APPLICATION TO THE

OHIO POWER SITING BOARD

FOR A

CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

FOR

ROSS COUNTY SOLAR

Ross County, Ohio

Case No. 20-1380-EL-BGN

October 2020

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ACRONYMS AND ABBREVIATIONS

AC	Alternating Current
AEP	AEP Ohio Transmission Company, Inc.
ANSI	American National Standards Institute
BMP	Best Management Practices
CAUV	Current Agricultural Use Value
dBA	Decibels (A-Weighted)
DC	Direct Current
DSM	Digital Surface Model
EAP	Emergency Action Plan
EDR	Environmental Design and Research
EMF	Electromagnetic Fields
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FTE	Full Time Equivalent
gen-tie	Generation Interconnection
GIS	Geographic Information System
gpm	Gallons Per Minute
HASP	Health and Safety Plan
HMMH	Harris Miller Miller & Hanson
IEEE	Institute of Electrical and Electronics Engineers
JEDI	Jobs and Economic Development Impact
kV	Kilovolt
kW	Kilowatt
MW	Megawatt
MWh	Megawatt-hour
NLCD	National Land Cover Database
NEC	National Electrical Code
NESC	National Electric Safety Code
NPDES	National Pollutant Discharge Elimination System
NREL	National Renewable Energy Laboratory
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
OAC	Ohio Administrative Code
ODOT	Ohio Department of Transportation
ODNR	Ohio Department of Natural Resources
OHI	Ohio Historic Inventory
OHPO	Ohio Historic Preservation Office
OPSB	Ohio Power Siting Board
PJM	PJM Interconnection, LLC
POI	Point of Interconnection
PV	Photovoltaic
ROW	Right(s)-of-Way
RSG	Resources Systems Group, Inc
SCADA	Supervisory Control and Data Acquisition
SPCC	Spill Prevention Control and Countermeasures
SR	State Route
SWPA	Source Water Protection Area
SWPPP	Storm Water Pollution Prevention Plan
US	U.S. Route
USDOE	U.S. Department of Energy
USFWS	U.S. Fish and Wildlife Service
USGS	U. S. Geological Survey
VRA	Visual Resource Assessment
VSA	Visual Study Area

4906-4-01 PURPOSE AND SCOPE

(A) REQUIREMENTS FOR FILING OF CERTIFICATE APPLICATIONS

Ross County Solar, LLC, (the Applicant) is proposing to construct Ross County Solar (the Project), an up to 120 megawatt (MW) solar generating facility (the Facility). The materials contained herein and attached hereto constitute the Applicant's submittal (Application) for a Certificate of Environmental Compatibility and Public Need (Certificate), prepared in accordance with the requirements for the filing of standard certificate applications for electric generation facilities, as prescribed in Chapter 4906-4 of the Ohio Administrative Code (OAC). This Application has been prepared by the Applicant, with support from Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services (EDR) of Syracuse, New York. EDR has over 20 years of experience with siting and permitting renewable energy facilities.

(B) Waivers

The Ohio Power Siting Board (OPSB) may, upon an application or motion filed by a party, waive any requirement of this chapter other than a requirement mandated by statute. By motion filed separate from this Application, the Applicant requested a waiver, in part, from the provisions of OAC 4906-4-08(D), which requires the study of impacts to cultural resources within 10 miles of the Project Area. The waiver request seeks to reduce this study area to 2 miles, and the visual impact study area to 5 miles, due to the reduced visual impact of solar facilities in comparison to wind turbines or other tall facilities.

4906-4-02 PROJECT SUMMARY AND APPLICANT INFORMATION

(A) Project Summary

The Applicant is proposing to construct an up to 120 MW solar-powered electric generation Facility. The Facility will consist of the fenceline, photovoltaic (PV) panel arrays, belowground or hybrid (with both belowground and aboveground) electrical collection lines, inverters, access roads, a substation, an operations and maintenance (O&M) building, weather stations, and laydown yards. The Facility will deliver power to a single point of interconnection (POI) at the existing Buckskin 69 kilovolt (kV) substation, owned by AEP Ohio Transmission Company, Inc. (AEP). The POI will consist of a short generation interconnection (gen-tie) line from the Facility substation to the Buckskin substation, which will be expanded with two new 69 kV breakers (collectively, the POI). The POI, including the gen-tie, is included in this Application.

(1) General Purpose of the Facility

The general purpose of the Facility is to maximize energy production from solar resources in order to deliver clean, renewable electricity to the Ohio bulk power transmission system to serve the needs of electric utilities and their customers. The electricity generated by the Facility will be transferred to the bulk electric system region of PJM Interconnection, LLC (PJM).

(2) Description of the Facility

The Facility will be located on approximately 1,433 acres of private land in Buckskin and Paint townships in Ross County, Ohio (Project Area). The total generating capacity of the Facility will not exceed 120 MW. The Facility is expected to operate with an average annual capacity factor of 22% to 24%, generating a total of approximately 230,000 to 252,000 megawatt-hours (MWh) of electricity each year, depending on the final equipment models selected for the Facility. Figure 03-2 depicts an overview of the Facility. A detailed description of the Facility, including each Facility component, can be found in Section 4906-4-03(B) of this Application.

(3) Description of the Suitability of the Site for the Proposed Facility

An analysis of the Project Area concluded that it meets all factors necessary to support a viable solar energy facility. The proposed site possesses strong solar resources, manageable access to the bulk power transmission system, sufficiently low population density, positive feedback from landowners and local officials, agricultural land use, and few environmentally sensitive areas. For more details regarding the suitability and selection of the site, refer to Section 4906-4-04(A).

(4) Project Schedule

Acquisition of land and land rights began in 2017 and were completed prior to submittal of this Application. During this time, meetings were held with local stakeholders, and outreach was conducted to landowners near the Project Area. A public information meeting was held on September 30, 2020 to facilitate public interaction with the Applicant and expert consultants, and included information about the Applicant, the Facility, and solar technology. Final design will be completed prior to construction, as early as the third quarter of 2021. Construction is anticipated to begin shortly thereafter and be completed in the fourth quarter of 2022, at which point the Facility will be placed in service. Additional information about the Project schedule can be found in Section 4906-4-03(C)(1) of this Application.

(B) Applicant Information

(1) Plans for Future Generation Capacity at the Site

The Applicant currently has no future plans for additional capacity at this site. This POI has a maximum capacity of 120 MW.

(2) Description of Applicant and Operator

Ross County Solar, LLC is a wholly owned subsidiary of National Grid Renewables. National Grid Renewables, formerly known as Geronimo Energy, is a leading North American renewable energy company based in Minneapolis, Minnesota, with satellite offices located throughout multiple states in the regions where it develops, constructs, and operates. As a farmer-friendly and community focused company, National Grid Renewables develops projects for corporations and utilities that seek to repower America's electricity grid by reigniting local economies and reinvesting in a sustainable future. National Grid Renewables has developed a robust portfolio of renewable energy projects that are either operational or currently under construction. National Grid Renewables has a portfolio of solar, wind, and energy storage projects located throughout the United States in various stages of development, construction and operation. The Applicant currently plans to develop, construct, and operate the Facility for the life of the Project.

4906-4-03 PROJECT DESCRIPTION AND SCHEDULE

(A) Project Area Description

The following sub-sections provide information on the Project Area's geography, topography, population centers, major industries, and landmarks.

(1) Geography and Topography Map

Figure 03-1 depicts the geography and topography within a 2-mile radius of the Project Area, including the following features:

(a) The Proposed Facility

The Preliminary Facility Layout (Exhibit A) includes the fenceline, PV panel arrays, belowground or hybrid electrical collection lines, inverters, access roads, Facility substation, O&M building, weather stations, and laydown yards contained within the Project Area. While the Applicant expects that the final layout will remain substantially similar to the Preliminary Facility Layout, due to ongoing technological innovations in the solar industry, continuing detailed engineering and survey work, public feedback, and communications during the OPSB certification process, the precise location of these features within the Project Area is subject to change. While the layout is subject to change, all Facility components will be located within the Project Area and will be subject to the various conditions and constraints laid out in this Application, and any conditions that are incorporated by the OPSB into the Certificate.

(b) Population Centers and Administrative Boundaries

The proposed Facility location is in Buckskin and Paint townships in Ross County, Ohio. The nearest population center is the Village of Greenfield, approximately 0.6 mile northwest of the Project Area. The Project Area is located approximately 2.5 miles west of the Village of South Salem, and 2.75 miles southwest of the unincorporated community of Lyndon.

(c) Transportation Routes and Gas and Electric Transmission Corridors

The Project Area is bounded by State Route (SR) 41 on the east, Rapid Forge Road on the west and north, and Moxley Road on the south. Other nearby major routes include U.S. Route (US) 35 to the north and state routes 753, 138, and 28 to the north and west. One privately owned and operated airport is located within 5 miles of the Project Area, the Ross Field Airport, and is included on Figure 03-1. Additionally, three 69 kV transmission lines are located within 2

miles of the Project Area. All three transmission lines converge at the eastern boundary of the Project Area, with one line approaching from the north, one approaching from the east, and one line approaching from the west, bisecting the Project Area. There are no gas transmission pipelines near the Project Area (USDOT, 2020; USDHS, 2017).

(d) Named Rivers, Streams, Lakes, and Reservoirs

One lake is located within 2 miles of the Project Area. Paint Creek Lake is located approximately 1.0 mile southwest of the Project Area. There are eight named rivers and streams located within 2 miles of the Project Area. Paint Creek extends north from Paint Creek Lake, running north to south along the Highland County – Ross County boundary. Paint Creek is located 0.3 mile west of the Project Area, at its closest point. Buckskin Creek runs just southeast of the Facility and is located approximately 0.3 mile away from the Project Area at its closest point. Farmers Run, Opossum Run, and Holiday Run all branch off to the northwest from Paint Creek, and are located 0.4, 0.6, and 1.5 miles west, respectively, of the Project Area. Sugar Run and Duncan Run branch off from Farmers Run, continuing in a northwest direction, and are located approximately 1.0 and 0.9 mile west of the Project Area, respectively. Cliff Creek runs north – south from Paint Creek Lake and is located 1.8 miles south of the Project Area.

(e) Major Institutions, Parks, and Recreation Areas

Two Ohio Department of Natural Resources (ODNR) identified points of interest are near the Project Area. These include a canoe launch and dam/spillway along Paint Creek, which are located 0.6 and 1.5 miles north of the Project Area, respectively (ODNR, 2017b). Additionally, two ODNR wildlife areas and one ODNR state park are located within 2 miles of the Project Area. The Project Area is adjacent to the Paint Creek Wildlife Area along a portion of its western border, and Wildlife Production Area 48 is located 1.2 miles north of the Project Area. Paint Creek State Park is located 1.2 miles south of the Project Area (ODNR, 2017a). No local parks are located within 2 miles of the Project Area.

(2) Area of All Owned and Leased Properties

Table 03-1 shows the number and approximate area of properties leased or purchased for the Project Area. The substation will be located on purchased property, and the O&M building is also anticipated to be placed adjacent to the substation on purchased property. The PV panel arrays,

belowground or hybrid electrical collection lines, inverters, access roads, weather stations, and laydown yards will be contained on a combination of purchased and leased property for the life of the Facility. Approximately 4.8 acres of the Project Area adjacent to AEP's existing Buckskin substation are not under purchase or lease option. AEP holds easement rights over a portion of this parcel, and the gen-tie line is anticipated to use AEP's existing easement to interconnect to the Buckskin substation. The POI, including the gen-tie line, is included in this Application.

Table 03-1. Area of Property Used for Project

	Number of Properties	Area (acres)
Leased	23	822.9
Purchase Options[1]	4	605.5
Other[2]	1	4.8

1. Property will be purchased following acquisition of permits.
2. The area adjacent to the existing Buckskin substation will not be purchased or leased by Ross County Solar. AEP holds easement over a portion of this area that is anticipated to be utilized to interconnect the Project to the Buckskin substation.

(B) Detailed Description of Proposed Facility

A detailed description of the Facility is provided in the sub-sections below. The equipment specifications presented in this Application are representative of the options that will be selected for the final procurement of Facility components and materials. Final equipment specifications, characteristics, and dimensions will be provided to the OPSB prior to construction. Any changes in equipment specifications from what is presented here are not expected to increase potential impacts.

(1) Description Details for the Project

(a) Type and Characteristics of Generation Equipment

Generation equipment is anticipated to include approximately 365,000 monocrystalline bifacial PV panels, mounted on single axis trackers and installed in linear arrays. Either polycrystalline or thin film panels may be utilized, dependent on final procurement of equipment and equipment availability prior to construction. Representative solar panels under consideration are provided in Exhibit B. The representative facility components in Exhibit B have been filed under seal as they could provide undue advantage to industry competitors and could also affect future contract negotiations during the equipment procurement process. Improving technologies could dictate the use of an alternative panel as

identified during the final procurement process. The panels will operate continuously but will not produce electricity during nighttime hours. The annual net capacity factor for the Facility is estimated to be 22% to 24%. Based on the total generating capacity of 120 MW and the annual capacity factor, the Facility will generate approximately 230,000 to 252,000 MWh of electricity each year. Heat rate is not applicable to solar energy facilities.

(b) Turbine Dimensions

This section is not applicable to the Facility.

(c) Fuel Quantity and Quality

Solar panels generate electricity without burning fuels. Therefore, this section is not applicable to the Facility.

(d) List of Pollutants Emissions and Quantities

Solar panels generate clean, emission free electricity without releasing airborne pollutants. Therefore, this section is not applicable to the Facility.

(e) Water Requirement, Source, and Discharge Information

Solar panels generate electricity without the use of water. Therefore, no water is treated or discharged, and this section is not applicable to the Facility.

(2) Description of Major Equipment

The primary steps for Facility construction include the following: (1) installation of storm-water, erosion control, and vegetation protection measures, (2) securing the perimeter of the construction area, (3) vegetation clearing, (4) minor earthwork and grading as necessary, (5) construction of access roads, and (6) installation of equipment such as pilings, racking, panels, inverters, weather stations, the Facility substation, and fencing to secure the site. Additional details on construction, site preparation, and reclamation methods are included in the sub-sections below, and in Section 4906-4-07 and Section 4906-4-08 of this Application.

Inset 03-1 below outlines the process of converting solar energy and connecting it to the transmission grid. The process begins with solar panels converting energy from the sun into direct current (DC) electrical power. Sets of panels are electrically connected in a series and terminated at an inverter. The inverters convert the DC power (approximately 1,500 volts) from the panels to alternating current (AC) power (650-950 volts depending on the inverter specifications). Next, a

transformer steps up the AC voltage of generated electricity from the inverter output voltage to 34.5 kV. From the transformers, buried electrical cables transmit electrical output to the Facility substation, where the electricity is stepped up from 34.5 kV to 69 kV to interconnect to the existing transmission infrastructure.

Inset 03-1. Harvesting Solar Energy

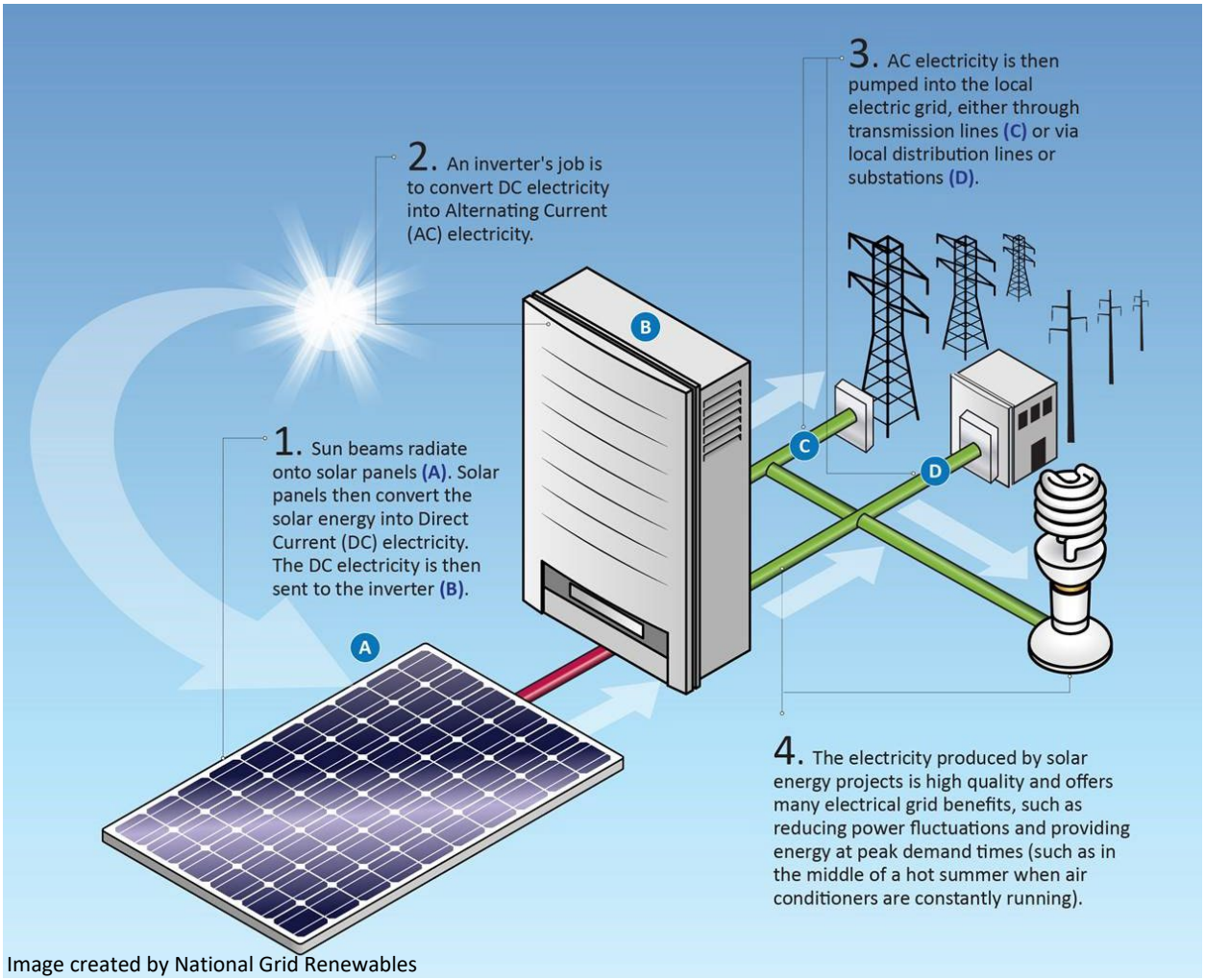


Image created by National Grid Renewables

(a) Electric Power Generation Equipment

Following installation of access roads, construction of PV panels will commence. Some site preparation may be necessary to accommodate PV panel installation via grading due to localized variability in topography. Where grading is necessary, topsoil will be segregated and redistributed following grading activities to maintain soil productivity.

