and/or dust suppressant on unpaved roads as needed to reduce dust creation.

As with other construction activities, dust emissions will be localized to the area of activity and temporary.

3. AIR QUALITY FOR OPERATION

Application Requirement [4906-4-07(B)(3)]:

“(3) Except for wind farms, the applicant shall provide information regarding air quality for the operation of the proposed facility.

(a) Describe ambient air quality monitoring plans for air pollutants regulated by the federal or state environmental protection agency.

(b) On a map of at least 1:24,000 scale, show three isopleths of estimated concentrations that would be in excess of the U.S. environmental protection agency-defined "significant emission rates" when the facility is operating at its maximum rated output. The intervals between the isopleths shall depict the concentrations within a five-mile radius of the proposed facility. A screening analysis may be used to estimate the concentrations.

(c) Describe procedures to be followed in the event of failure of air pollution control equipment, including consideration of the probability of occurrence, expected duration and resultant emissions.”

Response:

This requirement does not apply to the Project because it will not include any air pollution point sources or produce any air emissions from stationary or point sources of air pollution.

C. WATER QUALITY

Application Requirement [4906-4-07(C)]:

“(C) The applicant shall provide information on compliance with water quality regulations.”

Response:

Information responsive to this overall requirement is provided in responses to the detailed requirements listed below.

1. PRECONSTRUCTION WATER QUALITY AND PERMITS

Application Requirement [4906-4-07(C)(1)]:

“(1) The applicant shall provide information regarding preconstruction water quality and permits.

(a) Provide a list of all permits required to install and operate the facility, including water pollution control equipment and treatment processes.

(b) On a map of at least 1:24,000 scale, show the location and sampling depths of all water monitoring and gauging stations used in collecting preconstruction survey data. Samples shall be collected by standard sampling techniques and only in bodies of water likely to be affected by the proposed facility. Information from U.S. geological survey (USGS), Ohio environmental protection agency, and similar agencies may be used where available, but the applicant shall identify all such sources of data.

(c) Describe the ownership, equipment, capability, and sampling and reporting procedures of each station.

(d) Describe the existing water quality of the receiving stream based on at least one year of monitoring data, using appropriate Ohio environmental protection agency reporting requirements.

(e) Provide available data necessary for completion of any application required for a water discharge permit from any state or federal agency for this project. Comparable information shall be provided for the proposed site and any proposed alternative site(s)."

Response:

[4906-4-07(C)(1)(a)]

The Project will not create any identifiable, water-related discharges of the kind typically associated with most other types of electric generation facilities. Accordingly, it will include no water pollution control equipment or wastewater treatment processes. The Project does not require an individual National Pollution Discharge Elimination System ("NPDES") permit of the kind issued by the U.S. EPA or the Ohio EPA.

The Project will seek certain water protection-related permits. First, it may use a limited number of "nationwide permits" issued by the U.S. Army Corps of Engineers under Section 404 of the federal Clean Water Act for crossings of certain "waters of the U.S." Second, in connection with any such nationwide permits, the Project will seek a water quality certification from Ohio EPA pursuant to Section 401 of the federal Clean Water Act. Finally, the Applicant plans to seek coverage for the Project as a whole under Ohio EPA's "construction general permit" for stormwater discharges from certain construction activities, Ohio EPA Permit No: OHC000005, General Permit Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System, issued April 23, 2018 ("Construction General Permit").

[4906-4-07(C)(1)(b)-(e)]

Subsection (b) through (e) are inapplicable to the Project because, other than stormwater regulated under the Construction General Permit, it will not generate any wastewater.

2. WATER QUALITY DURING CONSTRUCTION

Application Requirement [4906-4-07(C)(2)]:

“(2) The applicant shall provide information regarding water quality during construction.

(a) Indicate, on a map of at least 1:24,000 scale, the location of the water monitoring and gauging stations to be utilized during construction.

(b) Provide an estimate of the quality and quantity of aquatic discharges from the site clearing and construction operations, including runoff and siltation from dredging, filling, and construction of shoreside facilities.

(c) Describe any plans to mitigate the above effects in accordance with current federal and Ohio regulations.

(d) Describe any changes in flow patterns and erosion due to site clearing and grading operations.

(e) Describe the equipment proposed for control of effluents discharged into bodies of water and receiving streams.”

Response:

The requirements of subsections (a) through (c) and (e) above do not apply to the Project.

With respect to subsection (d), no significant changes in flow patterns and erosion are anticipated because the Project Area already is level and very little grading will be needed. Although it will cover a relatively large area, construction will involve only limited activities requiring the management of stormwater related pollutants. Construction will necessitate little earth-moving and grading because the Project Area is relatively level. Construction will include only very limited removal of trees, and the Project’s design will avoid the need to clear large blocks of active wildlife habitat. Construction also will necessitate little excavation, which will be limited primarily to the creation of road beds, efficient trenching for collection lines, and creation of access points for HDD. Nonetheless, for erosion control and the management of stormwater, the Project will implement a Storm Water Pollution Prevention Plan (“SWP3”) as required by the General Construction Permit.

3. WATER QUALITY DURING OPERATION

Application Requirement [4906-4-07(C)(3)]:

“(3) The applicant shall provide information on water quality during operation of the facility.

(a) Indicate, on a map of at least 1:24,000 scale, the location of the water quality monitoring and gauging stations to be utilized during operation.

(b) Describe the water pollution control equipment and treatment processes planned for the proposed facility.

(c) Describe the schedule for receipt of the national pollution discharge elimination system permit.

(d) Provide a quantitative flow diagram or description for water and water-borne wastes through the proposed facility, showing the following potential sources of pollution, including:

(i) Sewage.

(ii) Blow-down.

(iii) Chemical and additive processing.

(iv) Waste water processing.

(v) Run-off and leachates from fuels and solid wastes.

(vi) Oil/water separators.

(vii) Run-off from soil and other surfaces.

(e) Describe how the proposed facility incorporates maximum feasible water conservation practices considering available technology and the nature and economics of the various alternatives.”

Response:

[4906-4-07(C)(3)(a)-(d)]

Subsections (a) through (d) are not applicable because operation will not consume an appreciable amount of water or generate any wastewater.

In order to confirm that the anticipated water-related impacts of the Project will be minimal and in accordance with applicable law, EVS on behalf of Applicant conducted a preliminary storm water analysis for the Project. A copy of this **Storm Water Assessment** is attached as **Exhibit K**.

The Storm Water Assessment provides a preliminary analysis of the applicability of the General Construction Permit to the Project in light of Ohio EPA’s “Guidance on

Post-construction Storm Water Controls for Solar Panel Arrays” issued in October 2019 (“OEPA SWM Solar Guidance”). The Storm Water Assessment is based on the Preliminary-Maximum Site Plan, and explains how the Project will comply with the General Construction Permit and account for the OEPA SWM Solar Guidance. It concludes that the Project should be able to satisfy the requirements in the General Construction Permit through design features that include the spacing of solar panel rows and vegetative ground cover. In fact, the Storm Water Assessment concludes that the Project is likely to *reduce* erosion and run-off compared to the current farming use, which annually disturbs the soil.

[4906-4-07(C)(3)(e)]

Opportunities to employ water conservation practices at the Project are extremely limited because it will use virtually no water, except possibly to occasionally clean the solar panels. All water used for that purpose will be trucked to the Project or acquired from a local source. Any wastewater discharges will be authorized by the General Construction Permit and the SWP3. The Project will not include any septic systems or have any sanitary water discharges.

D. SOLID WASTE

Application Requirement [4906-4-07(D)]:

“(D) The applicant shall provide information on compliance with solid waste regulations.”

Response:

Information responsive to this overall requirement is provided in responses to the detailed requirements listed below.

1. SOLID WASTE IN PROJECT AREA

Application Requirement [4906-4-07(D)(1)]:

“(1) The applicant shall provide information regarding preconstruction solid waste.

(a) Describe the nature and amount of debris and solid waste in the project area.

(b) Describe any plans to deal with such wastes.”

Response:

The Project Area is rural in character and comprised chiefly of farm fields with a relatively low population density. As a result, the general area is relatively free of debris and other solid waste. Applicant therefore does not have a specific plan to address existing debris and solid waste in the Project Area.

In an abundance of caution and following general industry practices, however, Applicant will retain an experienced and qualified firm to perform a pre-construction Phase 1 Environmental Site Assessment survey of the Project Area pursuant to standards adopted by the American Society for Testing and Materials and regulations promulgated by U.S. EPA for "All Appropriate Inquiries" under the Comprehensive, Environmental Response, Compensation and Liability Act ("Phase 1 ESA"). Applicant fully expects that the Project's final design can avoid any "recognized environmental condition" that may be identified by the Phase 1 ESA. A copy of the Phase 1 ESA will be provided to Staff prior to the start of construction.

2. CONSTRUCTION

Application Requirement [4906-4-07(D)(2)]:

"(2) The applicant shall provide information regarding solid waste during construction.

(a) Provide an estimate of the nature and amounts of debris and other solid waste generated during construction.

(b) Describe the proposed method of storage and disposal of these wastes."

Response:

Construction of the Project will generate limited amounts of solid waste, which will be reused, recycled, or disposed of accordance with applicable requirements. These wastes may include package-related materials, such as crates, nails, boxes, containers, and packing materials, damaged or otherwise unusable parts or materials, and occasional litter and miscellaneous debris generated by workers. Waste not reused or recycled will be disposed of in a landfill in accordance with applicable law.

3. OPERATION

Application Requirement [4906-4-07(D)(3)]:

"(3) The applicant shall provide information regarding solid waste during operation of the facility.

