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February 19, 2021

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

**Re: Application**
Case No. 20-1679-EL-BGN
In the Matter of the Application of Pleasant Prairie Solar Energy LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Franklin County, Ohio.

Dear Ms. Troupe:

Accompanying this letter is an application by Pleasant Prairie Solar Energy LLC ("Applicant") for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Franklin 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 November 25, 2020, regarding a request for waiver, has been revised. Construction of the Facility is expected to begin in the First Quarter of 2022, and commercial operation is planned for the Fourth Quarter of 2023. The Facility will be sited on approximately 1,729 acres, which is a reduction from the 2,500 acres set forth in the preapplication letter. In addition, 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:

Pleasant Prairie Energy LLC
(affiliate of Invenergy Solar Project Development LLC)
One Wacker Drive, Suite 1800
Chicago, Illinois 60606

Name and location of the facility:

Pleasant Prairie Solar Energy LLC
Pleasant and Prairie Townships
Franklin County, Ohio

Name of authorized representative:

Christine M.T. Pirik
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, Ohio, 43215
(614) 591-5461
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Notarized Statement:

See attached Affidavit of Michael Kaplan,
Vice President, Business Development, Hardin Solar Energy III LLC

Respectfully submitted,

/s/ *Christine M.T. Pirik*____
Christine M.T. Pirik (0029759)
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(*Counsel agree to receive service by email.*)

***Attorneys for Pleasant Prairie Solar Energy LLC***

CMTP:AP
Enclosures

4817-9017-7756 v3 [39579-53]

**BEFORE THE**
**OHIO POWER SITING BOARD**

| | | |
|---|---|---|
| In the Matter of the Application of Pleasant Prairie Solar Energy LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Franklin County, Ohio. | ) ) ) ) | Case No: 20-1679-EL-BGN |

**OFFICER'S AFFIDAVIT FOR**
**PLEASANT PRAIRIE SOLAR ENERGY LLC**

STATE OF ILLINOIS :
: ss
COUNTY OF COOK :

I, Michael Kaplan, 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 Business Development at Pleasant Prairie Solar Energy LLC, the applicant under this Application, which is an affiliate of Invenergy Solar Project Development LLC.

2. I have reviewed Pleasant Prairie Solar Energy LLC's Application for a Certificate to Construct a Solar-Powered Electric Generation Facility in Pleasant and Prairie Townships, Franklin County, Ohio.

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.

Michael Kaplan, Vice President
Pleasant Prairie Solar Energy LLC

Sworn to before and signed in my presence this 17th day of February, 2021.

OFFICIAL SEAL
NHU TRINH
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:06/11/24

Notary Public

**BEFORE**
**THE OHIO POWER SITING BOARD**

| | | |
|---|---|---|
| In the Matter of the Application of Pleasant Prairie Solar Energy LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Franklin County, Ohio. | ) ) ) ) ) | Case No. 20-1679-EL-BGN |

# APPLICATION

## Submitted by Pleasant Prairie Solar Energy LLC
## February 2021

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## ACRONYMS AND ABBREVIATIONS USED IN APPLICATION

AEP – American Electric Power

BMP - best management practices

FERC - Federal Energy Regulatory Commission

GIS - Geographical Information System

kV – kilovolt

kW - kilowatt

MW – megawatt

NAAQS - National Ambient Air Quality Standards

NLCD - U.S. Geological Survey National Land Cover Database

NPDES - National Pollutant Discharge Elimination System

NSPS - New Source Performance Standards

NWI - USFWS National Wetlands Inventory

OAC – Ohio Administrative Code

ODNR - Ohio Department of Natural Resources

ODOT - Ohio Department of Transportation

Ohio EPA - Ohio Environmental Protection Agency

OHPO - Ohio Historic Preservation Office

O&M – operation and maintenance

OPSB - Ohio Power Siting Board

POI – point of interconnection

PJM - PJM Interconnection LLC

SPCC - Spill Prevention, Control, and Countermeasure

U.S. – United States

USGS - U.S. Geologic Survey

USFWS - U.S. Fish and Wildlife Service

## 4906-4-01 Purpose and scope

### (A) General

The materials contained herein and attached hereto constitute Pleasant Prairie Solar Energy LLC's (Applicant) submittal (Application) for a Certificate of Environmental Compatibility and Public Need (Certificate). This Application is prepared in accordance with the requirements for the filing of standard certificate applications for electric generation facilities, as prescribed in Ohio Administrative Code (OAC) Chapter 4906-4 This Application has been prepared by the Applicant.

### (B) Waivers

The Ohio Power Siting Board (OPSB) may, upon application or motion, waive any requirement of OAC Chapter 4906-4 other than a requirement mandated by statute.

The Applicant has obtained the following waiver associated with the Application:

- Waiver of requirement for an in-person public information meeting.

In addition, this same day, the Applicant is filing a motion requesting a waiver of OAC Rules 4906-4-08(D)(2) and (4) to allow for a reduced study area regarding the review of cultural resources, landmarks, recreational areas, and visual impact.

## 4906-4-02 Project summary and Applicant information

### (A) Summary of the proposed Project

The Applicant, an affiliate of Invenergy Solar Project Development LLC, is proposing to construct a 250 megawatt alternating current (MWac, hereinafter referred to as MW) solar-powered electric generation facility (the Facility or Project), located in Pleasant and Prairie Township, Franklin County, Ohio. The Facility will interconnect to the regional electrical transmission grid via the existing American Electric Power (AEP) Cole Road existing substation at 345 kilovolt (kV) (Cole Road Substation), which is less than 2 miles from the Facility.

Invenergy Solar Project Development LLC is an affiliate of Invenergy Renewables LLC, which is in turn an affiliate of Invenergy LLC (Invenergy). As one of the nation's leading independent power generation companies, Invenergy is applying its renewable energy experience and innovation toward expanding its clean energy portfolio to include solar power generation in the state of Ohio.

The Applicant is applying its renewable energy experience and innovation toward expanding its clean energy portfolio to include solar power generation.

#### (1) General purpose of the Facility

The general purpose of the Project is to produce clean, renewable, reliably-priced, low-cost electricity to the Ohio bulk power transmission grid operated PJM Interconnect LLC (PJM) or under a power purchase agreement (PPA). Solar power provides a clean, sustainable source of electricity, free of fuel pricing volatility. As energy and environmental costs rise, and technology advances, solar-powered generation provides a sustainable, long-term, competitive energy solution.

#### (2) General location, size, and operating characteristics of the Facility

The proposed Facility will be located on approximately 2,400 acres of leased land in Franklin County, Ohio in the Townships of Pleasant and Prairie (Project Area). Land use within the Project Area is predominantly agricultural. The Applicant has

submitted interconnection requests to PJM for the AEP Cole Road existing substation at 345 kV. These requests are tracked via the queue positions AF1-275 and AE2-214. Depending on the exact modules used, the Facility is expected to include over 630,000 modules and to produce over 539,000 megawatt hours (MWh)/year. A detailed description of the Facility, including each Facility component, can be found in OAC Sections 4906-4-03(A) and (B) of this Application.

**(3) Description of the suitability of the site for the Facility**

The Applicant has determined that the Project Area is an ideal location through a statewide review of transmission line locations and availability, landowner interest, community interest, competitive analysis, and evaluation of land compatibility. A detailed description of the Project Area selection and siting constraints can be found in OAC Section 4906-4-04 of this Application.

**(4) Project Schedule**

A public information meeting was held on December 14, 2020, in accordance with OAC Rule 4906-3-03. Construction of the Facility is expected to begin in the First Quarter of 2022, and commercial operation is planned for the Fourth Quarter of 2023. Additional information on the Project schedule can be found in OAC Section 4906-4-03(C)(1) of this Application.

**(B) Future plans for additional generation facilities in region**

**(1) Description of future plans for additional generation**

Applicant does not have plans for additional generation at this site. Applicant is reviewing the possibility of utilizing one if its PJM queue positions for this Project for a battery energy storage system (BESS) (50 MW BESS) in lieu of a solar capacity use. In any event, whether solar is paired with storage, or the Project only consists of solar generation, the full capacity of the Project cannot exceed 250 MW per PJM regulations.

**(2) Description of Applicant's history, affiliate relationships, and current operations**

Invenergy develops, owns, and operates power generation and energy storage facilities in the Western Hemisphere, Europe, and Japan. Invenergy has a proven track record in establishing and maintaining longstanding, profitable relationships with utilities, suppliers, and the communities in which its projects are located.

Invenergy has developed more than 25,000 MW of utility-scale wind, solar, natural gas, and energy storage projects in the United States (U.S.), Central and South America, Canada, Europe, and Japan. This includes more than over 160 projects developed and operating that amount to $37 billion dollars in completed transactions. Invenergy is North America's largest independent renewable power generation company. Invenergy is focusing on the development and operation of solar energy projects. Invenergy's first operational solar project is the 20 MW Grand Ridge Solar farm, located adjacent to its Grand Ridge Wind project in LaSalle County, Illinois. Invenergy has 9 additional operating solar facilities in the U.S. and Canada, with numerous other projects in various stages of construction and advanced development.

One of Invenergy's affiliates, Hardin Solar Energy LLC, received a certificate from the OPSB in Case No. 17-773-EL-BGN in February 2018 and commenced construction in October 2018. Another affiliate, Vinton Solar Energy LLC, received a certificate from the OPSB in Case No. 17-774-EL-BGN in September 2018. Lastly, a third affiliate, Hardin Solar Energy II LLC, received a certificate from the OPSB in Case No. 18-1360-EL-BGN in May 2019.

## 4906-4-03 Project description and schedule in detail

### (A) Project Area's geography, topography, population centers, major industries, landmarks.

#### (1) Project Area map

Figure 03-1 depicts the geography and topography of the Project Area and the surrounding area within a 2-mile radius. Among other information, Figure 03-1 shows the following:

**(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

The Facility layout provided in Figure 03-1, and all subsequent figures, represents the current design of the Project. The Applicant has made considerable effort to depict the layout in its final form to the extent possible at this stage of development. However, the exact placement of Facility components is subject to change prior to construction. Final engineering efforts will determine the exact location of all equipment, which will depend on a number of considerations, including additional geotechnical studies, and the exact models selected for modules and inverters.

However, the final layout will remain within the Project Area that has been studied for visual, cultural, and environmental impacts. Any final adjustments to the layout will not cause additional impacts beyond what is discussed in this Application. The final layout will be provided to the OPSB prior to construction.

**(2) Project Area, in acres, owned and leased properties, number of properties**

The Project Area consists of approximately 2,400 acres of agricultural land. The Applicant has secured this land under long-term leases with approximately 5 landowners.

**(B) Description of proposed Facility**

**(1) Generation equipment**

The Facility will generate electricity using multiple arrays of solar panels connected to electrical infrastructure and transmitted via a collection and transmission system to the POI. Solar panels generate electricity using the photoelectric effect whereby the materials in the panels absorb the sun's energy in the form of photons and release electrons. The capture of these free electrons produces an electrical current that can be collected and supplied to the electrical power grid.

The Facility will be composed of access roads, fencing, racking posts, a racking system, photovoltaic (PV) panels (or modules), inverters/transformers, an underground alternating current (AC) collection system, and a collector substation. The Facility will also include an operations and maintenance (O&M) building for operations staff and associated O&M equipment.

The access roads will be approximately 16 feet wide with 2-foot shoulders and will be constructed near the center and perimeters of the Facility for access by maintenance vehicles. A typical road cross section will have 4 inches of subgrade material with 2-inch caps.

The site fencing will be approximately 6 feet high and will be installed along the perimeter of the Project Area as well as along internal Project boundaries.

The racking posts are expected to be installed with a pile driving machine. A typical post is 10 feet long and its depth is 6 feet below grade. However, in areas with freeze thaw or loose soils, such as Franklin County, the posts may be installed at

10 to 15 feet below grade, with an additional 4 to 6 feet above grade. The standard solar racking post is the H pile, which is 6 inches across and 4 inches in depth.

The racking system is installed on the posts and will be a single axis tracking system driven by a set of motors powered by the internal site's AC power distribution system. The tracking system will be orientated in the north-south direction to allow the system to rotate east and west to following the sun.

PV panels are installed on the racking system in either a landscape (horizontal) or portrait (vertical) orientation. The modules are affixed to the racking with clips. The modules will be connected using direct current (DC) cables that can either be buried in a trench or attached to the racking system. The DC cables gather at the ends of the racking systems to combiner boxes to transmit the cables to the inverter/transformer combination locations.

Inverters are installed throughout the Project Area. Inverters will convert the DC system to AC power which will be transmitted to the Project collector substation or switchyard by the underground AC collection system.

An underground 34.5 kV AC collection system will be installed at a minimum depth of 36 inches below grade and will be comprised of medium voltage (MV) AC cable running from each inverter/transformer location to the Project substation.

The Project collection substation will include all material and equipment needed to electrically interconnect the 34.5 kV collection systems to the main high voltage 345 kV step up transformer and then subsequently to the interconnection transmission system at the existing Cole Road Substation.

**(a)** Type and number of units

The Facility will include the following generation equipment: PV modules that generate DC power; a single-axis tracking system that adjusts the angle

of the modules to maximize solar energy generation; and inverters to convert the modules' output to AC power.

The Facility will be composed of LONGi solar modules or comparable Tier-1 solar panels, such as the panels shown in Table 1 below. The table provides the module type and approximate number of panels needed for the Facility. Regardless of the specific model, the modules will be approximately 3.7 feet by 7.5 feet and approximately 1.6 inches deep. Manufacturer specifications for the modules are included in Exhibit A. If the Applicant utilizes a module that is not included in Exhibit A, the Applicant will provide the module specifications to the OPSB prior to construction. Any changes in the equipment specifications from what is presented in this Application are not expected to increase potential impacts.

**Table 1. Solar Modules**

| SOLAR MODULE | MODULE TYPE | APPROXIMATE NUMBER OF MODULES |
|---|---|---|
| LONGI | Monocrystalline | 630,000 at current projected panel wattage |
| JINKO SOLAR | Monocrystalline | 630,000 at current projected panel wattage |
| JA SOLAR | Monocrystalline | 630,000 at current projected panel wattage |
| TRINA SOLAR | Monocrystalline | 630,000 at current projected panel wattage |
| FIRST SOLAR | Monocrystalline | 630,000 at current projected panel wattage |

The modules will be affixed to a single axis tracking system. The tracking system will be mounted on piles and will be organized in rows. The arrays will be oriented north to south, so that the tracking system allows the panels to tilt from east to west to follow the sun over the course of the day. The tracking system will employ a motor that is programmed on a timer based on the Facility's geographic location so that it tracks with the sun. The Applicant anticipates using a NEXTracker, Soltec, Array Technologies, or similar system. This racking system will maintain a minimum ground clearance of

approximately 18 inches, but may range up to 36 inches depending on consideration of factors such as site topography, snowfall, natural vegetation growth, and shading from other panels or objects. If the Applicant utilizes a tracking system that is not included in Exhibit A, the Applicant will provide the specifications to the OPSB prior to construction. Any changes in the equipment specifications from what is presented in this Application are not expected to increase potential impacts.

The modules' electrical power output will be collected into combiner boxes at the end of each array and then transmitted to inverters. The inverters will transform the DC power produced by the panels into AC power that will be used to transmit the power onto the nearby AEP power infrastructure. The inverters will be located along the interior access roads so as to set them back as far as reasonably possible from adjacent property lines. The inverters are metal boxes that will be approximately 19 feet by 3 feet by 7 feet and will weigh about 12,000 pounds. The Facility will employ TMEIC inverters or comparable, such as SMA, Power Electronic, or GE. Manufacturer specifications for the inverters are included in Exhibit A. If the Applicant utilizes an inverter that is not included in Exhibit A, the Applicant will provide the specifications to the OPSB prior to construction. Any changes in the equipment specifications from what is presented in this Application are not expected to increase potential impact. The following table shows the approximate number of inverters needed for the Project for the different manufacturers.