Individual PV panel modules will be approximately 6.5 feet wide by 3.5 feet long. The panel modules will be secured on a single axis tracker racking system, with up to two modules

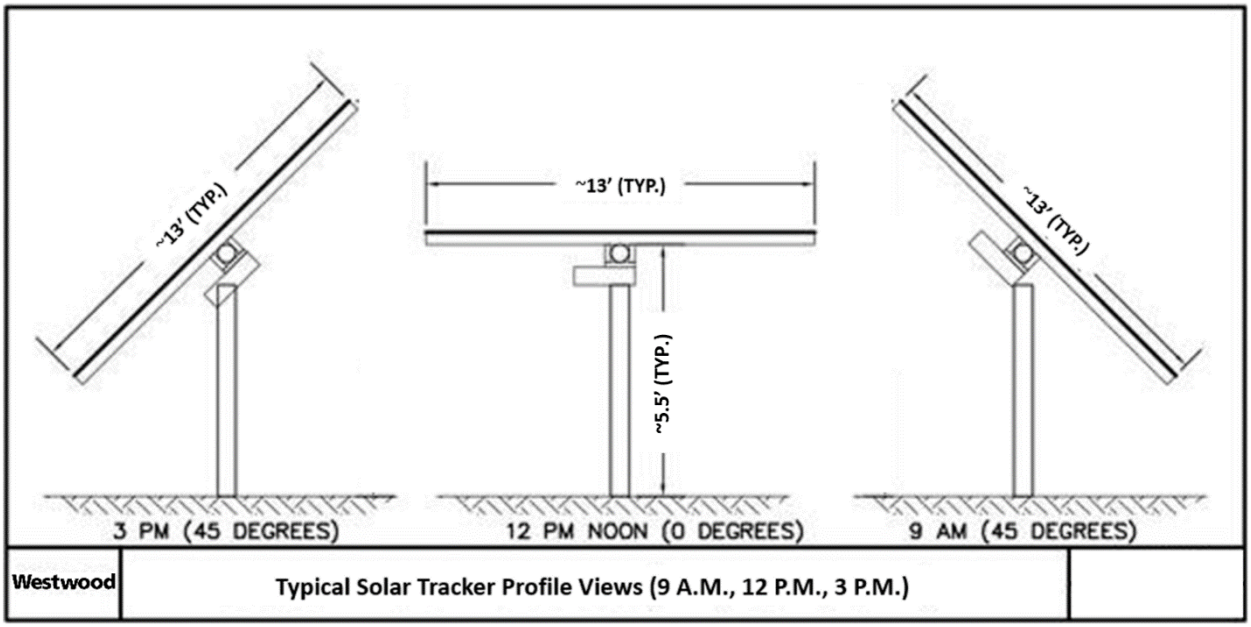
stacked end-to-end, centered on the horizontal crossbar of the tracker, for a total width of approximately 13 feet. The panels will rotate up to 60 degrees in either direction from horizontal, centered along the horizontal crossbar of the tracker. The height of the crossbar will be approximately 5.5 feet, giving the panels a ground clearance of approximately 3 feet at their highest position. Under flat conditions found across most of the Project Area, panels will reach approximately 15 feet off the ground when tilted to their highest position. See Inset 03-2 for a representation of the panels and tracking rack system that is similar to what will be used for the Facility.

Inset 03-2. Representative Panel and Tracking Rack System

Single axis tracker designs vary by manufacturer, but generally consist of a series of mechanically linked horizontal steel support beams known as torque tubes, with a drive train system usually located in the center of the rows, dividing the array into two sides. Rows are aligned north to south and the PV panels pivot, tracking the sun's motion from east to west throughout the day. Manufacturer's specifications for representative PV panels and racking systems under consideration are provided in Exhibit B, which is submitted under confidential

seal. Improving technologies could dictate the use of an alternative racking system as identified during the final procurement process. Approximate dimensions of the racking system are shown in Inset 03-3 below.

Inset 03-3. Approximate Tracking Rack System Dimensions



The racking and panels are supported on steel piles that will be pile-driven into the ground to a depth generally between 8 and 15 feet. Geotechnical test borings have confirmed the adequacy of these pile depths (see Exhibit C). Based on test borings, it is anticipated that piles will be driven across the site. Single pile lengths are anticipated for pile driving that do not require welding of pile sections. Inset 03-4 below illustrates standard steel pile foundations that are representative of what will be used for the Facility.

Inset 03-4. Standard Steel Pile Foundations

Upon completion of the installation of access roads, piles, racking, and panels, disturbed soils will be decompacted via tilling to prepare for the establishment of vegetation. Vegetation will be established per the Vegetation Management Plan in Exhibit D. All permanent or temporary stabilization associated with the Facility will be completed to meet the storm water discharge requirements of Ohio Environmental Protection Agency (Ohio EPA) Permit No. OHC000005 (Ohio EPA, 2018).

(b) Fuel, Waste, Water, and Other Storage Facilities

PV panels generate electricity without the use of fuel or water, and without generating waste. During construction, contractors will likely be utilizing temporary fuel tanks at some laydown yards for re-fueling of construction equipment.

Oil utilized for the cooling and insulation of transformers at the Facility substation may be stored within an aboveground storage tank, within the Facility substation footprint, which will likely exceed 1,320 gallons. Per federal regulations (40 CFR Part 112), should the tank exceed

1,320 gallons, a Spill Prevention Control and Countermeasures Plan (SPCC Plan) will be prepared for the storage tank prior to its placement onsite. Oil that is removed from the transformers during maintenance activities will be disposed of per the applicable local, state, and federal regulations. Other onsite storage at the O&M building may include hydraulic oil stored in a plastic or poly tote or 55-gallon drums on secondary containment pallets and potentially a fuel tank, for maintenance vehicles, that would be a double walled tank with additional secondary containment.

(c) Fuel, Waste, Water, and Other Processing Facilities

PV panels generate electricity without the use of fuel or water, and without generating waste. Therefore, the proposed Facility does not include any fuel, waste, water, or other processing facilities.

(d) Water Supply, Effluent, and Sewage Lines

No Facility components will use measurable quantities of water or discharge measurable quantities of wastewater. Based on average rainfall in the area, no cleaning of panels is expected to be necessary.

(e) Associated Electric Transmission and Distribution Lines and Gas Pipelines

The Facility will interconnect to the existing Buckskin 69 kV substation, which is directly across Lower Twin Road from the Facility substation location. The interconnection will include a short 69 kV line that will cross Lower Twin Road from the Facility substation, and be directed north and east adjacent to Lower Twin Road and existing transmission line infrastructure before entering the Buckskin substation. All components of the 69 kV gen-tie line, which will include a dead-end structure within the Facility substation, transmission poles, and the transmission line that lead to the Buckskin substation will be sited within the Project Area prior to entering the Buckskin substation. The length of the gen-tie line is anticipated to be at least 475 feet but no more than 850 feet, dependent on the final Facilities Study and interconnection agreement between Ross County Solar and AEP. The POI, including the gen-tie line, is included in this Application. There are no electric distribution lines or gas pipelines associated with the Facility.

(f) Electric Collection Lines

The electrical collection system will be installed below ground or as a hybrid of below ground and above ground. Electrical collection technology is rapidly evolving and will be site specific depending on ongoing detailed design and constructability considerations, costs, and availability of materials. Final engineering and procurement will help determine the construction method for the electrical collection system. The electrical cables that would be used for each type of electrical collection system are described below. A total of approximately 9.3 miles of belowground 34.5 kV collection line will be installed for the Facility.

Belowground Electrical Collection System

Belowground AC collection systems from the inverter skids to the Facility substation will primarily be installed in trenches or ploughed into place at a depth of at least 36 inches below grade. During all trench excavations, the topsoil and subsoil will be removed and stockpiled separately. Once the cables are laid in the trench, the area will be backfilled with subsoil, followed by topsoil. Trenching or ploughing via these methods are the preferred method of installation for buried collection lines. If these methods are not feasible for installation due to site conditions, trenching via backhoe may be utilized in some circumstances. Installation of collection lines via backhoe will result in soil disturbance averaging approximately 15 feet in width to accommodate machinery and backfill/spoil storage, with the other methods disturbing a smaller area.

One location where belowground collection lines cross a Class III stream will be installed via horizontal directional drilling (HDD). The launch pit and exit point for the HDD will be located in upland areas east and west of the stream feature. A horizontal drilling machine will be used to drill between the launch pit and the exit point. Drilling operations use drilling muds to stabilize the bore hole and to lubricate the drilling process, and the process is designed to minimize the possibility of drilling mud discharging into the stream. A Frac Out Contingency Plan is included as Exhibit G. The bore will be lined with High-Density Polyethylene (HDPE) conduit (or other commonly used lining material) that will be capped off until the start of the cable installation operations. A messenger wire will be placed in the bore to pull the cable using a pull-in winch.

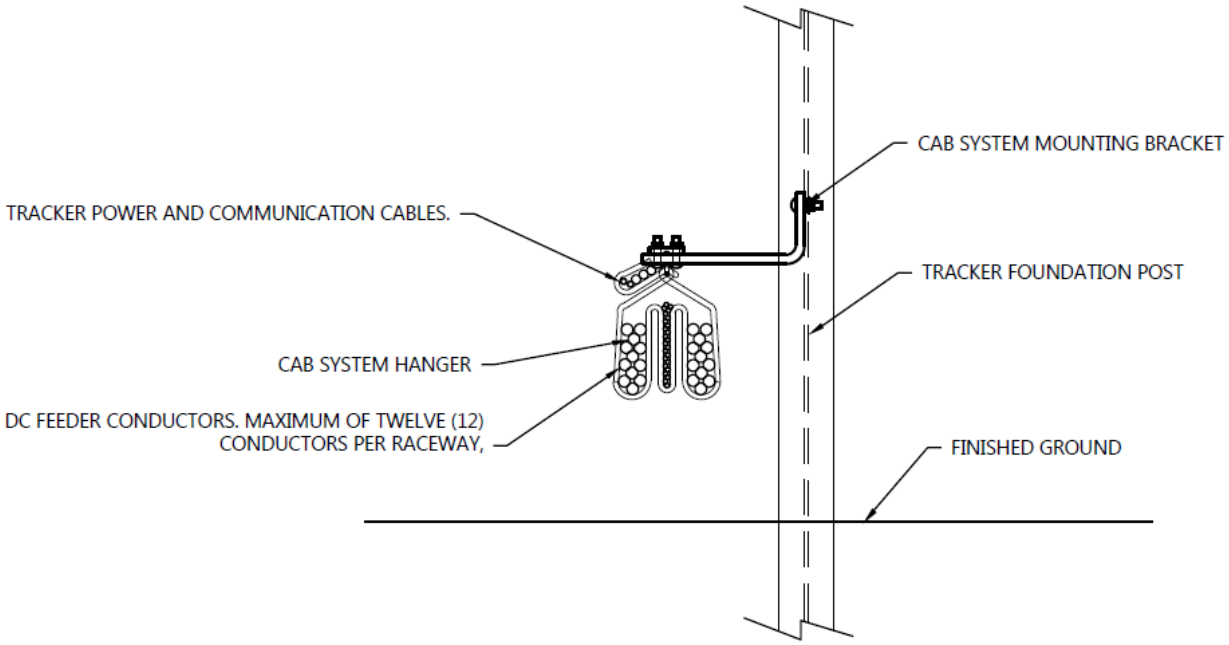
No equipment will be utilized along the HDD path between the entry and exit workspaces, and disturbance along the HDD path will be limited to foot traffic only. Best management

practices (BMPs) such as silt fence will be utilized between the workspaces and the waterbody to minimize sedimentation of the Class III stream.

Hybrid Electrical Collection System

A hybrid aboveground and belowground electrical system is being considered for several reasons, including ease of access for operations and maintenance, reduced ground disturbance, and cost considerations. If aboveground cabling is utilized, the DC collection cables will be strung under each row of panels on steel arms and a steel cable attached to the piles. At the end of each row, hanging brackets would connect several racks/rows of cables to a common collection point near their assigned inverter skid, where the cables will be routed belowground at a minimum depth of 36 inches below grade to the inverter. The current is then converted to AC and voltage and stepped up to 34.5 kV. A typical drawing of the hanging brackets at the end of each row is provided below in Inset 03-5. No power poles would be necessary to accommodate this configuration, as the aboveground portion of the collection system would only run along the PV panel arrays and would be attached to the same piles as the panels. From the inverter, the AC collection cables would be belowground to the substation, as described above for the belowground collection system.

Inset 03-5. Typical Aboveground DC Collection Hanging Bracket

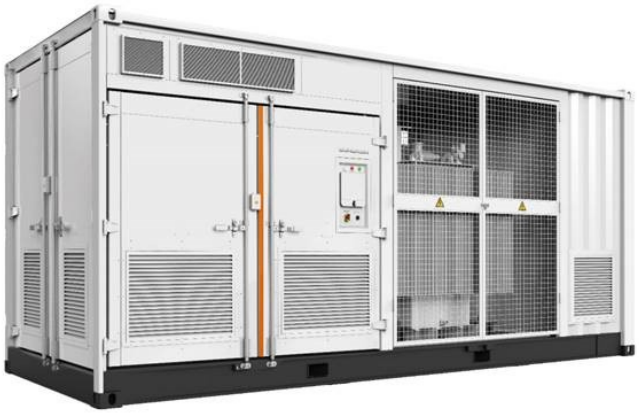


Under both electrical collection system scenarios in agricultural areas, all topsoil within the work area will be stripped and segregated from excavated subsoil. Replacement of spoil material will occur immediately after installation. Subgrade soil will be replaced around the cable, and topsoil will be replaced at the surface. Any damaged drain tile lines will be assessed for repair per the Drain Tile Mitigation Plan in Exhibit E. All areas adjacent to the open trench will be restored to original grades and surface condition. Revegetation of these areas will commence per the Vegetation Management Plan (Exhibit D).

(g) Substations, Switching Substations, and Transformers

The preliminary Facility design identifies 37 inverters throughout the Project Area. Inverters will be placed on a skid that provides the foundation for the inverter, transformer, equipment cabinet, and Supervisory Control and Data Acquisition (SCADA) system. This skid will be placed on a gravel inverter pad of approximately 70 feet long by 40 feet wide. Inverters will be approximately 40 feet long, 11 feet wide, and 10 feet tall, and the length and width are subject to variation dependent on the final inverter selected. An example inverter and transformer station is represented in Inset 03-6 below. Manufacturer's specifications for representative inverters are provided in Exhibit B, which is submitted under confidential seal.

Inset 03-6. Example Inverter and Transformer Station



The medium voltage electricity from the inverters is transmitted via the belowground collection lines to the Facility substation. The substation will be located within an 8.5 acre parcel under purchase option agreement with a participating landowner. The footprint of the substation will be approximately 350 feet by 350 feet wide, with the tallest structures at approximately 65 feet in height. This footprint will house the transformers and necessary

infrastructure to step up the voltage from 34.5 kV to 69 kV. This electricity will then connect to existing transmission infrastructure via the POI.

The Facility substation will be designed according to regional utility practices, PJM Standards, ReliabilityFirst Organization Standards, the National Electrical Code (NEC), and the Rural Utility Service Code. The area within the substation will be graveled to minimize vegetation growth in the area and reduce fire risk. The substation will be enclosed by a 7-foot tall chain-link fence with 1-foot barbed wire strand. Fence panels will typically be 10 feet wide and made from galvanized steel. The substation will contain concrete foundations for large equipment, circuit breakers, surge arrestors, insulators, and lighting necessary to meet various electric codes and standards.

(h) Weather Stations

The Facility will include up to nine weather stations, which will be mounted adjacent to the inverters. These weather stations will be up to 20 feet in height. See Inset 03-7 for a photograph of a weather station that is representative of what will be installed for the Facility. These weather stations measure various aspects of the weather such as solar irradiance and wind speed.

Inset 03-7. Representative Weather Station

(i) Transportation Facilities, Access Roads, and Crane Paths

The Facility will require the construction of approximately 12.4 miles of access roads. Access roads will be gravel surfaced and up to 16 feet wide along straight portions of the roads, and wider along curves and at internal road intersections.

During construction, access road installation and use could result in temporary soil disturbance of approximately 25 feet in width. Road construction will involve topsoil stripping, and stripped topsoil will be stockpiled along the road corridor for use in site restoration. Following removal of topsoil, subsoil will be graded, compacted, and surfaced with gravel or crushed stone at a depth to be determined on a case by case basis. A geotextile fabric or grid will be installed beneath the road surface, if necessary, to provide additional support. Once construction is complete, temporarily disturbed areas will be restored and revegetated. During construction, rock pads will be utilized at access road entrances and exits to reduce the tracking of dirt or sediment onto area roads.

(j) Construction Laydown Areas

Three laydown areas are proposed for the Facility. Laydown yards are placed at the north, center, and south ends of the Project Area to accommodate localized construction activities. These areas will be utilized until construction crews have completed installation of Facility components in the applicable portion of the Facility. The laydown yards will accommodate material and equipment storage, parking for construction workers, and construction management trailers. The laydown yards will be equipped with temporary erosion and sediment control methods and stripped of topsoil. Woodchips or construction matting may be used to accommodate laydown activities; however, the use of gravel is not anticipated. Following construction, laydown yards will be decompacted, topsoil redistributed, and reseeded per the specifications of the Vegetation Management Plan.

(k) Security, Operations, and Maintenance Facilities or Buildings

The Facility will be surrounded by a 6-foot tall, woven wire fence with 1-foot barbed wire strand. Fence panels will be 10 feet wide and made from galvanized steel, supported on wooden posts. Lighting will be located at Facility entrances, the O&M building, Facility substation, and inverters. The Lighting Plan in Exhibit F provides additional details regarding Facility lighting.

The O&M building will be approximately 100 feet by 50 feet wide and up to 20 feet tall. Adjacent parking and staging, subject to additional design steps, is anticipated to be located in an adjacent upland area. This parking is anticipated to be up to 40,000 square feet in size. The O&M building will be made of metal, of similar look and materials of a pole barn. The O&M building will include an on-site well and septic system to accommodate normal business office usage. Construction of the O&M building will follow all applicable building codes.

The Facility will use a SCADA system, which allows remote control and monitoring of the status of the Facility. The monitoring system provides status views of electrical and mechanical data, operation and fault status, meteorological data, and grid station data. For security, the Facility will be fenced and have site security cameras. Access to the Facility will be through lockable gates.

(l) Other Pertinent Installations

Permanent storm water treatment infrastructure will be installed for the Facility to meet all storm water discharge requirements of Ohio EPA Permit No. OHC000005 (Ohio EPA, 2018). Permanent storm water treatment infrastructure is anticipated to be minimal and will primarily consist of infiltration swales and ditches adjacent to access roads. The preliminary Facility design in Exhibit A identifies permanent storm water treatment infrastructure necessary to meet the requirements of Permit No. OHC000005 for the current design. These will be reassessed to assure continued compliance upon development of a final Facility layout.

(3) Need for New Transmission Lines

The Facility will interconnect to the existing Buckskin 69 kV substation, which is directly across Lower Twin Road from the Facility substation location. The interconnection will include a short 69 kV line that will cross Lower Twin Road from the Facility substation, and be directed north and east adjacent to Lower Twin Road and existing transmission line infrastructure before entering the Buckskin substation. All components of the 69 kV gen-tie line, which will include a dead-end structure within the Facility substation, transmission poles, and the transmission line that lead to the Buckskin substation will be sited within the Project Area prior to entering the Buckskin substation. The length of the gen-tie line is anticipated to be at least 475 feet, but no more than 850 feet, dependent on the final Facilities Study and interconnection agreement between Ross County Solar and AEP. The POI, including the gen-tie line, is included in this Application.

(4) Project Area Map

Prepared at a 1:6,000 scale, Figure 03-2 illustrates the following features:

(a) Aerial Photograph

Mapping was developed using Esri World Imagery aerial photographs map service.

(b) The Proposed Facility

The Preliminary Facility Layout includes components described above in Section 4906-4-03(B)(2).

(c) Road Names

Road data was obtained from the Ohio Department of Transportation (ODOT).

(d) Property Lines

Property line data includes all participating parcels and parcels adjacent to the Project Area.

(C) Detailed Project Schedule

(1) Schedule

The Project schedule in Gantt chart format is provided as Inset 03-8 below.

(a) Acquisition of Land and Land Rights

Acquisition of land and land rights began in 2017 and was completed in May 2020.

(b) Wildlife Surveys/Studies

Ecological surveys/studies were completed in July 2020.

(c) Receipt of Grid Interconnection Studies

The feasibility studies were issued in September 2017 and April 2018. The system impact studies were issued in December 2019. See Section 4906-4-05 for additional detail.

(d) Preparation of the Certificate Application

Preparation of the Application occurred in the third quarter of 2020 and the public information meeting was held on September 30, 2020.

(e) Submittal of the Application for Certificate

This Application was submitted on October 30, 2020.

(f) Issuance of the Certificate

It is anticipated that the Certificate will be issued in the second quarter of 2021.

(g) Preparation of the Final Design

The Applicant expects that final designs and detailed construction drawings will be completed as early as the third quarter of 2021.