(a) Provide an estimate of the amount, nature, and composition of solid wastes generated during the operation of the proposed facility.

(b) Describe proposed methods for storage, treatment, transport, and disposal of these wastes.”

Response:

Operation of the Project will generate only very small amounts of solid waste, which will be reused, recycled, or be disposed of accordance with applicable law. These wastes are expected to be of the same general nature as those generated from construction, but in far smaller quantities. Waste not reused or recycled may be accumulated in small amounts in appropriate trash receptacles prior to disposal but will not require any treatment and will be disposed of in a landfill in accordance with applicable law.

4. PERMITS

Application Requirement [4906-4-07(D)(4)]:

“(4) The applicant shall describe its plans and activities leading toward acquisition of waste generation, storage, treatment, transportation and/or disposal permits. If any such permit(s) have been issued more than thirty days prior to the submittal of the certificate application, the applicant shall provide a list of all special conditions or concerns attached to the permit(s).”

Response:

The Project will not generate any waste for which such a permit is required.

E. AVIATION

Application Requirement [4906-4-07(E)]:

“(E) The applicant shall provide information on compliance with aviation regulations.

(1) List all public use airports, helicopter pads, and landing strips within five miles of the project area and all known private use airports, helicopter pads, and landing strips or property within or adjacent to the project area, and show these facilities on a map(s) of at least 1:24,000 scale. Provide confirmation that the owners of these airports have been notified of the proposed facility and any impacts it will have on airport operations.

(2) Provide the FAA filing status of each airport and describe any potential conflicts with air navigation or air traffic communications that may be caused by the proposed facility.”

Response:

There are no public use airports, public use helicopter pads, or public use landing strips within 5 miles of the Project Area. There are no private use landing strips or property used for aviation within or adjacent to the Project Area.

VIII. HEALTH AND SAFETY, LAND USE AND ECOLOGICAL INFORMATION

A. HEALTH AND SAFETY

Application Requirement [4906-4-08(A)]:

“(A) The applicant shall provide information on health and safety.”

Response:

Information responsive to this overall requirement is provided in responses to the detailed requirements listed below.

1. SAFETY AND RELIABILITY OF EQUIPMENT

Application Requirement [4906-4-08(A)(1)]:

“(1) Equipment safety. The applicant shall provide information on the safety and reliability of all equipment.

(a) Describe all proposed major public safety equipment.

(b) Describe the reliability of the equipment.

(c) Provide the generation equipment manufacturer's safety standards. Include a complete copy of the manufacturer's safety manual or similar document and any recommended setbacks from the manufacturer.

(d) Describe the measures that will be taken to restrict public access to the facility.

(e) Describe the fire protection, safety, and medical emergency plan(s) to be used during construction and operation of the facility, and how such plan(s) will be developed in consultation with local emergency responders.”

Response:

[4906-4-08(A)(1)(a)]

The proposed major safety equipment for the Project is perimeter fencing with locked gates, which will surround all above-ground features of the Project. Appropriate warning signage will be posted on the fence. The general public will be prohibited from entering the Project. Accordingly, the general public will have no access to any potential hazards associated with the Project, and also will be warned about them.

[4906-4-08(A)(1)(b)]

The Project's operating components will be highly reliable as Applicant will select only leading suppliers and the components will have relatively few moving parts. All of the primary types of components will have standard industry warranties.

[4906-4-08(A)(1)(c)]

After the selection of the model and vendor of solar panels, and prior to the start of construction, Applicant will submit to Staff the solar panel manufacturers' safety standards, including safety manuals or similar documents. Although Applicant does not expect any will exist, Applicant also will identify at that time any setbacks recommended by the manufacturer. Applicant will incorporate any such setbacks into its final site plan.

[4906-4-08(A)(1)(d)]

Except for a guided tour program that may be implemented for specific categories of visitors, such as school groups, the public will have no access to the Project. The public will be kept from coming into contact any of the components because all of the above-ground components will be fenced with locked gates.

[4906-4-08(A)(1)(e)]

Prior to construction, Applicant will implement an emergency response plan for fire, ambulance and law enforcement with affected local officials and emergency personnel. The emergency response plan will include information on the type and location of equipment, potential hazards (including potential hazards to emergency responders), locations of entrances, and emergency contact information. Applicant also plans to provide training to local responders regarding solar energy and its associated electrical systems, as well as provide any equipment that local responders may need to safely address any situation at the Project.

2. FAILURE OF AIR POLLUTION CONTROL EQUIPMENT

Application Requirement [4906-4-08(A)(2)]:

“(2) Air pollution control. Except for wind farms, the applicant shall describe in conceptual terms the probable impact to the population due to failures of air pollution control equipment.”

Response:

The Project will not include any air pollution control equipment.

3. NOISE FROM CONSTRUCTION AND OPERATION

Application Requirement [4906-4-08(A)(3)]:

“(3) Noise. The applicant shall provide information on noise from the construction and operation of the facility.

(a) Describe the construction noise levels expected at the nearest property boundary. The description shall address:

(i) Blasting activities.

(ii) Operation of earth moving equipment.

(iii) Driving of piles, rock breaking or hammering, and horizontal directional drilling.

(iv) Erection of structures.

(v) Truck traffic.

(vi) Installation of equipment.

(b) Describe the operational noise levels expected at the nearest property boundary. The description shall address:

(i) Operational noise from generation equipment. In addition, for a wind facility, cumulative operational noise levels at the property boundary for each property adjacent to or within the project area, under both day and nighttime operations. The applicant shall use generally accepted computer modeling software (developed for wind turbine noise measurement) or similar wind turbine noise methodology, including consideration of broadband, tonal, and low-frequency noise levels.

(ii) Processing equipment.

(iii) Associated road traffic

(c) Indicate the location of any noise-sensitive areas within one mile of the facility, and the operational noise level at each habitable residence, school, church, and other noise-sensitive receptors, under both day and nighttime operations. Sensitive receptor, for the purposes of this rule, refers to any occupied building

(d) Describe equipment and procedures to mitigate the effects of noise emissions from the proposed facility during construction and operation, including limits on the time of day at which construction activities may occur.

(e) Submit a preconstruction background noise study of the project area that includes measurements taken under both day and nighttime conditions.”

Response:

On behalf of Applicant, Epsilon Associates, Inc. measured the pre-construction sound in the Project Area, described the expected construction noise, modeled the Project's anticipated operational noise, and addressed any needed mitigation. A copy of its **Sound Report** is attached as **Exhibit L**.

[4906-4-08(A)(3)(a)]

Although construction will intermittently generate the types and levels of noise common at large construction sites, it will not feature many of the most significant noise-generating activities common during construction of other facilities. The Project will not involve extensive excavation or other earth-moving work or construction of significant concrete foundations. Although numerous piles will be driven, they likely will be only to a depth of 5-10 feet and the activity will be relatively brief at any particular location. HDD is expected to be used for the Project, but only in a few locations.

The Sound Report includes a table with representative sound levels from construction equipment at a distance of 50 feet, which may be conservatively interpreted as the site property boundary; levels as high as 85 A-weighted decibels ("dBA") could be briefly produced. In general, construction-related noise will be modest and intermittent, and will result in only minimal, unavoidable impacts. Blasting is not expected based on geotechnical investigations showing bedrock well below any construction activity. Any rock-breaking activities are expected to be minimal and, in any event, would be very limited in any particular location. Pile-driving will be avoided during early morning hours, and will involve smaller machines that repeatedly "tap" I-beams through soil and earth, not the large pile drivers commonly associated with large construction projects such as bridges and other infrastructure that "drive" large objects through earth and rock. The erection of structures and components will require almost exclusively standard construction vehicles and hand tools.

[4906-4-08(A)(3)(b)]

The Project's generation equipment will operate with virtually no off-site noise. Operation will generate only very small amounts of noise because it entails no fuel movement, no combustion, no waste movement, and very few moving parts. The only components that will cause any discernable noise are the transformer at the Substation, the Inverters and the small electric motors that turn the trackers. The noise generated by these sources will rapidly dissipate to background levels of noise over short distances. Except for modest noise from the continued energization of the transformer at the Substation, the operation of the Project will produce essentially no sound at night.

The Project will not include any "processing equipment" that makes noise apart from the operating equipment referenced above. Both of the sound-producing sources with any potential for off-site impacts—Inverters and the Substation transformer—were included in the Sound Report's modeling for "generation equipment." The Inverter used

for the modeling is the representative Inverter used in the Preliminary-Maximum Site Plan. Operation of the Project also will not include any measurable or meaningful noise off-site from associated road traffic; only a few workers will routinely access the Project in passenger vehicles.

The Sound Report depicts against a map of the Project Area the expected maximum operational noise levels from the Project derived from the modeling. The edge of the Project Area serves as a conservative proxy for the nearest property boundary (in many cases the property boundary is hundreds of feet farther away from the operating components than the edge of the Project Area). Because sound from the Project will only further dissipate the farther from the components it travels, the maximum operational noise levels at the property boundaries can only be equal to or less than those depicted for the edge of the Project Area.

[4906-4-08(A)(3)(c)]

The map in the Sound Report that depicts the results of the modeling includes a symbol for each habitable building within 1 mile of the edge of the Project Area (99 buildings). A separate table in the Sound Report lists the maximum operational noise levels from the Project for each building. These levels range from 14-36 dBA.

Because the Project will not generate any energy at night, the Sound Report compared the Project's noise contribution at these habitable buildings to a benchmark equal to the average daytime sound level (or "Leq") in the Project Area plus 5 dBA. The benchmarks for the habitable buildings range from 47-62 dBA. Thus, the modeling demonstrates that the sound levels at each of the buildings from the Project will be less than this benchmark.