**Table 2. Inverters**

| INVERTER | TYPE | APPROXIMATE NUMBER OF INVERTERS |
|---|---|---|
| TMEIC | PVU-L0840 | 68 at current projected specs |
| SMA | SC2500-EV | 69 at current projected specs |
| POWER ELECTRONICs | FS3000 | 70 at current projected specs |
| GE | LV5+1500V | 70 at current projected specs |

The annual net capacity factor (NCF) for the Facility is expected to be approximately 25% and the hours of annual generation is expected to be approximately 539,000 MWh. The Applicant notes that neither the heat rate nor the estimated net demonstrated capacity is applicable to solar facilities.

The Facility may also include a large-scale advanced BESS. The battery storage facility may complement the Facility by regulating frequency, balancing variations in solar production, energy shifting, and digital peaking and/or transmission and distribution deferral. The possible advanced battery system will consist of lithium-ion battery racks (or equivalent) housed in a custom building or prefabricated shipping containers and will interconnect the same way the solar facilities will. The proposed battery system would be up to 50 MW and could potentially utilize equipment from Powin Energy, specifically Powin Stacks or equivalent. The BESS data sheet included in Exhibit A, from Powin, provides information on a representative model. Specifications for the exact equipment will be provided to the OPSB prior to construction. The BESS, if it is incorporated into the Project in lieu of 50 MW of solar generation capacity, will be located at the Project collection substation area.

**(b)** Description of turbine

This section is not applicable for solar facilities.

**(c)** Fuel quantity and quality

Fuel quantity and quality are not applicable for solar facilities**.**

**(d)** Pollutant emissions

Solar facilities generate electricity without combusting fuel or releasing pollutants into the atmosphere. Therefore, this section is not applicable for solar facilities.

**(e) Water volume requirement, source, discharge information**

The Facility will not require the use of water for cooling or any other activities, nor will the Facility operation involve the discharge of water or waster into streams or water bodies. Therefore, this section is not applicable for solar facilities.

**(2) Description of construction**

**(a)** Generation plant

The Facility will include access roads, fencing, racking posts, a single-axis tracking system, PV modules, inverters/transformers, an underground AC collection system, a collector substation, an O&M building, and potentially a BESS.

Solar array construction will begin with the installation of support structures and foundations. Array rack foundations are H-beams/Wide Flange Beams that will be directly driven into the soil using track vehicles. Pull testing will validate the calculated minimum depth of pier foundation that is needed, which is currently assumed as 10-15 foot depth. This method of pull test validation helps minimize the impact to the site with foundation size and depth required. For limited foundations that encounter underground obstructions, voids, or lesser soil conditions, pile foundations may be embedded in concrete to provide the necessary lateral and vertical strength.

Once foundations and support structures are in place, tracker assemblies will be constructed on-site and installed on the support structures. Final assembly of the trackers onto the support structures will require a variety of equipment including: small cranes; tractors; welding machines; gators; pickup trucks; and lifts. Solar modules will be installed by hand on the finished tracking system, bolted down and left electrically disconnected until complete blocks or arrays are ready to be electrically connected and commissioned. Blocks of

solar modules will be completed and commissioned in stages, with varying amounts of manpower on site depending on the activity, with approximately 25 to 200+ at peak times. For the last month of the installation, there will be minimal staffing on site to complete small touch-up items with the completed installation and monitor the site during test power generation and equipment testing.

**(b)** Fuel, waste, water, other storage facilities

There will be no fuel, waste, or water storage facilities needed for the operation of the Facility.

**(c)** Fuel, waste, water, other processing facilities

There will be no fuel, waste, or water processing facilities needed for the operation of the Facility.

**(d)** Water supply, effluent, sewage lines

Water will be used for site preparation and grading activities. During earthwork for the grading of roads and other components, the main use of water will be for compaction and dust control. Some water will also be used for preparation of any concrete required for foundations. During construction, 2.5 gallons of potable water per person will be available for drinking water and will be stored in the office trailers.

All water will be brought in from off-site sources as needed. Water for site preparation, grading, concrete, and dust control will be brought by 3,500-gallon water trucks, whereas potable water will be transported in 5-gallon containers. Metered hydrant use may also be a source of dust control water during construction if it is allowed by the townships.

**(e)** Associated electric transmission and distribution lines, and gas pipelines

The Facility will have a transmission line less than 2 miles long, starting from the collection substation and running North East along a coordinated path to

the Cole Road Substation. This transmission line will be filed via a separate OSPB filing.

**(f)** Electric collection lines

Solar modules are connected in DC series to form strings. Electricity from these strings is aggregated in combiner boxes. A single DC circuit then leaves each combiner box, which is installed underground and connects to the inverter/transformer combination. The DC cables can either be installed buried in a trench or attached to the tracking system. This last option is the most common and likely the one that will be used in the Project.

In order to be sent to the electrical grid, the DC current must be converted into AC power, and inverters serve this function. The conversion is accomplished by rapidly switching the DC power supply. By varying the length of time that the switch is on, as well as the polarity, the positive and negative swells of an AC wave are created. This waveform is then smoothed with an output filter. Inverters employ several advanced control systems, switching algorithms, and ancillary services for both the input and output stages. For the input stage, the inverters can manipulate the DC voltage to ensure maximum power harvest of input, and on the output various sensors ensure that AC power production is in accordance with regulatory requirements.

A set of MV AC cabling runs from each of these inverter/ transformer combination locations to the collector substation location. The electrical cable is buried using a trencher, at a minimum clearance of 36 inches from the top of the cable. The cables will be arranged in several branch circuits, each circuit consisting of 34.5 kV three single conductor cables in a trefoil arrangement with polyvinyl chloride (PVC) jackets that connect groups of solar modules to an open air isolation switch in the Project substation. This installation is similar in design to the ones used by electric utilities for MV buried installations.

**(g)** Substations, switching substations, transformers

Driven piers, or in some instances, foundation pads, are installed for the inverter/ transformer mounts. The inverter will convert the system to AC power. The inverter AC output voltage (480 volts) will then be stepped up to a higher voltage (34.5 kV) using transformers located next to each inverter. The transformer is designed to integrate with the inverter. Underground collection cables, as described in the above section, will connect the electrical output of these transformers to the Project collection substation.

At the Project collection substation, the voltage will again be stepped up (from 34.5 kV to 345 kV) by the main power transformer (See Exhibit A) to prepare it to connect to the grid at the Cole Road Substation. The Project collection substation will include several 34.5 kV branch circuit breakers in combination with open air type isolation switches to connect the collection system feeders to the main 34.5 kV substation bus, a 34.5 kV main bus open air isolation switch, a 34.5- to 345 kV step-up transformer, and a 345 kV circuit breaker and open air isolation switch. The Project collection substation will also include protective relay and metering equipment, utility and customer revenue metering, and a 34.5 kV to 120/240-volt station service transformer to provide power to the Project collection substation service load and the control house.

**(h)** Temporary and permanent meteorological towers

The Facility will include approximately 1 meteorological (MET) tower for approximately every 20MW of solar capacity. Each MET tower will be approximately 10 feet tall, and will include sensors such as an anemometer, a wind vane, a pyranometer, a pressure sensor, and a thermometer. The MET towers typically have a concrete foundation and sit next to the Project's inverters.

**(i)** Transportation facilities, access roads, crane paths

Equipment deliveries and workers will have easy access to the site. The primary access road to be used is United States (U.S.) National Road 40. However, additional site access roads may be listed in the Conceptual Traffic and Road Impact and Analysis Report in Exhibit M.

New service roads will facilitate access within the Project site (See Figure 03-2). The roads will be approximately 20 feet wide and have aggregate as cover, adequate to support the size and weight of construction, maintenance, and rescue vehicles.

During the construction phase, several types of light and medium construction vehicles will travel to and from the site. Private vehicles will also be used by the construction personnel. At this time, the Applicant estimates the below total truck trips in the area distributed throughout the construction period:

**Table 3. Vehicular trip projections**

| Pleasant Prairie Solar | Project Counts | Vehicle Information |
|---|---|---|
| Concrete Trucks | 200 | 8 cy/trucks, 20 cy for Inverter Pads |
| Main Equipment Delivery for array parts, piles, modules, cables, misc. | 3100 | Semi-trucks |
| Misc Equipment Delivery | 160 | Box Truck |
| Trade Personnel Vehicles | 640 | Pick Up Truck or Automobile |

**(j)** Construction laydown areas

Throughout the construction period, the Applicant's contractor will provide temporary construction facilities. These facilities will be comprised of contractor construction trailer(s), space for subcontractor trailers and parking, and a graveled construction laydown area to meet contractor requirements complying with Best Management Practices (BMPs). These trailers will be placed in the proximity of the substation or inside of the Project properties.

The laydown area will be approximately 5-10 acres or less and will be reclaimed at the end of construction.

**(k)** Security, operations, and maintenance facilities or buildings

A 6-foot-high chain link fence will be installed around facilities as they are constructed, and access will be controlled by gates around both the Project and the Project collection substation. High voltage equipment will be separately fenced with warning signage. A control enclosure will be installed next to the Project collection substation inside the fenced limits for the purpose of storing protective relay and communications equipment. It will also store technical documents and drawings for technicians. The control enclosure will have fire and safety equipment such as smoke detectors, fire extinguishers, and an eyewash station. The control enclosure will come with a heating, ventilation, and air conditioning (HVAC) system. The HVAC system and other equipment in the control enclosure will be powered with station power.

Access within the Project perimeter fence is limited only to trained and authorized site personnel. The Applicant may choose to purchase or rent an existing building to utilize as an O&M facility for the Project. However, if this is not feasible, the Applicant will construct an O&M building of approximately 1,500 square feet within the area shown in Figures 03-1 and 03-2, keeping 1-4 staff daily.

**(l)** Other pertinent installations

Construction of the Facility will begin with surveying and staking the construction limits, as well as some limited clearing and grading due to the site being relatively flat. The entire Project Area will be cleared of any obstacles, including bushes or boulders. The site grading will likely remove

slopes greater than 5% so that the land is as flat as possible before installing the racking.

Grading may require excavation, soil redistribution, and soil compaction in order to achieve desired grades and elevations and to ensure proper soil compaction and site drainage as identified in the detailed design. Grading will likely be most extensive in areas for the access roads and Project substation yard, while grading and vegetation removal will be minimized to the extent practicable for the rest of the components. The site cut and fill will be balanced across the entire site; however, temporary stockpiling and grading will require the use of backhoes, graders, and rollers/compactors. Rocks and gravel found and removed on site will be reused within the site construction to the extent possible. Construction activities will be in stages as much as possible in order to minimize dust generation and decrease the time for site soils stabilization.

After Project construction, all areas outside the Project perimeter fence impacted by construction and not needed for on-going operations will be reclaimed to the state prior to construction.

**(3) Need for new electric transmission lines**

The Project will utilize a transmission line less than 2 miles long that will be part of a separate OPSB filing.

**(4) Project Area Aerial map**

Figure 03-02 depicts the layout of the Facility. Figure 03-02 includes the following information:

**(a)** An aerial photograph

**(b)** The proposed Facility, including all components listed in (B)(2) and is summarized as generation equipment, operations facilities, collection lines, Collection substation, MET towers, maintenance roads, and fence lines.

**(c)** Road names for major thoroughfares

**(d)** Property lines

## (C) Project schedule

### (1) Schedule in Gnatt format

The Project schedule is discussed below and presented in Table 4 that includes all of the following information:

**(a)** Land acquisitions and land rights

The Facility will be built on private land under lease and easement to the Applicant. Enough land has been secured to construct the Facility.

**(b)** Wildlife and environmental studies/surveys

The Applicant does not anticipate impacts to potential major species habitats (i.e., streams, woodlots). The Applicant has contracted for appropriate species-specific studies. The results of the studies are included as Exhibits B and R, the Site Characterization Report and Ecological Impact and Directional Drilling Return Plan Report (Ecological Assessment).

**(c)** Grid interconnection studies and other critical path milestones

The Applicant has PJM queue numbers AE2-214 and AF1-275. AE2-214 is a 200 MW solar queue position and it is in the Facilities Study stage. AF1-275 is a 50 MW BESS queue position also in the Facilities Study stage that has the ability to either be a 'storage' co-located component of the AE2-214 queue position or be converted to additional solar capacity for the AE2-214 queue position. Current plans for the facility are for 250 MW of solar capacity with no storage component.

AE2-214 received its Feasibility Study in October of 2019 and its System Impact Study in February of 2020. The Applicant expects to receive the

Facility study in May 2021. The Interconnection Service Agreement is expected in July 2021.

The Feasibility Study and the System Impact Study for AE2-214 and AF1-275 are attached for further information as Exhibit F. Additional queue position details are provided in OAC Section 4906-04-05 of this Application.

**(d)** Preparation of OPSB Application

Preparation of the Application to be submitted to the OPSB has been ongoing since the second Quarter of 2020.

**(e)** Submittal of Application to OPSB

This Application will be submitted in February 2021.

**(f)** Certificate issuance by OPSB

The Applicant anticipates that OPSB will issue a Certificate by the First Quarter of 2022.

**(g)** Preparation of the final design

The final design will be prepared by the beginning of the first Quarter of 2022.

**(h)** Construction of the Facility

Construction of the Facility is scheduled to begin in the first Quarter of 2022.

**(i)** Placement of Facility in Service

The Facility is scheduled to begin commercial operation in the fourth Quarter of 2023. Table 4 sets forth the Project schedule.

**Table 4. Project Schedule**

| Year | 2019 | | | | 2020 | | | | 2021 | | | | 2022 | | | | 2023 | | | | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quarter | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 |
| Land Rights Acquisition | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | |
| Wildlife Studies/Survey | | | | | | ■ | ■ | ■ | ■ | | | | | | | | | | | | |
| Receipt of Interconnection Studies | | | ■ | | ■ | | | | | | ■ | | | | | | | | | | |
| Submittal of OPSB Application | | | | | | | | | ■ | | | | | | | | | | | | |
| Issuance by the OPSB of the Certificate | | | | | | | | | | | | | ■ | | | | | | | | |
| Preparation of Final Design | | | | | | | | | | ■ | ■ | ■ | ■ | | | | | | | | |
| Construction of the Facility | | | | | | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| Placement of Facility in Service | | | | | | | | | | | | | | | | | | | | ■ | |

**(2) Construction Sequence**

An engineering, procurement, and construction (EPC) contractor will be selected to complete construction of the Project. Construction of specific Project components will be completed by subcontractors under the direction of the EPC contractor and the Applicant. The EPC contractor will prepare a construction plan that it and its subcontractors will follow that will provide detailed guidance on

Project design, construction process, safety, permitting, schedule, and other related construction items.

Project construction will follow a progressive approach. Construction of the Facility will begin with surveying and staking the construction limits. The site will then be cleared and fenced with security fencing prior to installation of the roads, solar panels, inverters/transformers, Project substation, and control house.

Construction of the collection line system connecting the Project with the POI will be completed last, before the Facility is energized.

Several activities must be completed prior to the commercial operation date. The majority of the activities relate to equipment ordering lead-time, as well as design and construction of the Facility. Pre-construction, construction, and post-construction activities, some of which will occur concurrently, include:

- Finalize Project design
- Final Soil borings, testing, and analysis for proper foundation design and materials
- Ordering of all necessary components, including solar modules, inverters/transformers
- Construction of access roads to be used for construction and maintenance
- Installation of rack foundations (vibratory or pile driving)
- Installation of trackers
- Installation and stringing of modules

**(3) Impact of critical delays on in-service date**

The Applicant does not expect any significant delays to the Project schedule. Should such a delay occur, the Applicant and Franklin County would both experience significant financial burden. The cost of potential delays is discussed in OAC Section 4906-4-06(D) of this Application.