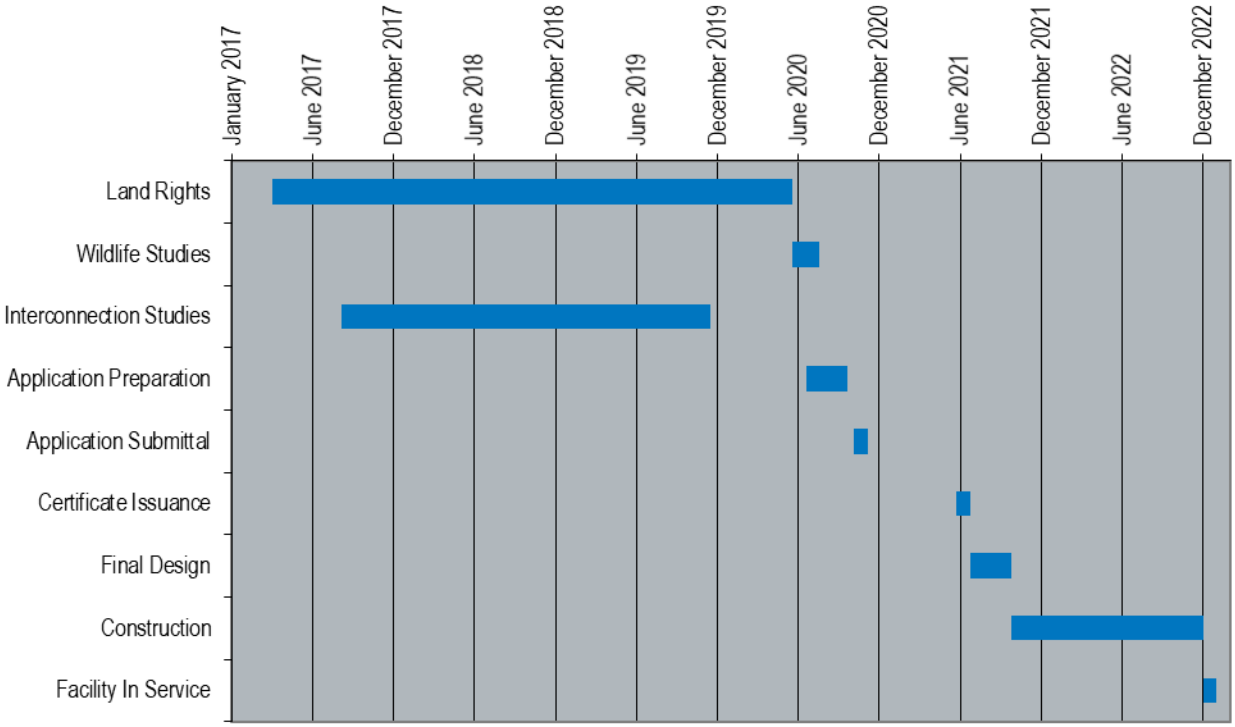
(h) Construction of the Facility

The Applicant anticipates that construction will begin as early as the fourth quarter of 2021 and be completed in the fourth quarter of 2022.

(i) Placement of the Facility in Service

The Facility will be placed in service upon completion of construction, anticipated as early as the fourth quarter of 2022.

Inset 03-8. Estimated Project Schedule



(2) Construction Sequence

Project construction is anticipated to proceed in the following sequence, with multiple activities being performed concurrently:

- Installation of storm-water and erosion control measures;
- Securing perimeter of the areas in which construction will occur;
- Clearing of the Project Area as necessary, particularly at PV arrays, access roads, laydown yards, and substation locations;
- Grading for access roads, PV arrays, laydown yards, and substation areas;
- Construction of access roads;
- Installation of piles and racking for support of PV panels;
- Installation of PV panels;
- Installation of the electrical collection system;
- Construction and installation of substation;
- Installation of inverters;
- Facility commissioning and energization;

- Final grading and drainage; and
- Restoration activities.

Installation of PV module foundations, access roads, and collection lines is described above in Section 4906-4-03(B)(2). Once construction is complete, temporarily disturbed areas will be restored, including removal of excess road material, decompaction, and rock removal in agricultural areas, and returned to their approximate pre-construction contours. Exposed soils in the Project Area will be stabilized by seeding, mulching, and/or plantings.

(3) Impact of Critical Delays

The in-service date is dependent on the Applicant's ability to timely acquire PV panels, racking, inverters, and transformers. Considerable costs would be incurred if the delays prevented the Facility from meeting deadlines for federal incentive programs such as the Investment Tax Credit for Solar.

4906-4-04 PROJECT AREA SELECTION AND SITE DESIGN

(A) Project Area Selection

The sub-sections below describe the Project Area selection process.

(1) Description and Rationale for Selecting Project Area

The availability and quality of solar resource, proximity to the bulk power transmission system, topography, and identification of willing contiguous participants are the initial site selection criteria utilized for solar power projects. The Applicant's initial evaluation was based on public solar irradiation data, such as the National Renewable Energy Laboratory's (NREL) "U.S. National Solar Radiation Database" (Sengupta, et al., 2018). The data suggested a suitable solar resource throughout much of Ohio, including Ross County.

Adequate access to the bulk power transmission system is also an important siting criterion. As depicted in Figure 04-1, existing bulk transmission lines and the existing Buckskin substation are located within the vicinity of the Project Area. The transmission lines in the area are owned and operated by AEP within the PJM regional transmission organization footprint. To implement an electric generating facility, the transmission line system must be able to accommodate a new facility's generating capacity via a POI that will transmit power to the greater electric grid. The capacity of the nearby transmission lines and costs of upgrades to accommodate a new POI were evaluated and it was determined that a 120 MW project was viable in the general area of the proposed Facility.

General topography and land use characteristics of the Project Area were also considered. Land use in the area is primarily agricultural and is characterized by open spaces suitable for hosting a utility scale solar power project. Ideal solar development areas are flat with limited variations in topography. Initial site visits to the area provided visual verification of the predominate agricultural land use and relatively flat terrain in the study area. Proximity to major transportation routes and supply chains were also reviewed to ensure accessibility. Multiple state routes and county roads surround the Project Area. These roads provide accessibility for the transportation of Facility components, construction equipment, and staff.

(2) Map of Study Area

Willing participants are essential to the success of any solar project. After a suitable geographic area was established, the Applicant's development team pursued willing landowners in the area.

Ross County Solar was formed with deep roots in agriculture and an understanding and respect for farming practices. The Ross County Solar development team is dedicated to improving the productivity of our landowners' properties by introducing communities to the benefits of renewable energy. The Applicant's development team establishes close partnerships with Project participants that last throughout the life of a Project. The Applicant identified willing Project landowners adjacent to a suitable POI that met the various other siting criteria listed in this section. With willing participants and a viable POI, the study area for the Facility was developed based on the POI. As such, there were no additional sites considered for the Project. A map of the Project Area and 2-mile radius is included as Figure 03-1 and is representative of the area considered.

(3) List and Description of all Qualitative and Quantitative Siting Criteria

Adequate solar resource

The Applicant determined through an initial screening process utilizing the NREL National Solar Radiation Database that global horizontal irradiance was likely to be at a level of 4.15 kilowatts (kW) per square meter per day (Sengupta, et al., 2018). Solar irradiance at this level is adequate to support the development of the Facility.

Adequate access to the bulk power transmission system

The Applicant determined that the system interconnection and upgrades to accommodate the interconnection could be attained at a reasonable cost. This determination was made via internal assessments and subsequent interconnection requests filed with PJM. See Section 4906-4-05 of this Application for additional details.

Willing land lease participants and host communities

Solar generation facilities can only be sited on property where the landowner has agreed to allow such construction. The Applicant obtained private lease agreements or purchase options for contiguous areas of land necessary to support the Facility. See Section 4906-4-06(A) of this Application for additional detail on property ownership and lease status. The Applicant has also engaged local community and state stakeholders to educate and share information. See Section 4906-4-06(F)(1) of this Application for additional detail on public interaction.

Site accessibility

The Project Area is served by an existing network of public roads, which will facilitate component delivery, construction, and operation and maintenance activities. See Section 4906-4-06(F)(3) for more information regarding site accessibility.

Appropriate geotechnical conditions

The Applicant determined that geotechnical conditions were suitable for the development of a solar facility. Preliminary desktop data was used to analyze the site for suitable geotechnical conditions. See Section 4906-4-08(A)(5) of this application for additional details regarding geotechnical conditions.

Distance from airports

Solar panels are compatible with airports, as evidenced by many airports that have successfully implemented solar panels within airport boundaries. Nonetheless, airports were considered during the siting process. Two privately owned, private use airports, Ross Field and Unger Field, were initially noted within 5 miles of the Project Area. Only one airport, the Ross Field Airport, is actively maintained within 5 miles of the Project Area and is located 1.8 miles north of the Project Area. See Section 4906-4-07(E) of this Application for additional detail on aviation facilities.

Limited residential development

The Project Area has a low population and residential development density compared to surrounding areas and statewide averages. Areas with limited residential development generally have more available space for siting solar panels once site-specific constraints are taken into account. See Section 4906-4-08(C)(3)(e) of this Application for additional detail on demographics in the vicinity of the Project Area.

Compatible land use

The Project Area is predominantly rural agricultural, which is compatible with the proposed Facility. See Section 4906-4-08(C) of this Application for more information on land use.

Topography

The Project Area has relatively flat terrain, which more easily accommodates the installation of solar panels.

Limited sensitive ecological resources

The Project Area has adequate open space available to avoid impacting sensitive ecological resources such as large tracts of forested land, wetlands, or streams. See Section 4906-4-08(B) of this Application for more information on ecological resources.

Cultural resources

A small number of existing cultural sites were noted in the Project Area, but it was determined that the large tracts of suitable land adjacent to these sites allowed for avoidance of known cultural resources. Cultural resource surveys were recommended to be initiated to ensure the avoidance of these resources or any unidentified resources early in the siting process. For additional information on cultural resources, see Section 4906-4-08(D) of this Application.

Once the Applicant determined that the Project Area was suitable for development of a solar power facility, various siting factors and constraints were identified and evaluated to appropriately site the Facility components. These efforts are discussed in detail below in 4906-4-04(B).

(4) Description of Process by Which Siting Criteria Were Used

The Applicant completed desktop evaluations of the siting criteria to identify the Project Area. As noted in 4906-4-04(2), no other sites were considered for the Project.

(5) Description of Project Area Selected for Evaluation

Based on the criteria in Section 4906-4-04(A)(3) of this Application, the Applicant has shown that the site presented herein meets all the factors necessary to support a viable solar energy facility.

(B) Facility Layout Design Process

The Applicant considered the siting criteria identified in Section 4906-4-04(A)(1) of this Application when developing the Preliminary Facility Layout. Due to ongoing technological innovations in the solar industry, continuing detailed engineering and survey work, public feedback, and communications during the OPSB certification process, the precise location of these features within the Project Area is subject to change. The fenceline, PV panel arrays, belowground or hybrid electrical collection lines, inverters, access roads, substation, O&M building, weather stations, and laydown yards are subject to change within the Project Area, but would still be subject to the various constraints identified below.

(1) Constraint Map

A constraint map of the Project Area showing setbacks, public roads, utility corridors, streams, and wetlands is included as Figure 04-1. This illustrative graphic cannot appropriately show all the site specific constraints and considerations, such as landowner preferences, PV panel engineering factors, and access road engineering requirements, all of which are considered within the Project Area.

In addition to the Project Area selection criteria, numerous expert analyses and field studies have been conducted to ensure that the PV panel arrays are sited to minimize environmental impacts to the extent practicable. The siting constraints identified in those studies are discussed in further detail below.

(2) Criteria Used to Determine Site Layout and Comparison of Alternative Site Layouts

The Applicant worked with various consultants to conduct detailed assessments that identified and defined the siting factors and constraints discussed below. Using geographic information system (GIS) tools and consultant assessments, the Applicant performed numerous layout design iterations to develop the proposed Facility layout as presented and described in this Application.

Equipment

As stated in Section 4906-4-03, representative models of Facility panels, racking, and inverters have been filed under seal. Improving technologies could dictate the use of an alternative equipment model as identified during the final procurement process. All models selected will be analyzed for suitability of the various siting criteria and constraints listed herein and submitted to the OPSB prior to construction. The equipment selection is subject to internal analysis of costs and availability of equipment during the procurement process.

Noise Constraints

No existing national, state, county, or local laws specifically limit noise levels produced by solar energy facilities. The Preliminary Facility Layout is designed to minimize noise impacts to non-participating sensitive receptors. For additional information on noise, see Section 4906-4-08(A)(3) of this Application.

Agricultural Constraints

Agriculture is the predominant land use within the Project Area. The Applicant has designed the Facility footprint to minimize impacts to active agricultural land primarily by co-locating collection

lines and access roads when practicable. The Project Area can be fully restored to agricultural use upon decommissioning, per the desires of participating landowners. For additional information on agricultural land, see Section 4906-4-08(E) of this Application.

The Applicant worked with participating landowners, soil and water conservation districts, and Ross County to identify known drain tile locations across the site. This data has been aggregated and will be utilized to inform final Facility layout. The Facility's Drain Tile Mitigation Plan (Exhibit E) identifies avoidance measures and procedures for repair of drain tile on the site.

Cultural Resources Constraints

The Applicant has completed field surveys across the Project Area for cultural resources. Sites that were identified to be potentially eligible for the National Register of Historic Places (NRHP) within the Project Area will be avoided during construction and operation of the Facility. Exclusionary fencing will be utilized to avoid impacts to these sensitive features during construction. For additional information regarding cultural resources, see Section 4906-4-08(D). The location and characterization of some of these resources are considered confidential, but the resources have been avoided on the Preliminary Facility Layout.

Ecological Constraints

Per consultation with the ODNR and the U.S. Fish and Wildlife Service (USFWS), and through onsite surveys, no ecologically sensitive areas were identified within the Project Area. Per guidance from the agencies, no tree clearing will occur between April 1 and September 30. Prior to construction, the active work area will be assessed for sensitive species and their active nests. Tree clearing and wetland/waterbody constraints are discussed further below. For additional information regarding ecological resources and agency consultations, see Section 4906-4-08(B).

Geotechnical Considerations

Geotechnical conditions across the site were found to be generally suitable for solar development. Geotechnical conditions will be considered in the final Facility layout to ensure the proper engineering of Facility components to accommodate onsite geotechnical conditions. For additional information regarding geotechnical considerations, see Section 4906-4-08(A)(5).

Glare Considerations

Form 7460-1 was filed and a Federal Aviation Administration (FAA) and a Determination of No Hazard has been obtained. A glare study was also completed for the Project. These efforts determined that no impacts to flight paths or nearby airports are anticipated. Additionally, the

two primary thoroughfares near the Project, SR 41 and Rapid Forge Road, were analyzed for potential glare impacts. No issues associated with glare were noted. To limit reflection and maximize efficiency, solar PV panels are constructed of dark materials that maximize absorption of sunlight and minimize glare impacts to the surrounding area. For additional information regarding glare and aviation, see Section 4906-4-07(E).

Hydrologic Constraints

A hydrology study was completed for the Project. This study analyzed risk of flooding and ponding, and their potential to cause scour, which could hinder the integrity of the solar pilings and racking. Low to moderate flood depths were found across the site, with minimal concern for scour. All hydrologic concerns can be addressed via avoidance or through design measures in the final Facility layout. For additional information regarding hydrological resources, see Section 4906-4-08(A)(4).

Landowner Considerations

The Applicant will continue to meet with participating landowners to review and finalize the Facility design on their property.

Trees, Shrubs, and Vegetation

Where practicable, the Applicant has committed to protecting core areas of trees that may be most beneficial to sensitive bat species. To maximize the solar resource and for an efficient design, it is not practicable to avoid tree clearing across the entire Project Area due to panel shading and maximization of available land resources. Tree preservation areas have been identified, as discussed in the Tree and Shrub Clearing Plan in Exhibit H. Tree clearing activities elsewhere will follow seasonal clearing requirements. No tree clearing will occur between April 1 and September 30, per agency consultations. Tree and shrub clearing are discussed further in 4906-4-08(B). Per the Vegetation Management Plan, care shall be taken during the nesting season (April 1 to August 1) to avoid the nests of upland grassland birds.

Setbacks

The Applicant used setbacks in designing the Preliminary Facility Layout. Setbacks were established based on the Applicant's industry knowledge. Setbacks for the PV panels are as follows:

- 300 feet from non-participating sensitive receptors

- 50 feet from non-participating properties
- 50 feet from the centerlines of public roads

Wetland and Stream Constraints

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 extent practicable. Wetland and stream impacts will be limited to temporary impacts associated with Facility construction, and permanent impacts associated with the installation of collection lines and access roads at select locations. For all identified stream and wetland crossing points, appropriate construction techniques will be used to minimize impacts. As a result, the majority of stream and wetland impacts will be temporary in nature. For additional information on estimated wetland and stream impacts, see Section 4906-4-08(B)(2)(a) of this Application.

(3) Description of Number and Type of Comments Received

Written and oral comments were received prior to and during the public informational meeting, which was held on September 30, 2020. Only a few questions were received during the public information meeting, regarding construction start date, tax distribution, and overall attendance. All written comments submitted for the public meeting are attached hereto as Exhibit I. To foster discussion and allow time for the public to formulate their own questions, the Ross County Solar team asked several questions during the public information meeting that they have received during past public information meetings and open houses for other Projects. These questions are marked as such in Exhibit I.

4906-4-05 ELECTRIC GRID INTERCONNECTION

(A) Connection to the Regional Electric Grid

In order to interconnect new generation facilities to the electric transmission grid, the Facility owner must obtain approval from PJM. PJM is a regional transmission organization that coordinates the movement of wholesale electricity in all of Ohio and all or parts of surrounding states. The interconnection process includes completion of studies by PJM that determine the transmission upgrades required for a project to interconnect to the PJM grid reliably. These studies are completed in a series. The Feasibility Study, the System Impact Study, and the Facilities Study are designed, respectively, to provide developers with increasingly more refined information regarding the scope of required upgrades, completion deadlines, and implementation costs (PJM, n.d.).

The OPSB requires submission of two of these studies with the Application, the Feasibility Study and System Impact Study.

The Facility will interconnect to the existing Buckskin 69 kV substation, which is directly across Lower Twin Road from the Facility substation location. The interconnection will include a short 69 kV line that will cross Lower Twin Road from the Facility substation, and will be directed north and east adjacent to Lower Twin Road and existing transmission line infrastructure before entering the Buckskin substation. All components of the 69 kV gen-tie line, which will include a dead-end structure within the Facility substation, transmission poles, and the transmission line that lead to the Buckskin substation will be sited within the Project Area prior to entering the Buckskin substation. The length of the gen-tie line is anticipated to be at least 475 feet, but no more than 850 feet, dependent on the Facilities Study and interconnection agreement between Ross County Solar and AEP. The POI, including the gen-tie line, is included in this Application.

(B) Interconnection Information

(1) Generation Interconnection Request Information

The Applicant has two PJM queue positions related to the Facility, both named “Buckskin 69kV.” See Table 05-1 below for the queue numbers, dates, and capacities.

Table 05-1. PJM Queue Positions

Queue Number	Queue Date	Output (MW)	Capacity (MW)
AC2-060	2/16/2017	100	64.0
AD1-073	8/31/2017	20	13.2
	Total	120	77.2

The website for the PJM interconnection queue is https://www.pjm.com/planning/services-requests/interconnection-queues.aspx and the specific queue positions can be found by entering the queue position ID into the search box under the "Queue/OASIS ID" column.

(2) System Studies

The Feasibility Study and System Impact Study are complete, and the Facilities Study is in progress, for both queue positions. The completed PJM interconnection studies are included as Exhibit J to this Application.