As part of its final engineering and design for the Project, Applicant will confirm that no changes to the Preliminary-Maximum Site Plan will result in any increases in noise levels at property lines or habitable buildings. Specifically, Applicant will re-run its modeling if it:

- (1) selects an Inverter with power levels higher than those used in the modeling;
- (2) sites an Inverter closer to any property line than depicted in the Preliminary-Maximum Site Plan; or
- (3) selects a transformer with sound power levels higher than those used in the modeling.

A sound report from any such re-running of the model will be provided to Staff prior to the start of construction.

[4906-4-08(A)(3)(d)]

To mitigate noise during construction as much as practicable, Applicant will employ best management practices for the construction industry. These measures will include the following:

- (1) limiting construction activities to 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m. (with pile driving limited to 9:00 a.m. to 7:00 p.m. Monday through Friday);
- (2) maintaining construction-related vehicles in proper working condition; and
- (3) working with the local community to advise residents of those periods when sustained construction activity is expected to take place in relatively close proximity to their homes. (For the vast majority of the time, construction noise sources will be hundreds of feet away from any particular home.)

Based on the modeling results, Applicant does not expect to need to mitigate noise during operations. The Complaint Resolution Program, however, will be available if any neighbors have concerns. For instance, certain retrofits or sound-dampening measures can be employed following installation if an Inverter is producing unexpected sound.

[4906-4-08(A)(3)(e)]

The Sound Report includes the results of a preconstruction background noise study on both daytime and nighttime conditions. Five monitors placed in representative locations along the perimeter of the Project Area recorded background sound levels for a week. Background noise levels during the daytime, which are those relevant to the Project, were measured in the range of 42-57 dBA.

4. WATER IMPACTS

Application Requirement [4906-4-08(A)(4)]:

“(4) Water impacts. The applicant shall provide information regarding water impacts

(a) Provide an evaluation of the impact to public and private water supplies due to construction and operation of the proposed facility.

(b) Provide an evaluation of the impact to public and private water supplies due to pollution control equipment failures.

(c) Provide existing maps of aquifers, water wells, and drinking water source protection areas that may be directly affected by the proposed facility.

(d) Describe how construction and operation of the facility will comply with any drinking water source protection plans near the project area.

(e) Provide an analysis of the prospects of floods for the area, including the probability of occurrences and likely consequences of various flood stages, and describe plans to mitigate any likely adverse consequences.”

Response:

[4906-4-08(A)(4)(a)]

On behalf of Applicant, Hull reviewed the available geologic, hydrogeologic, and geotechnical data for the Project Area. A copy of its **Geology and Hydrogeology Report** is attached as **Exhibit M**.

Neither the construction nor operation of the Project is expected to have any impact on public or private water supplies.

The potable water supply for all homes in the vicinity of the Project Area is by private well, all of which have been identified in the Geology and Hydrogeology Report based on public data and a survey of landowners participating in the Project. There are very few wells in the Project Area itself, and the construction of the Project will avoid all wells. Accordingly, the Project will have no direct, physical impact on any well.

The construction of the Project also will have no impact on the groundwater resources that the wells access. The construction of the Project will involve only limited grading and excavation, and all subsurface work will be relatively near-surface and not near groundwater resources. As the Geology and Hydrogeology Report explains, wells in the area draw from the Farmerville Complex Aquifer and the Miami River Buried Valley Aquifer. Based on the depth of the wells and a thick layer of impermeable clay above the water-bearing zones, the Geology and Hydrogeology Report concludes that it is unlikely that the construction and operation of the Project will impact any of the wells.

The Geology and Hydrogeology Report also notes that the Project Area overlaps with the southernmost portion of a Source Water Protection Area (“SWPA”) known as the Quincy Village Potable Water Supply. The Village of Quincy is located about 1.5 miles northwest of the Project Area, and a community well draws water from an unconsolidated aquifer about 60 feet below the ground surface. The portion of the SWPA that underlies the northern part of the Project Area is in the “Protection Area” of the SWPA, which means that travel time of water to the well is estimated to be 5 years (the area closer to the well, with an estimated 1-year travel time, is referred to as the “Inner Management Zone”).

For the same reasons that the Project does not pose a risk to water sources for private water wells near the Project Area, it does not pose a risk to the Quincy Village Potable Water Supply. That is, the Quincy Village Potable Water Supply is located at considerable depth, whereas the Project’s construction will be shallow and the

components will not contain any liquids or materials that, if spilled, could threaten the supply. The Project contrasts sharply with the types of sources whose siting or operation Ohio EPA has restricted above or in the vicinity of SWPAs (i.e., landfills, animal feeding operations, wastewater treatment land application, biosolid application, underground storage tanks, etc.). Nonetheless, Applicant has been in touch with officials in Quincy and fully appreciates the importance that the community attaches to this supply of potable water. Applicant plans to continue to work with local officials to ensure they have the information they need and will work to address any of their concerns.

[4906-4-08(A)(4)(b)]

The Project does not include any pollution control equipment.

[4906-4-08(A)(4)(c)]

Figure 8 depicts aquifers, water wells, and SWPAs near the Project Area. None of these resources will be adversely affected by the Project.

[4906-4-08(A)(4)(d)]

The Geology and Hydrogeology Report explains that certain activities that may pose a risk to SWPAs are regulated in these areas. These activities include concentrated animal feeding operations, wastewater treatment land application, landfills, and certain underground storage tanks. The Project is not among the types of activities regulated with respect to SWPAs.

[4906-4-08(A)(4)(e)]

The prospects for floods in the Project Area are very low. The Geology and Hydrogeology Report notes that there are no 100-year floodplains in the Project Area, which means that the Project Area has a less than 1% chance of experiencing an extreme hydrologic event resulting in a flood. It also reports that the Federal Emergency Management Agency has designated the areas that make up the Project Area as “Area of Minimal Flooding Hazard.”

5. GEOLOGICAL FEATURES, TOPOGRAPHY AND WELLS

Application Requirement [4906-4-08(A)(5)]:

“(5) Geological features. The applicant shall provide a map of suitable scale showing the proposed facility, geological features of the proposed facility site, topographic contours, existing gas and oil wells, and injection wells. The applicant shall also:

(a) Describe the suitability of the site geology and plans to remedy any inadequacies.

(b) Describe the suitability of soil for grading, compaction, and drainage, and describe plans to remedy any inadequacies and restore the soils during post-construction reclamation.

(c) Describe plans for the test borings, including closure plans for such borings. Plans for the test borings shall contain a timeline for providing the test boring logs and the following information to the board:

(i) Subsurface soil properties.

(ii) Static water level.

(iii) Rock quality description.

(iv) Percent recovery.

(v) Depth and description of bedrock contact.”

Response:

Figure 9 depicts the location of the proposed Project, geological features of the proposed Project Area, and topographic contours. According to the Ohio Department of Natural Resources (“ODNR”) data, there are no existing gas and oil wells or injection wells in the Project Area.

[4906-4-08(A)(5)(a)]

The site geology is highly suitable for the Project because the Project’s subsurface impact will be very shallow and bedrock is not expected to be encountered. The Geology and Hydrogeology Report estimates that depth to bedrock in the Project Area is over 150 feet below the surface. Accordingly, there are no geology-related inadequacies to remedy in connection with the Project.

[4906-4-08(A)(5)(b)]

The Geology and Hydrogeology Report noted that the soils in the Project Area are mostly silty clay loams and silt loams that are suitable for grading, compaction and drainage for the Project. Accordingly, there are no soil-related inadequacies to remedy in connection with the Project.

The Project will necessitate only limited grading and compaction, primarily in connection with the construction of the Substation, Inverters and roads. The Project Area is very level, obviating the need for substantial grading. The racking and panels will be installed without moving significant quantities of top soil, and the rows of solar panels generally will follow the gentle contours of the existing surface. The limited amounts of soil moved for construction of the Project will be used for establishing ground cover or retained by the landowner.

[4906-4-08(A)(5)(c)]

On behalf of Applicant, and to inform its Preliminary-Maximum Site Plan and confirm the general suitability of the Project Area to host the various components, Hull conducted a number of test borings representative of subsurface conditions in the Project

Area. The results of the tests are provided in its **Preliminary Geotechnical Exploration Report** attached as **Exhibit N**.

The Preliminary Geotechnical Exploration Report concludes that the geotechnical and soil conditions in the Project Area accommodate the Project and, in particular, steel piles to support the solar panels. Borings were advanced to points from 15 to 50 feet below the ground surface, and no bedrock was encountered. Most of the borings revealed no groundwater, and the few that did were attributed to their close proximity to a surface water ditch and regarded as seepage and/or perched groundwater not hydraulically connected to any potable water use near the Project Area. As no bedrock was encountered, there are no rock quality descriptions to provide. The other required technical information is found in the Preliminary Geotechnical Exploration Report and, in particular, the boring logs.

As part of its final engineering and design of the Project, Applicant will conduct additional geotechnical work in the Project Area. Applicant plans to submit the plans for that work, including appropriate closure plans, to Staff no less than 30 days before to the start of field work and after the final site plan for the Project has been finalized. Within 60 days after receipt of all relevant data from the borings, Applicant plans to provide Staff with all of the information required by the above rule with respect to the additional work.

6. HIGH WINDS

Application Requirement [4906-4-08(A)(6)]:

“(6) Wind velocity. The applicant shall provide an analysis of the prospects of high winds for the area, including the probability of occurrences and likely consequences of various wind velocities, and describe plans to mitigate any likely adverse consequences.”