## 4906-4-04 Project Area selection and site design

### (A) Description of the Project Area selection

#### (1) Description and rationale for selecting study area or geographic boundaries

As the Applicant has had experience developing and then operating the previously mentioned solar projects in Hardin County for the past 12 years, the Applicant is very familiar with the study and development of generation projects in the state of Ohio. As the economics of utility-scale solar production have become more viable with the decrease in cost of photovoltaic technology, and the demand for renewable energy- especially near loads- has increased, the Applicant decided to pursue efforts to develop a solar project in other counties as well. The first and second phases of the solar projects, Hardin Solar I and II, attracted significant interest from potential customers, and many customers inquired about the possibility of a larger capacity project in other counties. In addition, a number of local landowners contacted Invenergy to request participation in the solar Project. Given this interest, and the additional capacity on the electric grid, the Applicant decided to pursue this Project.

#### (2) Map of study area

A map of the study area is provided as Figure 04-1.

#### (3) List and description of all qualitative and quantitative siting criteria

The factors that need to present for a viable solar energy project are: transmission availability, competitive analysis, compatible land use, and interest from landowners. These factors are further described in OAC Section 4906-4-04(A)(4) of this Application.

Other criteria considered in siting a solar project include impacts to ecological and cultural resources as well as geotechnical conditions. Discussion of these criteria can be found in OAC Sections 4906-4-08(A)(5), 4906-4-08(B), and 4906-4-08(D) of this Application.

**(4) Description of the process and how the Applicant used the siting criteria**

The Applicant followed its standard solar power site selection process, which Invenergy has used to successfully locate and develop projects throughout the U.S. The entire state of Ohio was reviewed to located possible development sites, which meet the following criteria:

- **Sufficient power transmission facilities:** Due to the difficulty of a private company siting new transmission lines over long distances, ideal solar facility sites are those where transmission lines intersect or where there are nearby utility transmission substations. The Applicant reviewed areas that had transmission lines intersecting them.

- **Competitive analysis:** Solar energy sites have been in the process of being developed, largely through land acquisition by the Applicant, for several years. The Applicant reviewed publicly available information to determine where competitors can establish active developments and narrowed the pool of potential project areas based on this information.

- **Compatible land use:** The Applicant reviewed potential project areas to determine the level of residential development and focused on areas that had lower numbers of homes and/or have low density land use plans for the perspective project areas. Additionally, the Applicant focused on areas with large tracts of agricultural land in order to minimize impact to woodlots.

- **Landowner interest:** Solar developers have no way to compel landowners to participate in their solar facility as some utilities, such as those with eminent domain rights, do. Rather, the Applicant met with the landowners located within the Project Area and negotiated terms of a lease of their property. Lack of interest from landowners can stop a project. The

overwhelmingly positive response from Franklin County was the impetus to move forward with permitting this solar Facility.

**(5) Description of Project Area selected for evaluation**

The Applicant located several sites that could potentially host a solar facility. The Applicant selected the subject site for further development because of an overwhelming positive welcome from area landowners and community leaders, few environmental constraints, and positive results from initial transmission studies.

## (B) Process for designing Facility layout

**(1) Constraint map**

Maps of constraints for the proposed solar Facility are provided in Figure 04-2.

At this preliminary phase of design, the Applicant has incorporated the below setbacks:

- Generally, the greater of 100 feet from residence boundary lines or 300 feet from residences.
- 100 feet from road rights of way (ROW) or as otherwise dictated via lease agreements or Good Neighbor Agreements with area residents.

**(2) Criteria used to determine site layout/comparison of alternative designs**

The factors that need to be present for a viable solar energy project are:

The primary goal of determining the site layout is to both optimize energy production and minimize impacts. The main criteria that influenced the site layout to maximize the collection of solar energy include: row spacing; maintenance access; topography; utility offsets; landowner requests; and other site-specific constraints.

**(3) Number and types of comments received**

The public information meeting was held on December 14, 2020, via a virtual public meeting platform. The meeting was held from 6:00 p.m. to 8:00 p.m. Invenergy personnel explained the proposed Project history, current conceptual plans, project components, and due diligence pursued as well as responded to questions from community members. The Applicant and the virtual meeting format allowed for tracking of all questions and comments for attendees.

Invenergy estimates that 75 local landowners attended the public information meeting. The feedback ranged from curiosity about solar power and how the proposed Facility would impact Franklin County and local economies, to excitement about the county becoming a renewable energy hub. A main concern expressed by landowners was related to land use planning in the area that might affect local property values- to which Invenergy informed of academic and industry studies by licensed and certified individuals analyzing such conditions related to utility-scale solar development as well as noted the in-progress commissioning of a Project-specific study for such analysis. To further address these concerns, Invenergy conducted a property value study specific to the Project Area. This study is included in Exhibit P. Local landowners were encouraged to reach out to the Applicant to coordinate on components of the Project design to minimize any perceived impacts. Invenergy also received a range of comments and questions including:

- What will the Project look like?
- What will your tax payment be and will it impact my taxes?
- Where will you connect to the power lines?
- Does the power line have enough capacity for this power?
- Do you want to build a solar plant on my land?

Invenergy responded to the inquiries consistent with the responses in this Application. Contact information for the Applicant was available in the event any of the public had further questions.

## 4906-4-05 Electric grid interconnection

### (A) Connection to the regional electric grid

PJM is the Regional Transmission Operator (RTO) that coordinates the movement of wholesale electricity throughout the region that includes Ohio. The solar Facility will ultimately supply power to a utility substation which is part of PJM. The 345 kV 'Cole Road' substation is owned by AEP, and is less than 2 miles from the Project Area.

The Project will include a 345 kV circuit breaker and open air isolation switch that connects the POI with a busbar and associated bus supports. The Project collection substation will also include protective relay and metering equipment, and utility and customer revenue metering.

### (B) Interconnection information

#### (1) Generation interconnection request information

The Applicant has PJM queue numbers AE2-214 and AF1-275. AE2-214 is a 200 MW solar queue position in the Facilities Study stage. AF1-275 is a 50 MW storage fuel queue position also in the Facilities Study stage that has the ability to either be a 'storage' co-located component of the AE2-214 queue position or be converted to additional solar capacity for the AE2-214 queue position. Current plans for the facility are for 250 MW of solar capacity with no storage component. The Applicant may convert 50 MW of AE2-275 to BESS; however, in no event will the Project capacity be greater than 250 MW. The queue positions can be accessed through PJM at:

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

**(2) System studies on generation interconnection**

AE2-214 received its Feasibility Study in October of 2019. AE2-214 received its System Impact Study in February of 2020. The Applicant expects to receive the Facility study in May 2021. The Interconnection Service Agreement is expected in July 2021 with AF1-275's at approximately the same time.

The Feasibility Study and the System Impact Study for AE2-214 are attached for further information as Exhibit F.

## 4906-4-06 Economic impact and public interaction

### (A) Ownership

The Applicant is an affiliate of Invenergy Solar Project Development LLC. All of the solar Facility will be owned and operated by Pleasant Prairie Solar Energy LLC. This includes racking and foundations, modules, inverters, the Project substation, and all collection lines and cabling. It is expected that equipment ownership will be delineated at the dead-end transmission structure outside of the Cole Road Substation, with AEP ownership of any equipment beyond this point.

The Project Area consists of land owned by 5 different landowners, under long-term lease and easement by Invenergy Solar Project Development LLC. The interconnection substation land is owned by AEP Ohio Transmission Company, Inc.

### (B) Capital and intangible costs

(1) Estimated capital and intangible costs for various alternatives

Based on Invenergy's experience constructing solar facilities, it expects the overall capital cost of the project to approximately [redacted] for the proposed 250 MW project. The intangible costs are expected to be approximately [redacted]. Final costs will depend on final solar panel pricing, material costs, design details, and contractor bids.

**(2) Cost comparison with similar facilities**

As described in OAC Section 4906-4-04 of this Application, the Applicant has not proposed alternative Project areas; therefore, no cost comparison between alternatives is available. The largest component of the cost to build a solar facility is the cost of the solar panels themselves, and these are priced the same regardless of where the solar facility is located in the U.S. Costs to construct a solar facility in Ohio should not be dramatically different from the cost to construct a project on similar terrain in the Midwest or Northeast U.S., except for differences in costs for construction labor and materials. The cost per kilowatt (kW) of approximately

[redacted] is better than or similar to the costs at comparable sites that Invenergy has built.

**(3) Present worth and annualized capital costs**

Capital costs will include development costs, solar Facility design, Project planning, equipment procurement, and construction. These costs will all be incurred within one to two years of the start of construction. As such, the present value of these costs are essentially the same as the costs presented in OAC Section 4906-4-06(B)(1) of this Application. Capital cost calculations are limited to this solar Facility, as alternative Project sites were not considered.

**(C) Operation and maintenance expenses**

**(1) Estimated annual operation and maintenance expenses**

Based on Invenergy's experience operating and maintaining its other solar facilities in the U.S., the Applicant estimates that annual operation and maintenance (O&M) costs for the solar Facility will range from $[redacted] per year, not including taxes, costs for land leases, or inflation increases.

**(2) Operation and maintenance cost comparison**

Based on Invenergy's experience, O&M costs for a solar facility, not including costs for taxes or land leases, should not be substantially different than O&M costs for other U.S. solar facilities. The estimated $[redacted] O&M cost is expected to be very similar to other facilities.

**(3) Present worth and annualized cost for capital costs**

The estimated annual O&M cost is shown above in response to OAC Rule 4906-4-06(B)(1) of this Application. Assuming a 8.5% discount rate and 2% escalation over a 35 year lifespan of the solar Facility, the present worth of the O&M costs is approximately [redacted].

**(D) Cost of delays**

Any delay based purely on the lost revenue from the solar Facility and assuming a power price similar to other comparable solar facilities, with the cost of delay prorated on a monthly basis, would likely be greater than $1 million per month. Depending on the length of the delay, it is possible that the Applicant could lose the value of federal tax credits, which would inflict additional financial burden. Should the Applicant have an agreement with a potential offtaker for the Facility, the Applicant may also be subjected to additional costs from delays due to breach of contract.

In addition to costs to the Applicant, Franklin County would be financially harmed by delays, as this would limit the county's ability to receive tax money from the Project, and would delay the economic benefits brought by the construction of the Facility.

**(E) Economic impact of the Project**

**(1) Estimate of construction and operation payroll**

Invenergy estimates the annual total and present worth of construction and operation payroll for the solar Facility to be over $[redacted]

**(2) Estimate of construction and operation employment**

Invenergy estimates that construction and operation of the solar facility will employ 600-800 workers at peak times, which includes an estimate of the number of workers employed from the region.

**(3) Estimated county, township, and municipal tax revenue**

Invenergy estimates county, township, city, and school district tax revenue will significantly increase as a result of the solar Facility's planned payment in lieu of taxes (PILOT) agreement with Franklin County. The following estimates assume the minimum PILOT amount of $7,000 per MW of installed capacity. However, the actual PILOT amount could be up to $9,000 per MW. Southwestern City

School District is expected to receive over $1.1 million annually from the Project and the Franklin County General Fund will receive over $290,000 annually. Payments to the Project townships and libraries are estimated to be $295,000.00 annually. See Exhibit O, Economic Impact Report, for details.

**(4) Estimated economic impact on local commercial and industrial activities**

The expected new local output during construction totals over $37.4 million for Franklin County and over $140 million for the state of Ohio. The new local long-term output totals over $3.8 million for Franklin County and over $5.3 million for the state of Ohio. See attached Exhibit O, Economic Impact Report, for details on the Project's impact on local commercial and industrial activities.

## (F) Public responsibility

### (1) Public interaction

Since 2019, the Applicant has been working in Franklin County meeting with landowners and reaching out to citizens regarding the proposed solar Facility. Throughout this time, the Applicant has formed strong relationships with local landowners as well as county officials. In Addition, the Applicant has participated in public and private meetings with the following organizations: Franklin County Economic Development and Planning, One Columbus, Columbus Metro Parks, Big Darby Advisory Panel Accord, and both Pleasant and Prairie Township Trustees.

Since July of 2020, Invenergy has also begun to further engage with the community with regards to the Pleasant Prairie Solar facilities as due diligence and Project conceptual design started to be known. In preparation for the public meeting prior to the initial filing with OPSB, the Applicant posted a notice in the Columbus Dispatch to announce a public information meeting. The public information

meeting gave local residents an opportunity to learn more about the proposed Facility, ask questions, and provide written and spoken comments.

The Applicant has met and/or followed up with adjacent landowners immediately surrounding the proposed site, and landowners that asked questions during the PIM, to discuss the proposed plans and obtain further input. This outreach has been accomplished and will be further accomplished via traditional mail engagement, door-to-door engagement (while adhering to social distancing guidelines), online engagement, and phone engagement. The landowners surrounding the Project Area will be mailed information about construction activities and provided with complaint resolution contact information. Additionally, future outreach will continue in Franklin County throughout the application process. The Applicant will continue to provide the OPSB with updates on future public engagements. The Applicant is pursuing Participation Agreements with neighboring landowners in the form of Good Neighbor Agreements.

In the construction period, the Applicant's contractor will have a 24/7 "hot line" for emergency and complaint notices. During operations, site staff will be qualified to attend to requests and complaints with the necessary corporate support. Surrounding landowners will be provided with contact information for site staff. The Applicant has provided a Complaint Resolution Plan along with a summary of all the Applicant's Public Engagement Efforts in Exhibit G, which holistically is the Applicant's Community Engagement Summary.

**(2) Liability insurance and corporate programs**

All solar panels will be installed on property under lease or easement to the Applicant. Terms of the leases or easements include requirements for the Applicant to pay annual rent, to pay for all tax-related payments, to minimize impacts on the landowner's current use of the property, and to remove the solar panels upon termination of the land agreement.

In addition, the terms of the leases require the Applicant to provide insurance for all solar facility components and to indemnify the landowner and other third parties from liability claims resulting from the solar facility's construction and operation.

The Applicant has consulted with Aon insurance advisors on the possible impacts of installation and operation of the solar Facility. Aon has almost 40 years of experience providing insurance and risk management services through a global network spanning over 120 countries worldwide. Aon supports works with the solar industry's leading experts and is an established leader in the renewable energy sector.

The solar Facility will carry insurance during development, construction, operation, and decommissioning that will ensure proper indemnification for third parties and for the interests of the Applicant. A program will be specifically tailored to meet the risk management and indemnification needs of all of the solar Facility stakeholders.

A Certificate of Liability Insurance is provided as Exhibit L.

**(3) Impact to roads and bridges**

The Applicant has retained Burns & McDonnell to review local roads and bridges and the resulting Conceptual Traffic and Road Impact and Analysis Report (Road Analysis) is provided as Exhibit M. The review consisted of an analysis of the roads along the preliminary regional delivery route, identifying possible impacts from the solar Facility's construction, and identifying potential mitigation measures. No substantial impacts or conditions were found in conjunction with the proposed development of the Project.

**(4) Transportation permits for construction and operation**

The Applicant is coordinating with the Franklin County Engineer and will ultimately pursue a Road Use and Maintenance Agreement with the county that

will outline any all ROW construction and impacts with regard to the Project. Road closures and restrictions are not expected to be necessary, but the Applicant will work with the County Engineer if such measures are needed. The Applicant will abide by any and all required transportation permits.

**(5) Plan for decommissioning**

At the end of the useful life of the solar Facility, or in the unlikely event that it becomes necessary prior to that, the Applicant is prepared to decommission the Facility. A Decommissioning Plan completed by Stantec Consulting Services Inc. is provided as Exhibit Q.

## 4906-4-07 Compliance with air, water, solid waste, and aviation regulations

### (A) Purpose

This section provides environmental data regarding air, water, and solid waste in terms of current site conditions, potential impacts of the proposed Facility, and any proposed mitigation measures.