4906-4-06 ECONOMIC IMPACT AND PUBLIC INTERACTION

(A) Ownership

The Applicant will construct and own all structures and equipment associated with the Facility. As depicted on Figure 03-2, limited portions of the 34.5 kV electrical collection lines will be located within public road rights-of-way (ROW) where the collection line routes cross Lower Twin Road and Rolfe Road, from one participating parcel to another. Ross County Solar holds lease or purchase options for the land within the Project Area, other than the 4.8 acres north of Lower Twin Road and west of the Buckskin substation. The only infrastructure placed on this 4.8 acre parcel will be the gen-tie line via AEP easement rights. The Project substation will be sited on purchased lands, and other Facility components will be sited on a combination of leased or purchased lands. For public ROW or railroad ROW crossing, the Applicant will work with the applicable authority to obtain necessary crossing permits and permissions.

(B) Capital and Intangible Costs

(1) Estimated Capital and Intangible Costs by Alternative

Due to the sensitive nature of economic data and the potential advantage it could provide to industry competition, capital and intangible costs are included in Part III, Section 2, of the unredacted version of the Socioeconomic Report (Exhibit K), filed under seal with this Application. The total estimated capital and intangible costs of the Facility are **<BEGIN CONFIDENTIAL INFORMATION>** [redacted] **<END CONFIDENTIAL INFORMATION>**. A further breakdown is provided in Table 06-1 below. The Applicant has not proposed alternative project areas. Therefore, no cost comparisons between alternatives is available.

<BEGIN CONFIDENTIAL INFORMATION>

Table 06-1. Estimated Capital and Intangible Costs

Facility Expenditure Categories	Estimated Cost
Construction Materials & Equipment Costs	[redacted]
Construction Labor Total Costs	[redacted]
Construction - Other Costs	[redacted]
Total Capital Costs	[redacted]
Operating/Maintenance Labor Costs	[redacted]
Operating/Maintenance Materials and Services	[redacted]
Local Property Tax Payments	[redacted]
Total Annual Intangible Costs	[redacted]

<END CONFIDENTIAL INFORMATION>

(2) Cost Comparison with Similar Facilities

Installed project costs compiled by the U.S. Department of Energy's Lawrence Berkeley National Laboratory (Berkeley Laboratory) in December 2019 indicate that the capital costs of the Facility are in line with recent industry trends. The Berkeley Laboratory compilation shows that capacity-weighted average installed costs in 2018 averaged roughly $\$1,640/kW_{AC}$ (Bolinger, Seel, & Robson, 2019).

These costs are somewhat higher than the average cost estimated for the Facility, which could be attributed to locational and system size differences. The estimated cost of the Facility is not anticipated to substantially different from other Facilities completed by the Applicant.

(3) Present Worth and Annualized Capital Costs

Capital costs will include development costs, construction design and planning, equipment costs, and construction costs. The costs will be incurred within a year or two of start of construction. Therefore, a present worth analysis is essentially the same as the costs presented above, which are **<BEGIN CONFIDENTIAL INFORMATION>** [redacted] **<END CONFIDENTIAL INFORMATION>**. As alternative project areas and facilities were not considered in this Application, the capital cost information in this section is limited to the proposed Facility.

(C) Operation and Maintenance Expenses

(1) Estimated Annual Operation and Maintenance Expenses

For the first two years of commercial operation, staffing is estimated to be **<BEGIN CONFIDENTIAL INFORMATION>** [redacted] **<END CONFIDENTIAL INFORMATION>**. O&M costs are estimated

at **<BEGIN CONFIDENTIAL INFORMATION>** [redacted] **<END CONFIDENTIAL INFORMATION>**, including staffing costs.

(2) Operation and Maintenance Cost Comparisons

O&M costs are a significant component of the overall cost of solar projects but can vary widely between facilities. The Berkeley Laboratory has compiled O&M cost data for 48 installed utility-scale solar power projects in the United States, totaling 900 MW_{AC} of capacity, with commercial operation dates of 2011 through 2018. In general, facilities installed more recently have incurred lower O&M costs than those installed in 2011. Specifically, capacity-weighted average O&M costs for projects constructed in 2011 equal \$32/kW_{AC}-year. The O&M costs dropped to around \$16/kW_{AC}-year for projects installed in 2015, and to \$19/kW_{AC}-year for projects installed in the 2018 (Bolinger, Seel, & Robson, 2019).

The O&M costs for the Facility are estimated to be approximately **<BEGIN CONFIDENTIAL INFORMATION>** [redacted] **<END CONFIDENTIAL INFORMATION>**, depending on the maturity of the project each year of its life cycle. These estimated O&M costs exclude any other ongoing expenses related to environmental monitoring, property taxes, land royalties, reverse power, and insurance. These costs will be consistent with the average costs compiled by the Berkeley Laboratory, as described above. The O&M costs for the Facility are not anticipated to be significantly different from other facilities the Applicant operates.

(3) Present Worth and Annualized Operation and Maintenance

The annual O&M costs will be subject to inflationary increases. Therefore, these costs are expected to increase with inflation after the first two years. The net present value of the O&M costs per kW, assuming a 30-year Facility life, and inflation rate of 2% and a 6% discount rate, is approximately **<BEGIN CONFIDENTIAL INFORMATION>** [redacted] **<END CONFIDENTIAL INFORMATION>.** As alternative project areas and facilities were not considered in this Application, the O&M cost information in this section is limited to the Facility.

(D) Cost of Delays

Monthly delay costs are dependent on many factors. If the delay were to occur during the permitting process, the losses would be associated with the time value of money resulting from a delay in the timing of revenue payments. If the delay were to occur during construction, costs would include lost construction days and those associated with idle crews and equipment.

Either scenario could also result in penalties associated with the failure to meet a delivery deadline under a potential Power Purchase Agreement. Significant losses would also be incurred if the delays prevented the Facility from meeting deadlines for the existing federal Investment Tax Credit. Prorating these one-time delay costs monthly would not be meaningful, as the lost opportunity is triggered at a single deadline and does not accrue over time.

(E) Economic Impact of the Project

Information provided in this section was obtained from the Socioeconomic Report, prepared by EDR (Exhibit K). The proposed Facility is anticipated to have local and statewide economic benefits. Solar power development, like other commercial development projects, can expand the local, regional, and statewide economies through both direct and indirect means.

Operation of the Facility will result in payment to local landowners in association with the lease agreements executed to host Facility components. These annual lease and easement payments will offer direct benefits to participating landowners, which will be in addition to any income generated from the surrounding land use (e.g., agricultural production). The Applicant estimates that these payments will total approximately $20.4 million over the initial 25 years of operation. These lease payments will have a positive impact on the region, to the extent that landowners will spend their revenue locally.

Income generated from direct employment during the construction and operation of the Facility is used to purchase local goods and services, creating a ripple effect throughout the state and county. To quantify the local economic impacts of constructing and operating the Facility, EDR used the Jobs and Economic Development Impact (JEDI) photovoltaics model (version PV12.23.16). This model was created by the NREL, a branch of the U.S. Department of Energy (USDOE). See the Socioeconomic Report (Exhibit K) for a description of impacts and indicators used in the JEDI model.

(1) Construction and Operation Payroll

Annual estimated construction and operation payroll is provided in Table 06-2 below. For additional discussion of inputs used to calculate these estimates, see the Socioeconomic Report.

Table 06-2. Local Economic Impacts

	Jobs (Full-Time Equivalent)	Earnings (Millions)	Output (Millions)
Construction			
Project Development and Onsite Labor Total	199	$13.9	$14.1
Construction & Installation Labor	194	$13.5	-
Construction and Installation Related Services	5	$0.4	-
Module & Supply Chain Impacts	48	$2.5	$7.4
Induced Impacts	42	$2.2	$6.5
Total Impacts	**288**	**$18.5**	**$28.0**
Annual Operation			
Onsite Labor Impacts	5	$0.4	$0.4
Local Revenue & Supply Chain Impacts	4	$0.2	$0.7
Induced Impacts	11	$0.7	$2.0
Total Impacts	**20**	**$1.2**	**$3.0**

Source: NREL JEDI Model (version PV12.23.16) (USDOE NREL, 2016). Cost values verified by the Applicant in June 2020.
Notes: Earnings and Output values are millions of dollars in 2020 dollars. Construction and operating period jobs are full-time equivalent (FTE) for one year (1 FTE = 2,080 hours). Impact totals and subtotals are independently rounded, and therefore may not add up directly to the integers shown in this table.

Based on the values above, it is anticipated that construction of the Facility could generate 199 on-site construction and project development personnel full-time equivalent (FTE) positions, with a projected average wage rate of $23 per hour and 45.6% employer payroll overhead. The present worth of construction payroll during the first year of construction is estimated to total $9.5 million. It is anticipated that operation of the Facility could generate five FTE jobs with a projected wage rate of $24 per hour and 45.6% employer payroll overhead. The present worth of operation payroll during the first year of operation is estimated to total $249,600.

(2) Construction and Operation Employment

Demand for new jobs will be created during both the initial construction period and the years in which the Facility is in operation. The money injected into the statewide economy through the creation of these jobs will have long term, positive impacts on individuals and businesses in Ohio. Table 06-2 estimates the number of construction and operation jobs created by the Facility in Ohio. General skilled labor is expected to be available in Ohio to serve the Facility's basic infrastructure and site development needs. Specialized labor will be required for the installation of some Facility components, and it may be necessary to import electricians or other skilled

laborers from neighboring states. The relatively short construction duration for the Facility may preclude special training of local or regional labor to accommodate these positions.

(3) Local Tax Revenues

The proposed Facility will have a significant positive impact on revenue to local tax districts, including local school districts and other taxing districts in the area. For the purpose of calculating the economic impact of the Project, the Applicant assumes that the payment-in-lieu of tax (PILOT) under Ohio Revised Code 5727.75 will be made, which would require annual PILOT disbursements in the amount of $7,000 per MW of nameplate capacity to local taxing districts and, if required by the County, an additional payment of $2,000 per MW of nameplate capacity to the County's general fund. The $7,000 per MW payment would be apportioned to the Greenfield Exempted Village School District, and Paint and Buckskin townships in Ross County. Based on the maximum payment of $9,000 per MW and Facility capacity of 120 MW, the PILOT amount would total approximately $1,080,000 annually for the lifespan of the Facility. The Facility is expected to achieve commercial operations as early as the fourth quarter of 2022 and have a lifespan of approximately 30 years.

(4) Economic Impacts on Local Commercial and Industrial Activities

The proposed Facility will have a beneficial impact on the local economy. In addition to jobs and earnings, the construction of the Facility is expected to have a positive impact on economic output, a measurement of the value of goods and services produced and sold by backward linked industries. Economic output provides a general measurement of the amount of profit earned by manufacturers, retailers, and service providers connected to a given project. The value of economic output associated with Facility construction is estimated in the Socioeconomic Report to be $28.0 million. Between workers' additional household income and industries' increased production, the impacts associated with the Facility are likely to be experienced throughout many different sectors of the statewide economy.

(F) Public Responsibility

As described above, changes to the current Facility layout may occur, but any such changes will not alter the Project Area, will not require the leasing of additional properties, and will not impact new property owners or create additional impacts for existing adjacent property owners.

(1) Public Interaction

During siting efforts, interactions with the public included face to face interactions with landowners adjacent to the Project Area via door knocking efforts and literature distribution. The Applicant engaged local government officials via presentations, in-person visits, email communications, and phone conversations. Information has also been shared through direct landowner mailings, and a web based public information meeting and a teleconference call, both held on September 30, 2020. The Applicant will continue to make general information about solar power, and specific information about the proposed Facility, available to community members, elected officials, and local civic organizations during the Application process. Notifications for public hearings will be distributed as part of the Application process, and pre-construction and pre-operation notification will be distributed at least seven days prior to the commencement of construction or operation per the Public Information Program (Exhibit L). Drafts of these notifications are included as Appendix C and Appendix D of the Public Information Program.

If questions or complaints arise during construction or operation of the Facility, they can be submitted to the Applicant using the Question/Complaint/Concern Resolution Form and Questionnaire (Appendix A of Exhibit L) by email, phone, or in-person if an appointment is made. Complaints made via phone will be recorded by an Applicant representative on the questionnaire. The Applicant will follow up with complainants via phone within two business days, excluding holidays. If additional follow-up is needed to address a question or complaint, the Applicant will reach out with weekly updates. Once a complaint or question has been resolved, the Applicant will confirm resolution with the complainant, and will document the resolution on the questionnaire. If an email address was provided, the Applicant will email the complainant a signed copy of the questionnaire, indicating resolution of the complaint. All questionnaires will be submitted to the OPSB on the 15th of April, July, October, and January of each year. All completed questionnaires will remain on file with the Applicant and be available upon request.

(2) Liability Insurance

The limits of the insurance policy described will, at a minimum, insure against claims of $1,000,000 per occurrence and $2,000,000 in the aggregate. In addition, the Applicant shall acquire and maintain throughout the construction operation, and decommissioning period, at its sole cost, Umbrella Coverage against claims and liability for personal injury, death, and property damage

arising from the operation of the Facility. The limits of the excess liability insurance will, at a minimum, insure against claims of $10,000,000 per occurrence and $10,000,000 in the aggregate.

(3) Roads and Bridges

Information provided in this section was obtained from the Route Evaluation Study and Traffic Control Plan prepared by Hull & Associates, Inc. (Hull), attached as Exhibit M. The Route Evaluation Study identifies delivery vehicles and probable delivery routes; evaluates existing conditions of roadways, bridges, and culverts; identifies potential impacts to transportation infrastructure; proposes mitigation measures for potential impacts; and lists transportation permits that could be required for the Project. The Traffic Control Plan identifies safety measures and strategies to manage traffic associated with the Project.

Delivery Vehicles

During the construction phase, impacts to local traffic are anticipated to be minimal due to the low volume of existing traffic near the Project Area. Traffic will consist of construction equipment and hauling trucks, fixed bed trucks or semi-trailers, multi-axle dump trucks, and conventional pickup trucks or automobiles for workers. Most vehicles will be of legal weight and dimensions; however, some overweight/oversize vehicles may be required for the delivery of the switchgear or transformer for the substation. Deliveries of equipment will occur during regular business hours.

Delivery Route

Delivery routes have not been finalized, but it is likely that the delivery of Facility components to the Project Area will be from the north by way of US 35 to SR 753 then SR 41, located along the eastern border of the Project Area. An alternate route from the south could also be utilized by way of US 50 to SR 41. Once at the Project Area, county and township roads will be utilized. For additional information regarding delivery routes, refer to Section 2.0 of the Route Evaluation Study in Exhibit M. A map of probable delivery routes is included in Appendix A of Exhibit M.

Road Conditions

Hull conducted a visual analysis of roads, bridges, and culverts along potential transportation routes serving the Project Area. A summary of pavement conditions and average daily traffic counts is included in Section 2.0 of the Route Evaluation Study. There were no signs posting load restrictions for roads or bridges in the Project Area.

Overhead structures and cables were also assessed along local roadways. Nothing was noted as posing a hazard. These lines will be assessed again prior to construction. If an obstruction is noted, utility providers can temporarily or permanently raise the cable and/or move the poles. Therefore, overhead cables are not considered a limiting factor for roadway use. No other obstructions were noted along potential transportation routes to and from the Facility, such as bridges or overhanging structures that could lead to height or width restrictions.

Traffic Impacts and Mitigation

Hull identified schools in the area to determine potential impacts to school traffic. All school buildings are at least 2 miles from the Project Area. Due to the distance from schools and low residential density in the area, impacts to school-related traffic are expected to be minimal.

Based on traffic counts and site observations, traffic volume is low in the Project Area. Traffic will increase during construction of the Project; however, traffic disruptions will be limited because there are no planned road closings, most deliveries will occur during normal work hours, and equipment delivery will require very few wide loads. The Traffic Control Plan included in Exhibit M describes procedures used to manage traffic during construction.

During operation, daily traffic related to the Facility would include O&M staff, estimated to be up to five employees. Maintenance vehicles would also travel to the Facility on occasion. As such, operational traffic impacts are expected to be negligible.

Roadway Impacts and Mitigation

As noted above, the Route Evaluation Study found few issues with local road conditions. Based on Hull's analysis of road conditions, the use of Rolfe Road in its current condition is not recommended. Use of Rolfe Road during construction is likely unavoidable, and Ross County Solar will coordinate with the county engineer to further assess road conditions, and to establish potential improvements necessary to accommodate construction traffic. This coordination will result in the incorporation of the discussions into a Road Use and Maintenance Agreement, discussed below. No other issues that would prevent equipment delivery and construction traffic were noted. Should conditions change in the future, mitigation techniques have been identified in the Route Evaluation Study.

Once identified, final transportation routes on local roads will be monitored during the construction to ensure safe and drivable conditions for both local and Facility traffic.

Requirements for roadway monitoring, temporary repairs, and post-construction improvements will be outlined in a Road Use and Maintenance Agreement with the Ross County Engineer.

Glare

A glare analysis was conducted for the two major roadways adjacent to the Project Area, Rapid Forge Road and SR 41. Several observation points along these roads were input into the glare model and evaluated at 1-minute intervals for an entire year. Based on the glare analysis, no impacts to roads or traffic from glare are anticipated. The complete glare analysis is included as Exhibit P.

(4) Transportation Permits

Prior to construction, the selected transportation provider will obtain all necessary permits from ODOT and the Ross County Engineer. The majority of vehicles used for the construction and operation of the Facility meet current legal dimensions and weight. Therefore, very few transportation related permits are anticipated. Special Hauling Permits may be required for vehicles that will transport the switchgears and transformers for the substation. Each vehicle must receive an individual Special Hauling Permit from the ODOT Central Office, as the specifications of the permit depend on the characteristics of the vehicle, its cargo, and duration of the delivery schedule. Additional permits will be required for driveway access along county roads and crossings of roads and county-maintained ditches by buried collection lines. These permits will be obtained from the County Engineer or ODOT, as required.

In addition to coordinating with state, county, and township authorities to obtain transportation permits, the Applicant will also coordinate with appropriate authorities regarding necessary traffic control during the construction of the Facility. A Traffic Control Plan is included in Exhibit M. The plan will be finalized upon receipt of the final Facility layout prior to construction.

(5) Decommissioning

A Decommissioning Plan is included as Exhibit N of this Application and includes details on decommissioning activities, site restoration, cost estimates, and financial assurance. The Applicant will notify OPSB Staff 30 days prior to the commencement of decommissioning activities. Decommissioning activities will include the removal of panels, weather stations, inverters, electrical equipment, racking, scrap, piles, access roads, electrical collection lines, fencing and substation. Some components may remain in place such as electrical collection lines

buried at least 48 inches underground or the substation if other agreements necessitate its continued use. Additionally, landowner agreements may specify other components that can remain in place, such as access roads. Equipment that is removed from the site will be salvaged or recycled to the greatest extent practicable. Other waste material that hold no value or cannot be recycled will be disposed of via a licensed solid waste disposal facility. Following the completion of decommissioning activities, the site will be graded as necessary and decompacted to allow the site to be converted to pre-construction land uses. Decommissioning of the Facility, including the removal of materials and site restoration, will last approximately 12 to 18 months.

The Applicant will post a performance bond with the OPSB as the obligee based on the net costs of decommissioning (taking into account the salvage value of the panels and other equipment), calculated to be $4,694,666, prior to the commencement of commercial operation of the Project. Following commencement of commercial operation, the Applicant will reevaluate decommissioning costs through an Ohio-licensed engineering firm or professional engineer every five years thereafter during the life of the Project. If this evaluation shows that the net decommissioning cost for the Project has increased, the Applicant will increase the amount of the performance bond accordingly.

4906-4-07 COMPLIANCE WITH AIR, WATER, SOLID WASTE, AND AVIATION REGULATIONS

(A) Purpose

This section provides information regarding air, water, solid waste, and aviation regulations, including potential impacts of the proposed Facility, and any proposed mitigation measures.

(B) Air

(1) Pre-construction

The Facility does not require any pre-construction air permits. Therefore, this section does not apply.

(2) Plans to Control Air Quality During Site Clearing and Construction

Best management practices (BMPs) will be utilized to minimize dust generated by construction activities. Exposed/disturbed areas will be minimized at any one time to the extent practicable and restored/stabilized per the requirements of Ohio EPA Permit No. OHC000005. During construction activities, water or a dust suppressant such as calcium carbonate will be applied on as needed basis to suppress dust on Facility access roads and on unpaved transportation routes. Any unanticipated construction related dust problems will be identified and immediately reported to the construction manager and contractor. Should any complaints regarding dust generation be received via the complaint resolution process, the Applicant will work to resolve them as quickly as practicable. All construction vehicles will be maintained in good working condition to minimize construction related emissions.