Response:

Apart from tornado-force winds, the Project’s components generally are not susceptible to damage from high winds. The piles for the racking will be made of galvanized steel and will be installed, based on the site-specific soil sampling, at sufficient depths to prevent the movement of the associated equipment from wind. The racking and solar panels selected during final engineering and design of the Project will be accompanied by wind ratings from the manufacturers. Thus, except for extremely rare occurrences of exceptionally high winds that would catastrophically damage all types of structures and buildings in the area, there are not expected to be any adverse consequences to the Project from high winds.

7. BLADE SHEAR

Application Requirement [4906-4-08(A)(7)]:

“(7) Blade shear. For a wind farm, the applicant shall evaluate and describe the potential impact from blade shear at the nearest property boundary and public road.”

Response:

This requirement does not apply to the Project.

8. ICE THROW

Application Requirement [4906-4-08(A)(8)]:

“(8) Ice throw. For a wind farm, the applicant shall evaluate and describe, by providing a site-specific ice throw risk analysis and assessment study, the potential impact from ice throw at the nearest property boundary and public road.”

Response:

This requirement does not apply to the Project.

9. SHADOW FLICKER

Application Requirement [4906-4-08(A)(9)]:

“(9) Shadow flicker. For a wind farm, the applicant shall evaluate and describe the potential cumulative impact from shadow flicker at the property boundary and sensitive receptors within a distance of ten rotor diameters or at least one-half mile, whichever is greater, of a turbine, including its plans to minimize potential impacts.”

Response:

This requirement does not apply to the Project.

10. TV AND RADIO RECEPTION

Application Requirement [4906-4-08(A)(10)]:

“(10) Radio and TV reception. The applicant shall evaluate and describe the potential for the facility to interfere with radio and TV reception and describe measures that will be taken to minimize interference.”

Response:

The Project is not expected to have any material impact on radio or television reception because it lacks tall structures and exposed moving parts, and it will generate only very weak electromagnetic fields (“EMFs”), almost entirely during the day, that will dissipate rapidly within short distances. “PV arrays generate EMF in the same extremely low frequency (ELF) range as electrical appliances and wiring found in most homes and buildings” (MDER, 2015). In a study of three solar arrays in Massachusetts, electric fields levels measured along the boundary were not elevated above background (Massachusetts Clean Energy Center, 2012). Applicant is aware of no research that indicates that the Project has the potential to interfere with radio or television reception.

11. RADAR SYSTEMS

Application Requirement [4906-4-08(A)(11)]:

“(11) Radar interference. The applicant shall evaluate and describe the potential for the facility to interfere with military and civilian radar systems and describe measures that will be taken to minimize interference.”

Response:

The Project is not expected to have any material impact on military or civilian radar systems because it lacks tall structures that could potentially block radar signals. It also lacks exposed moving parts and it will generate only very weak EMFs that will dissipate rapidly within short distances. According to the Federal Aviation Administration (“FAA”), “[d]ue to their low profiles, solar PV systems typically represent little risk of interfering with radar transmissions.” (FAA Guidance, 2010).

12. NAVIGABLE AIRSPACE INTERFERENCE

Application Requirement [4906-4-08(A)(12)]:

“(12) Navigable airspace interference. The applicant shall evaluate and describe the potential for the facility to interfere with navigable airspace and describe measures that will be taken to minimize interference. The applicant shall coordinate such efforts with appropriate state and federal agencies.”

Response:

With a maximum height of 15 feet except for some components at the Substation that generally will be lower than the adjacent, existing Transmission Line, the Project does not have any potential to interfere with navigable airspace.

13. MICROWAVES

Application Requirement [4906-4-08(A)(13)]:

“(13) Communication interference. The applicant shall evaluate and describe the potential for the facility to interfere with microwave communication paths and systems and describe measures that will be taken to minimize interference. Include all licensed systems and those used by electric service providers and emergency personnel that operate in the project area.”

Response:

The Project is not expected to have any adverse impact on microwave communication paths because it lacks any tall structures with the potential to block those paths. The only structure at the Project at an appreciable height will be lightning masts at the Substation. The lightning masts will not interfere with any microwave transmissions because they will be too narrow and, in any event, will be located very close to and similar in height to the adjacent, existing Transmission Line. Applicant is aware of no information that indicates that the Project has the potential to interfere with microwave transmissions.

B. ECOLOGICAL RESOURCES

Application Requirement [4906-4-08(B)]:

“(B) The applicant shall provide information on ecological resources.”

Response:

Information responsive to this overall requirement is provided in responses to the detailed requirements listed below.

1. ECOLOGICAL RESOURCES IN PROJECT AREA

Application Requirement [4906-4-08(B)(1)]:

“(1) Ecological information. The applicant shall provide information regarding ecological resources in the project area.”

(a) Provide a map of at least 1:24,000 scale containing a one half-mile radius from the project area, showing the following:

(i) The proposed facility and project area boundary.

(ii) Undeveloped or abandoned land such as wood lots or vacant tracts of land subject to past or present surface mining activities, not used as a registered game preserve or in agricultural production.

(iii) Wildlife areas, nature preserves, and other conservation areas.

(iv) Surface bodies of water, including wetlands, ditches, streams, lakes, reservoirs, and ponds.

(v) Highly-erodible soils and slopes of twelve percent or greater.

(b) Provide the results of a field survey of the vegetation and surface waters within one-hundred feet of the potential construction impact area of the facility. The survey should include a description of the vegetative communities, and delineations of wetlands and streams. Provide a map of at least 1:12,000 scale showing all delineated resources.

(c) Provide the results of a literature survey of the plant and animal life within at least one-fourth mile of the project area boundary. The literature survey shall include aquatic and terrestrial plant and animal species that are of commercial or recreational value, or species designated as endangered or threatened.

(d) Conduct and provide the results of field surveys of the plant and animal species identified in the literature survey.

(e) Provide a summary of any additional studies which have been made by or for the applicant addressing the ecological impact of the proposed facility.”

Response:

[4906-4-08(B)(1)(a)]

A map depicting the required features and ecological resources is attached as **Figure 10**.

[4906-4-08(B)(1)(b)]

On behalf of Applicant, Cardno identified all surface waters and wetlands, as well as their associated vegetative communities, in the Project Area. Its **Water Delineation Report** is attached as **Exhibit O**. The Water Delineation Report identified one stream and minimal wetlands in the Project Area. A map depicting the delineated water resources in the Project Area attached as **Figure 11**.

[4906-4-08(B)(1)(c)]

On behalf of Applicant, Cardno conducted a literature review of plant and animal life located within one-fourth mile of the Project Area boundary. Its **Wildlife Report** is attached as **Exhibit P**. The Wildlife Report notes that the species present in the Project Area are those primarily associated with farm fields, pasture grasslands, isolated wood lots, and wetlands. It notes that a majority of the federal- or Ohio-listed species potentially present in the area would be expected to inhabit wetlands and associated streams. The Wildlife Report concludes, however, that it is unlikely that these habitats are well-developed due to regular disturbance from cultivation and habitat fragmentation. It determined that the Project Area and one-quarter mile buffer are not known to provide significant habitat for sensitive bird species, and that there are no records of bald eagle nests or known bat hibernacula in the area. The Wildlife Report also advises that no commercially valuable species were expected to be present in the Project Area.

[4906-4-08(B)(1)(d)]

The Wildlife Report also provides the results of field surveys of the Project Area and one-quarter mile buffer. They confirm the conclusions from the literature survey. Specifically, the surveys revealed no evidence of any of the following:

- (1) bald eagle nests or activity;
- (2) nests of listed or sensitive raptor species;
- (3) bat activity (albeit noting that most bat activity would be nocturnal); or
- (4) any federal- or Ohio-listed species.

The surveys confirm that the Project Area and one-quarter mile buffer constitute generally poor wildlife habitat owing to the historically high degree of fragmentation and the regular disturbance of the vast majority of the land by farming and related land-intensive operations.

[4906-4-08(B)(1)(e)]

Applicant did not undertake other studies addressing the ecological impact of the Project.

2. POTENTIAL IMPACT DURING CONSTRUCTION

Application Requirement [4906-4-08(B)(2)]:

“(2) Ecological impacts. The applicant shall provide information regarding potential impacts to ecological resources during construction.

(a) Provide an evaluation of the impact of construction on the resources surveyed in response to paragraph (B)(1) of this rule. Include the linear feet and acreage impacted, and the proposed crossing methodology of each stream and wetland that would be crossed by or within the footprint of any part of the facility or construction equipment. Specify the extent of

vegetation clearing, and describe how such clearing work will be done so as to minimize removal of woody vegetation. Describe potential impacts to wildlife and their habitat.

(b) Describe the mitigation procedures to be utilized to minimize both the short-term and long-term impacts due to construction, including the following:

(i) Plans for post-construction site restoration and stabilization of disturbed soils, especially in riparian areas and near wetlands. Restoration plans should include details on the removal and disposal of materials used for temporary access roads and construction staging areas, including gravel.

(ii) A detailed frac out contingency plan for stream and wetland crossings that are expected to be completed via horizontal directional drilling.

(iii) Methods to demarcate surface waters and wetlands and to protect them from entry of construction equipment and material storage or disposal.

(iv) Procedures for inspection and repair of erosion control measures, especially after rainfall events.

(v) Methods to protect vegetation in proximity to any project facilities from damage, particularly mature trees, wetland vegetation, and woody vegetation in riparian areas.

(vi) Options for disposing of downed trees, brush, and other vegetation during initial clearing for the project, and clearing methods that minimize the movement of heavy equipment and other vehicles within the project area that would otherwise be required for removing all trees and other woody debris off site.