### (B) Compliance with air quality regulations

#### (1) Preconstruction air quality and permits

**(a)** Ambient air quality

The Ohio Environmental Protection Agency (Ohio EPA) Division of Air Pollution Control publishes air quality data for the state of Ohio annually. The most recent report summary of air quality data available for the state is the Division of Air Pollution Control 2018 Annual Report (Ohio EPA, 2018). Included in this report are a summary of 2018 air quality data, a discussion of toxics monitoring projects, and trend studies for selected pollutants. There are 8 air monitoring sites are located in Franklin County, ambient air quality for the Project Area has been characterized with data measured from these stations. In addition, the Ohio EPA lists Franklin County as an attainment or unclassified with the National Ambient Air Quality Standards (NAAQS) for all pollutants.

Air emissions in the general areas are related primarily to farm operations, vehicular travel, and manufacturing. Vehicles traveling area roads and farm equipment produce exhaust emissions, along with dust from unpaved road surfaces. In addition, routine odors are associated with certain farming practices (e.g., manure-spreading).

**(b)** Air pollution control equipment

Solar panels generate electricity without releasing pollutants into the atmosphere. Therefore, no air control equipment is required.

**(c)** Air quality standards and limitations

In accordance with Section 111 of the Clean Air Act (CAA) Extension of 1970, the U.S. EPA established New Source Performance Standards (NSPS) to regulate emissions of air pollutants from new stationary sources. The OAC regulations do not contain any NSPS regulations for the Project Area beyond those promulgated at the federal level. These standards apply to a variety of facilities including landfills, boilers, cement plants, and electric generating units fired by fossil fuels. Because solar panels generate electricity without releasing pollutants into the atmosphere, NSPS do not apply to the proposed Facility.

The CAA, as amended in 1990, requires the U.S. EPA to set NAAQS (40 Code of Federal Regulations [CFR] part 50) for pollutants considered harmful to public health and the environment. The U.S. EPA Office of Air Quality Planning and Standards has set NAAQS for 6 principal pollutants, which are called "criteria" pollutants and include carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide.

All new sources of air emissions in Ohio are required to obtain a Permit to Install (PTI) for Title V facilities, or a Permit to Install and Operate (PTIO) for non-Title V facilities. Because solar panels generate electricity without releasing pollutants into the atmosphere, the proposed Facility will not require a PTI or PTIO.

Administered by the U.S. EPA, the Acid Rain Program was established by the CAA amendments of 1990 to reduce emission of sulfur dioxide and mono-

oxygen oxides through regulatory and market-based approaches. Because solar panels generate electricity without releasing pollutants into the atmosphere, the proposed Facility will not require an acid rain permit.

Prevention of Significant Deterioration (PSD) applies to new major sources of pollutants, and/or major modifications at existing sources for pollutants where the source is located in an area in attainment or unclassifiable with the NAAQS. The proposed Facility will not be a major source of any pollutants. Therefore, PSD does not apply to this Facility.

**(d)** List of required permits to install and operate air pollution sources

Solar panels generate electricity without releasing pollutants into the atmosphere. Therefore, air pollution permits are not required for the proposed Facility.

**(e)** Air quality map

As the Facility will generate electricity without releasing pollutants, air quality is not expected to be impacted. Therefore, a map of air monitoring stations is not applicable.

**(f)** Compliance with permits and standards

As indicated above, solar panels generate electricity without releasing pollutants into the atmosphere. Therefore, no air pollution permits are required. However, fugitive dust rules adopted pursuant to the requirements of Ohio Revised Code (RC) Chapter 3704, may be applicable. The Applicant will control fugitive dust through the use of several practices, as described below in response to OAC Rule 4906-4-07(B)(2) of this Application.

**(2) Plans to control air quality during site clearing and construction**

BMPs will be utilized and implemented to minimize the amount of dust generated by construction activities. These operations will be temporary and distributed throughout the Project Area and, therefore, will not result in significant impacts on air quality.

All construction vehicles will be maintained in good working condition to minimize emissions from construction-related activities. In addition, the extent of exposed/disturbed areas on the site at any one time will be minimized and restored/stabilized as soon as possible. Water or a dust suppressant such as calcium carbonate will be used to suppress dust on unpaved roads (public roads as well as Facility access roads) as needed throughout the duration of construction activities. If necessary, temporary paving (e.g., oil and stone) could be used to stabilize dusty surfaces in certain locations (e.g., the laydown yard). However, oil and stone dust suppression methods will not be applied within or immediately adjacent to sensitive areas, such as streams or wetlands. Any unanticipated construction-related dust problems will be identified and immediately reported to the construction manager and contractor.

**(3) Plans to control air quality during Facility operation**

**(a)** Ambient air quality monitoring

Solar panels generate electricity without releasing pollutants into the atmosphere. Therefore, there is no need for ambient air quality monitoring plans for air pollutants regulated by the federal or state environmental protection agency.

**(b)** Map of estimated concentrations in excess of significant emissions rates

Solar panels generate electricity without releasing pollutants into the atmosphere. Therefore, there will be no concentrations in excess of the significant emissions rate and there is no need to provide a map setting forth estimated concentrations.

**(c)** Procedures if air pollution control equipment fails

Solar panels generate electricity without releasing pollutants into the atmosphere. Therefore, there is no need to describe procedures in the event of a failure for air pollution control equipment.

## (C) Compliance with water quality regulations

### (1) Preconstruction water quality and permits

**(a)** List of permits

Prior to the start of construction, if required, the Applicant will obtain the following permits:

- The Ohio National Pollutant Discharge Elimination System (NPDES) construction storm water general permit, Ohio EPA Permit No. OHC000005.
- An individual permit or nationwide permit under Section 404 of the Clean Water Act (CWA), (if necessary as determined after final engineering).
- A Water Quality Certification Section 401 from the Ohio EPA (if necessary as determined after final engineering).
- An Ohio Isolated Wetland Permit (if necessary as determined after final engineering).

**(b)** Water quality map

This Facility will not utilize water and is not expected to impact bodies of water or water quality further than what is outlined in the Ecological Assessment in Exhibit R. Invenergy is also in discussions with the Big Darby Accord Advisory Panel about potentially sponsoring water quality testing initiatives to help further their mission and goals for the area.

**(c)** Water monitoring and engagement stations

This Facility will not utilize water and is not expected to impact bodies of water or water quality further than what is outlined in the Ecological Assessment in Exhibit R.

**(d)** Existing water quality of receiving stream

This Facility will not utilize water and is not expected to impact bodies of water or water quality further than what is outlined in the Ecological Assessment in Exhibit R.

**(e)** Permit application data

This Facility will not utilize water and is not expected to impact bodies of water or water quality further than what is outlined in the Ecological Assessment in Exhibit R.

**(2) Construction water quality**

**(a)** Water quality map

This Facility will only utilize water during construction for inverter/transformer pad foundations and potentially for dust control as needed. This is not expected to impact bodies of water or water quality. Therefore, this section is not applicable.

**(b)** Estimate of quality and quantity of aquatic discharges

Construction of the proposed Facility could result in certain localized impacts to groundwater. Due to the anticipated depth of bedrock in the area, blasting is not anticipated for construction. As private wells are typically located near residences, the Project construction is not anticipated to physically damage private wells or affect well yields.

In addition to potential impacts to groundwater due to installation of solar panels, minor impacts could result from other Facility activities. Soil

compaction from the use of construction equipment could limit the efficiency of surface water infiltration to groundwater. When soils are compressed, the pore spaces within the soil are decreased, which reduces water percolation. It is unlikely the Project will have an impact on groundwater recharge.

A final potential impact to groundwater is the possible introduction of pollutants to groundwater from accidental discharge of petroleum or other chemicals during construction. Such discharges could occur in the form of minor leaks from fuel and hydraulic systems, or as more substantial spills that could occur during refueling of vehicles or due to mechanical failures and other accidents. As described below, a Spill Prevention, Control, and Countermeasure (SPCC) Plan will be prepared that outlines procedures to be implemented to prevent the release of hazardous substances into the environment. In the event of a release, the SPCC Plan discusses how to contain and respond to the release.

The SPCC Plan will ensure that contractors maintain equipment so that it does not leak oil, hydraulic fluids, petroleum fuels, greases, cutting oils, anti-freeze, or other chemicals. If leaks or spills of these or other similar materials occur, contractors will promptly clean up the spill and will promptly notify the Applicant's site manager of the incident. Contractors will be responsible for offsite disposal of resulting waste materials in full compliance with applicable law. Contractors will be responsible for contacting Ohio EPA, the local fire department, and the local emergency planning committee (LEPC) within 30 minutes of a spill of 25 or more gallons.

Equipment and vehicle fueling is not expected to occur at this site. If needed, the contractor will fuel equipment in designated areas only, which will be identified once these areas are selected. Contractors will have spill kits sized for the amount of refueling taking place, with spill kits located at designated fueling areas (if any).

**(c)** Mitigation plans

As described above, construction of the proposed Facility is not anticipated to have any significant impacts on water quality. However, mitigation measures will be taken to ensure that impacts to groundwater, surface waters, and wetlands are avoided or minimized to the maximum extent practicable during Facility construction.

Fuel storage and dispensing of liquid fuels, if any are required, will comply with applicable law, including: Occupational Safety and Health Administration (OSHA); U.S. and Ohio EPA; the SPCC Plan; and other applicable regulations, as well as the National Fire Protection Association (NFPA) standards.

The Applicant will comply with requirements in the NPDES storm water permit, of which the Big Darby Watershed Amendment is a component of- for development in this area. The Applicant will ensure the contractor used for the Project implements appropriate BMPs to prevent erosion and control sediment in the areas of construction. BMPs will be included in the Stormwater Pollution Prevention Plan (SWPPP) that will be completed prior to construction.

To meet NPDES requirements, a qualified engineer will utilize the final Facility layout to develop a SWPPP, which will be completed prior to the commencement of construction. The SWPPP will identify potential sources of pollution that may reasonably be expected to affect the quality of storm water discharges associated with construction activities. If applicable, the SWPPP will clearly identify all activities that will be authorized under Section 401 of the CWA and be subject to an anti-degradation review. The SWPPP

will also describe and ensure the implementation of BMPs that reduce pollutants in storm water discharges during construction.

On-site investigations were conducted to establish the locations of streams and wetlands, and Facility components were sited to avoid impacts to these resources to the maximum extent practicable. Modules and inverters will be placed outside of wetland and waterbody features. The substation is anticipated to avoid impacts to wetland or waterbody features.

**(d)** Changes in flow patterns and erosion due to clearing and grading

Changes to the flow patterns and erosion are not anticipated and the site will be designed and managed with adequate drainage to maintain or improve existing flow patterns/properties.

**(e)** Equipment for control of effluents discharged into water and streams

Since solar panels generate electricity without releasing pollutants into bodies of water, no equipment is need to for control of effluents discharged into bodies of water and receiving streams. Therefore, this section is not applicable for this Facility.

**(3) Operation water quality**

**(a)** Water quality map

Since solar panels generate electricity without releasing pollutants into bodies of water, no water quality maps are required. Therefore, this section is not applicable for this Facility.

**(b)** Water pollution control equipment and treatment process

Since solar panels generate electricity without releasing pollutants into bodies of water, no pollution control equipment is needed for the Facility. Therefore, this section is not applicable for this Facility.

**(c)** Receipt of permits

Since solar panels generate electricity without releasing pollutants into bodies of water, no pollution discharge elimination system permit is needed. Therefore, this section is not applicable for this Facility.

**(d)** Quantitative flow diagram or description of wastes

Since solar panels generate electricity without releasing pollutants into bodies of water, no quantitative flow diagrams pertaining to the following are needed:

(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

Therefore, this section is not applicable for this Facility.

**(e)** Conservation Practices

The Applicant will follow Ohio EPA BMP for stormwater pollution prevention, stormwater management, and erosion and sedimentation control. The O&M facility will use water at a rate comparable to a typical small business office. No other Facility components will use measurable quantities of water. Therefore, conservation practices are not applicable.

## (D) Compliance with solid waste regulations

### (1) Preconstruction solid waste

**(a)** Nature and amount of solid waste

The Applicant is not aware of any debris or solid waste within the Project Area that would require removal for Facility development.

**(b)** Plans to deal with waste

No waste removal is necessary or planned prior to construction.

### (2) Construction solid waste

**(a)** Nature, amount, and composition of solid waste

Facility construction will generate some solid waste, primarily plastic, wood, cardboard and metal packing/packaging materials, construction scrap, and general refuse. The amount of construction waste will be minimal.

**(b)** Storage, treatment, transportation, and disposal of waste

Construction waste will be collected from the site and other Facility work areas, and disposed of in dumpsters located at the laydown yard. A private contractor will empty the dumpsters on an as needed basis, and dispose of the refuse at a licensed solid waste disposal facility.

### (3) Operation solid waste

**(a)** Nature, amount, and composition of solid waste

Facility operations will not result in generation of debris or solid waste. The small mount generated by the O&M facility will be nonhazardous and will be managed and disposed of in accordance with federal, state, and local regulations.

**(b)** Storage, treatment, transportation, and disposal of waste

Facility operations will not result in generation of debris or solid waste. The small mount generated by the O&M facility will be nonhazardous and will be managed and disposed of in accordance with federal, state, and local regulations.

**(4) Licenses and Permits**

The solar Facility's operations will not require acquisition of waste generation, storage, treatment, transportation, and/or disposal licenses or permits.

**(E) Compliance with aviation regulations**

**(1) Aviation facilities and map**

There are two airports within the Project Area that are being decommissioned by the airport landowners. These airports are:

- Darby Dan Airport (75OA)
- South West Airport (04I)

There is one airport approximately 2 miles from the Project Area:

- Bolton Field (TZR)

The Applicant has submitted for the Federal Aviation Administration (FAA) Notice and Determination processes for the proposed development along with coordinated with the Columbus Regional Airport Authority and the specific Bolton Airport staff. As the Facility is not on airport property, and there are other examples of utility scale solar generation projects on airport properties, there are no expected issues with the development of this Project. Such examples include the solar array(s) at the Indianapolis International Airport:
https://www.ind.com/community/sustainability

**(2) Federal Aviation Administration**

The FAA Determination official Aeronautical Study Number is 2020-AGL-23042-OE and is in progress with no issues expected after discussion with FAA representatives.

## 4906-4-08 Health and safety, land use and ecological information

### (A) Health and safety

#### (1) Safety and reliability of equipment

**(a)** Major public safety equipment

Public safety concerns associated with construction of the Facility include: (1) the movement of large construction vehicles, equipment, and materials; and (2) falling overhead objects. These issues are most relevant to construction personnel who will be working in close proximity to construction equipment and materials and exposed to construction-related hazards on a daily basis. However, the risk of construction-related injury will be minimized through daily safety meetings, regular safety training, and the use of appropriate safety equipment.

The general public could also be exposed to construction-related hazards due to the passage of large construction equipment on area roads and unauthorized access to the work site (e.g., on foot, by motor vehicle, all-terrain vehicle, or snowmobile). The latter could result in collision with stockpiled materials (e.g., soil, rebar), as well as falls into open excavations. Because construction activities will adhere to industry safety standards and will occur primarily on private land well removed from adjacent roads and residences, exposure of the general public to construction-related risks and hazards is expected to be very limited.

Measures to prevent unauthorized site entry and unsafe practices will be implemented during construction and operation of the solar Facility. During the construction phase, temporary, highly visible, plastic mesh fencing will be erected around equipment and spare part storage yards, staging areas, and other potential construction hazards. The temporary fencing will be supplemented by signs cautioning the public of potential dangers, and

providing 24-hour emergency numbers, operator contact information, and instructions for emergency personnel.

**(b)** Equipment reliability

Exhibit A consist of the datasheets for equipment considered representative of the equipment to be used at the proposed solar Facility. These datasheets address equipment reliability. All equipment is expected to be compliant with applicable Underwriters Laboratories (UL), Institute of Electrical and Electronics Engineers (IEEE), National Electrical Code (NEC), National Electrical Safety Code (NESC), and American National Standards Institute (ANSI) listings.

**(c)** Generating equipment safety manuals

The datasheets in Exhibit A address equipment safety certifications and tests. All equipment is expected to be compliant with applicable UL, IEEE, NEC, NESC, and ANSI listings.