(3) Plans to Control Air Quality During Facility Operation

As per OAC 4906-4-07(B)(3), this requirement does not apply to wind farms. Likewise, the proposed Facility is a renewable energy project that will not produce any air pollution. Therefore, this requirement does not apply to the proposed Facility.

(C) Water

(1) Pre-construction

Field studies noted that wetlands and stream features are scattered throughout the Project Area. Generally, wetland and waterbody features have been impacted by agricultural activities that have traditionally occurred within the Project Area. Existing pre-construction conditions of area waterbodies are discussed in Section 4906-4-08(A)(4).

(a) List of Required Permits to Install and Operate the Facility

Prior to the start of construction, the Applicant will obtain the following water-related permits. These permits are discussed in more detail in Section 2 of the Ecological Assessment (Exhibit S):

- 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, (if necessary, as determined after final engineering);
- A Water Quality Certification 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

The Facility will not discharge water or waste into streams or waterbodies, nor will Facility operation require the use of water for cooling or any other activities. The Facility will add only small areas of impervious surface in the form of access roads, gravel pads to accommodate inverters, the O&M building, and the substation, which will be dispersed throughout the Project Area. These will have a negligible effect on surface water runoff and groundwater recharge. Therefore, measurable impacts on the quality of surrounding water resources are not anticipated. Since there are no bodies of water likely to be affected by the proposed Facility, this section is not applicable.

(c) Description of Water Monitoring and Gauging Stations

As described above, no waterbodies will be significantly affected by the proposed Facility. Therefore, this section is not applicable.

(d) Existing Water Quality of Receiving Stream

The Facility will not discharge water or waste into streams or waterbodies. Therefore, there will be no receiving streams and this section is not applicable.

(e) Permit Application Data

The Facility will not discharge any water. Therefore, this section is not applicable.

(2) Construction

(a) Water Quality Map

As described above in Section 4906-4-07(C)(1)(b), measurable impacts on the quality of surrounding water resources are not anticipated. Since there are no bodies of water likely to be affected by the proposed Facility, this section is not applicable.

(b) Quantity/Quality of Construction Runoff

Construction of the proposed Facility will have minimal, localized impacts to groundwater. 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. Construction of access roads will result in minor increases in storm water runoff that otherwise would have infiltrated into the ground at the road locations.

(c) Mitigation

The Applicant will obtain a "General Permit Authorization for Storm Water Discharges Associated with Construction Activity" (also known as a Permit No. OHC000005) (Ohio EPA, 2018). To meet NPDES requirements, a qualified engineer will utilize the final Facility layout to develop a Storm Water Pollution Prevent Plan (SWPPP). 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 Clean Water Act 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.

The Preliminary Facility Layout (Exhibit A) identifies BMP locations and typical drawings that are anticipated to be utilized across the site. These controls are based on evaluation of topography and flow direction, and location of soil disturbing activities. BMPs will be used to protect topsoil and adjacent resources and to minimize soil erosion, whether the erosion is caused by water or wind. Practices may include containment of excavated material, protection of exposed soil, stabilization of restored material, implementation of rock pads at construction exits, and treating stockpiles to control fugitive dust. Other BMPs may be

implemented as necessary to comply with OHC000005. BMPs will be reassessed upon receipt of the final Facility layout during SWPPP preparation to ensure compliance with Ohio law.

Facility components were sited to avoid temporary and permanent impacts to wetland and waterbody resources to the maximum extent practicable. Panels and inverters will be placed outside of wetland and waterbody features. All impacts associated with collection lines will be temporary in nature. The substation is anticipated to avoid impacts to wetland or waterbody features. Permanent impacts to wetland features from access road crossings are anticipated to be minor and will be permitted in accordance with state and federal regulations, as applicable. See Section 4906-4-08(B)(2)(b) for additional details regarding wetlands and waterbodies.

(d) Changes in Flow Patterns and Erosion

As a result of the limited impacts discussed in Section 4906-4-07(C)(2)(b) and the mitigation measures discussed above in Section 4906-4-07(C)(2)(c), changes to flow patterns are not anticipated.

(e) Equipment for Control of Effluents

Facility operation will not involve the discharge of effluents into streams or water bodies. Therefore, this section is not applicable.

(3) Operation

(a) Water Quality Map

As described above in Section 4906-4-07(C)(1)(b), measurable impacts on the quality of surrounding water resources are not anticipated. Since there are no bodies of water likely to be affected by the proposed Facility, this section is not applicable.

(b) Water Pollution Control Equipment and Treatment Processes

The Facility will not require any water pollution control equipment or treatment processes. Storm water measures that will be implemented during Facility operations are described below.

The proposed Facility will not result in wide scale conversion of land to impervious surfaces. While PV panels themselves are impervious, they are disconnected from the ground surface and allow rainwater to fall from the panel and permeate into the underlying surface.

Impervious surfaces found at the site will include the substation, O&M building, inverter and inverter pad, and access roads. The Applicant will perform pre- and post-construction storm water calculations to determine if post-construction BMPs are required based on requirements contained in Ohio EPA's Permit No. OHC000005. Per the Preliminary Facility Layout, post-construction BMPs for the impervious surface across the site are anticipated to include ditches and swales adjacent to Facility access roads. An evaluation of post-construction storm water calculations will be re-evaluated prior to submission of the final Facility layout to ensure compliance with Ohio law.

As noted in 4906-4-03(2)(b), oil utilized for the cooling and insulation of transformers at the Facility substation may be stored within an aboveground storage tank within the substation footprint which will likely exceed 1,320 gallons. Per federal regulations (40 CFR Part 112), should the tank exceed 1,320 gallons, an SPCC Plan will be prepared prior to the tank's placement onsite. Oil that is removed from the transformers during maintenance activities will be disposed of per the applicable local, state, and federal regulations.

(c) NPDES Permit Schedule

As mentioned above, Facility construction will require an Ohio NPDES construction storm water general permit, Ohio EPA Permit No. OHC000005. The Applicant anticipates full and complete compliance with this permit. The Notice of Intent and associated fee for Permit No. OHC000005 will be filed at least 21 days prior to commencement of construction activities.

(d) Quantitative Flow Diagram

As explained in the following sub-sections, flow diagram information is not applicable to the proposed Facility.

(i) Sewage

The O&M building will be served by septic system developed to meet the needs of onsite employees. Prior to construction of the septic system, the Applicant will obtain an Ohio EPA wastewater permit-to-install, and any other required state and local permits. No other sewage is anticipated to be produced.

(ii) Blow-down

This section is not applicable, as PV panels do not utilize blow-down equipment.

(iii) Chemical and Additive Processing

The Facility will not require the use of chemical and/or additive processing. Therefore, this section is not applicable.

(iv) Waste Water Processing

The Facility will not process or generate wastewater. Therefore, this section is not applicable.

(v) Run-off and Leachates

The Facility is not expected to generate any run-off or leachates. Therefore, this section is not applicable.

(vi) Oil/water Separators

This section is not applicable because the Facility will not utilize any oil/water separators.

(vii) Run-off from Soil and Other Surfaces

Following completion of construction, temporarily impacted areas will be stabilized and restored and revegetated. Facility operation will not result in further soil disturbance, aside from occasional repair activities. Therefore, this section is not applicable.

(e) Water Conservation Practices

The only Facility component requiring water sources is anticipated to be the O&M building. Staff operating out of the O&M building will use water at a rate comparable to a typical small business or office. The Facility will incorporate water conservation practices by including installation of modern, efficient water fixtures for all water usage, and regular maintenance to keep water fixtures in proper working order.

Overall, there are water conservation benefits of solar energy, as compared to conventional coal and nuclear power. According to a study supported by NREL, the total life cycle water use is lower for PV panels than other generation technologies (Meldrum, Nettles-Anderson, Heath, & Macknick, 2013).

(D) Solid Waste

(1) Pre-construction

(a) Nature and Amount of Solid Waste

One residence and an associated shed, located on Rolfe Road, are proposed to be removed or relocated for construction of the Facility. The structures to be removed/relocated are indicated on the Preliminary Facility Layout (Exhibit A). The landowner has approved removal or relocation of these structures. The Applicant is not aware of any other structures, large debris, or solid waste within the Project Area that would require removal for Facility development. Should any other waste be encountered, it will be disposed of as described below.

(b) Plans for Waste Removal

Waste will be handled, managed, and disposed of in accordance with federal, state, and local regulations. The structures proposed for removal may be relocated. If demolished on-site, components of the buildings will be recycled when practicable, and the remainder of the solid waste will be disposed of at a licensed area landfill.

(2) Construction

(a) Nature and Amounts of Construction Waste

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

(b) Methods for Storage and Disposal of Construction Waste

Construction waste will be collected from PV panel installation sites and other Facility work areas and disposed of in dumpsters located at the laydown yards. A private contractor will empty the dumpsters on an as needed basis and dispose of the refuse at a licensed solid waste disposal facility. Waste materials will be recycled when possible. Used oil, used antifreeze, and universal waste, if any, will be handled, managed, and disposed of in accordance with federal, state, and local regulations.

(3) Operation

(a) Nature and Amounts of Waste

For the most part, Facility operation will not result in significant generation of debris or solid waste. Waste generated from the O&M facilities could include wood, cardboard, metal packing/packaging materials, used oil, general refuse, universal waste, and used antifreeze. The O&M facility offices will generate solid wastes comparable to a typical small business office.

(b) Methods for Storage and Disposal of Waste

The O&M facilities will utilize local solid waste disposal and recycling services. Used oil, used antifreeze and universal waste will be handled, managed, and disposed of in accordance with federal, state, and local regulations.

(4) Licenses and Permits

Facility operation will not require acquisition of waste generation, storage, treatment, transportation, and/or disposal licenses or permits.

(E) Compliance with Aviation Regulations

(1) Aviation Facilities List and Map

Figure 03-1 illustrates all airports, helicopter pads, and landing strips within 5 miles of the Project Area. This mapping was developed from the Esri ArcGIS World Topographic Map at a 1:18,000 scale. One privately owned, private use airport is located within 5 miles of the Project Area, the Ross Field Airport, approximately 1.8 miles north of the Project Area. An additional privately owned, private use airport, Unger Field, was noted in the Glare Analysis, but is no longer actively used. No public use airports were identified within 5 miles of the Facility.

On October 1, 2020, the Applicant notified the airport manager at Ross Field of the proposed Project, via phone conversation. Following the conversation, the airport manager indicated that they did not have any concerns regarding the Facility.

(2) FAA Filing Status and Potential Conflicts

The FAA requires notification for objects affecting navigable airspace per 14 CFR Part 77. The Applicant filed Form 7460-1 with the FAA, and received a Determination of No Hazard to air navigation from the FAA on August 11, 2020 (Exhibit O).

In addition to obstruction, reflectivity or glare is a potential concern from the FAA regarding solar facilities. Glare from solar panels has the ability to cause brief loss of vision for pilots during their final approach to a runway or to air traffic controllers (Rogers, et al., 2015). In 2013, the FAA established an Interim Policy that reviewed the impacts of solar energy systems on federally obligated airports. This review states that, in order to receive FAA notice of "no objection," there should be no potential for glare from the solar facility in the Airport Traffic Control Tower or along the final approach path, defined as "two miles from fifty feet above the landing threshold using a standard three-degree glidepath" (FAA, 2013, p. 2).

In order to evaluate the potential impacts of glare, the Applicant contracted with Harris Miller Miller & Hanson (HMMH) to conduct a Glare Analysis (Exhibit P). HMMH analyzed potential glare at sensitive airport receptor locations using GlareGauge, a model developed by the USDOE's Sandia National Laboratories, and reviewed results relative to the FAA Interim Policy detailed above. To assess airport sensitive receptors, the FAA requires an evaluation of potential glare for pilots on final approach and at the air traffic control towers. Neither airport included in the glare analysis has an air traffic control tower. Final runway approaches were evaluated, and no impacts from glare are anticipated as a result of the Project.

4906-4-08 HEALTH AND SAFETY, LAND USE, AND ECOLOGICAL INFORMATION

(A) HEALTH AND SAFETY

(1) Equipment Safety and Reliability

(a) Major Public Safety Equipment

To protect safety of the public, the Applicant will implement various measures to limit access to the Facility during construction. Temporary, highly visible mesh fencing will be used around staging and storage areas. Signage will be utilized around active and inactive construction areas warning of potential dangers and discouraging entrance by the public. Other safety measures will also be employed: The Traffic Control Plan (Exhibit M) identifies safety measures that will be implemented near public roads. For example, personnel exposed to public vehicular traffic shall be provided with and shall wear warning vests or other suitable reflective or high-visibility garments. The Lighting Plan (Exhibit F) identifies the lighting necessary for safe operations of equipment, adequate lighting for active work areas, and security lighting to protect staged Facility components and equipment.

Safety features including perimeter fencing, controlled gate access, and signage will be utilized at the Facility during operation. In addition, electronic security systems, and remote monitoring will be employed. Per the Lighting Plan, motion and switch activated lighting will be implemented at entrances, the O&M building, and inverters. Per the Public Information Program (Exhibit L), the complaint resolution form and contact information will be readily available to address public inquiries, safety concerns, or complaints regarding the Facility.

(b) Equipment Reliability

Equipment reliability is an important criterion when selecting solar equipment. The Applicant will only select reliable, certified equipment for all Facility components, including but not limited to PV modules, inverters, racking systems, wiring, and transformers. All equipment will follow applicable industry code(s) (e.g., Institute of Electrical and Electronics Engineers [IEEE], NEC, National Electric Safety Code [NESC], American National Standards Institute [ANSI]).

(c) Generation Equipment Manufacturer's Safety Standards and Setbacks

Generation equipment manufacturer's safety standards will be provided after PV solar module technology has been selected for the Project. All Project equipment is expected to be

compliant with applicable UL, IEEE, NEC, NESC, and ANSI listings. Internal setbacks, defined by the Applicant, are discussed in Section 4906-4-04 of this Application.

(d) Measures to Restrict Public Access

To further restrict public access, a 6 foot tall woven wire fence with an additional 1 foot of barbed wire strand will be constructed around the Facility. During operation, security of the Facility will be maintained by a combination of perimeter security fencing, controlled access gates, electronic security systems, and potentially remote monitoring. Additionally, "No Trespassing" and "High Voltage Equipment" signs will be placed around the fence perimeter, warning the public of the potential hazards within the fenced Facility. Per the Lighting Plan, lighting that is switch or motion activated will be implemented at Facility Entrances, O&M building, and inverters for additional safety and security. Remote monitoring and security cameras will be implemented for the Facility.

(e) Fire Protection, Safety, and Medical Emergency Plans

Prior to construction, a site specific environmental health and safety plan (HASP) will be developed. The HASP identifies preventive measures to reduce the potential occurrence of an emergency. The plan will include an emergency action plan (EAP) that identifies actions to address circumstances such as medical emergencies, fires, or spills. The Applicant will coordinate with first responders prior to construction to ensure that they are familiar with the EAP and the general layout of the Facility. As noted in the Traffic Control Plan, a map denoting the location of safety muster points, office locations, first aid kits, and spill kits will be available onsite for contractor review. Fire suppressants, spill kits, and first aid kits will be available in vehicles and construction equipment in case of inadvertent release of fluids or fire during both Facility construction and operation. All personnel will undergo a safety training program, and depending on their position, training may include site orientation, first aid/CPR/AED, qualified electrical worker (NFPA 70E), and equipment specific training. An operations specific HASP will also be developed for the Facility, which will include an EAP, and the Applicant will maintain communications with emergency responders regarding the EAP throughout the life of the Facility.

(2) Probable Impacts due to Failures of Pollution Control Equipment

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

(3) Noise

Resource Systems Group, Inc (RSG) was retained by the Applicant to conduct a Noise Assessment to evaluate potential noise impacts from the proposed Facility. The study examined current background sound levels, assessed anticipated sound levels associated with construction activities, and modeled sound levels from the operational Facility on nearby residences. The Noise Assessment report is included as Exhibit Q and summarized below.

(a) Construction Noise Levels at the Nearest Property Boundary

Table 3 of the Noise Assessment (Exhibit Q) identifies sound levels associated with commonly used construction equipment for solar facilities, assuming no attenuation from trees or terrain. This table conservatively identifies the maximum equipment sound level at 15 meters (50 feet), which can be applied to Facility construction activities near property boundaries, and at 91 meters (300 feet), which can be applied to Facility construction activities at residence setback distances. The table shows that the loudest sound levels for equipment that would typically be used near property boundaries is anticipated to be 85 A-weighted decibels (dBA). However, these nearby activities will be short in duration, and most construction will be set back significantly from property boundaries. The Project has incorporated setbacks of 300 feet from non-participating sensitive receptors to further reduce noise impacts to areas where people are more likely to be present. Exhibit Q shows the loudest sound levels for typical equipment at approximately this distance to be 62 dBA.

Horizontal directional drilling (HDD) equipment is anticipated to be used at a location just south of Rolfe Road. Sound levels emitted by HDD equipment would be 87 dBA at 15 meters (50 feet) and 68 dBA at 91 meters (300 feet). However, the nearest non-participating receptor from that location will be over 610 meters (2,000 feet) away. At that distance, the sound level due to the HDD equipment would be reduced to 49 dBA. Sound disturbance due to HDD activities during construction is expected to be minimal.

(i) Blasting activities

No blasting activities are anticipated for the construction or operation of the Facility and thus no noise emissions are anticipated.

(ii) Operation of earth moving equipment

Earth moving equipment is not anticipated to exceed 62 dBA at 91 meters (300 feet), the approximate distance from the nearest solar array to the nearest non-participating sensitive receptors. Equipment could occasionally operate nearer to sensitive receptors but should generally be limited to equipment travel between work areas, or grading activities for short durations of time. As panel locations are set back at least 300 feet from non-participating sensitive receptors, and earth moving in any one area is completed quickly, noise impacts from earth moving equipment are anticipated to be negligible.

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

Pile driving is not anticipated to exceed 61 dBA at 91 meters (300 feet), the approximate distance from the nearest solar panel to sensitive receptors. As panel locations are set back at least 300 feet from residences, and pile driving activities in any one area are completed quickly, noise impacts from pile driving are anticipated to be negligible.

HDD equipment will be utilized to complete a belowground collection line installation beneath a Class III stream. The HDD will be located just south of Rolfe Road in the southern portion of the Project Area and will be over 610 meters (2,000 feet) from the closest nonparticipating receptor. The maximum sound pressure level from the HDD is 87 dBA at 15 meters (50 feet) and 49 dBA at 610 meters (2,000 feet).

(iv) Erection of structures

Erection of structures such as PV panels, inverters, the O&M building, and substation will utilize equipment such as pickup trucks, man lifts, cranes, and flatbed trucks. None of these are anticipated to exceed 62 dBA at 91 meters (300 feet), the approximate distance from the nearest solar panel to the nearest non-participating sensitive receptors. As panels, inverters, the O&M building, and the substation are set back at least 300 feet from non-participating sensitive receptors, and structure assembly and construction activities in any one area are completed in a relatively short duration, noise impacts are anticipated to be negligible.

(v) Truck traffic

Truck traffic will be necessary to accommodate delivery of Facility components during construction. Deliveries will occur relatively infrequently during regular working hours. Once delivery trucks have reached the Project Area, transportation of materials will follow access routes that are primarily set back from non-participating sensitive receptors. Noise impacts from deliveries are anticipated to be negligible.

(vi) Installation of equipment

As noted above, the equipment utilized for the installation of the Facility primarily will be set back at least 300 feet from non-participating sensitive receptors. Additionally, this equipment will only operate for the duration necessary to complete installation in any one area of the Project. Therefore, the noise impacts associated with construction activities are anticipated to be negligible.