(vii) Avoidance measures for state or federally listed and protected species and their habitat in accordance with paragraph (D) of rule 4906-4-09 of the Administrative Code.”

Response:

[4906-4-08(B)(2)(a)]

On behalf of Applicant, Cardno prepared an **Ecology Impact Assessment**, which is attached as **Exhibit Q**. The Ecology Impact Assessment details the Project’s maximum impacts to the resources identified in response to Section 4906-4-08(B)(1).

With respect to streams and wetlands, the Ecology Impact Assessment includes (1) the linear feet and acreage of each stream and wetland crossing; and (2) the methodology used for each stream and wetland crossing. These are maximum impacts based on the Preliminary-Maximum Site Plan.

Regarding vegetation clearing, only a very small portion of the Project Area is occupied by trees. These can be divided into two categories:

(1) narrow (30-to-60 feet wide), linear strips of trees (referred to as “windrows”) running between cultivated areas that likely served historically as property boundaries; and

(2) larger, more substantial blocks of trees and associated habitat (referred to as “woodlots”), with the largest of these likely used for hunting.

The vast majority of the trees in the Project Area, especially the woodlots, will not be disturbed by the Project.

With regard to protected wildlife and its habitat, the construction of the Project is expected to have negligible impacts on wildlife and their habitat. The vast majority of the Project will be constructed on farm fields, which already provide minimal habitat for plant and animal life. The relatively small areas of trees and other vegetation to be removed do not provide significant habitat for wildlife.

[4906-4-08(B)(2)(b)]

The Ecology Impact Assessment assess the mitigation measures that Applicant will employ to mitigate impacts to ecological resources from construction.

The Project Area will be stabilized and re-seeded, as construction proceeds across the site, in accordance with the SWP3 developed pursuant to the General Construction Permit. These erosion and control measures and surface restoration efforts will be synchronized with the implementation of the final vegetation management plan for the establishment and growth of a robust ground cover across the Project. Aggregate and related materials used to build temporary roads and laydown yards will be removed and either re-purposed or disposed of in accordance with applicable law.

HDD may be used to cross the one stream in the area or other non-jurisdictional water features without disturbing them. On behalf of Applicant, Hull prepared a plan that sets forth procedures to avoid, minimize, and remediate potential environmental impacts resulting from an inadvertent return of drilling fluids during HDD operations. This **Preliminary HDD Inadvertent Return Plan** is found in **Exhibit R**.

With respect to measures to protect streams and wetlands, prior to construction Applicant will demarcate such resources with flagging or signage. As noted above, to provide a buffer between construction and such resources, the fence line will be at least 25 feet from their edge. The site orientation provided to construction personnel will include information about these resources, their importance to the area ecology, and steps to minimize impacts. The site-specific SWP3 that Applicant will develop prior to construction pursuant to the Construction General Permit will include procedures for inspection and maintenance of erosion and sediment control measures following significant rainfall events.

Measures will be taken to protect vegetation, particularly mature trees, wetland vegetation, and woody vegetation in riparian areas, from construction activities. Most importantly, very little vegetation, and particularly mature trees, in the Project Area will be removed. In addition, construction will avoid areas within 25 feet of the one stream and the minimal wetlands in the Project Area.

The off-site disposal of removed vegetation, and the use of heavy equipment for such removal, will be minimal. There will be relatively little vegetation removed because woodlots and riparian areas along the stream will be avoided. The limited number of trees and other vegetation to be removed may be chipped for on-site use as erosion control mulch, rather than sent for off-site disposal.

A final site plan incorporating final engineering and design and construction plans based on them will be submitted to Staff for review prior to construction. It will include detailed procedures for each of the elements listed above, and will address:

- (1) soil management;
- (2) surface water and wetland demarcation;
- (3) SWP3 inspection procedures;
- (4) vegetation protection; and
- (5) vegetation disposal.

Construction is not expected to interfere with any major species or its habitat.

3. POTENTIAL IMPACT DURING OPERATION

Application Requirement [4906-4-08(B)(3)]:

“(3) Operational ecological impacts. The applicant shall provide information regarding potential impacts to ecological resources during operation and maintenance of the facility.

(a) Provide an evaluation of the impact of operation and maintenance on the undeveloped areas shown in response to paragraph (B)(1) of this rule.

(b) Describe the procedures to be utilized to avoid, minimize, and mitigate both the short- and long-term impacts of operation and maintenance. Describe methods for protecting streams, wetlands, and vegetation, particularly mature trees, wetland vegetation, and woody vegetation in riparian areas. Include a description of any expected use of herbicides for maintenance.

(c) Describe any plans for post-construction monitoring of wildlife impacts.”

Response:

[4906-4-08(B)(3)(a)]

The Project's operation will not have any significant adverse impacts on ecological resources, including on the undeveloped areas identified above. Virtually all of the Project Area currently is being farmed. It will be used for clean energy production for 40 years, and then can be returned to farming. The Project will produce no air pollution or wastewater discharges, and will not generate any significant amount of waste.

[4906-4-08(B)(3)(b)]

By its very nature, the Project's operation will be highly protective of ecological resources. Operations will have essentially no impact on streams, wetlands, and vegetation, including mature trees (except for a minimal number within some narrow windrows), wetland vegetation and woody vegetation in riparian areas. Vegetation within the fence will be managed in accordance with the Preliminary Vegetation Management Plan, as finalized prior to the start of construction.

Regarding herbicides, as noted in the Preliminary Vegetation Management Plan, operating personnel may use commercially-available herbicides for the control of noxious weeds and as needed for the proper maintenance of the vegetative cover. Over the life of the Project, however, this likely will be less than that used for typical row crops such as corn and soybeans. Because the solar panels will be constructed only in upland areas that are almost entirely already dry and cleared of vegetation, the occasional use of herbicides will not adversely affect mature trees, streams, wetland vegetation, and riparian areas.

[4906-4-08(B)(3)(c)]

Applicant has no plans for the post-construction monitoring of impacts to wildlife because no adverse impacts are expected. The Project will have no moving parts that are not fully enclosed (and these will be limited to the Substation, the Inverters and small electric motors for tracking). It will cause no environmental discharges potentially affecting wildlife. Operational vehicle use will not appreciably increase the amount of traffic in the general vicinity of the Project Area.

The final design of the Project will include pollinator-friendly, native plantings in selected locations along the perimeter. These features not only will enhance the Project's visual appeal but will enrich local wildlife habitat and benefit local farming. Native fruit and flowering plants can provide a much-needed food source for wild, native butterflies, bees, and insects that pollinate flowering forbs and some commercial crops. As with the vegetative cover, pollinator habitat also can reduce erosion, reduce fertilizer, herbicide and pesticide use, discourage invasive species and improve water quality. (This subject is discussed more below in connection with landscaping.)

C. LAND USE AND COMMUNITY DEVELOPMENT

Application Requirement [4906-4-08(C)]:

“(C) The applicant shall provide information on land use and community development.”

Response:

Information responsive to this overall requirement is provided in responses to the detailed requirements listed below.

1. LAND USE IN PROJECT AREA AND POTENTIAL IMPACTS

Application Requirement [4906-4-08(C)(1)]:

“(1) Existing land use. The applicant shall provide information regarding land use in the region and potential impacts of the facility through the following maps and related information.

(a) Provide a map of at least 1:24,000 scale showing the following within one-mile of the project area boundary:

(i) The proposed facility.

(ii) Land use, depicted as areas on the map. Land use, for the purposes of paragraph (C) of this rule, refers to the current economic use of each parcel. Categories should include residential, commercial, industrial, institutional, recreational, agricultural, and vacant, or as classified by the local land use authority.

(iii) Structures, depicted as points on the map. Identified structures should include residences, commercial centers or buildings, industrial buildings and installations, schools, hospitals, churches, civic buildings, and other occupied places.

(iv) Incorporated areas and population centers.

(b) Provide, for the types of structures identified on the map in paragraph (C)(1)(a) of this rule, a table showing the following:

(i) For all structures and property lines within one thousand five hundred feet of the generation equipment or wind turbine, the distance between both the structure or property line and the equipment or nearest wind turbine.

(ii) For all structures and property lines within two hundred fifty feet of a collection line, access road, or other associated facility, the distance between both the structure or property line and the associated facility.

(iii) For each structure and property in the table, whether the property is being leased by the applicant for the proposed facility.

(c) Provide an evaluation of the impact of the proposed facility on the above land uses identified on the map in paragraph (C)(1)(a) of this rule. Include, for each land use type, the construction impact area and the permanent impact area in acres, in total and for each project component (e.g., turbines, collection lines, access roads), and the explanation of how such estimate was calculated.

(d) Identify structures that will be removed or relocated.”

Response:

[4906-4-08(C)(1)(a) & (b)]

The required map is included as **Figure 12** and the required tables are included as **Figures 13 through 16**, respectively.

[4906-4-08(C)(1)(c)]

A table with the specified land use impacts is included as **Figure 17**. Note that only approximately one-third of the land within the solar fields actually will be occupied by any components of the Project. That figure conservatively treats all the land below the solar panels, when they are parallel to the ground surface, as “occupied” by the solar panels. In reality, only the narrow piles supporting the racking and solar panels will impact or occupy the ground surface.

[4906-4-08(C)(1)(d)]

Applicant anticipates that it may need to remove 3 to 4 farm-related structures that are in poor condition and located in one area. The current owner of these structures has plans to eventually remove them regardless of the Project.