The solar Facility will be fully enclosed by a security fence and will pose minimal risk to public safety as communicated through the information provided in this Application.

Prior to construction, once it is determined which type of module, rack, and inverter will be utilized for the Facility, the Applicant will provide the safety manuals for the equipment to the OPSB.

**(d)** Measures to restrict public access

The Facility will be enclosed by a 6-foot chain-link fence around the perimeter of the Project Area. Access will be controlled by gates around both the Project and the Project substation. High voltage equipment will be separately fenced with warning signage.

Access within the Project perimeter fence is limited only to trained and authorized site personnel.

**(e)** Fire protection, safety, and medical emergency plans during construction and operation

Generally, emergency/fire situations that are beyond the capabilities of the local service providers will be the responsibility of the owner/operator of the solar Facility. Construction and maintenance personnel will be trained and will have the equipment to deal with emergency situations that may occur at the Facility. In addition, local fire and emergency medical service providers will be trained in how to respond to emergency/fire situations that could occur at the solar Facility and will be provided an Emergency Action Plan.

**(2) Probable impacts due to failure of air pollution control equipment**

Solar panels generate electricity without releasing air pollutants. Therefore, no air pollution controls will be needed and the Facility.

**(3) Construction and operational sound**

**(a)** Construction sound levels at the nearest property boundary

Sound from construction activities associated with the Facility is likely to temporarily constitute a moderate unavoidable impact at some of the homes in the vicinity of the Project Area. The sound levels resulting from construction activities will vary significantly depending on several factors, such as the type and age of equipment, the specific equipment manufacturer and model, the operations being performed, and the overall condition of the equipment and exhaust system mufflers. In order to minimize the impact of sound during construction, general construction activities will be limited to the hours of 7:00 am to 7:00 pm, or until dusk when sunset occurs after 7:00 pm. Impact pile driving and hoe ram, if required, will be limited to the hours of 9:00 am to 7:00 pm, Monday through Friday. Construction activities that do not involve noise increases above ambient levels at non-participating

sensitive receptors may be performed outside of daylight hours when necessary. The Applicant will notify property owners or affected tenants of upcoming construction activities, including potential nighttime construction activities, pursuant to OAC Rule 4906-3-03(B)(2) of this Application.

In general, the maximum potential sound impact at any single residence might be analogous from a few days to a few weeks of repair or repaving work occurring on a nearby road or to the sound of machinery operating on a nearby farm. More commonly, at houses that are some distance away, the sounds from Project construction are likely to be faintly perceived as the far off sound of diesel-powered earthmoving equipment characterized by such things as irregular engine revs, back up alarms, gravel dumping, and the clanking of metal tracks.

The use of explosives are not anticipated for this Project. In the unlikely event that a need for dynamiting arises during construction, such activities would occur intermittently and only for limited periods of time. Furthermore, the location of such activities, if needed, would not be widespread within the Project Area (i.e., such activities would most likely be confined to limited areas).

Construction of the Facility is anticipated to consist of several principal activities:

- **Site clearing**: The initial phase includes establishing temporary site offices, workshops, stores, and other on-site facilities. Installation of erosion and sedimentation control measures, as well as the preparation of initial haulage routes.
- **Excavation**: This phase includes the excavation and formation of access roads, preparation of the laydown yard, and excavation for the solar panels.

- **Solar panel installation**: Delivery of the solar panels, followed by their installation and commissioning.
- **Restoration**: Once construction is complete, temporarily disturbed areas will be restored and returned to their approximate preconstruction contours. Exposed soils will be stabilized by seeding, mulching, and/or agricultural planting.

Typical on-site equipment likely to be used to construct the proposed Facility will include trucks, cranes, dozers, excavators, trenchers, graders, and batch plants. Predicted construction sound levels are included within Exhibit N, which is a Sound Survey done for the Project.

A majority of the construction activities associated with the proposed Project will be conducted during daylight hours. At times during the planned construction schedule, the construction activities will be audible to nearby residents. If there is any construction at the Facility in the evening and nighttime, it is expected to be limited to relatively quiet activities and to be less noticeable than in the daytime. In addition, construction sound that may be heard off-site will vary from hour-to-hour and day-to-day in accordance with the equipment in use and the operations being performed at the site. Since the construction activity at the site will be temporary, will occur mostly in the daytime hours, and will produce sounds that are already familiar to the community, including sounds from farming activity, and home and other mid-size building construction, its overall sound impact on the community is not expected to be significant.

Sounds generated by construction activities are typically exempt from state and local sound oversight provided that they occur within weekday, daytime periods, as may be specified under local zoning or legal codes. All reasonable efforts will be made to minimize the impact of sound resulting from construction activities. When construction scheduling is finalized,

construction personnel will notify the community as necessary of expected Facility construction commencement and duration to help minimize the effects of construction sound.

(i) Blasting activities

The use of explosives is not anticipated for this Project.

(ii) Operation of earthmoving equipment

The sound resulting from operations such as earthmoving, driving, and trenching will occur infrequently and over a short duration. Such levels, at a close distance, would not generally be considered acceptable on a permanent basis, but as a temporary, daytime occurrence, operation of earthmoving equipment should not pose undue quality of life concerns for residents in the Project Area.

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

The sound resulting from these operations will occur infrequently and over a short duration at each Project Area. Such levels, at a close distance, would not generally be considered acceptable on a permanent basis, but as a temporary, daytime occurrence, operation of this equipment should not pose undue quality of life concerns for residents in the Project Area.

(iv) Erection of structures

The erection of solar panels will require the use of tractor trailers to deliver equipment. The sound resulting from these operations will occur infrequently and over a short duration. Such levels would not generally be considered acceptable on a permanent basis, but as a

temporary, daytime occurrence, erection of structures should not pose undue quality of life concerns for residents in the Project Area.

(v) Truck traffic

Some increased traffic will be generated throughout the construction period with personnel, equipment, and materials deliveries. The volume, vehicle type, and roadways utilized will be dependent on the construction activities taking place or scheduled to occur. Construction traffic will consist of standard construction equipment including dump trucks, semi-trailers, and pick-up trucks. Although final transportation routing will be developed in consultation with the Franklin County Engineer, component delivery traffic is currently assumed to enter the Project Area through use of U.S. National Route 40 at the north end of the Project site. Sound from the very small amount of daily vehicular traffic to and from the current site of construction should be negligible in magnitude relative to normal traffic levels and temporary in duration at any given location.

Truck traffic, will be necessary during construction of the Project in order to transport materials and equipment throughout the Project Area. The sound resulting from these operations will occur infrequently and over a short duration at each location. Such truck traffic levels should not pose undue quality of life concerns for residents in the Project Area.

(vi) Installation of equipment

As addressed above in (iv), the sound resulting from equipment installations will occur infrequently and over a short duration at each

location. Such installation of equipment levels should not pose undue quality of life concerns for residents in the Project Area.

**(b)** Operational sound levels at the nearest property boundary

In order to assess the impact of sound that will result from the operation of the solar Facility, the Applicant engaged Hankard Environmental, Inc. (Hankard) to conduct a study to predict the ambient sound levels within the Project Area that will result from operation of the solar Facility in relation to nearby residences. The study is included in this Application as Exhibit N. To the extent not addressed below, the report will further address the following points:

(i) Generation equipment

(ii) Processing equipment

This section is not applicable to a solar generation facility.

(iii) Associated road traffic

Once operational, the proposed Facility will not contribute to traffic on local roads. Post-construction traffic will be associated with operations personnel of 1 to 4 people traveling to and from the solar Facility. Routine maintenance will typically be required on a quarterly basis at the solar Facility, as well as the Project substation.

**(c)** Location of noise-sensitive areas within 1 mile of the Facility

Exhibit N, the Sound Survey report for the Project, addresses noise sensitive areas near the Project area.

**(d)** Mitigation of sound emissions during construction and operation

Although residential sound impacts are anticipated to be minor, with both daytime and nighttime noise emissions meeting limits established for the

Project based on ambient noise measurements, additional mitigation measures during construction will include the following:

- Implementing BMPs for sound abatement during construction, including use of appropriate mufflers, proper vehicle maintenance, adherence of all local speed limits, and limiting hours of construction to normal working hours, unless there is a compelling reason to work beyond those hours.
- Nighttime construction work that may obtain approval and may occur will generally be limited to relatively quiet activities, such as welding and installing equipment, cabling, and instrumentation.
- Notifying landowners of certain construction sound impacts in advance.

During operation of the Facility, the following minimization and mitigation procedures will be implemented: the use of appropriate mufflers, proper vehicle maintenance, adherence to local speed limits and the regular, manufacturer required equipment maintenance.

If adverse sound impacts are identified, a reasonable complaint resolution procedure will be implemented to ensure that any complaints regarding construction or operational sounds are adequately investigated and resolved.

**(e)** Preconstruction background sound study

Hankard conducted the Project's Sound Survey, located in Exhibit N. This analysis shows that of 1,099 noise-sensitive receptors identified in the Project Area, daytime and nighttime operations noise levels fall below standard limits.

For the construction of the Project, predicted noise levels fall below the applied standards set forth by the U.S. Federal Highway Administration.

Additionally, construction activities near receptors will only take place during intermittent intervals for a few weeks at a time as construction progresses.

**(4) Water impacts**

**(a)** Impacts to public and private water supplies from construction and operation

Groundwater well information for the Project Area and surrounding vicinity is depicted in Appendix A of the Ecological Assessment (Exhibit R). Given that minimal excavation is associated with the Project and pile driving will only occur to depths of 10 to 15 feet below grade, the Applicant does not anticipate impacts to the water supply. There are no Source Water Protection Areas associated with the Project Area.

**(b)** Impacts to public and private pollution control equipment failure

Solar facilities generate electricity without combusting fuel or releasing pollutants into the atmosphere. They do not require pollution equipment. Therefore, this section is not applicable to this Facility.

**(c)** Water resource map of areas directly affected

As described above, no impacts to these water sources are anticipated.

Additionally, because solar modules do not contain hazardous materials, no impacts to runoff are expected. The Applicant is committed to only using modules that are considered non-toxic pursuant to the U.S. EPA toxicity characteristic leaching procedure (TCLP) test. The TCLP is the U.S. EPA's test protocol to determine whether an item may contain components that are considered toxic above set limits established by the Resource Conservation and Recovery Act of 1976. This test protocol can be applied to photovoltaic modules to ensure that the module, once considered as solid waste, does not leach toxins into the environment.

**(d)** Compliance with local water source protection plans

There are no Source Water Protection Areas associated with the Project Area. Construction and operation of the Facility will not affect the local water source.

**(e)** Analysis of prospects of floods in the area

The Applicant hired Aon to analyze the probability of flood occurrences for the Project Area. Aon determined that the site has a low flood risk rating and concluded that most of the Project Area is in Flood Zone X, which is greater than the 500-year flood zone.

**(5) Geological features map**

Figure 08-1 sets forth the geological features of the proposed Facility site, including: the topographic contours; the existing gas and oil wells; injection wells, and soil types found at the Project Area.

Additionally, the Applicant has provided a Geotechnical Report with Soil Reactivity Data for the Project Area as Exhibit D.

**(a)** Geological suitability

As explained in Exhibit D, the Project site is located within the Darby Plains physiographic region of the Till Plains physiographic section, within the Central Lowlands province. In general, the region is characterized as a moderately low relief, broadly hummocky ground moraine with several broad, indistinct recessional moraines. Between the hummocks are broad, poorly drained swales that formerly held wet prairies/meadows, with few large streams. Elevations range between approximately 750 to 1100 feet.

According to U.S. Geological Survey (USGS) surface geology maps, the surface bedrock is anticipated to be either Salina Group or Columbus Limestone. The Silurian-age Salina Group consists of microcrystalline to finely crystalline dolomite interbedded with shale, anhydrite, and gypsum. The depositional environment was mainly nearshore marine, consisting of quiet water lagoons/shoreline, shallow offshore, and reef environments surrounding a large evaporite basin. Thickness varies from approximately 0 to 700 feet. Aquifer rating is 6-8, with hydraulic conductivity typically ranging from 300-1000 gallons per day per square foot. (gpd/sq. ft.) It is overlain by the Columbus Limestone, with a base at the Lockport Dolomite.

The Devonian-age Columbus Limestone is a gray, fossiliferous limestone underlain by brown, finely crystalline dolomite. The depositional environment was tropical, shallow marine. Thickness ranges as high as 105 feet. This unit has been evaluated as a karst limestone in northern Ohio, with an aquifer rating of 9-10. Hydraulic conductivity ranges from 700-2000 gpd/sq. ft. depending upon the degree of solution and karst development. It is overlain by the Delaware Limestone and underlain by the Salina Group.

The groundwater was observed at depths ranging from about 5 to 31 feet below existing ground surface in the borings.

State mapping of underground mines indicates no known underground mines in Franklin County.

Karst features have not been mapped in Franklin County. However. Karst in Ohio is particularly prevalent in areas with less than 20 feet of glacial drift or alluvium overlying the carbonate bedrock. Regional mapping indicates there is generally greater than 50 feet of overburden at the proposed Project site so karst formation is unlikely at this time.

**(b)** Soil suitability for grading, compaction, and drainage

The site could be developed for the proposed construction of a solar PV facility based upon geotechnical conditions encountered at the site. Project site subsurface profile consisted of predominately native cohesive soil with some occasional layers of native granular soils to the depths explored.

The Applicant anticipates very little grading will be required. On-site materials that are used as fill or backfill will likely require drying prior to re-compaction as engineered fill. Alternatively, these materials could be replaced with imported soils containing an appropriate moisture content. Applicant expects localized areas of unsuitable conditions will be encountered prior to placing fill and within the subgrade for roadways and shallow foundations that are planned. Stabilization measures, such as over-excavation and replacement, should be expected.

Groundwater was encountered at depths of about 5 to 31 feet below ground surface (bgs), which is typical for the geologic setting of the Project site. Groundwater levels could approach the surface at times during the design period for the Project. Excavations, such as trenches for electrical cable and conduit, will likely encounter groundwater and require dewatering. Excavations for shallow foundations could also encounter groundwater, especially if construction is performed during periods of seasonally high groundwater. While precipitation is relatively constant throughout the year, groundwater levels are expected to be deepest during the late summer due to increased evaporation rates.

Based on the results of the borings, the Applicant does not expect that difficult excavation conditions or widespread obstructions to pile driving operations will be encountered during construction. As previously noted, groundwater is

expected to be encountered in excavations. Additionally, we expect general instability in the form of caving, sloughing, and raveling to be encountered in excavations. Excavations will likely require bracing, sloping, and/or other means to create safe and stable working conditions.

There is a very low likelihood of encountering difficulties during pile driving. We do not anticipate pre-drilling to be required. The Applicant has included the geotechnical analysis for the Project as Exhibit D, which provides recommendations and guidance for the construction of the Facility.

**(c)** Plans for test boring

Additional borings will be performed at the final locations of the transformer substation and interconnection substation. All boreholes will be filled and borehole abandonment will comply with state and local regulations. The Project's Geotechnical Report, provided as Exhibit D, details the below site properties as they relate to the development of a utility scale solar farm.

(i) Subsurface soil properties
(ii) Static water level
(iii) Rock quality description
(iv) Percent recovery
(v) Depth and description of bedrock contact

As further set forth in Exhibit D, in addition to the geological test borings, the Applicant has performed a limited soil reactivity investigation to determine the potential for soil reactivity and corrosivity conditions at the Project Area. The geotechnical consultant coordinated the test soil borings to a required depth at various locations. The soil borings and sampling were performed in accordance with the referenced standards:

- Moisture content tests in accordance with ASTM D2116-05, "Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass"

- Dry unit weight tests in accordance with ASTM D7263, "Standard Test Method for Laboratory Determination of Density (Unit Weight) of Soil Specimen"

- Electrical resistivity tests in accordance with ASTM G187, "Standard Test Method for Measurement of Soil Resistivity Using the Two-Electrode Soil Box Method"

- Soil pH tests in accordance with ASTM D4972-01, "Standard Test Method for pH of Soils"

- Soil soluble sulfate and chloride content testing in accordance with U.S. EPA methods

**(6) Prospects of high winds for the area**

The table below estimates the percentage of time in which the wind velocity in Franklin County falls at various speeds. Data was taken from the Ohio Agricultural Research and Development Center (OARDC) out of The Ohio State University. As the OARDC physically records this data, the Applicant chose the closest measurement site to the Project Area, which was the Columbus station in Franklin County. The sensor height is 5 meters (16.4 feet), which is higher than the height of the proposed Facility. The speeds below are in miles per hour (mph) and reflect the 2019 calendar year.