(b) Operational Noise Levels at the Nearest Property Boundary

(i) Operational noise from generation equipment

Sound propagation modeling was performed in accordance with the standard ISO 9613-2 "Acoustics – Attenuation of sound during propagation outdoors, Part 2: General Method of Calculation" using CadnaA modeling software. Model inputs used inverters and transformers under consideration with the highest sound emission output. Substation transformers were modeled with cooling fans operating. The modelling conservatively assumed operation of all equipment during both daytime and nighttime, as the substation and inverters could operate at night if the Facility is used to manage reactive power for transmission grid infrastructure.

The model results showed that even when all equipment is fully operational during nighttime hours, sound levels are not anticipated to exceed 5 dBA above average nighttime sound levels at non-participating sensitive receptors. Based on the onsite data collected, 5 dBA above average nighttime sound levels was determined to be 44 dBA. The highest modelled sound level from noise generating equipment at a non-participating sensitive receptor was determined to be 40 dBA. Figure 15 of the Noise Assessment (Exhibit Q) illustrates surrounding residences and anticipated sound levels to be produced by the Facility.

Based on the sound propagation modelling, the highest sound level anticipated at a non-participating property boundary from noise emitting equipment during operation of the Facility is anticipated to be 48 dBA. This sound level is located at the nearest point between the Facility substation and non-participating property boundary. A sound level of 48 dBA is approximately equivalent to noise levels of conversational speech in a home. For passersby at this location, this sound level would not significantly alter a conversation, in that persons walking by would be unlikely to find it necessary to raise their voice to maintain their conversation.

As noted above, the transformers at the Facility substation were considered in the noise assessment. Two transformers will be located at the Facility substation. Ross County Solar currently anticipates the use of transformers that are 3 dB below NEMA TR-1 sound levels.

(ii) Processing equipment

The Facility does not include processing equipment; therefore, this section is not applicable.

(iii) Associated road traffic

Traffic during operations is limited and will primarily be associated with operations personnel traveling to and from the Facility site and will not be a significant source of noise. Traffic inside the Facility will be dispersed from occasional maintenance activities and inspections. Noise from these activities is anticipated to be negligible.

(c) Location of Noise-Sensitive Areas within One Mile of the Facility

Noise-sensitive receptors within 1 mile of the Facility are mapped with modeled sound level data to 30 dBA on Figure 08-5. As shown on this Figure, higher sound levels are localized to areas directly adjacent to Facility equipment, and noise from the Facility beyond the area shown in the figure outside of the 30 dBA operational sound level would be well below existing background sound levels. -As noted above, the highest modelled sound level from noise generating equipment at a non-participating sensitive receptor was determined to be 40 dBA during both daytime and nighttime conditions.

(d) Mitigation of Noise Emissions during Construction and Operation

Construction will occur between the hours of 7:00 a.m. and 7:00 p.m. or until dusk when sunset occurs after 7:00 p.m. Limited construction that does not contribute to excess noise at sensitive receptors may occur outside of these hours. Pile driving operations will be between the hours of 8:00 a.m. and 7:00 p.m., Monday through Saturday. Extended pile driving hours and the use of Saturdays will increase efficiency and reduce the total number of days necessary for pile driving activities. As most construction occurs during typical working hours, noise impacts are anticipated to be minimal. Facility setbacks assist in the mitigation of sound during construction as installation will mostly be at least 300 feet from non-participating sensitive receptors. Equipment will be kept in good working conditions to minimize excess noise emissions.

During operations, setbacks have been implemented that will reduce sound impacts from the Facility, including a 300-foot setback from non-participating residences. The high-voltage substation transformers are specified to be 3 dBA below NEMA TR-1 sound levels, reducing potential transformer noise. If alternate transformers are necessary, Ross County Solar will evaluate to determine if any mitigation is necessary, and will submit any necessary mitigation to OPSB staff upon submittal of the final Facility layout. Representative equipment was modeled and is not anticipated to exceed 5 dBA above daytime and nighttime ambient sound levels (L_{eq}) at non-participating sensitive receptors. Routine maintenance of the facility, such as mowing, will be completed between 7:00 a.m. and 7:00 p.m. Occasional maintenance activities during nighttime hours may be necessary to maximize energy collection during the day. These activities are not anticipated to produce excessive noise or disturbance.

(e) Pre-construction Background Noise Study

Continuous background noise was measured at three locations representative of adjacent residences during June 25 through July 2, 2020. Sound level microphones were mounted at a height of approximately 1.5 meters (5 feet) and covered with a 7-inch weather-resistant windscreen. Sound meters logged A-weighted and one-third octave band equivalent continuous sound levels once each second. After collection, the data was summarized into 10-minute, overall day, overall night, and full monitoring period length durations. Anomalous data, or data that provided false readings or artificially high levels, were omitted from the

sound data. Such events included wind speeds above 5 meters per second, precipitation events, animal interactions with the monitor, low flying aircraft, and lawn-care equipment.

Table 1 of the Noise Assessment includes the equivalent continuous average (L_{eq}), upper 10th percentile (L_{10}), median (L_{50}), and lower 10th percentile (L_{90}) background noise levels. The average nighttime L_{eq} across the Project Area is 39 dBA and the average daytime L_{eq} across the Project Area is 44 dBA.

Although the OAC does not define sound level limits for solar projects, a design goal of 5 dBA over ambient level (L_{eq}) was established. Given the ambient levels referenced above, 5 dBA over those values results in a nighttime L_{eq} of 44 dBA and a daytime L_{eq} of 49 dBA. Sound level modelling showed the maximum sound level at a non-participating residence to be 40 dBA, which is below the design goal nighttime L_{eq} of 44 dBA.

(4) Water Impacts

(a) Impacts to Public and Private Water Supplies from Construction and Operation

Public and private wells in the vicinity of the Facility are displayed on Figure 08-1. This data was obtained from the ODNR and shows that two private water wells are located within the Project Area. The well on the southwest side of the Project Area has a total depth of 60 feet below ground surface, and produces approximately 30 gallons per minute (gpm). The well on the west side of the Project Area has a depth of 228 feet, and produces approximately 13 gpm. The principal groundwater source for the majority of the Project Area is the Chillicothe Complex aquifer, with a small section in the southwest portion located in the Chillicothe Thin Upland aquifer.

The Applicant will coordinate with landowners to identify specific well locations, avoidance and mitigation measures, or capping. Given that the Facility will not be constructed within the immediate vicinity of residences, impacts to water wells are not anticipated.

(b) Impacts to Public and Private Water Supplies from Pollution Control Equipment Failures

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

(c) Water Resources Map

Figure 08-1 depicts aquifers and existing water wells in the vicinity of the Project Area. There are no Ohio EPA Source Water Protection Areas (SWPAs) in the Project Area.

(d) Compliance with Local Water Source Protection Plans

No SWPAs were identified in the vicinity of the Project Area by the Ohio EPA. There are no local plans protecting local water sources for the area near the Facility. As a result, this section is not applicable.

(e) Prospects of Floods in the Area

A Hydrology Study was completed for the Project Area (Exhibit R). This study analyzed risk of flooding and ponding, and their potential to cause scour, which could hinder the integrity of the solar pilings and racking. Low to moderate flood depths were found across the site, with minimal concern for scour due to the flat terrain. The Project Area is located adjacent to a Federal Emergency Management Agency (FEMA) 100-year flood zone from Paint Creek and Buckskin Creek; however, this flood zone is constrained to the floodplain of its respective reach and the land on which the Facility is sited on has a significantly higher elevation than the extents of the floodplains. Therefore, the Project Area does not contain any FEMA flood zones. Additionally, no preliminary or pending FEMA data was located that will affect the Project Area. All hydrologic concerns can be addressed via avoidance or through design measures in the final Facility layout.

(5) Geological Features Map

There are no existing oil and gas wells within one mile of the Project Area, and no records of any mining operations (see Appendix B of the Ecological Assessment, included as Exhibit S). Topographic contours are included on the Preliminary Facility Layout (Exhibit A). Maps and discussion of geological features are included in the Geotechnical Report (Exhibit C) and the Ecological Assessment (Exhibit S).

(a) Geologic Suitability

A geotechnical evaluation of the Project Area was completed (Exhibit C). The report provided a geotechnical overview, support design recommendations, frost heave considerations, seismic considerations, electrical earth resistivity, thermal resistivity, corrosivity, and more. Geotechnical considerations noted in the report can be addressed via standard engineering

techniques and methods. Recommendations of the report will be considered throughout the engineering and procurement process to ensure selection and construction techniques will be implemented to support the viability of the Facility throughout its operational life.

The Facility is not anticipated to require extensive grading, given the relatively flat nature of the Project Area. Additionally, none of the 15 test borings encountered bedrock that would hinder pile drivability. Groundwater, where encountered during test borings, was found at 4 to 15 feet below ground level. Where present at the completion of boring, groundwater was observed at levels of 11.5 to 14.5 feet below ground level. Due to potential high groundwater levels, dewatering may be required during excavations. Because most activities do not require significant excavations, dewatering activities are anticipated to be minimal. Any necessary dewatering activities onsite would utilize BMPs such as filter bags or straw bale structures to better diffuse water. Dewatering will be directed to a well vegetated upland area, wherever possible, and will be conducted in accordance with all requirements of Ohio EPA Permit No. OHC000005.

The Project Area does not contain any known karst features or sinkholes. There is a probable karst area southwest of the Project Area (see Figure 7 of Exhibit S). In addition, the ODNR identified 12 verified or suspected sinkholes within 1 mile of the Project Area. Terracon investigated karst features within the Project Area as part of their geotechnical evaluation (Exhibit C). No karst conditions were encountered, and any potential carbonate rocks in the Project Area are anticipated to be more than 50 feet below ground surface. The structures related to a solar project do not typically add stress to the underlying geology beyond depths of 25 feet. While known karst features are located relatively nearby to the Project Area, the geotechnical evaluation determined the probability of encountering karst within the Project Area to be low.

The Facility will be designed to meet seismic requirements. According to the U.S. Geological Survey (USGS) and FEMA, seismic hazard levels are relatively low for Ohio, particularly in southern Ohio (USGS, 2008; FEMA, n.d.). Historically, Ross County experienced one earthquake in 1899, in Scioto Township, with a magnitude of 3.1 (ODNR, n.d.). For additional information on geological suitability, see Exhibit C.

(b) Soil Suitability

Soils encountered in the Project Area consist of 3 to 6 inches of topsoil, followed by soft to hard consistency lean clays with varying sand and gravel content, stiff sandy fat clay, and sand and gravel layers to a maximum explored depth of 15 feet. Additional testing was conducted to determine the corrosivity, thermal resistivity, and electrical earth resistivity of the soils. Results for those tests can be found as attachments in Exhibit C.

The Geotechnical Report concluded that the subsurface conditions encountered in the borings generally appear to be suitable for development of the site as a solar power facility. Soils on site have limited shrink-swell potential due to low plasticity clayey properties, and therefore do not present a concern for the design and construction of the Facility. Near surface soils are moderately moisture sensitive and subject to degradation in strength and stability when exposed to moisture. As a result, the Applicant will restrict earthwork, including grading, to warmer, drier periods of weather, when practicable. Soils within the Project Area may also be susceptible to frost and frost heave due to the lean clay soils with fines greater than 15% observed throughout the Project Area. Piles will be installed to depth that counteracts potential freeze heaving forces. Additional design considerations can be found in Exhibit C.

(c) Plans for Test Borings

As noted above, and to meet the requirements of 4906-04-08(5)(c), test borings were completed throughout the Project Area. Boring logs are included within the Geotechnical Report (Exhibit C). These borings followed the plan set forth in the Exploration and Testing Procedures, included as an attachment to Exhibit C. Boring closure followed standard procedures and methods and the test bores were backfilled with the auger cuttings following completion. As noted previously, groundwater was encountered at a minimum of 4 feet below ground level, and, in some cases, at levels of 11.5 to 14.5 feet below ground level at completion of the boring. Soil characteristics identified from the geotechnical borings are discussed in 4906-4-08(A)(5)(b). No bedrock was encountered from any of the test borings and shallow bedrock is not anticipated to be encountered during construction. Recovery for each boring is provided in the boring log.

Test borings have been provided as part of this Application, and the borings provided a level of detail necessary to determine overall suitability of the site. Additional borings may be

performed to inform very specific engineering considerations, and it is not proposed that any additional geotechnical boring logs or data will be provided to the OPSB or OPSB staff. If additional borings are determined to be necessary, the on-site contractor will prepare and follow a plan similar to the attachment in Exhibit C and will use standard methods for boring closure. The results of any additional borings are not anticipated to significantly alter the placement of Facility components.

(6) Prospects of High Winds in the Area

The Facility will be engineered and installed to withstand typical high-wind occurrences. The Facility design factors in wind speeds, which are based on building code wind speed maps. The Facility is designed using Risk Category I maps and is based on the maximum expected three-second gust from the building codes.

(7) Blade Shear

Given the nature of the Facility, this section is not applicable.

(8) Ice Throw

Given the nature of the Facility, this section is not applicable.

(9) Shadow Flicker

Given the nature of the Facility, this section is not applicable.

(10) Radio and Television Reception

The Applicant is not aware of any research conducted to date that indicates utility-scale solar generation facilities interfere with communication systems. PV arrays generate weak electromagnetic fields (EMFs) during the day that dissipate at short distances. These EMFs are "generated in the same extremely low frequency range as electrical appliances and wiring found in most homes and buildings" (Massachusetts Department of Energy Resources, 2015, p. 10). In a study of three solar projects in Massachusetts, electric field levels measured along the boundary of each project did not exceed background levels (Massachusetts Clean Energy Center, 2012, p. iv). Accordingly, the Applicant does not anticipate interference with radio or television reception due to weak electric fields produced by the proposed solar facility.

(11)Radar Interference

As stated above, solar facilities produce weak EMF signals that quickly dissipate off site. Additionally, according to the FAA, PV systems represent little risk of interfering with radar transmission due to their low profile (Lawrence & Magnotta, 2018). As a result, the Facility is not anticipated to interfere with radar communication systems.

(12)Navigable Airspace Interference

Due to the low profile of the Facility, where the tallest structure will be the substation support structures, with a height of approximately 65 feet, impacts to navigable airspace are not anticipated. See Section 4906-4-07(E) of this Application for a discussion of potential aviation impacts from glare.

(13)Communication Interference

Interference in microwave communication signals occurs when the line-of-sight between two microwave transmitters is blocked (Polisky, 2005). Microwave communication interference is a common concern in development of a wind facility due to the presence of large structures. However, components of this Facility are low in profile with the tallest structure being the substation. Due to the lack of tall structures that may interfere with the line-of-sight of microwave transmitters, interference with microwave communications from the Facility is not anticipated.

(B) Ecological Impact

(1) Ecological Resources in the Project Area

In support of this Application, Cardno completed on-site ecological surveys and prepared an Ecological Assessment, attached hereto as Exhibit S. The Assessment includes a review of applicable literature and desktop information, summarizes consultations with the ODNR and USFWS, provides results of field studies in the Project Area, and reports anticipated Facility impacts.

(a) Open Spaces and Facility Map

Figure 03-1 shows the proposed Facility and ecological features within 2 miles of the Project Area. Figure 08-3 shows additional ecological features within 5 miles of the Project Area. The features required to be mapped by 4906-4-08(B)(1)(a) are described below, with references to the corresponding figure or exhibit that includes a map of the feature.

(i) The proposed Facility and Project Area boundary

The Preliminary Facility Layout and Project Area boundary are both depicted on Figure 03-1. Figure 08-3 includes the Project Area boundary.

(ii) Undeveloped or abandoned land such as wood lots or vacant tracts of land subject to past or present surface mining activities

Undeveloped land is mapped in Figure 08-3 and includes woodlots, scrub/shrub communities, and barren land. Of the approximately 4,493 acres that make up the 0.5 mile radius around the Project Area, approximately 1,051 acres are defined as undeveloped land in the form of woodlots. Undeveloped land data was derived from the USGS National Land Cover Database (NLCD).

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

One wildlife area, the Paint Creek Lake Wildlife Area, is located within 0.5 mile of the Project Area, and a portion of the wildlife area is adjacent to the Project Area. Wildlife areas, nature preserves, and other conservation areas are depicted on both Figure 03-1 and Figure 08-3.

(iv) Surface bodies of water

Several waterbodies are located within 0.5 mile of the Project Area, including Paint Creek and Buckskin Creek and their associated tributaries. All waterways are illustrated on Figure 03-1 and Figure 08-3.

(v) Highly erodible soils and steep slopes

Highly erodible soils make up approximately 2.3% of the Project Area. Slopes are provided as curve numbers and are included in Exhibit 5 of the Hydrology Study (Exhibit R). Contour data is also provided in the Preliminary Facility Layout (Exhibit A).

(b) Field Survey and Map of Vegetative Communities and Surface Waters within 100 Feet of Construction

<u>Vegetative Communities</u>

Vegetative communities were characterized in Section 6 of the Ecological Assessment (Exhibit S) via a desktop analysis of NLCD data and aerial photography, then later field verified during field surveys. The primary communities identified include agricultural land, forestland (isolated woodlots and wooded buffers between agricultural areas), and disturbed/developed

land. As noted at Section 6.1.1 of the Ecological Assessment, all of the major plant communities found within the area are common to Ohio. Vegetative communities within the Project Area were dominated by agricultural monocultures, including soy beans, corn, small grains, and hay. Limited amounts of forestland remain as isolated woodlots and wooded buffers. A map of vegetative communities is included as Figure 2 of the Ecological Assessment.

Wetland and Stream Delineations

Surface water delineations were completed within the Project Area, and verified the extent of such features out to a 0.25 mile radius. A Wetland and Stream Delineation Report is provided as Appendix D of the Ecological Assessment. A map of delineated wetlands and streams is included as Figure 5 in the Regulated Waters Delineation Report (Appendix D of Exhibit S), and are also shown on the Preliminary Facility Layout (Exhibit A).

A total of 38 wetlands and one pond were delineated, comprising approximately 6.80 acres. Of the 38 wetlands, 15 were identified as palustrine forested wetlands and 23 were identified as palustrine emergent. Based on Cardno's experience, 22 wetlands are anticipated to be considered Waters of the U.S. (WOUS). A final determination will occur through a Jurisdictional Determination from the United States Army Corps of Engineers. Based on the Preliminary Facility Layout, less than 0.04 acre of wetland will be impacted during construction, and less than 0.02 acre of wetland will be permanently impacted during operation. Additional detail on the individual wetlands can be found in the Ecological Assessment.

Sixty streams were delineated, comprising a total of 47,863 linear feet within the Project Area. One stream was designated as Modified Warm Water Habitat, two were designated as Warm Water Habitat, six were designated as Class I Primary Headwater Habitat (PHWH), 47 were designated as Class II PHWH, and four were designated as Class III PHWH. Based on the Preliminary Facility Layout, less than 0.01 acre (98 linear feet) of stream will be impacted during construction, and less than 0.01 acre (73 linear feet) of stream will be permanently impacted during operation. Additional detail on the individual streams can be found in the Ecological Assessment.

(c) Literature Review of Plant and Animal Life within 0.25 Mile of Construction

A literature review of plant and animal life within 0.25 mile of the Project Area is included in the Ecological Assessment (Exhibit S). This information is summarized below.

Plants

Aside from crops, there are no known plant species of commercial or recreational value within 0.25 mile of the Project Area. The Applicant consulted with the ODNR regarding state and federally listed plant species that may occur in the vicinity of the Project Area. The ODNR identified three state listed potentially threatened species, fen Indian-plantain (*Arnoglossum plantagineum*), yellow sedge (*Carex flava*), and pale umbrella-sedge (*Cyperus acuminatus*), as potentially occurring in the Project Area. The ODNR did not indicate that the Project Area contains critical habitat for this species.

Animals

Table 4-3 in the Ecological Assessment (Exhibit S) provides a comprehensive table of all state and federal listed species that were identified by the ODNR or USFWS as potentially occurring in the Project Area, and if they were observed during field surveys. No state or federally listed species were noted during field surveys. For additional information on these species and agency consultation, see the Ecological Assessment.