2. MAP REQUIRED FOR WIND FARMS

Application Requirement [4906-4-08(C)(2)]:

“(2) Wind farm maps. For wind farms only, the applicant shall provide a map(s) of at least 1:24,000 scale showing the proposed facility, habitable residences, and parcel boundaries of all parcels within a half-mile of the project area. Indicate on the map, for each parcel, the parcel number and whether the parcel is being leased by the applicant for the proposed facility, as of no more than thirty days prior to the submission of the application. Include on the map the setbacks for wind turbine structures in relation to property lines, habitable residential structures, electric transmission lines, gas distribution lines, hazardous liquid(s) pipelines, and state and federal highways, consistent with no less than the following minimum requirements:

(a) The distance from a wind turbine base to the property line of the wind farm property shall be at least one and one-tenth times the total height of

the turbine structure as measured from its tower's base (excluding the subsurface foundation) to the tip of a blade at its highest point.

(b) The wind turbine shall be at least one thousand, one hundred, twenty-five feet in horizontal distance from the tip of the turbine's nearest blade at ninety degrees to the property line of the nearest adjacent property at the time of the certification application.

(c) The distance from a wind turbine base to any electric transmission line, gas pipeline, hazardous liquid pipeline, or state or federal highway shall be at least one and one-tenth times the total height of the turbine structure as measured from its tower's base (excluding the subsurface foundation) to the tip of a blade at its highest point.

(d) Minimum setbacks from property lines and residences may be waived pursuant to procedures set forth in paragraph (C)(3) of this rule."

Response:

This requirement does not apply to the Project.

3. SETBACK WAIVERS

Application Requirement [4906-4-08(C)(3)]:

"(3) Setback waivers. The setback shall apply in all cases except those in which all owner(s) of property adjacent to the wind farm property waive application of the setback to that property. The waiver(s) must meet the following requirements:

(a) Content of Waiver. The waiver shall:

(i) Be in writing;

(ii) Provide a brief description of the facility;

(iii) Notify the applicable property owner(s) of the statutory minimum setback requirements

(iv) Describe the adjacent property subject to the waiver through a-legal description;

(v) Describe how the adjacent property is subject to the statutory minimum setback requirements; and

(vi) Advise all subsequent purchasers of the adjacent property subject to the waiver that the waiver of the minimum setback shall run with the land.

(b) Required Signature. The waiver shall be signed by the applicant and the applicable property owner(s), indicating consent to construction activities without compliance with the minimum setback requirements.

(c) Recordation of Waiver. The waiver shall be recorded in the county recorder's office where the property that is subject of the waiver is located.

Response:

This requirement does not apply to the Project.

4. LAND USE PLANS

Application Requirement [4906-4-08(C)(4)]:

“(4) Land use plans. The applicant shall provide information regarding land use plans.

(a) Describe formally adopted plans for future use of the project area and surrounding lands for anything other than the proposed facility.

(b) Describe the applicant's plans for concurrent or secondary uses of the site.

(c) Describe the impact of the proposed facility on regional development, including housing, commercial and industrial development, schools, transportation system development, and other public services and facilities.

(d) Assess the compatibility of the proposed facility and the anticipated resultant regional development with current regional plans.

(e) Provide current population counts or estimates, current population density, and ten-year population projections for counties and populated places within five miles of the project area.”

Response:

[4906-4-08(C)(4)(a)]

In connection with the Project, Applicant examined land use plans and substantive zoning rules for the Project Area and the surrounding area. The County recently issued the Champaign County Comprehensive Plan (2020 Update) (“Comprehensive Plan”), which can be found on the website for the Logan-Union-Champaign (LUC) Regional Planning Commission at this location:

https://2614136b-fd50-499b-9466-da7a47425c09.filesusr.com/ugd/540e57_32353892e6e64ad390c922c058c1da64.pdf

The Comprehensive Plan sets forth certain “broad visions” for the County, several of which are relevant to Project. These are (1) preservation of farmland resources, including

promotion of agriculture and agricultural diversification; (2) stimulation of economic growth and new investment in the County; and (3) preservation of the County's rural character and minimization of suburban sprawl. The Project generally is in harmony with these broad land use themes.

The Project has a defined life and it is capable of being removed at the end of that life. In fact, Applicant is contractually and legally obligated to do so. Therefore, the Project serves to preserve farmland for future cultivation. A study by North Carolina ("N.C.") State University concluded that, unlike more common developments such as residential subdivisions, "[m]odern 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." (N.C. State, 2019). In addition, the study found that "solar development with proper planning and implementation, results in a small but manageable impact on the future agricultural productivity of the land on which it is sited." (N.C. State, 2019).

The Project supports the County's goals for new investment and economic growth. The Project represents an investment of tens of millions of dollars in capital in the County. As noted by the Socioeconomic Report, the Project is expected to result in a substantial pulse of new economic activity during construction and it will supplement the revenues of local taxing entities by approximately \$1.3 million each year for 40 years. The Project also reflects important economic and personal decisions by the participating landowners to diversify their land uses to include solar. In that connection, Applicant notes that the Ohio Farm Bureau Federation ("OFBF") recently revised its policies to support recognition of on-farm energy production as an agricultural product. (OFBF, 2019)

The Comprehensive Plan's goal of preserving rural character and avoiding suburban sprawl is rooted in concerns about loss of prime farmland, increased congestion, depletion of natural resources, and increases in demand for taxpayer-supported services. While the Project will alter the landscape in its immediate vicinity, this will be modest due to the components' low profile and location on mostly level ground. In addition, the visual effect will be mitigated by tailored landscaping along the perimeter. As noted above, however, the Project will actually serve to preserve farmland from permanent conversion to other uses. It will not increase congestion because there will be no office and relatively few personnel on site at any particular location at any particular time. The Project will not deplete natural resources and it will not require tax-payer supported services such as sewer and water.

Also reflective of local land use planning for the area in which the Project will be located are Adams Township's zoning laws. Although state law and the Board jurisdiction apply in lieu of local zoning, the Project is a use contemplated by the local zoning code. In Champaign County, individual townships manage zoning and land use within their jurisdictions. Under the Adams Township Zoning Code and Official Zoning Map, the Project Area is zoned "U-1." (Adams Township, 2017). Within the Zoning Code, the Official Schedule of District Regulations provides that one of the uses that may be

permitted, via a conditional use permit, in the U-1 zoning district is a “public service facility,” which is defined to include “power plants, substations . . . electrical, . . . service and other similar public service structure or facilities whether publicly or privately owned” (Adams Township, 2017). Requiring only a local permit to implement appropriate conditions, a “conditional use” is defined as a “use permitted within a district other than a principally permitted use” (Adams Township, 2017).

[4906-4-08(C)(4)(b)]

Applicant has no plans for concurrent or secondary use of the Project Area.

[4906-4-08(C)(4)(c) & (d)]

As the Socioeconomic Report explains, the Project is not expected to have any significant adverse effect on regional development, including housing, commercial and industrial development, schools, transportation system development, or other public services and facilities. The Project will, however, positively contribute to employment, as well as provide the secondary and induced effects of increased wages. Similarly, the Project will contribute significant new sums annually to the revenue base for the County, especially public schools. The Project is consistent with the current regional plans for preserving farmland while concentrating commercial and residential growth near towns and communities.

[4906-4-08(C)(4)(e)]

The required data is provided in the Socioeconomic Report.

D. CULTURAL AND ARCHAEOLOGICAL RESOURCES

Application Requirement [4906-4-08(D)]:

“(D) The applicant shall provide information on cultural and archeological resources.”

Response:

Information responsive to this overall requirement is provided in responses to the detailed requirements listed below.

1. RECREATION AREAS AND LANDMARKS IN PROJECT AREA

Application Requirement [4906-4-08(D)(1)]:

“(1) Landmark mapping. The applicant shall indicate, on a map of at least 1:24,000 scale, any formally adopted land and water recreation areas, recreational trails, scenic rivers, scenic routes or byways, and registered landmarks of historic, religious, archaeological, scenic, natural, or other cultural significance within ten miles of the project area. Landmarks to be

considered for purposes of paragraph (D) of this rule are those districts, sites, buildings, structures, and objects that are recognized by, registered with, or identified as eligible for registration by the national registry of natural landmarks, the state historic preservation office, or the Ohio department of natural resources.”

Response:

A map depicting the specified (1) formally-adopted natural areas; and (2) registered landmarks located within 10 miles of the Project Area is provided in **Figure 18**.

Applicant has submitted a waiver request to reduce, other than for mapping requirements, the distance requirement for cultural resources from 10 to 2 miles, and for visual resources from 10 to 5 miles, from the Project Area. The Project will have a very low visual profile with the highest points within the solar fields of only 15 feet above ground level. The Project generally will not be meaningfully visible at locations more than 2 miles away from the Project Area, nor from most areas within 2 miles of the Project Area. In anticipation of favorable action on the waiver, Applicant has studied these resources out to 5 or 2 miles, as applicable, from the Project Area.

2. IMPACTS ON REGISTERED LANDMARKS

Application Requirement [4906-4-08(D)(2)]:

“(2) Impacts on landmarks. The applicant shall provide an evaluation of the impact of the proposed facility on the preservation and continued meaningfulness of these landmarks and describe plans to avoid or mitigate any adverse impact.”

Response:

On behalf of Applicant, EDR prepared a **Phase 1A Cultural Resources Survey** of the Project Area and the area within a 2-mile radius of the Project Area, its recommended Cultural Resources Study Area, which is attached as **Exhibit S**. The scope of the Phase 1A Cultural Resources Survey is broader than, but includes, an evaluation of the impact of the Project on the registered landmarks specified in Section 4906-4-08(D)(1), i.e., those registered landmarks that either are:

- (1) “of historic, religious, archaeological, scenic, natural, or other cultural significance”; or
- (2) “districts, sites, buildings, structures, and objects that are recognized by, registered with, or identified as eligible for registration by the national registry of

natural landmarks, the state historic preservation office, or the Ohio department of natural resources.”