**Table 5. Wind Velocity**

| Max Wind Speed (mph) | | % of daily occurrences |
|---|---|---|
| 0 | 0.5 | 1.42 |
| 0.5 | 1 | 0 |
| 1 | 1.5 | 0 |
| 1.5 | 2 | 0 |
| 2 | 2.5 | 0 |
| 2.5 | 3 | 0 |
| 3 | 3.5 | 0 |
| 3.5 | 4 | 0 |
| 4 | 4.5 | .57 |
| 4.5 | 5 | .28 |
| 5 | 5.5 | 2.55 |
| 5.5 | 6 | 2.55 |
| 6 | 6.5 | 3.68 |
| 6.5 | 7 | 2.83 |
| 7 | 7.5 | 7.65 |
| 7.5 | 8 | 7.37 |
| 8 | 8.5 | 7.08 |
| 8.5 | 9 | 7.37 |
| 9 | 9.5 | 7.65 |
| 9.5 | 10 | 6.80 |
| 10 | 10.5 | 5.95 |
| 10.5 | 11 | 5.95 |
| 11 | 11.5 | 4.25 |
| 11.5 | 12 | 4.82 |
| 12 | 12.5 | 4.53 |
| 12.5 | 13 | 3.4 |
| 13 | 13.5 | 1.98 |
| 13.5 | 14 | 1.42 |
| 14 | 14.5 | 2.27 |
| 14.5 | 15 | 3.4 |
| 15 | 15.5 | .28 |
| 15.5 | 16 | 2.55 |
| 16 | 16.5 | .28 |
| 16.5 | 17 | .85 |
| 17 | 17.5 | .85 |
| 17.5 | 18 | .57 |

| Max Wind Speed (mph) | | % of daily occurrences |
|---|---|---|
| 18 | 18.5 | .28 |
| 18.5 | 19 | .85 |
| 19 | 19.5 | .57 |
| 19.5 | 20 | .57 |
| 20 | 20.5 | 0 |
| 20.5 | 21 | .28 |
| 21 | 21.5 | .28 |
| 21.5 | 22 | 0 |
| 22 | 22.5 | 0 |
| 22.5 | 23 | 0 |
| 23 | 23.5 | 0 |
| 23.5 | 24 | 0 |
| 24 | 24.5 | 0 |
| 24.5 | 25 | 0 |
| 25 | 25.5 | 0 |
| 25.5 | 26 | 0 |
| 26 | 26.5 | 0 |
| 26.5 | 27 | 0 |
| 27 | 27.5 | 0 |
| 27.5 | 28 | 0 |
| 28 | 28.5 | 0 |
| 28.5 | 29 | 0 |
| 29 | 29.5 | 0 |
| 29.5 | 30 | 0 |

The probabilities of high wind speeds shown in the table above do not require the Applicant to mitigate any adverse consequences.

**(7) Blade sheer**

The proposed Facility will not experience blade shear. Therefore, this section is not applicable to this Facility.

**(8) Ice throw**

The proposed Facility will not experience ice throw. Therefore, this section is not applicable to this Facility.

**(9) Shadow flicker**

The proposed Facility will not experience shadow flicker. Therefore, this section is not applicable to this Facility.

**(10) Radio and television reception**

The proposed Facility will be less than 15 feet tall and will not interfere with radio or television reception.

Additionally, the Project will not pose an electromagnetic field (EMF) health risk. While modern society is safely exposed to EMF on a daily basis (from cell phones to household appliances), such exposure can conceivably pose a health risk only if it exceeds health-based thresholds developed by the Intentional Commission on Non-Ionizing Radiation Protection (ICNIRP). ICNIRP has set a threshold for acute exposure of 830 milligauss for power frequency magnetic fields (created by AC electricity) and 4 million milligauss for static magnetic fields (created by DC electricity). In contrast, a typical solar PV inverter creates a power frequency magnetic field of about 3 milligauss at a distance of 10 feet, which is comparable to a household appliance at a distance of just 3 feet. A 2009 National Renewable Energy Laboratory (NREL) report also indicates that EMF measured at the perimeter of solar PV installations is indistinguishable from background EMF and is lower than household appliances like televisions and refrigerators.

**(11) Military and civilian radar systems**

The proposed Facility will be less than 15 feet tall and will not interfere with military or civilian radar systems.

**(12) Microwave communication paths and systems**

The proposed Facility will be less than 15 feet tall and will not interfere with microwave communication paths or systems.

**(B) Ecological resources.**

**(1) Ecological information in the Project Area**

**(a)** Map

The Applicant has provided a map at 1:24,000 scale containing a one half-mile radius from solar Facility and showing the Project Area boundary, undeveloped or abandoned land, and recreational areas as Figure 08-3. The map include:

(i) Proposed facility and Project Area boundary

(ii) Undeveloped or abandoned land such as wood lots, wetlands, or vacant fields

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

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

(v) Highly-erodible soils and slopes of 12% or greater

**(b)** Field survey and map of vegetative communities and surface water within 100 feet of construction

The Applicant retained a third-party environmental consultant, Cardno Inc. (Cardno), to perform a field survey of the vegetative communities and delineations of wetlands and streams on and within the Project Area, consisting of approximately 2,424 acres, and the surrounding Study Area, is approximately 2,697 acres. This Study Area includes the potential construction Project Area and a 100-foot (30-meter) buffer in accordance with OAC Rule 4906-4-08(B)(1)(b). This field survey was conducted in the Fall of 2020 (See Exhibit B, Site Characterization Study Report; Exhibit C, Wetlands and other Waters of the U. S. Delineation Report). The Study Area primarily consists of cultivated, rotational cropland. In addition, Figure 08-2 the Desktop Wetland and Existing Ecological Land Classification Map is set

forth in Exhibit C, Appendix A, Wetlands and Other Waters of the U.S. Delineation Report.

To determine land cover and vegetative communities, a review of the USGS National Land Cover Database (NLCD) was utilized. (USGS, LCS Program: NLCD, no publisher (n.p.), no date (n.d.), Web. June 1, 2018, https://www2.usgs.gov/climate_landuse/lcs/projects/nlcd.asp).

Based on field observations, the NLCD classification map units were either confirmed or reclassified. Readily identifiable land cover changes (i.e., areas that had been converted to cultivated crops) were recorded and mapped based on vegetative structure and dominant species composition. Incidental wildlife observations were recorded.

Based on the field survey, the Project Area contains approximately 91% (2,210 acres) cultivated crops as a cover type. Nearly all of the construction impact area is actively farmed for agriculture (soybean and corn). The Study Area also contains about 119 acres of open pasture or hay fields, about_63 acres of developed land cover, about 23 acres of deciduous forest, about acres of developed land cover, about 4 acres of grassland/herbaceous land cover, and about 4 acre of woody wetlands, as shown in Table 6.

**Table 6. Existing Land Use/Land Cover within the Project Area**

| Land Cover Type | Acres | Percentage |
|---|---|---|
| Cultivated Crops | 2,209.86 | 91.2% |
| Pasture/Hay | 118.78 | 4.9% |
| Developed, Open Space | 45.79 | 1.9% |
| Deciduous Forest | 23.49 | 1.0% |
| Developed, Low Intensity | 14.82 | 0.6% |
| Grassland/Herbaceous | 4.05 | 0.2% |

| Land Cover Type | Acres | Percentage |
|---|---|---|
| Emergent Wetlands | 2.59 | 0.1% |
| Developed, Medium Intensity | 2.00 | 0.1% |
| Shrub/Scrub | 1.11 | 0.0% |
| Woody Wetlands | 1.05 | 0.0% |
| Mixed Forest | 0.25 | 0.0% |
| Barren Land (Rock/Sand/Clay) | 0.22 | 0.0% |
| **Total Acreage** | **2,424.02** | **100.0%** |
| Source: Exhibit R, Ecological Assessment | | |

**Table 7: Land Use/Land Cover Type impacted by Solar Facilities**

| Land Cover Type | Temporary Acres | Permanent Acres |
|---|---|---|
| Upland Soil | 68.1 | 47.5 |
| Forested Uplands | 0.0 | 7.2 |
| Wetland | 0.0 | 0.0 |
| Streams | 0.0 | 0.0 |
| Ponds | 0.0 | 0.0 |

**(c)** Literature review of plant and animal life within 0.25 miles of construction

The Applicant has retained Cardno to perform a desktop evaluation of the Major Species within the Project Area. The Applicant has provided an Ecological Assessment full report as Exhibit R. The following evaluation of biological, resources within the Project Area is based on searches of relevant and readily available databases and reports, and geospatial data. Existing information was collected from a number of public domain sources. Cartographic information and related literature compiled through agency and internet sources included the following datasets:

- USGS 7.5-minute quadrangle maps
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data

- USFWS Threatened and Endangered Species System (TESS)
- Ohio State Natural Heritage Program
- Ohio Department of Natural Resources (ODNR)
- NLCD

**Plant species**

USFWS and ODNR maintain a list of federally- and state-protected plant species. Species listed as threatened or endangered by either of these agencies require protective measures for their perpetuation due to low populations, sensitivity to habitat alteration, and/or cultural significance. According to the ODNR and the USFWS websites, no federally-endangered or federally-threatened species occur in Franklin County (ODNR, 2016). Two state-endangered and one state-threatened species are known to occur in Franklin County. Each of these plant species is briefly described below.

**Wildlife**

This Section identifies sensitive wildlife species known to occur or potentially occur within the proposed Project site. Based on issues identified at other solar generation facilities throughout the U.S., those species of greatest concern are federally- or state-protected avian species and bats that may occur in the vicinity of the solar Facility. Other species of conservation concern are those directly associated with sensitive or unique habitats. Each of these species is briefly described below.

**Hunting**

ODNR maintains a list of species regularly hunted in the state. Several common commercial (muskrat, fox, coyote, beaver, skunk, raccoon, mink, and opossum) and recreational species (deer, squirrel, rabbit, woodchuck, pheasant, turkey, doves, boar, and waterfowl) may be present on the Project Area. Much of the Project Area is on privately owned lands and written

permission from the land owner and a valid Ohio hunting permit is required to hunt on private lands (ODNR, 2009). While it is anticipated that most of the species do occur on the Project Area, either permanently or seasonally, the likelihood of occurrence for most recreational and commercial species will be low to moderate. Several species, such as pheasant, turkeys, waterfowl, deer, and rabbits that are attracted to agriculture, will have a moderate to high likelihood of occurrence. Most of these species can be confirmed to be on the Project Area through other surveys such as avian and wetland surveys. No additional surveys will be performed unless directed by ODNR. Additionally, as the project progresses, consultation with ODNR will identify any state-protected hunting areas or game preserves that should be avoided.

**(d)** Results of field surveys for plant and animal species identified in literature review

No species specific field surveys were conducted for the Project Area; however, special attention was paid to identifying endangered and threatened species during field surveys. No federal endangered or threatened species were observed in the Project Area while conducting surveys.

A pair of Northern Harriers (*Circus hudsonis*) were observed foraging during field surveys. These birds are listed as state-endangered, were observed during field efforts. No critical habitat for the harrier is located in the Project Area, and woodlots in the Project Area, determined to be of moderate quality, will be maintained. The Northern Harrier is highly mobile and able to vacate the area during construction activities. The remaining habitat in the Project Area was determined to be of degraded quality and provides limited habitat to rare, threatened, and endangered species. Additional wildlife observations included white-tailed deer, migratory shorebirds, waterfowl, and songbirds. No additional wildlife surveys are anticipated for the Facility. Based on

adherence to agency avoidance and mitigation guidelines, consultation with the ODNR and USFWS did not result in the suggestion of additional surveys. Those guidelines, along with other avoidance and minimization techniques, are provided below in section 4906-4-08(B)(2)(b).

**(e)** Additional ecological impact studies

Based on agency consultation and field survey results, no additional ecological studies are proposed. Reference Appendix B within the Ecological Assessment (Exhibit R) for documented agency communication.

**(2) Potential ecological resource impacts during construction**

**(a)** Impact of construction on resources surveyed

Since the Facility is located entirely on leased private land, there will be no construction-related impacts to recreational areas, parks, wildlife areas, nature preserves, or other conservation areas. Impacts to ecological resources may occur during construction of the installation of PV panels, access roads, and electrical collection lines; development and use of the laydown yards; and the construction of the substation. Based on the data obtained during field studies, and via consultations with agencies, these impacts are anticipated to be minimal. No wetlands or streams will be impacted during construction. Minor impacts during construction to ecological resources, including woody vegetation, cannot be avoided. Additional details, including acreage of potential impacts, are included in the Ecological Assessment (Exhibit R).

The extent of vegetation clearing is included in section 7.2 of the Ecological Assessment contained in Exhibit R. A Landscape, Vegetation Management, and Lighting Plan (Vegetation Management Plan) is included as Exhibit E to this Application and describes measures to minimize clearing of woody vegetation.

Potential impacts to wildlife and their habitat are anticipated to be negligible. These impacts are also discussed further in the Ecological Assessment, Exhibit R.

**(b)** Mitigation procedures to minimize short- and long-term construction impacts

Short-term and long-term impacts to area ecology and threatened and endangered species from the construction of the solar Facility will be effectively avoided because the Applicant does not plan construction activities in the habitats of threatened and endangered species.

The following describes the procedures to be utilized to avoid, minimize, and mitigate both the short- and long-term impacts due to construction:

**(i)** Post-construction restoration of disturbed soils

As noted previously, the Applicant will seek coverage for the Facility under Ohio EPA Permit No. OHC000005. The permit requires development of a SWPPP for erosion control, storm water management, and post construction site stabilization.

**(ii)** Frac out contingency plan for stream and wetland crossings

Horizontal directional drilling is not anticipated at this time. If horizontal directional drilling is determined to be necessary for construction after completing final Facility design, the Applicant will follow the provided inadvertent fluid release plan in Appendix F of the Ecological Assessment (see Exhibit R).

**(iii)** Methods to demarcate surface waters and wetlands

As depicted on the preliminary Facility layout with Wetland Delineation data (Figure 08-4), the boundaries of streams and wetlands within and immediately adjacent to the construction limits of disturbance will be surrounded by silt/exclusionary fencing to

demarcate avoidance areas. These will also be marked on final construction documents. Other sensitive resources will be marked as "Environmentally Sensitive Areas" on final construction documents. All contractors and subcontractors working on-site will be provided with training to understand the significance of the types of flagging used, and the importance of staying within defined limits of work areas, especially in and adjacent to marked sensitive resource areas such as wetlands.

**(iv)** Inspection and repair of erosion control measures

As noted previously, the Applicant will seek coverage for the Facility under Ohio EPA Permit No. OHC000005. The permit requires development of a SWPPP for erosion control and storm water management. This permit requires the regular inspection of erosion control measures, as described below. Erosion and sediment control measures will be inspected by a qualified individual throughout the construction phase to assure that they are functioning properly. These features will be inspected until 70% permanent vegetated cover has been established across disturbed areas. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site vehicle tracking. Inspections will be conducted at least once every seven calendar days, and within 24 hours after any storm event with 0.5 inch or greater of rain. This inspection frequency may be reduced to once every month if the entire site is temporarily stabilized and runoff is unlikely due to weather conditions such as snow, ice, or frozen ground.