Federally Listed Species

The Project Area is not known to provide significant habitat for sensitive bird species. No federally listed bird species were identified during field survey efforts. When reviewing publicly available sources and records, Cardno did not identify any known bald eagle or sensitive raptor nests within the Project Area.

The Indiana bat (*Myotis sodalis*) was identified by the ODNR and Indiana bat and northern long-eared bat (*Myotis septentrionalis*) were both identified by the USFWS as potentially occurring in the Project Area, siting a distribution range for both species that spans the entirety of Ohio. Neither species is anticipated to occur in the Project Area due to the lack of forested areas that could be used for roosting and lack of caves for hibernacula. While neither species is anticipated to occur, tree clearing will adhere to the recommended dates of October 1 to March 31. In accordance with the Tree and Shrub Clearing Plan, core woodlots will be maintained across the Project Area.

A total of six federally listed endangered and one federally threatened bivalve species were identified through agency coordination as potentially occurring in the Project Area. No critical habitat area exists for these species within the Project Area. Additionally, in-water work for the construction or operation of the Facility is only proposed in streams that are not of suitable size to support these listed species. Therefore, impacts to these species are not anticipated.

State Listed Species

A total of 10 bivalve species and six fish species were identified by the ODNR as threatened or endangered, state listed species that may occur in the Project Area. Additionally, three bivalve and seven fish species are state listed as threatened species that may occur in the Project Area. In-water work for the construction or operation of the Facility is only proposed in streams that are not of suitable size to support these listed species. No critical habitat areas exist for these species within the Project Area. Therefore, impacts to these species are not anticipated.

Four state listed amphibian/reptile species have the potential of occurring within the Project Area. None of these species were observed during Cardno's field surveys. Additionally, no critical habitat was identified by the ODNR or USFWS within the Project Area. Therefore, impacts to these species are not anticipated.

Game Species

Common game species that are typical of central Ohio could occur in the Project Area. These species are mobile and therefore incidental injury or mortality to these species are not anticipated.

(d) Results of Field Surveys for Plant and Animal Life 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 endangered or threatened species were observed in the Project Area while conducting surveys. Wildlife observations on site 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) Summary of Additional Ecological Impact Studies

Based on agency consultation and field survey results, no additional ecological studies are proposed.

(2) Construction Impacts

(a) Estimation of Impact of Construction on Undeveloped Areas, Plants, and Animals

Since the Facility is located entirely on 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. Additional details, including acreage of potential impacts, are included in the Ecological Assessment. Minor impacts during construction to ecological resources, including wetland features and vegetated areas, cannot be avoided, and these impacts are discussed in more detail below.

Through careful design and avoidance measures, the Applicant anticipates little impact to delineated wetlands or waterbodies within the Project Area. Detailed tables of anticipated wetland and waterbody impacts are provided in Appendix E of the Ecological Assessment. Less than 0.04 acre of wetland and 0.01 acre of stream will be temporarily impacted via access road and collection line installation, and less than 0.02 acre of wetlands and 0.1 acre of streams will be permanently impacted by the installation of access roads.

Permanent impacts to wetlands are associated with the access road crossings of three wetlands on the site. One wetland, identified as w001, will be crossed via low water crossing. Per the typical drawings provided in the Preliminary Facility Layout (Exhibit A), low water crossings will be installed to cross the channel as close to 90 degrees as possible. The access road will be at an elevation that allows water to flow through the channel unimpeded and without ponding upstream of the road or on the road surface. Armored surface treatment of the road will extend through the channel bottom and up to the channel side slope to the observed top of the bank of the channel.

The wetland identified as w103 is a 0.01-acre wetland, anticipated to be non-jurisdictional. Approximately 0.0021 acres of this wetland will be filled and compacted for construction of an access road. The wetland identified as w206 will be crossed via culvert.

Five streams will be crossed by access roads. Stream s006 will make use of an existing stream crossing. -Streams s107, s208, s213, and s216 will be crossed via culverts.

Culverts will be sized to accommodate flows of water during periods of high water. Culvert locations are shown on the Preliminary Facility Layout (Exhibit A). Culverts will be placed at proper elevation to accommodate the continued unimpeded flow of water through the stream feature. A typical drawing of a culvert crossing is provided in Exhibit A.

The remaining wetland and stream impacts are temporary and associated with workspace to accommodate installation of access roads and belowground collection lines. Collection lines are anticipated to be installed via open trench methods, with the exception of one location crossing a Class III stream that will utilize horizontal directional drilling (HDD). These methods are described further in 4906-4-03(B).

Temporary workspaces within wetlands and streams will be converted to pre-construction contours following construction completion. During the construction of access roads and collection lines, applicable state and federal wetland permit stipulations will be followed. Measures that may be taken to prevent adverse impacts to wetland resources are dependent on on-site conditions, but generally include BMPs such as silt fence to prevent sedimentation to the surrounding wetland resource, segregation of topsoil and subsoil, placement of construction matting to reduce rutting and compaction, and conversion of workspace to pre-construction contours following construction activities.

The extent of vegetation clearing is included in Section 7.2 of the Ecological Assessment. A Tree and Shrub Clearing Plan is included as Exhibit H 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.

(b) Description of Short-term and Long-term Mitigation Procedures

(i) Site restoration and stabilization of disturbed soils

Restoration activities are anticipated to include the following:

- Belowground collection lines will be restored to pre-construction contours as necessary and allowed to regenerate naturally;
- Disturbed soils within the Facility's fence line will be re-seeded with a low-growth, native seed mix to stabilize exposed soils and control sedimentation and erosion; and
- The laydown yards will be decompacted, topsoil redistributed, and reseeded with a low-growth, native seed mix to stabilize exposed soils and control sedimentation and erosion.

All removed material and demolition debris will be stockpiled in designated locations. Each stockpile will be transported off site to either a recycling center, when feasible, or to an approved landfill depending on the material type. Debris will be broken down into manageable sizes to aid in their transportation.

The objectives of reclamation and revegetation are to allow for the efficient establishment of vegetation on the site, and to ensure that the land can be reverted to pre-construction agricultural uses, per the wishes of the landowners. Segregation of topsoil and subsoil will occur throughout construction, and treatment of soil may be necessary to preserve approximate pre-construction capability.

(ii) Frac out contingency plan

It is anticipated that a Class III stream will be crossed by a belowground collection line. The belowground collection line will be installed via HDD method to avoid impacts to the sensitive resource. This stream is located south of Rolfe Road. The potential horizontal directional drilling location is shown on sheet C.315 of the Preliminary Facility Layout (Exhibit A). A frac out contingency plan is included as Exhibit G.

(iii) Methods to demarcate surface waters and wetlands during construction

As depicted on the Preliminary Facility Layout (Exhibit A), 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 procedures for 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.

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 name(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 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 upland PV array areas (both underneath and between arrays) and the other for hydric areas. Refer to the Vegetation Management Plan (Exhibit D) 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 Tree and Shrub Clearing Plan (Exhibit H), core woodlots have been identified for preservation

throughout the life of the Facility. These woodlots are depicted in Appendix A of Exhibit H and consist of approximately 179 acres.

(vi) Options for clearing methods and disposing of brush

Scattered trees and shrubs, as well as windrows, will 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 Tree and Shrub Clearing Plan (Exhibit H).

(vii) Avoidance measures for state or federally listed and protected species and their habitats

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 as Appendix B. Per agency guidance, tree clearing will be completed between October 1 and March 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) Operational Impacts

(a) Estimation of Impact of Operation 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 as identified in Section 4906-4-08(B)(1)(a).

(b) Procedures to Avoid/Minimize/Mitigate Short-term and Long-term Operational Impacts

Once operational, the Facility is not anticipated to result in additional ecological impacts. The Applicant has sited the Facility to avoid wetlands and streams to the maximum extent practicable, and no additional impacts to these resources are anticipated following construction.

The Applicant has identified approximately 179 acres of forests that will be preserved for the lifetime of the Facility, thereby reducing impacts from forest fragmentation and habitat loss. Vegetation management efforts such as hand weeding, mowing, and herbicide application will be required for continued maintenance of the Project Area. Mowing activities will occur regularly within the first three years, to discourage the establishment of invasive species. Such activities will be conducted with care, specifically during the nesting period for grassland birds (April 1 and August 1). If herbicide application is required, it will be applied by a licensed applicator. The Applicant is considering grazing as a form of natural vegetation management to restrict the spread of non-native species, prevention of access litter accumulation, improve for age production, and accelerate decomposition and nutrient cycling. Additional information on grazing and other vegetation management methods and impacts are provided in the Vegetation Management Plan provided in Exhibit D. Definitive plans for grazing as vegetation management have not been made and are contingent on a willing community partner, and the development of an amenable agreement between the Applicant and partner.

Direct impacts to wildlife from an operational solar facility in Ohio are low. Solar facilities do not have the same collision risk for avian and bat species as wind facilities due to their low-profile and lack of moving parts. Additionally, the diversity in landscape, vegetation, and topography within Ohio further limits the threat of collision for avian and bat species. Since no significant operational impacts to these resources are anticipated, no mitigation measures are proposed.

(c) Post-Construction Monitoring Plans

The Applicant has no plans for post-construction monitoring of wildlife impacts because no significant impacts from the construction or operation of the Facility are anticipated. The Facility does not include any large moving parts, and will not result in environmental discharges during operation that may impact wildlife and their habitat.

(C) Land Use and Community Development

(1) Land Use

(a) Land Use Map

Land uses within 1 mile of the Facility are shown on Figure 08-2. Among other information, Figure 08-2 shows the following features:

(i) The proposed Facility

The proposed Facility layout PV panels, collection lines, access roads, fenceline, substation, O&M building, laydown yards, and inverters.

(ii) Land use

Land use was mapped within a 1 mile radius of the Project Area. Most of the land use is agricultural, vacant agricultural, and residential (ReportAll, 2019).

(iii) Structures

Structures within a 1 mile radius of the Project Area primarily include mostly residences, one cemetery, three churches, and three museums. Structures were digitized via aerial imagery and confirmed during site visits and through existing databases and include residences and other buildings where people congregate for extended periods of time.

(iv) Incorporated areas and population centers

The only population center within 1 mile of the Project Area is the Village of Greenfield in Highland County.

(b) Structures Table

(i) Structures and Property Lines within 1,500 Feet of PV Panels

Distances between the PV panels and existing structures within 1,500 feet are shown in Table 08-1 below, which includes the distance to the nearest PV panel and the lease status of the underlying parcel (i.e., participating or non-participating). There are 60 structures within 1,500 feet of a PV panel.

Table 08-1. Structures Within 1,500 Feet of a PV Panel

Structure Type	Distance to PV Panel (Feet)	Lease Status of Underlying Parcel[1]
Residence	236.9	Participating
Residence	302.6	Participating
Residence	319.6	Non-Participating
Residence	329.0	Non-Participating
Residence	337.6	Participating
Residence	339.4	Non-Participating
Residence	352.8	Non-Participating
Residence	361.8	Non-Participating
Residence	363.8	Non-Participating
Residence	364.0	Non-Participating
Residence	379.2	Non-Participating
Residence	411.1	Participating
Residence	427.5	Non-Participating
Residence	464.6	Non-Participating
Residence	477.1	Non-Participating
Residence	490.2	Non-Participating
Residence	494.1	Non-Participating
Residence	508.8	Non-Participating
Residence	520.2	Non-Participating
Residence	523.4	Non-Participating
Residence	548.1	Non-Participating
Residence	548.5	Non-Participating
Residence	563.6	Participating
Residence	563.6	Non-Participating
Residence	568.5	Non-Participating
Residence	583.1	Non-Participating
Residence	605.7	Non-Participating
Residence	623.3	Non-Participating
Residence	648.5	Non-Participating
Residence	724.4	Non-Participating
Residence	765.8	Non-Participating
Residence	767.3	Non-Participating
Residence	777.1	Non-Participating
Residence	786.0	Non-Participating
Residence	867.1	Non-Participating
Residence	883.5	Non-Participating
Residence	920.3	Non-Participating
Residence	922.8	Participating
Residence	933.7	Non-Participating
Residence	935.7	Non-Participating
Residence	940.8	Non-Participating
Residence	950.3	Non-Participating

Structure Type	Distance to PV Panel (Feet)	Lease Status of Underlying Parcel[1]
Residence	971.3	Non-Participating
Residence	1,103.2	Non-Participating
Residence	1,129.2	Non-Participating
Residence	1,133.7	Non-Participating
Residence	1,146.4	Non-Participating
Residence	1,147.7	Non-Participating
Residence	1,151.7	Non-Participating
Residence	1,163.2	Non-Participating
Residence	1,189.5	Non-Participating
Residence	1,251.5	Non-Participating
Residence	1,257.6	Non-Participating
Residence	1,260.0	Non-Participating
Residence	1,262.8	Non-Participating
Residence	1,277.0	Non-Participating
Residence	1,314.8	Non-Participating
Residence	1,320.9	Non-Participating
Residence	1,359.4	Non-Participating
Residence	1,369.8	Non-Participating
Residence	1,375.7	Non-Participating
Residence	1,413.8	Non-Participating
Residence	1,427.0	Non-Participating
Residence	1,466.3	Non-Participating
Residence	1,495.1	Non-Participating

1. Parcels anticipated to be under a lease or easement agreement at the time of Facility construction are identified as participating parcels.

Distance between PV panels and property lines within 1,500 feet are shown in Table 08-2, which presents the distance to the nearest PV panel and the lease status of the parcel (i.e., participating or non-participating). There are 169 properties within 1,500 feet of a PV panel.

Table 08-2. Parcels Within 1,500 Feet of a PV Panel

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status
21211004000	0.0	Participating
21212030000	0.0	Participating
21212077000	0.0	Participating
21212079000	0.0	Participating
21212080000	0.0	Participating
21212090000	0.0	Participating

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status
201003080000	0.0	Participating
201004009000	0.0	Participating
201004010000	0.0	Participating
201004011000	0.0	Participating
201004012000	0.0	Participating
201004013000	0.0	Participating
21211090000	22.4	Non-Participating
21212089000	27.5	Participating
21212135000	54.9	Participating
21212149000	70.0	Non-Participating
201003043000	70.9	Non-Participating
21211074000	71.4	Non-Participating
21212034000	71.7	Non-Participating
21212093000	71.9	Non-Participating
21211109000	73.4	Non-Participating
21211059000	73.6	Non-Participating
21211065000	77.4	Non-Participating
21211082000	91.0	Non-Participating
201004059000	92.2	Non-Participating
201003042000	108.4	Non-Participating
21212075000	111.1	Non-Participating
21211008000	116.4	Non-Participating
21212025000	124.1	Participating
21212096000	125.8	Non-Participating
201003041000	132.6	Participating
201003074000	138.5	Non-Participating
21212147000	150.4	Non-Participating
21212094000	191.9	Non-Participating
21211054000	202.6	Non-Participating
21212074000	217.9	Non-Participating
21212078000	250.2	Non-Participating
21212036000	255.3	Non-Participating
21211081000	269.2	Non-Participating
21212127000	289.5	Non-Participating
21212129000	291.0	Non-Participating
21212118000	292.0	Non-Participating
21212121000	292.0	Non-Participating
21212134000	292.1	Non-Participating
201004015000	298.4	Participating
201004017000	298.8	Participating
201003035000	299.9	Non-Participating
21211096000	301.2	Non-Participating
201004066000	305.6	Non-Participating

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status
21211097000	306.0	Non-Participating
21211005600	307.4	Non-Participating
201004048000	310.2	Non-Participating
201003036000	310.7	Non-Participating
21211073000	311.8	Non-Participating
21212119000	312.1	Non-Participating
201004072000	314.1	Non-Participating
21211058000	314.2	Non-Participating
201004069000	314.8	Non-Participating
21211064000	314.8	Non-Participating
201004071000	315.2	Non-Participating
201004070000	315.3	Non-Participating
201004065000	315.6	Non-Participating
201004077000	326.2	Non-Participating
201004018000	341.4	Non-Participating
21212035000	342.8	Non-Participating
21212072000	345.3	Non-Participating
21212076000	345.3	Non-Participating
21211011000	347.1	Non-Participating
201004014000	358.8	Non-Participating
21212073000	371.1	Non-Participating
21212114000	371.6	Non-Participating
21212148000	373.5	Non-Participating
21211053000	378.1	Non-Participating
21211048000	457.1	Non-Participating
21212066000	461.0	Non-Participating
21212028000	470.4	Non-Participating
21211047000	507.4	Non-Participating
21212151000	529.5	Non-Participating
21211080000	529.9	Non-Participating
21212145000	556.2	Non-Participating
21212029000	564.0	Non-Participating
21211072000	582.5	Non-Participating
21211057000	584.8	Non-Participating
21211063000	585.0	Non-Participating
21211068000	585.5	Non-Participating
201004008000	623.5	Non-Participating
21212023000	624.6	Non-Participating
21211052000	629.2	Non-Participating
21211001000	669.1	Participating
21212027000	684.8	Non-Participating
21211046000	714.9	Non-Participating
201004067000	743.7	Non-Participating

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status
21212136000	746.4	Non-Participating
21211079000	747.6	Non-Participating
21211042000	767.7	Non-Participating
21212026000	795.0	Non-Participating
21211003600	798.5	Non-Participating
21211071000	803.1	Non-Participating
21211067000	805.3	Non-Participating
21211056000	805.4	Non-Participating
21211062000	805.5	Non-Participating
21211095000	838.4	Non-Participating
21211051000	842.9	Non-Participating
21211010000	859.3	Participating
21211041000	893.6	Non-Participating
21211045000	909.0	Non-Participating
21211030000	920.2	Non-Participating
21212128000	946.7	Non-Participating
21211031000	954.9	Non-Participating
201004068000	973.7	Non-Participating
21211107000	985.0	Non-Participating
21212146000	993.8	Non-Participating
21212063000	994.3	Non-Participating
21212115000	1,001.2	Non-Participating
21211078000	1,006.4	Non-Participating
21212021000	1,026.5	Non-Participating
21211076000	1,026.7	Non-Participating
201003037000	1,034.8	Non-Participating
201004063000	1,037.7	Non-Participating
21212024000	1,038.1	Non-Participating
21212137000	1,041.9	Non-Participating
21212132000	1,045.5	Non-Participating
21212065000	1,050.7	Non-Participating
201004075000	1,059.7	Non-Participating
21211070000	1,063.7	Non-Participating
21211061000	1,066.0	Non-Participating
21211055000	1,066.0	Non-Participating
21212032000	1,083.5	Non-Participating
21212064000	1,085.7	Non-Participating
21211050000	1,098.8	Non-Participating
21212122000	1,104.1	Non-Participating
21212062000	1,121.5	Non-Participating
21211044000	1,150.6	Non-Participating
21212061000	1,157.5	Non-Participating
21211106000	1,170.4	Non-Participating

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status
21211049000	1,171.6	Non-Participating
21211032000	1,175.1	Non-Participating
21212131000	1,190.7	Non-Participating
201004074000	1,216.3	Non-Participating
21211066000	1,217.4	Non-Participating
21211104000	1,233.0	Non-Participating
21211077000	1,241.0	Non-Participating
21211075000	1,257.7	Non-Participating
201004064000	1,266.2	Non-Participating
21212085000	1,271.1	Non-Participating
21211060000	1,278.8	Non-Participating
21211069000	1,283.4	Non-Participating
21211006000	1,318.5	Non-Participating
201004061000	1,321.1	Non-Participating
21212133000	1,321.8	Non-Participating
21211033000	1,330.4	Non-Participating
21211085000	1,332.4	Non-Participating
21212051000	1,340.8	Non-Participating
21211043000	1,346.3	Non-Participating
21212067000	1,368.7	Non-Participating
21212150000	1,369.7	Non-Participating
21212091000	1,373.8	Non-Participating
201004007000	1,374.1	Non-Participating
21212130000	1,392.0	Non-Participating
21212045600	1,393.3	Non-Participating
201004023000	1,395.3	Non-Participating
21212053000	1,408.5	Non-Participating
201004049000	1,430.7	Participating
21211012000	1,436.1	Non-Participating
21211088000	1,436.1	Non-Participating
21212046000	1,442.8	Non-Participating
21211102000	1,485.7	Non-Participating
21211084000	1,494.5	Non-Participating
21212069000	1,497.2	Non-Participating

1. Distances that equal zero represent parcels that contain PV panels.

(ii) Structures and Property Lines within 250 Feet of Facility Components

Distances between associated facilities and existing structures within 250 feet are shown in Table 08-3. There are two residences within 250 feet of access roads.