The Phase 1A Cultural Resources Survey concludes that the Project has the potential to cause indirect visual impacts to certain above-ground historic resources within the Cultural Resources Study Area. Accordingly, the Phase 1A Cultural Resources Survey includes a proposed methodology for a reconnaissance survey of historic/architectural resources in the Cultural Resource Study Area.

On behalf of Applicant, EDR submitted the Phase 1A Cultural Resources Survey to the State Historic Preservation Office (“SHPO”) for its review and comment. SHPO provided comments, which included its acceptance of the proposed methodology for the historical survey. SHPO’s comments (“**SHPO Comments on Phase 1A Cultural Resources Survey**”) are included as **Exhibit T**. The SHPO Comments on Phase 1A Cultural Resources Survey specifically accepted that the “Area of Potential Effects” for the Project is “the area containing the proposed project and a 2-mile buffer of the project area where the viewshed analysis indicates potential visibility.”

On behalf of Applicant, and pursuant to the SHPO-accepted methodology, EDR conducted a **Historic Resource Survey** for the Project, which is attached as **Exhibit U**. The Historic Resource Survey concluded that one resource located approximately 1 mile from the Project could be visually impacted, but that the Project’s planned landscaping would mitigate those impacts. The Historic Resource Survey was provided to SHPO for feedback. In a letter dated December 8, 2020, SHPO advised Applicant that it had reviewed the Historic Resource Survey and concluded that the Project would have no adverse effects on historic architectural properties. A copy of this **No Adverse Historic Effects Determination** is attached as **Exhibit V**.

Although they do not constitute registered landmarks, Applicant also is working with SHPO to investigate the potential subsurface archeological resources within the Project Area itself. The Phase 1A Cultural Resources Survey provided background research on the potential for the presence of subsurface archeological resources within the “Area for Direct Effects” for the Project, i.e., the buildable area in which there may be ground disturbance. It also proposes a field survey methodology to investigate the presence of those potential resources. In the SHPO Comments on Phase 1A Cultural Resources Survey, SHPO also accepted this methodology and, on behalf of Applicant, EDR is engaged in that field work.

Field investigations of active farm fields by qualified archeological professionals necessitate either, or a combination of, “pedestrian surveys” with significant visibility to the ground surface or substantial hand-shoveling that follows an appropriate spatial sampling plan. Pedestrian surveys with the needed visibility must take place soon after the fall harvest or soon before the spring planting. Pedestrian surveys are strongly preferred over hand-shoveling because they cause less far less disturbance to soil, crops and farming activities, and also are more cost-effective. Applicant was able to complete

a substantial portion of the pedestrian surveys for the Project Area following the fall 2020 harvest.

The status of the archeological field work to date is summarized in the **Archeology Status Memorandum** included as **Exhibit W**. The Archeology Status Memorandum reports that, based on very limited cultural findings from substantial work completed to date and the spatial flexibility inherent in solar design, it is not anticipated that archeological resources will affect Applicant's ability to construct the Project within the footprint provided in the Preliminary-Maximum Site Plan. Applicant expects to complete the field work just prior to spring 2021 planting (late March/early April), and to submit its report to SHPO soon afterwards. A copy of that report and any feedback from SHPO, which is expected in the summer of 2021, will be provided to Staff.

3. IMPACTS ON FORMALLY-ADOPTED RECREATION AREAS

Application Requirement [4906-4-08(D)(3)]:

“(3) Recreation and scenic areas. The applicant shall describe the identified recreation areas within ten miles of the project area in terms of their proximity to population centers, uniqueness, topography, vegetation, hydrology, and wildlife. Provide an evaluation of the impact of the proposed facility on identified recreational and scenic areas within ten miles of the project area and describe plans to mitigate any adverse impact.”

Response:

On behalf of Applicant, EDR prepared a **Visual Resource Assessment** of the Project, which is attached as **Exhibit X**. The scope of the Visual Resource Assessment is broader than, but includes, an evaluation of the impact that the Project would have on the formally-adopted recreation area specified in Section 4906-4-08(D)(1), i.e., “land and water recreation areas, recreational trails, scenic rivers, scenic routes or byways” within 5 miles (per the waiver request) of the Project Area.

The Visual Resource Assessment concludes that, within 5 miles of the Project Area, there are no National River Inventory-designated rivers, National Scenic Trails, National Wildlife Refuges, or State Wildlife Management Areas. Some lakes and streams informally used for recreation are located within the 5-mile area, but the Project will not impact these resources. The low profile of the Project's infrastructure, maintaining the vast majority of existing woodlots, and the topography of the region ensures that practical visibility within the Project's viewshed area is limited to 2 miles. Thus, the Project will not adversely impact any formally-adopted water recreation areas, recreational trails, scenic rivers, scenic routes or byways within 5 miles of the Project Area.

4. VISUAL IMPACTS

Application Requirement [4906-4-08(D)(4)]:

“(4) Visual impact of facility. The applicant shall evaluate the visual impact of the proposed facility within at least a ten-mile radius from the project area. The evaluation shall be conducted or reviewed by a licensed landscape architect or other professional with experience in developing a visual impact assessment. The applicant shall:

(a) Describe the visibility of the project, including a viewshed analysis and area of visual effect, shown on a corresponding map of the study area. The viewshed analysis shall not incorporate deciduous vegetation, agricultural crops, or other seasonal land cover as viewing obstacles. If the viewshed analysis includes atmospheric conditions, it shall incorporate the atmospheric conditions under which the facility would be most visible.

(b) Describe the existing landscape and evaluate its scenic quality. This description shall include documentation of a review of existing plans, policies, and regulations of the communities within the study area, and list all references to identified visual resources or other indications of the visual preferences of the community.

(c) Describe the alterations to the landscape caused by the facility, including a description and illustration of the scale, form, and materials of all facility structures, and evaluate the impact of those alterations to the scenic quality of the landscape.

(d) Evaluate the visual impacts to the resources identified in paragraph (D) of this rule, and any such resources within ten miles of the project area that are valued specifically for their scenic quality.

(e) Provide photographic simulations or artist's pictorial sketches of the proposed facility from public vantage points that cover the range of landscapes, viewer groups, and types of scenic resources found within the study area. The applicant should explain its selection of vantage points, including any coordination with local residents, public officials and historic preservation groups in selecting these vantage points.

(f) Describe measures that will be taken to minimize any adverse visual impacts created by the facility, including, but not limited to, project area location, lighting, turbine layout, visual screening, and facility coloration. In no event shall these measures conflict with relevant safety requirements.”

Response:

[4906-4-08(D)(4)(a)]

The Visual Resource Assessment includes a multi-part viewshed analysis.

First, it includes a computer analysis based on a bare earth digital surface model (“DSM”). The DSM conservatively assumes a viewer height of 6 feet and a maximum height for the Project of 15 feet throughout the Project Area. It incorporates both topographical data for the area as well as buildings and vegetation derived from the Ohio Statewide Imagery Program’s 2007 “light detection and ranging” (also known as “LIDAR”) data for the multi-county region that includes the Project Area.

The results of the DSM analysis conservatively demonstrate that the Project generally will not be visible in any meaningful way at locations that are 2 miles or more away from the Project Area. It also illustrates why the Project will not be visible from the vast majority of areas even within 2 miles of the Project Area. Rather, due to the extremely low profile of the solar panels and the significant amount of vegetation in the area, the number of locations from which the solar components may be visible is relatively few; the vast majority of these locations are very close to the components.

Second, the DSM was complemented by a practical analysis of the visibility of an existing utility-scale solar facility in Ohio that is in a similar visual setting as the Project. A comparative analysis was made between the Project and the post-construction visibility of a facility outside of Bowling Green, Ohio. The Bowling Green facility is located in Center Township, Wood County, Ohio, and is situated in a landscape with similar characteristics to the region in which the Project Area is located. Six specific “distance zones” ranging from 200 feet to just over 1 mile from the facility were defined to take representative photographs of the actual visibility conditions present at the Bowling Green facility. These representative conditions were then referenced to the same “distance zones” around the Project. The results generally confirm, and even emphasize, that meaningful views of the Project will be limited to the area in relatively close proximity to the components.

Third, the Visual Resource Assessment reflects the results of a site investigation in the vicinity of the Project Area focused on the viewshed in the area and the potential effect of the Project. This field work generally confirmed the results of the DSM analysis and the comparison to the existing solar facility. Open views toward the Project are largely restricted to areas adjacent to the Project Area where public roads are bordered by open agricultural fields, which is consistent with the analysis that was completed of the Bowling Green facility where visibility diminished rapidly beyond 500 feet. Views of the Project from beyond 1 mile will largely be screened by the lines of mature vegetation associated with several rivers and creeks. During the growing season, visibility of the Project from nearby residences and roadways may also be limited by crop (corn) growth in the foreground agricultural fields. The combination of relatively low panel height, along with existing streamside vegetation, hedgerows, and the atmospheric effects of distance, will

limit visibility of the Project from the majority of the viewshed, confirming the results of the viewshed analysis.

[4906-4-08(D)(4)(b)]

The land use within the 5-mile area surrounding the perimeter of the Project Area is characterized by a mix of open agricultural fields, sparse rural residential properties, forested windrows and woodlots, and utility corridors. The Project Area itself is primarily located on private farm land. Most of these farms are in active use, but some of them are fallow. In general, the existing landscape in and immediately around the Project Area is typical of rural Ohio, in which there is ample vegetation, the predominant land use is farming, and the population density is low.