Following each inspection, the qualified inspector will complete and sign a checklist and inspection report. At a minimum, the inspection report shall include:

- the inspection date;
- names, titles, and qualifications of personnel making the inspection;
- weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether any discharges occurred;
- weather information and a description of any discharges occurring at the time of the inspection;
- locations of any BMPs that need to be maintained; and
- any corrective actions recommended.

The inspection report will be distributed to the contractor and any corrective actions will be promptly addressed by onsite staff to ensure permit compliance.

Following site stabilization, a notice of termination form will be submitted to the Ohio EPA, in accordance with NPDES permit requirements. For three years following the submittal of a notice of termination form, the Applicant will maintain a record summarizing the results of the SWPPP inspections described above, including the names(s) and qualifications of personnel making the inspection, the

date(s) of the inspection, major observations relating to the implementation of the SWPPP, and a signed certification as to whether the facility is in compliance with the SWPPP.

**(v)** Measures to divert stormwater runoff

Specific methods will be included in the final civil engineering documents produced by a licensed civil engineer, and utilized to obtain a SWPPP permit that will direct how stormwater is handled during construction.

**(vi)** Methods to protect vegetation

Protection of vegetation will be primarily accomplished through careful planning. Most Facility components have been sited on agricultural land, thus avoiding significant impacts to successional grassland, shrubland, forested, and wetland areas. In addition to siting, measures to protect vegetation include: identifying sensitive areas such as wetlands where no disturbance or vehicular activities will be allowed; limiting areas of disturbance to the smallest size practicable; preserving mature trees to the maximum extent practicable; educating the construction workforce on respecting and adhering to the physical boundaries of off-limit areas; employing best management practices during construction; and maintaining a clean work area within the designated construction sites. Following construction activities, temporarily disturbed areas will be re-established with native vegetation. Seed mixes for the Facility have incorporated suggestions from the ODNR and Ohio Pollinator Habitat Initiative, to reestablish vegetative cover in these areas. Two seed mixes will be used, one within the PV array areas (both underneath and between arrays) and the other for hydric areas. Refer

to the Vegetation Management Plan (Exhibit E) for more information.

In addition to re-seeding temporarily disturbed areas, the Applicant will preserve mature trees within the Project Area to the maximum extent practicable, as described in the Vegetation Management Plan (Exhibit E).

**(vii)** Options for disposal of trees, brush and other vegetation

Applicable and designated scattered trees and shrubs, as well as any applicable/approved windrows, may be cleared and grubbed to accommodate construction and operation of the Facility. Disposal of cleared trees and shrubs will likely consist of chipping or grinding, then using as woodchips for temporary ground cover or mulch. Offsite transport of woody material is not anticipated, however if necessary, such disposal will be completed by a qualified contractor in accordance with local, state, and federal regulations. For additional information, see the Vegetation Management Plan (Exhibit E).

**(viii)** Avoidance measures for major species and their habitat

Based on consultations with the ODNR and USFWS and field surveys of the Project Area, habitat for state or federal listed species within the Project Area is minimal. Therefore, no post-construction wildlife monitoring is proposed. Coordination letters are included in the Ecological Assessment, Exhibit R, as Appendix B. Per agency guidance, tree clearing will be completed between October 1 and April 31 to avoid potential impacts to bat species.

The Applicant will contact OPSB Staff within 24 hours if federal or state listed species are encountered during construction activities. Construction activities that could adversely impact the identified plants or animals will be halted until an appropriate course of action has been agreed upon by the Applicant, OPSB Staff, and other applicable administrative agencies.

**(3) Potential impacts to ecological resources during O&M**

**(a)** Evaluation of impact of O&M on undeveloped areas, plants, and animals

Aside from minor disturbances associated with routine maintenance and occasional repair activities, no additional disturbance to plants, vegetative communities, wetlands, or surface waters are anticipated from Facility operation. The Facility will not result in physical disturbance or impacts to recreational areas, parks, wildlife areas, nature preserves, or other conservation areas. Maintenance of the solar Facility will be completed using pick-up sized vehicles to deliver parts for updates and replacements. Periodic inspections of the solar panels will be done by driving pick-up trucks on the lanes between the rows of solar panels that have been planted with the perennial ground cover mixture, as described in the Vegetation Management Plan (Exhibit E). The deep-rooted ground cover will also provide ecological improvement over current cropped conditions by increasing plant and wildlife diversity, decrease impacts to soils as seasonal tilling would no longer be needed, and reduce runoff into streams and wetlands from tilled cropland.

**(b)** Procedures to avoid/minimize/mitigate short- and long-term O&M impacts

Short-term and long-term impacts to threatened or endangered species' habitat by operation of the solar Facility will be effectively mitigated by designing the solar Facility so as to not locate solar energy facilities (roads, solar panels, cables) in the habitats of threatened or endangered species.

Based on the information gathered to date, no other active mitigation measures should be necessary to minimize impacts to threatened or endangered species.

**(c)** Post-construction monitoring of wildlife impacts

The Project will implement a wildlife response and reporting system during operation, which will allow the Project to assess wildlife impacts. The wildlife response and reporting system incorporates an electronic and communications pathway that uses a software program to expedite the transfer of wildlife data from the field staff to environmental managers. This system includes operations staff training, monitoring for wildlife incidents (e.g., injured or deceased animal) by operations staff, and active reporting of and potentially response to wildlife incidents.

The operations staff training will occur during staff onboarding and on an annual basis. The training will provide instruction to operations staff on reportable wildlife incidents, data documentation when an incident is identified, and the incident report process. The training also includes BMPs (e.g., only drive on designated access roads). The operations staff are expected to view their surroundings while performing regular maintenance visits and incorporate scans for wildlife into their work habits. Should an incident be observed, the technicians are required to collect data (e.g., date, time, location, etc.) and photographs of the wildlife and surroundings. This data is reported to the site manager, who submits it to an electronic database and notifies the designated environmental manager for the Project.

The site and environmental manager will then coordinate to take the appropriate actions. The actions include working with a qualified biologist (e.g., consultant) to confirm species identification. For injured animals, the site manager will contact a wildlife rehabilitator or local wildlife agent to

capture, treat, and if able, release the animal. If the species is identified as a state- or federally-listed species, the appropriate agency will also be notified. The site environmental manager also reviews the circumstances around each incident and the combined incidents on an annual basis, to determine if any trends such as a common location or circumstance are evident. Identification of such a trend would trigger an analysis to identify appropriate mitigation actions.

If a member of the public observes a potential wildlife incident within the Project's operational footprint, they should bring that observation to the project's site manager. From this point, the reporting process and coordination around the incident will be like those found and documented by the operations staff during routine Project visits, as described above.

**(C) Land use and community development**

**(1) Regional land uses and potential impacts of the facility**

**(a)** Land use map

The Applicant has included a 1:24,000 scale map of land uses as Figure 08-5 that depicts the following:

**(i)** The proposed Facility
**(ii)** Land use
**(iii)** Structures
**(iv)** Incorporated areas and population centers

**(b)** Structures table

(i) Wind turbine locations are not applicable to this Project

(ii) Distance between structures and associated facilities which are conceptualized as, the greater of, 300 feet from residences or 100 feet from property lines with also a 100 feet setback from roads.

(iii) Refer to Figure 04-2 to see project constraints and buffers incorporated.

(iv) Land lease status of the property for each structure.

**Table 8. Structures**

| Structure | Distance to Modules (feet) | Lease Status |
|---|---|---|
| Residence | 371 | Not Participating |
| Residence | 856 | Not Participating |
| Residence | 860 | Not Participating |
| Residence | 765 | Not Participating |
| Residence | 499 | Not Participating |
| Residence | 821 | Not Participating |
| Residence | 739 | Not Participating |
| Residence | 763 | Not Participating |
| Residence | 458 | Not Participating |
| Residence | 393 | Not Participating |
| Residence | 374 | Not Participating |
| Residence | 349 | Not Participating |
| Residence | 469 | Not Participating |
| Residence | 455 | Not Participating |
| Residence | 606 | Not Participating |
| Residence | 351 | Not Participating |
| Residence | 372 | Not Participating |
| Residence | 296 | Not Participating |
| Residence | 1,416 | Not Participating |
| Residence | 660 | Not Participating |
| Residence | 1,059 | Not Participating |
| Residence | 831 | Not Participating |
| Residence | 683 | Not Participating |
| Residence | 827 | Not Participating |

| Structure | Distance to Modules (feet) | Lease Status |
|---|---|---|
| Residence | 352 | Not Participating |
| Residence | 358 | Not Participating |
| Residence | 328 | Not Participating |
| Residence | 455 | Not Participating |
| Residence | 347 | Not Participating |
| Residence | 679 | Not Participating |
| Residence | 680 | Not Participating |
| Residence | 451 | Not Participating |
| Residence | 663 | Not Participating |
| Residence | 661 | Not Participating |
| Residence | 647 | Not Participating |
| Residence | 644 | Not Participating |
| Residence | 661 | Not Participating |
| Residence | 634 | Not Participating |
| Residence | 577 | Not Participating |
| Residence | 706 | Not Participating |
| Residence | 621 | Not Participating |
| Residence | 625 | Not Participating |
| Residence | 603 | Not Participating |
| Residence | 336 | Not Participating |
| Residence | 490 | Not Participating |
| Residence | 511 | Not Participating |
| Residence | 473 | Not Participating |
| Residence | 388 | Not Participating |
| Residence | 390 | Not Participating |
| Residence | 377 | Not Participating |
| Residence | 1,037 | Not Participating |
| Residence | 382 | Not Participating |
| Residence | 471 | Not Participating |
| Residence | 384 | Not Participating |
| Residence | 1,232 | Not Participating |
| Residence | 534 | Not Participating |
| Residence | 1,319 | Not Participating |
| Residence | 1,380 | Not Participating |
| Residence | 624 | Not Participating |
| Residence | 869 | Not Participating |
| Residence | 619 | Not Participating |
| Residence | 806 | Not Participating |
| Residence | 742 | Not Participating |

| Structure | Distance to Modules (feet) | Lease Status |
|---|---|---|
| Residence | 710 | Not Participating |
| Residence | 352 | Not Participating |
| Residence | 390 | Not Participating |
| Residence | 278 | Not Participating |
| Residence | 307 | Not Participating |
| Residence | 409 | Not Participating |
| Residence | 538 | Not Participating |
| Residence | 414 | Not Participating |
| Residence | 330 | Not Participating |
| Residence | 354 | Not Participating |
| Residence | 331 | Not Participating |
| Residence | 349 | Not Participating |
| Residence | 491 | Not Participating |
| Residence | 508 | Not Participating |
| Residence | 502 | Not Participating |
| Residence | 383 | Participating - Solar Agreement |
| Residence | 328 | Participating - Solar Agreement |
| Residence | 331 | Participating - Solar Agreement |
| Residence | 357 | Not Participating |
| Residence | 335 | Not Participating |
| Residence | 340 | Not Participating |
| Residence | 331 | Not Participating |
| Residence | 345 | Participating - Solar Agreement |
| Residence | 502 | Not Participating |
| Residence | 483 | Participating - Solar Agreement |
| Residence | 486 | Participating - Solar Agreement |
| Residence | 543 | Participating - Solar Agreement |
| Residence | 314 | Not Participating |
| Residence | 285 | Not Participating |
| Residence | 271 | Not Participating |
| Residence | 201 | Not Participating |
| Residence | 292 | Not Participating |

| Structure | Distance to Modules (feet) | Lease Status |
|---|---|---|
| Residence | 249 | Not Participating |
| Residence | 253 | Not Participating |
| Residence | 263 | Not Participating |
| Residence | 292 | Not Participating |
| Residence | 345 | Not Participating |
| Residence | 276 | Not Participating |
| Residence | 401 | Not Participating |
| Residence | 370 | Not Participating |
| Residence | 342 | Not Participating |
| Residence | 621 | Not Participating |
| Residence | 362 | Participating - Solar Agreement |
| Residence | 634 | Not Participating |
| Residence | 254 | Participating - Solar Agreement |
| Residence | 1,342 | Not Participating |
| Residence | 240 | Participating - Solar Agreement |
| Residence | 370 | Participating - Solar Agreement |
| Residence | 714 | Not Participating |
| Residence | 214 | Participating - Solar Agreement |
| Residence | 470 | Participating - Solar Agreement |
| Residence | 1,495 | Not Participating |
| Residence | 861 | Not Participating |
| Residence | 470 | Participating - Solar Agreement |
| Residence | 924 | Not Participating |
| Residence | 584 | Participating - Solar Agreement |
| Residence | 1,056 | Not Participating |
| Residence | 1,064 | Not Participating |
| Residence | 711 | Participating - Solar Agreement |
| Residence | 1,487 | Not Participating |
| Residence | 1,393 | Not Participating |
| Residence | 1,302 | Not Participating |

| Structure | Distance to Modules (feet) | Lease Status |
|---|---|---|
| Residence | 1,273 | Not Participating |
| Residence | 1,354 | Not Participating |
| Residence | 1,339 | Not Participating |
| Residence | 1,403 | Not Participating |
| Residence | 1,402 | Not Participating |
| Residence | 1,469 | Not Participating |
| Residence | 1,479 | Not Participating |
| Residence | 1,436 | Not Participating |
| Residence | 1,481 | Not Participating |
| Residence | 1,412 | Not Participating |
| Residence | 1,331 | Participating - Transmission Agreement |
| Residence | 1,089 | Not Participating |
| Residence | 927 | Participating - Transmission Agreement |
| Residence | 1,382 | Not Participating |
| Residence | 1,155 | Not Participating |
| Residence | 773 | Not Participating |
| Residence | 1,272 | Participating - Other |
| Residence | 1,416 | Participating - Other |
| Residence | 1,441 | Not Participating |
| Residence | 1,338 | Not Participating |
| Residence | 897 | Not Participating |
| Residence | 861 | Participating - Other |
| Residence | 332 | Not Participating |
| Residence | 340 | Not Participating |
| Residence | 419 | Not Participating |
| Residence | 444 | Not Participating |
| Residence | 722 | Not Participating |
| Residence | 790 | Not Participating |
| Residence | 426 | Not Participating |
| Residence | 953 | Not Participating |
| Residence | 933 | Not Participating |
| Residence | 352 | Not Participating |
| Residence | 276 | Not Participating |
| Residence | 961 | Not Participating |
| Residence | 1,227 | Not Participating |
| Residence | 381 | Not Participating |
| Residence | 556 | Not Participating |

| Structure | Distance to Modules (feet) | Lease Status |
|---|---|---|
| Residence | 1,241 | Not Participating |
| Residence | 1,188 | Not Participating |
| Residence | 258 | Participating - Solar Agreement |
| Residence | 289 | Not Participating |
| Residence | 456 | Not Participating |
| Residence | 271 | Not Participating |
| Residence | 380 | Not Participating |
| Residence | 296 | Not Participating |
| Residence | 295 | Not Participating |
| Residence | 309 | Not Participating |
| Residence | 314 | Not Participating |
| Residence | 331 | Not Participating |
| Residence | 352 | Not Participating |
| Residence | 365 | Not Participating |
| Residence | 390 | Not Participating |
| Residence | 400 | Not Participating |
| Residence | 438 | Not Participating |
| Residence | 494 | Not Participating |
| Residence | 489 | Not Participating |
| Residence | 519 | Not Participating |
| Residence | 196 | Participating - Solar Agreement |
| Residence | 728 | Not Participating |
| Residence | 908 | Not Participating |
| Residence | 537 | Not Participating |
| Residence | 864 | Not Participating |
| Residence | 344 | Not Participating |
| Residence | 739 | Not Participating |
| Residence | 352 | Not Participating |
| Residence | 571 | Not Participating |
| Residence | 446 | Not Participating |
| Residence | 320 | Not Participating |
| Residence | 339 | Not Participating |
| Residence | 342 | Not Participating |
| Residence | 3 | Participating - Solar Agreement |
| Residence | 363 | Not Participating |