[4906-4-08(D)(4)(c)]

The Project will only moderately alter this landscape and will not materially affect its scenic quality. The Project will have a very low profile and present a consistent visual image throughout the Project Area. Except for the Substation, which will have limited visibility at distance and likely be adjacent to the existing Transmission Line, the Project's equipment will be either buried or less than 15 feet in height. Each of the solar fields will contain essentially the same components, which will consistently follow the existing level of the various farm fields. With no discernable movement of the components, it is fair to characterize the solar panels, rather than corn or soybeans, as passively "harvesting" energy from the sun.

The Project also will have low reflectivity. Solar panels are designed to maximize energy production by capturing as much light as possible, which means that they inherently cause little glare from reflection of sunlight. Solar panels "use high-transmission, low-iron glass, which absorbs more light, producing smaller amounts of glare and reflectance than normal glass" (SunPower, 2010). The Massachusetts Department of Energy Resources has reported that the glass used for solar panels is less reflective than window glass or water and that solar panels typically "are designed to reflect only about 2 percent of incoming sunlight." (MDER, 2015).

The Project's operation also will include only very limited lighting, which will not adversely affect existing nighttime conditions. Lighting will be used primarily for safety and security at gates and infrequent repair and replacement of equipment.

[4906-4-08(D)(4)(d)]

The Visual Resources Report provides a full evaluation of the visual impacts to the identified resources within 5 miles of the Project Area that are valued specifically for their scenic quality.

[4906-4-08(D)(4)(e)]

The Visual Resources Report includes visual simulations of representative views of the Project from various foreground and near mid-ground distances, as well as different viewer circumstances. Among the viewpoints selected are ones from adjacent road

corridors, a distant view of the Project as it interacts with the existing farm fields and farm buildings, and a well-traveled state route at a further distance. The overall visual effect from the Project could be considered adverse only when largely unscreened and viewed in the immediate foreground (i.e., where the Project occurs in an open field directly adjacent to a public road). However, none of these unscreened foreground views are available from scenic resources and, therefore, do not cause an undue adverse effect on aesthetic resources.

[4906-4-08(D)(4)(f)]

Although the low profile of the Project means that its visibility will diminish rapidly with distance, it will have a visual impact on some adjacent and nearby neighbors and travelers. Because the area is extremely flat, what particular viewers see will depend largely on their distance to the nearest fence and whether there are any intervening objects, such as vegetation or buildings (farm building, storage shed, garage, etc.). In this regard, two key features of the landscape near the Project Area and the Project itself serve to substantially mitigate visual impacts.

First, there are a number of woodlots and windrows around the perimeter of the Project Area that will screen or enhance views of the components from many locations. Some of this vegetation exists immediately outside the Project Area, and Applicant hopes to work with neighbors to preserve it. Much of the screening vegetation, however, sits on land owned by the Project participants, and the footprint of the components was purposefully shaped to avoid these features in part to preserve their aesthetic benefits.

Second, for areas between neighboring homes and the Project not obscured by vegetation, the fence of the Project has been designed a considerable distance away to create a substantial buffer. Despite the Project-wide *minimum* setback of 150 feet between the fence and homes, in the vast majority of cases the distance is closer to 300 feet (the length of a football field) and in some cases it is over 1,000 feet (longer than 3 football fields). Applicant expects that these farm buffer areas will continue to be farmed throughout the life of the Project, with corn fields in particular having a substantial screening effect in summer and fall.

In addition to the above, the Project will feature a landscape plan for the perimeter of the Project to further enhance its appearance and harmonize it with the surrounding landscape. On behalf of Applicant, MKSK developed a **Preliminary Landscape Plan** for the Project, which is included as **Exhibit Y**. The Preliminary Landscape Plan features a tiered set of landscape treatments just outside the fence that are tailored to specific locations and viewers. The locations and composition of the specific treatments are preliminary, flexible, and subject to on-going discussions with a number of neighbors. Following these discussions and prior to the start of construction, Applicant will submit a final landscape plan to Staff.

With regard to lighting, the Project will have only minimal lighting as it will not operate at night and has no personnel stationed on site. At most, lights will be located at

entrances, Inverters and the Substation any all will be designed to reduce any off-site impacts. Among the features that may be incorporated into the design are that lights be down-ward facing, equipped with side shields, or motion-activated.

E. AGRICULTURAL DISTRICTS AND AGRICULTURAL LAND

Application Requirement [4906-4-08(E)]:

“(D) The applicant shall provide information regarding agricultural districts and potential impacts to agricultural land.”

Response:

Information responsive to this overall requirement is provided in responses to the detailed requirements listed below.

1. AGRICULTURAL RESOURCES IN PROJECT AREA

Application Requirement [4906-4-08(E)(1)]:

“(1) Mapping of agricultural land. The applicant shall identify on a map of at least 1:24,000 scale the proposed facility, all agricultural land, and separately all agricultural district land existing at least sixty days prior to submission of the application located within the project area boundaries. Where available, distinguish between agricultural uses such as cultivated lands, permanent pasture land, managed woodlots, orchards, nurseries, livestock and poultry confinement areas, and agriculturally related structures.”

Response:

The required map is attached as **Figure 19**. There are no agricultural districts in the Project Area.

2. IMPACTS TO AGRICULTURAL RESOURCES

Application Requirement [4906-4-08(E)(2)]:

“(2) Agricultural information. The applicant shall provide, for all agricultural land, and separately for agricultural uses and agricultural districts identified under paragraph (E)(1) of this rule, the following:

(a) A quantification of the acreage impacted.

(b) An evaluation of the impact of the construction, operation, and maintenance of the proposed facility on the land and the following agricultural facilities and practices within the project area:

(i) Field operations such as plowing, planting, cultivating, spraying, harvesting.

(ii) Irrigation.

(iii) Field drainage systems.

(iv) Structures used for agricultural operations.

(v) The viability as agricultural district land of any land so identified.

(c) A description of mitigation procedures to be utilized by the applicant during construction, operation, and maintenance to reduce impacts to agricultural land, structures, and practices. The description shall illustrate how avoidance and mitigation procedures will achieve the following:

(i) Avoidance or minimization to the maximum extent practicable of any damage to field tile drainage systems and soils in agricultural areas.

(ii) Timely repair of damaged field tile systems to at least original conditions, at the applicant's expense.

(iii) Segregation of excavated topsoil, and decompaction and restoration of all topsoil to original conditions unless otherwise agreed to by the landowner.”

Response:

[4906-4-08(E)(2)(a)]

A table containing the impacts to agricultural land and agricultural uses is found in Figure 17. There are no agricultural districts in the Project Area. All impacts will be temporary because, after 40 years, the Project will be decommissioned and the land returned to substantially its preconstruction condition.

[4906-4-08(E)(2)(b)]

For any of the farm land within the fence that is used for operation of the Project, the associated agricultural use will be supplanted by the Project for approximately 40 years. In these areas, all field operations, such as plowing, planting, cultivating, spraying, and harvesting, as well as any irrigation, will be precluded during that time. These activities and uses may be continued after that period of time, however, following decommissioning of the Project and restoration of the area to return to farming purposes. Construction of the Project will not result in the removal of or damage to any significant or valuable structure currently used for farm operations.

The farm land within the Project Area includes a number of field drainage systems. Applicant's final engineering and design will seek to avoid interference of all such systems by the precise placement of Project components to avoid physical contact. In doing so, Applicant will be particularly attentive to "main" tile systems typically comprised of larger pipes that cross the property boundaries of different landowners. Some "lateral" tile

systems that do not affect neighboring landowners may need to be rerouted to accommodate construction or disconnected during the life of the Project, but would be restored for future farming during decommissioning of the Project.

An initial effort to identify all drain tile in and adjacent to the Project Area and a plan for locating any remaining drain tile has already been undertaken. Specifically, on behalf of Applicant, EVS prepared a **Preliminary Drain Tile Assessment** for the Project. It is attached as **Exhibit Z**. The Preliminary Drain Tile Assessment identified what Applicant believes is the vast majority of the drain tile in the Project Area.

Applicant does not anticipate that the Project will impact any structures currently used for agricultural operations except possibly for the previously-mentioned 3 to 4 farm-related structures in poor condition that the current owner plans to remove anyway.

There are no agricultural districts in the Project Area.

[4906-4-08(E)(2)(c)]

Prior to construction, Applicant will finalize its assessment of drain tile, which will include consulting with the owners of the land adjacent to the Project Area and other readily available public resources to ascertain, to the extent practicable, the type, size and location of all functioning drain tile where construction is planned. Applicant will use this information to update and finalize its mapping of the expected locations of drain tile and physically mark the surface accordingly.

To the extent the location of functioning drain tile is known, during construction Applicant either will avoid damage to it or repair any that is necessarily damaged. Applicant will use commercially reasonable efforts to promptly repair any such drain tile. Also, if Applicant becomes aware during operation of circumstances indicating that the Project has damaged functioning drain tile, then Applicant will promptly investigate the matter and use commercially reasonable efforts to promptly repair any such damage.

Relatively little topsoil will be disturbed or significantly compacted during construction of the Project. The primary activities that will necessitate some topsoil movement or compaction will be:

- (1) installing fence posts;
- (2) building road beds;
- (3) constructing foundations for the Substation and SCADA structure;
- (4) laying foundations for the Inverters and Pyranometers;
- (5) digging trenches for collection lines; and
- (6) excavating access points for HDD.

Topsoil removed during construction either will be returned before the end of construction or provided to the participating landowner.

REFERENCES

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Summary: Application - Part 1 of 31 Cover, Affidavit and Narrative electronically filed by Christine M.T. Pirik on behalf of Clearview Solar I, LLC