| Structure | Distance to Modules (feet) | Lease Status |
|---|---|---|
| Residence | 232 | Participating - Solar Agreement |
| Residence | 322 | Not Participating |
| Residence | 284 | Participating - Solar Agreement |
| Residence | 172 | Participating - Solar Agreement |
| Residence | 331 | Participating - Solar Agreement |
| Residence | 325 | Not Participating |
| Residence | 465 | Not Participating |
| Residence | 343 | Participating - Solar Agreement |
| Residence | 330 | Participating - Solar Agreement |
| Residence | 388 | Not Participating |
| Residence | 265 | Not Participating |
| Residence | 462 | Not Participating |
| Residence | 302 | Not Participating |
| Residence | 467 | Not Participating |
| Residence | 313 | Not Participating |
| Residence | 458 | Not Participating |
| Residence | 352 | Not Participating |
| Residence | 635 | Not Participating |
| Residence | 628 | Not Participating |
| Residence | 535 | Not Participating |
| Residence | 326 | Not Participating |
| Residence | 431 | Not Participating |
| Residence | 466 | Not Participating |
| Residence | 484 | Not Participating |
| Residence | 332 | Participating - Solar Agreement |
| Residence | 440 | Not Participating |
| Residence | 339 | Not Participating |
| Residence | 385 | Not Participating |
| Residence | 325 | Not Participating |
| Residence | 218 | Not Participating |
| Residence | 235 | Not Participating |
| Residence | 208 | Not Participating |

| Structure | Distance to Modules (feet) | Lease Status |
|---|---|---|
| Residence | 225 | Not Participating |
| Residence | 247 | Not Participating |
| Residence | 232 | Not Participating |
| Residence | 209 | Not Participating |
| Residence | 233 | Not Participating |
| Residence | 220 | Not Participating |
| Residence | 210 | Not Participating |
| Residence | 335 | Participating - Solar Agreement |
| Residence | 312 | Participating - Solar Agreement |
| Residence | 245 | Not Participating |
| Residence | 330 | Participating - Solar Agreement |
| Residence | 352 | Participating - Solar Agreement |
| Residence | 223 | Not Participating |
| Residence | 332 | Participating - Solar Agreement |
| Residence | 321 | Participating - Solar Agreement |
| Residence | 402 | Participating - Solar Agreement |
| Residence | 384 | Participating - Solar Agreement |
| Residence | 442 | Not Participating |
| Residence | 368 | Participating - Solar Agreement |
| Residence | 357 | Participating - Solar Agreement |
| Residence | 341 | Participating - Solar Agreement |
| Residence | 380 | Participating - Solar Agreement |
| Residence | 556 | Not Participating |
| Residence | 387 | Participating - Solar Agreement |
| Residence | 442 | Participating - Solar Agreement |
| Residence | 747 | Not Participating |

| Structure | Distance to Modules (feet) | Lease Status |
|---|---|---|
| Residence | 585 | Participating - Solar Agreement |
| Residence | 740 | Not Participating |
| Residence | 281 | Not Participating |
| Residence | 486 | Participating - Solar Agreement |
| Residence | 754 | Not Participating |
| Residence | 545 | Participating - Solar Agreement |
| Residence | 766 | Not Participating |
| Residence | 424 | Not Participating |
| Residence | 933 | Not Participating |
| Residence | 752 | Not Participating |
| Residence | 750 | Not Participating |
| Residence | 757 | Not Participating |
| Residence | 881 | Not Participating |
| Residence | 851 | Not Participating |

**(c)** Impact of facility on land uses

The Applicant will design the solar Facility in such a way so as to minimize impacts to land use within 1 mile of the Project Area. The Applicant has provided Table 9 below to illustrate the impacts to various land uses.

**Table 8 Land Use Impacts**

| Existing Zoning Type | Approximate Total Acres in Project Area | Acres Impacted | Percent Impacted |
|---|---|---|---|
| Prairie Township – Rural | 2,010 | 1,600 | 79.6% |
| Pleasant Township - Rural | 360 | 260 | 72.2% |
| Prairie Township - Suburban Estate Residential District | 30 | 20 | 66.6% |
| **Total** | **2,400** | **1,880** | **78.3%** |

The Applicant has provided Table 8 above to illustrate the impacts to various land uses. These estimates were calculated by reviewing the proposed Project layout and determining the acreage that falls within the fence that surrounds the equipment. The permanent acres impacted were calculated by adding the areas of access roads, the piles, and the inverter pads.

**(d)** Structures that will be removed or relocated

The Applicant does not plan to remove or relocate any structures.

**(2) Wind turbine locations are not applicable to this Project.**

**(3) Wind setbacks are not applicable to this Project.**

**(4) Plans for land use**

**(a)** Formally adopted plans for future use of Project Area and surrounding lands

The Applicant has no plans for future use of the Project Area after the Project's term when the landowner agreements will expire, and the land will be returned to current day existing conditions.

**(b)** Applicant's plans for concurrent or secondary uses

The Applicant has no plans for concurrent or secondary use of the site.

**(c)** Impact of regional development

The Solar Facility is expected to aid regional development by increasing local tax revenues and contributing to the local economy, as shown in Exhibit O, the Economic Impact Study, and discussed in OAC Section 4906-4-06(E) of this Application. Aside from these economic benefits, including the significant increase in funding to local schools, the Facility is not expected to significantly impact housing, transportation system development, or other public services and facilities.

**(d)** Compatibility with current regional plans

The Applicant has reviewed the Big Darby Accord Watershed Master Plan, the Big Darby Town Center Master Plan, and the Pleasant Township Comprehensive Plan (the Plans) to evaluate the compatibility of the Facility with the Plans.

The solar Facility falls within the west portion of Franklin County, encompassing relatively large portions of Pleasant and Prairie Townships. The Plans largely show this part of Franklin County as a potential place for continued ecological conservation in alignment with the Big Darby Accord Advisory Panel's and MetroParks' missions. This is reflected in the low density of housing and open space requirements for speculative future development, along with stringent watershed and development requirements to protect the Big Darby Creek.

The Plans also speak to the potential of a future commercial town center to be developed near the Project.

The Plans do not specifically address solar facilities, but, as proposed, the solar Facility would be generally compatible with the overall conservation and ecological goals of the Plans. Other forms of speculative development near the project area are also currently difficult due to the status of varyingly available utility infrastructure.

Solar facilities provide supplemental income to rural property owners and, upon decommissioning of the Project, the land can return to agricultural uses, or be available for other development pursuits at that time.

**(e)** Current and projected population estimates and projections

According to the U.S. Census Bureau, as of July 1, 2019, the population of Franklin County was 1,316,756.

See
https://www.census.gov/quickfacts/fact/table/franklincountyohio,US/PST045219

The population is expected to see some growth over the next 10 years, as the Ohio Development Services Agency (ODSA) projects a population of 1,348,980 in the year 2025.

See
https://development.ohio.gov/files/research/P6026.pdf

**(D) Cultural and archaeological resources**

**(1) Map of landmarks of cultural significance and recreational areas**

A 1:24,000 scale map of landmarks of cultural significance and recreational areas is provided as Figure 3-3 within the Visual Resources Assessment and Mitigation Plan (Viewshed Analysis, Aesthetic Resources Inventory, and Glare Analysis [Viewshed Analysis]) as Exhibit J. This map shows the Project Area and a 10-mile buffer. Contents include: any formally adopted land and water recreation areas; recreational trails; scenic rivers; scenic routes or byways; registered landmarks of historic religious, archaeological scenic natural or other cultural significance. The landmarks considered were 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 Ohio Historical Society, or ODNR.

**(2) Estimated impact on landmarks and plans to avoid or mitigate**

The Applicant retained Cardno to gather background information to assess archaeological sensitivity of the Project Area and potential effects on cultural resources, including archaeological sites, from the solar facility. Cardno conducted this Phase I review in the Fall/Winter of 2020. The Phase I archaeological survey is on-going and coordination with the State of Ohio Historic Preservation Office (SHPO) has been documented in a Phase 1 Cultural In Progress Technical

Memorandum (Cultural Memorandum) that includes a Programmatic Agreement (PA) between the Applicant and SHPO (Exhibit I). Initial findings outlined in the Cultural Memorandum include: Research identified 251 previously identified archaeological sites, 2 of which are listed in the National Register of Historic Places (NRHP), 23 cemeteries, and 34 historic structures, 4 of which are listed as NRHP-DOE, within the study area. Of these resources, 43 archaeological sites are located within the Project Area and 4 archaeological investigations and one historic properties investigation have been conducted within the Project Area.

The Applicant will continue to coordinate its efforts with the appropriate regulatory agencies to assess impacts to cultural resources and to ensure impacts are minimized. The Applicant has provided an Historic Cultural Resources Record Report to SHPO along with the above PA for review and ongoing coordination and has included this document as Exhibit H.

The PA outlines the roles and responsibilities for the Project, the additional archaeological survey and reporting that needs to be completed, and establishes protocols to avoid, minimize, or mitigate adverse effects on cultural resources eligible for listing on the NRHP. The Phase I archaeological investigations will be completed in mid 2021, with the Phase I archaeological investigations report to be submitted to the SHPO following completion of field work. The report and SHPO response will then be provided to the OPSB.

**(3) Impact to recreational areas and plans to mitigate**

As shown in the Cultural Memorandum, Exhibit I as well as in the Viewshed Analysis found in Exhibit J, the expected impact to recreational areas is minimal. The Applicant will coordinate its efforts to evaluate the impacts of the solar Facility on the above recreational areas with the appropriate regulatory agencies.

**(4) Visual Impacts**

The Applicant evaluated the visual impact of the proposed Facility within a 5-mile radius of the Project Area. The results of this evaluation are included in the attached Viewshed Analysis contained in Exhibit J as Figure 3-1. The evaluation included the following:

**(a)** Visibility, viewshed analysis, and map

**(b)** Scenic quality of existing landscape

**(c)** Landscape alterations and impact to scenic quality

**(d)** Visual impacts within 5 miles

The visual impact analysis began with an examination of the visibility of the Project within a 5-mile radius. The analysis utilized Light Detection and Ranging (LiDAR) data provided by the Ohio Geographically Referenced Information Program (OGRIP) and ESRI Spatial Analyst GIS software to develop the viewshed model. A map of the viewshed analysis at 5 miles is included in the attached Viewshed Analysis, Exhibit J.

However, due to the low-profile nature of solar photovoltaic generation plants, it is extremely unlikely that the site will be visible beyond 2 miles. Given the limitations of human eyesight, even the locations that appear to show visibility beyond 2 miles in the viewshed map are unlikely to be visible, as the Facility will be less than 15 feet tall. Unfortunately, the viewshed model is not able to account for limitations of human vision at greater distances.

**(e)** Photographic simulations/pictorial sketches

The attached Summary of the Viiewshed Analysis, Exhibit J, provides photographic simulations from various vantage points.

**(f)** Visual impact mitigation measures

The rural and agricultural location of the Facility near existing conservation areas minimizes potential visual impacts. In addition, modules will employ anti-glare coating to maximize the amount of solar energy captured by the panels, which reduces the potential for glare. A copy of the full glare report is provided within the Viewshed Analysis, Exhibit J, within Appendix B.

## (E) Agricultural districts and potential impacts to agricultural land

### (1) Agricultural district map

Figure 08-05 is a scaled map identifying all agricultural/rural district land located within the Project boundary at least 60 days prior to submission of the Application.

### (2) Impact on agricultural land, uses, and districts

**(a)** Acreage impacted

Table 7 summarizes the temporary and permanent area disturbances expected for the Project. The vast majority of this disturbance will be in areas currently in active agricultural use. The majority of disturbance or impact will occur in areas currently in active agricultural use. However, the Applicant will decommission the Project Area so that this land can be returned to agricultural production following the operation of the Facility.

**(b)** Impact of construction and O&M on land, agricultural facilities, and practices

Access roads will be installed, where possible, to be at the same elevation as the surrounding farmland. The Applicant will avoid using swales wherever possible while following Ohio EPA BMPs. Landowners will be able to keep using their property in a similar manner as they did prior to construction of the solar Facility; they will be able to cross the access roads with their equipment without ceasing planting/harvesting.

(i) Field operations

Access roads will be installed, where possible, to be at the same elevation as the surrounding farmland. The Applicant will avoid using swales wherever possible while following Ohio EPA BMPs. Landowners will be able to keep using their property in a similar manner as they did prior to construction of the solar Facility; they will be able to cross the access roads with their equipment without ceasing planting/harvesting.

In addition, the new access roads that the Applicant will be constructing will increase the ability of the landowners to locate offload equipment further into their fields than before.

(ii) Irrigation

Following construction of the solar Facility, the Project Area will no longer be irrigated.

(iii) Field drainage systems

The Applicant will avoid, where possible, drainage tiles and will repair all drain tile mains that are impacted during decommissioning. The Applicant is working with the landowners to minimize impact to the existing drainage system by avoiding tile mains and repairing damaged tiles wherever commercially feasible. Existing drainage ditches will be maintained when possible. The final site drainage plan will ensure the as-built conditions meet or exceed the sites pre-construction drainage profile. The Applicant does not anticipate that the permeability of the site will be reduced, and will be responsible for maintaining adequate drainage during operations of the Facility. For further information, the Applicant

has included the Drain Tile Repair Plan as Exhibit K. Also, for other information regarding Project development impacts, refer to the Ecological Assessment Exhibit R

(iv) Structures used for agricultural operations

The Applicant does not plan to remove existing structures used for agricultural operations.

(v) Viability as agricultural district land

There are 2,209 acres of agricultural district land in the Project Area. The solar Facility would be sited in agricultural district land impacting approximately 1,626 acres of the agricultural district land within the Project Area. Both of these estimates are for impacted area during construction. Refer to tables 6 and 7 for more breakdown of impacted acres and their land classification. This solar Facility will not fundamentally alter the use of the land as farmland.

**(c)** Measures to mitigate during construction and O&M impacts to agricultural land, structures, and practices

The Applicant will reimburse landowners for crops lost due to construction activities. In addition, the Applicant will make commercially-feasible efforts to avoid or mitigate impacts to drain tile mains. The location and condition of all drain tiles and irrigation lines encountered will be documented with GPS coordinates. The landowner will be given the opportunity to inspect and approve repairs to drain tiles on the property.

(i) Damage voidance/minimization to field tile drainage and soils

The Applicant is working with the landowner to avoid impact to the tile mains wherever commercially viable. The landowner shared tile

maps that are being consulted in the design and layout of the solar Facility. Applicant has also approached and held meetings with county engineer representatives to further understand and obtain records for the drain tile infrastructure in the area. Tile maps have been developed as part of the Drain Tile Repair Plan (Exhibit K).

(ii) Timely repair of damaged field tiles to original conditions

The Applicant will ensure that drain tile mains or main irrigation lines damaged in connection with the construction of the solar farm will be promptly repaired or replaced if needed to maintain site drainage. However, the civil design of the Facility may include drainage features separate from drain tile. The location and condition of all drain tiles and irrigation lines encountered will be documented with GPS coordinates. The Applicant will hire an experienced drain tile contractor from the local area, approved by the landowner, to perform drain tile repairs in a manner that meets industry standard and all state and local code requirements. Following decommissioning, the Applicant shall be responsible for correcting any material problems with drain tile mains caused by Project construction. The landowner will be given the opportunity to inspect and approve repairs to drain tiles on the property.

(iii) Excavated topsoil treatment

Topsoil that is displaced due to grading and excavation will be stored on site and will either be used on site to evenly grade the site, or will be available for the landowner's use at other farms.

## F. Other considerations in preparing the Application

## LITERATURE CITED

Ohio EPA, 2012

Ohio EPA, 2013

ODNR, 2008

ODNR, 2009

USFWS, 1992a

USFWS, 1994

USFWS, 2007, *Indiana Bat (Myotis sodalist) Recovery Plan: First Revision*, Department of the Interior, USFWS Region 3.

USFWS, 2008

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Summary: Application - 1 of 25 (Cover, Affidavit, and Narrative) electronically filed by Christine M.T. Pirik on behalf of Pleasant Prairie Solar Energy LLC