Table 08-3. Structures within 250 Feet of a Facility Component

Structure Type	Distance to Facility Component (Feet)	Facility Component	Lease Status of Underlying Parcel[1]
Residence	232.5	Access Road	Non-Participating
Residence	248.6	Access Road	Non-Participating

1. Parcels anticipated to be under a lease or easement agreement at the time of Facility construction are identified as participating parcels.

Distances between the Facility components and property lines within 250 feet are shown in Table 08-4, which presents the distance to the parcel boundary and the lease status of the parcel (i.e., participating or non-participating). There are 27 parcels within 250 feet of a Facility component. This total includes 16 parcels that are within 250 feet of multiple Facility components.

Table 08-4. Parcels Within 250 Feet of a Facility Component

Parcel ID	Distance[1]	Associated Facility Component	Lease Status
021212090000	0.0 105.1	Belowground Collection Line Access Road	Participating
021212079000	0.0 0.0 0.0 0.0 35.9 108.4	Belowground Collection Line Access Road Laydown Yard Inverter Access Road Laydown Yard	Participating
021212030000	0.0 0.0 0.0 0.0 0.0 114.6	Access Road Belowground Collection Line O&M building Facility Substation Inverter Access Road	Participating
021211004000	0.0 0.0	Access Road Access Road	Participating
021212077000	0.0 0.0 0.0 0.0	Access Road Belowground Collection Line Inverter Laydown Yard	Participating
201004009000	0.0 0.0 0.0	Access Road Belowground Collection Line Inverter	Participating
201004013000	0.0 0.0 0.0 36.7	Access Road Belowground Collection Line Inverter Access Road	Participating

Parcel ID	Distance[1]	Associated Facility Component	Lease Status
201004012000	0.0 0.0 0.0 81.3 134.5 226.9 230.5	Access Road Collection Line Inverter Access Road Access Road Belowground Collection Line Inverter	Participating
201004010000	0.0 0.0 0.0 27.9 29.3 31.5 27.9 118.9 147.6 178.9	Access Road Belowground Collection Line Inverter Access Road Access Road Access Road Access Road Laydown Yard Access Road Inverter	Participating
201003080000	0.0 0.0 0.0 0.0 31.4 32.1	Access Road Belowground Collection Line Laydown Yard Inverters Access Road Access Road	Participating
021212093000	24 52.0	Access Road Belowground Collection Line	Non-Participating
201003043000	30.1	Access Road	Non-Participating
021212034000	30.2 35.8 56.8 142.8 205.5	Access Road Access Road Belowground Collection Line Facility Substation O&M building	Non-Participating
201004066000	33.6	Access Road	Non-Participating
021211109000	45.6	Access Road	Non-Participating
021212145000	71.1 207.9 200.6	Access Road O&M Facility Substation	Non-Participating
201003043000	117	Access Road	Non-Participating
021212149000	160.3 183.8 190.5	Belowground Collection Line Access Road Laydown Yard	Non-Participating
021211096000	199.9	Access Road	Non-Participating
021211097000	199.2	Access Road	Non-Participating
021212078000	206.4 234.6	Access Road Belowground Collection Line	Non-Participating

Parcel ID	Distance[1]	Associated Facility Component	Lease Status
021212089000	227.8 235.1	Belowground Collection Line Access Road	Participating
021212036000	230.3	Access Road	Non-Participating
201004048000	233	Access Road	Non-Participating
201004011000	236.8	Access Road	Participating
201004017000	247.4	Access Road	Participating

1. Distances that equal zero represent parcels that contain associated Facility components.

(iii) Lease Status of Each Structure

The participation status for each structure and property within 1,500 feet of a PV panel and each structure and property within 250 feet of a Facility component is presented in the tables above.

(c) Land Use Impacts

Agricultural land is the primary land use directly impacted by the Facility, along with approximately 2 acres of residential land use impact, and less than 1 acre of commercial land use impact. As shown on Figure 08-2, some parcels were classified as "vacant" in the parcel data, but appear to have been in active agricultural use recently; therefore, those areas were assumed to be agricultural. For additional detail on agricultural land use impacts, see Section 4906-4-08(E).

Table 08-5 presents the total, temporary, and permanent land use impacts of the Facility. As the entire fenced area is anticipated to be unavailable to landowners, total land use impacts include the entire area within fenceline.

Table 08-5. Total Land Use Impacts

Facility Components	Temporary Impact[5] (Acres)	Permanent Impact (Acres)	Total Impact (Acres)
Agricultural			
Area Inside Fenceline[1]	0	923.0	923.0
Area Outside Fenceline	1.1	0.6	1.7
Access Roads[2]	0.2	0.3	0.5
Belowground Collection Lines[3]	0.9	0	0.9
Gen-tie Line[4]	0	0.3	0.3
Total Agricultural	**1.1**	**923.6**	**924.7**
Residential			
Area Inside Fenceline	0	2.0	2.0
Total Residential	**0**	**2.0**	**2.0**
Commercial			
Area Outside Fenceline	0	0.2	0.2
Gen-tie Line	0	0.2	0.2
Total Commercial	**0**	**0.2**	**0.2**
Total Land Use Impact	**1.1**	**925.8**	**926.9**

1. As the entire fenced area is anticipated to be unavailable to landowners, permanent land use impacts include the entire area within fenceline.
2. Access roads will have a temporary width of 25 feet, and a permanent width of 16 feet.
3. A temporary, 15 foot wide work area will be required for belowground collection line installation. In areas where collection lines and access roads overlap, the impact area of the access road was used in the calculations, because it represents the larger, permanent impact.
4. The gen-tie line will be located within a 50-foot wide ROW.
5. Temporary impact areas represent only the additional impact area during construction and do not include the permanent impact area. The temporary and permanent impact areas are added together in the total impact column.

Changes in land use are anticipated within the Project Area as a result of Facility operation, and no changes are predicted outside the Project Area. The long term maintenance within the fenced area, including the presence of the PV panels, substation, and other ancillary structures will result in the cumulative conversion of approximately 924 acres of land from agricultural use, 2 acres of land from residential use, and 0.2 acres of land from commercial use, which represents approximately 64% of the Project Area (approximately 1,433 acres).

Table 08-6 presents the total, temporary, and permanent land use impacts by Facility component. Facility components were overlain with parcel data, resulting in quantifiable impacts associated with each component. The impact areas or lengths for all Facility

components were aggregated into a spreadsheet, which was used to calculate temporary and permanent impact areas. For linear components such as access roads and collection lines, the appropriate impact widths, as described in the table footnotes, were multiplied by the lengths to create an area of impact. Finally, using the spreadsheet, the separate areas of impact for each Facility component were added together, resulting in the temporary, permanent, and total areas of impact associated with each component.

Table 08-6. Land Use Impacts by Facility Components

Facility Components	Temporary Impact[6] (Acres)	Permanent Impact (Acres)	Total Impact (Acres)
Agricultural			
Solar Arrays[1]	0.0	656.4	656.4
Access Roads[2]	13.3	23.8	37.1
Belowground Collection Lines[3]	11.3	0.0	11.3
Inverter Pads and Weather Stations[4]	0.0	2.4	2.4
Substation	0.0	2.8	2.8
O&M Building	0.0	1.4	1.4
Laydown Yards	6.2	0.0	6.2
Gen-tie Line[5]	0.0	0.4	0.4
Total Agricultural	**30.8**	**687.2**	**718.0**
Residential			
Solar Arrays	0.0	1.0	1.0
Belowground Collection Lines	0.1	0.0	0.1
Total Residential	**0.1**	**1.0**	**1.1**
Commercial			
Gen-tie Line	0.0	0.2	0.2
Total Commercial	**0.0**	**0.2**	**0.2**
Total Impact for Components	**30.9**	**688.4**	**719.3**

1. Permanent land use impacts from solar arrays include the entire area underneath and between the panels, because that area will be taken out of its current use for- the life of the Facility.
2. Access roads will have a temporary width of 25 feet, and a permanent width of 16 feet.
3. A temporary, 15 foot wide work area will be required for belowground collection line installation. In areas where collection lines and access roads overlap, the impact area of the access road was used in the calculations, because it represents the larger, permanent impact.
4. Includes 37 inverter pads each with an approximate area of 2,800 square feet, and nine weather stations each with an approximate area of 2 square feet.
5. The gen-tie line will be located within a 50-foot wide ROW.
6. Temporary impact areas represent only the additional impact area during construction and do not include the permanent impact area. The temporary and permanent impact areas are added together in the total impact column.

Construction impacts will be temporary in nature and confined to the properties of participating landowners. As described in Section 4906-4-08(E)(2)(b), the Applicant has developed construction specifications for construction activities occurring partially or wholly on privately owned agricultural land. These specifications, along with special siting considerations, will minimize impacts to agricultural land uses in the Project Area.

(d) Structures That Will Be Removed or Relocated

One residence and an associated shed, located on Rolfe Road, are proposed to be removed or relocated for construction of the Facility. The structures to be removed/relocated are indicated on the Preliminary Facility Layout (Exhibit A). The landowner has approved removal or relocation of these structures.

(2) Parcel Status Map

This requirement is not applicable to this Facility because the Facility is not a wind farm.

(3) Setback Waiver

This requirement is not applicable to this Facility because the Facility is not a wind farm.

(4) Land Use Plans

(a) Formally Adopted Plans for Future Use of Site and Surrounding Lands

Among the three counties (Ross, Highland, and Fayette), eight townships (Buckskin, Paint, Madison, Fairfield, Paint, Wayne, Paxton, and Perry), and two villages (South Salem and Greenfield) within the 5-mile study area, only one county has adopted a comprehensive plan. In 2016, Fayette County adopted the enVISION Fayette County Plan, a revised document of the 2006 Fayette County Comprehensive Land Use Strategy Plan.

Highland and Ross counties do not hold a comprehensive or land use plan. However, a 2019 Highland County Needs Assessment was prepared by the Highland County Community Action Organization, Inc. This needs assessment lists economic development and increased access to jobs as the county's top needs. In addition to this, the Ross County Planning Commission adopted the Ross County/City of Chillicothe Thoroughfare Plan Update (most recently amended in 2012); however, the plan goals and recommendations apply to areas within and surrounding the City of Chillicothe, well outside of the Study Area for this Facility.

(b) Applicant's Plans for Concurrent or Secondary Uses of the Site

Sheep grazing may be used concurrently with the Facility as a form of vegetation management; however, definitive plans for this concurrent use have not been made and are contingent on a willing community partner, and the development of an amenable agreement between the Applicant and partner. No other concurrent uses are anticipated in the Project

Area. For additional information on sheep grazing, see the Vegetation Management Plan provided as Exhibit D.

(c) Impact on Regional Development

The regional economy within 5 miles of the Project Area is shaped in large part by both the rural economy of the surrounding counties and the economy of the greater Columbus metropolitan region. As a primarily agricultural economy in proximity to one of the strongest manufacturing hubs in the U.S., this area has made substantial progress toward stabilization and growth as it emerges from the 2008 recession. The regional context of the Facility, including discussion of the significant revenue increases to the local tax base (schools and public services), positive benefits to the regional economy via increased local spending and investment, and minimal adverse impacts to housing demand is discussed in further detail in the Socioeconomic Report provided as Exhibit K. The need for public services to serve the Facility is minimal, only minor impacts to area roadways are anticipated, and impacts the regional transportation system are negligible (Exhibit M).

(d) Regional Plan Compatibility

As discussed in Section 4906-4-08(C)(3)(a), only one county (Fayette) within 5 miles of the Project Area has adopted a comprehensive land use plan. In addition, the 2019 Highland County Needs Assessment was also reviewed. The Facility is compatible with the 2016 enVISION Fayette County Plan because the plan's stated goals include promoting growth and economic development through environmentally sustainable practices. The Facility is also compatible with the recommendations stated in the Highland County Needs Assessment, as it is expected to benefit the local economy and provide job opportunities for surrounding communities, while providing agricultural viability and natural resource protection.

(e) Current and Projected Population Data

Population estimates and projections are included in Table 08-7 below. Regionally, the area is slightly growing. At a local level, most townships and villages within five miles of the Project Area have experienced population decline, except for Buckskin Township, Paint Township (Highland County), Perry Township, and the Village of South Salem. The population trends experienced by each community from 2000 to 2018 are expected to continue regardless of Facility construction.

Table 08-7. Population of Jurisdictions within 5 Miles

Jurisdiction within a 5-Mile Radius of Facility	2000 Population	2018 Population	Annual Growth Rate (2000-2018)	Projected 2030 Population	Projected Total Growth (2018-2030)	2018 Population Density (people per square mile)
Fayette County	28,433	28,625	0.0%	28,754	0.5%	70
Highland County	40,875	43,007	0.3%	44,527	3.5%	77
Ross County	73,345	77,051	0.3%	79,687	3.4%	111
Buckskin Township	1,040	2,444	7.5%	5,821	138.2%	49
Madison Township	6,922	6,630	-0.2%	6,446	-2.8%	191
Paint Township (Highland County)	4,112	4,532	0.6%	4,850	7.0%	78
Paint Township (Ross County)	1,169	1,012	-0.7%	925	-8.6%	28
Paxton Township	2,165	2,078	-0.2%	2,023	-2.6%	66
Perry Township	945	1,758	4.8%	3,078	75.1%	61
Village of Greenfield	4,906	4,597	-0.3%	4,408	-4.1%	2,394
Village of South Salem	213	278	1.7%	340	22.4%	1,463
Wayne Township	1,367	908	-1.9%	724	-20.2%	20

Source: U.S. Census Bureau Decennial Census (2000), ACS 5-Year Estimates (2014 – 2018), population projections based on respective 2000-2018 growth rates.

Although employment related to the construction of the Facility will be substantial, this employment is relatively short term and is not expected to result in the permanent relocation of construction workers to the area; therefore, the Facility is not anticipated to generate significant population growth within the study area. The number of potential short and long term employment opportunities associated with the construction and operation of the Facility is discussed in Section 4906-4-06 and in the Socioeconomic Report (Exhibit K).

(D) Cultural and Archaeological Resources

Cardno conducted a Phase I History Architecture Reconnaissance Survey, provided in Exhibit T, within a 0.5 mile study area for the majority of the Project Area, with the northeastern corner of the Project extended to a 1.6 to 2.5 mile study area, deemed the area of potential effect, on July 9 and 10 and August 17, 2020. Prior to the field survey, per Ohio Historic Preservation Office (OHPO) guidance, a review of existing cultural resource databases was conducted within a 2 mile study area, and extended to include areas past 2 miles that were deemed to be within the area of potential effect (APE). The Applicant requested a partial waiver of paragraphs (2-4) of this rule, to reduce the study area for the evaluation of impacts to cultural resources down to 2 miles, and the visual impact study area to 5 miles, due to the reduced visual impact of solar facilities in comparison to wind turbines or other tall facilities.

Within the 2 mile study area, the following resources were identified: four NRHP-listed resources, including one archaeological site; 34 Ohio Historic Inventory (OHI) structures (3 NRHP-listed, 19 NRHP-eligible, and 7 potentially NRHP district eligible); 10 Ohio Genealogical Society cemeteries; and numerous houses within the APE and Project Area depicted on the Illustrated Atlas of Ross County Ohio (1875), Greenfield, Ohio USGS 15 Foot Topographic map (1917 and 1944), and 7.5 Foot South Salem Topographic Map (1961). No national historic landmarks were identified within the 2 mile study area.

During the Phase I History Architecture Reconnaissance Survey, Cardno documented 83 properties over 50 years old within the area of potential effect. These properties are primarily buildings and building complexes (e.g., farmsteads), but also includes other sites and structures such as remains of historic bridges and a cemetery. These properties were then evaluated to determine potential eligibility for listing in the NRHP. Of the 83 properties or structures, seven are determined to be potentially eligible for listing in the NRHP due to their significance regarding architecture, transportation, or engineering. These seven resources have been documented on OHI forms and provided in Appendix C of the Phase I History Architecture Reconnaissance Survey. No direct impacts to these resources are anticipated, and visual impacts are the only potential impact. Based on the viewshed analysis prepared for this Project, four of the potentially eligible resources may have at least a partial view of the Facility.

The Phase I History Architecture Reconnaissance Survey was submitted to the OHPO for review on September 9, 2020. Concurrence of the results was received on October 14, 2020.

Cardno completed a Phase I Archaeological Reconnaissance for the Project Area in June and July of 2020. Due to the sensitive nature of archaeological resources, the study has been filed under seal as Exhibit U. A literature review was completed to identify previously recorded resources, which revealed 10 archaeological sites, three cemeteries, three previous cultural resource investigations, and one NRHP-listed archaeological site located within 1 mile of the Project Area. Following the literature review, a field survey of the Project Area was completed, using methods consistent with OHPO guidelines and consultations. Additional detail on survey methods can be found in the Phase I Archaeological Reconnaissance Survey.

According to the study, and after additional consultation with the OHPO, seven resources were identified within the Project Area that should be avoided, or otherwise would require additional

archaeological work. Ross County Solar has agreed to neither construct or place infrastructure for the portion of the Project Area located west of Rapid Forge Road to avoid sensitive resources. Vegetative screening was proposed and accepted by the OHPO to minimize visual effects to one of these resources. Additionally, at the OHPO's request, Ross County Solar will apply a 50-foot avoidance buffer for sites 33RO1641 (southern portion), 33RO1654, and 33RO1667. Ross County Solar will avoid these resources during construction and operation of the Facility. The Phase I Archaeological Reconnaissance was submitted to the OHPO on September 9, 2020, and following additional correspondence, concurrence of the results was received on October 23, 2020.

Concurrence of the results has been received from the OHPO for both reports, and is included in Exhibit T and Exhibit U. Prior to construction, the Applicant will work with the OHPO to agree on appropriate mitigation for the construction of the Facility. The process used to reach this decision and the mitigation will be memorialized in a Memorandum of Understanding with the OHPO.

(1) Landmarks of Cultural Significance Map

Figure 08-3 depicts formally adopted land and water recreation areas, recreational trails, scenic routes or byways, and registered landmarks of historic, religious, archaeological, scenic, natural, or other culturally significant resources within 10 miles of the Project Area.

(2) Impact to Landmarks and Mitigation Plans

The Applicant requested a partial waiver of this paragraph, to reduce the study area for the evaluation of impacts to cultural resources down to 2 miles. However, the study area was extended beyond 2 miles in areas that were deemed to be within the APE. Impacts to historic architectural and archaeological resources are summarized in paragraph (D) above, and detailed in Exhibit T and Exhibit U. No direct impacts are anticipated, as all identified resources will be avoided. Based on the viewshed analysis prepared for this Project, four of the potentially eligible architectural resources may have at least a partial view of the Facility. The Applicant continues to coordinate with the OHPO on recommended mitigation measures. Mitigation measures will be provided to the OPSB Staff once accepted by the OHPO and prior to construction. Impacts to recreational and scenic resources are discussed in paragraphs (3) and (4) below and in the Visual Resource Assessment and Mitigation Plan (Exhibit V).

(3) Impact to Recreational Areas and Mitigation Plans

The Applicant requested a partial waiver of this paragraph, to reduce the study area for the evaluation of impacts to recreation and scenic areas down to 5 miles. Existing scenic and recreational areas within a 10 mile radius of the Project Area are depicted on Figure 08-3, and those resources within 5 miles are listed in Table 08-8 below. A description of each resource and anticipated impacts follows the table. Recreational areas were identified using the following resources: ODNR, ODOT, Esri Topographic Map, Ohio Statewide Imagery Program, and local municipal websites. Additional details on visual impacts to these resources within 5 miles of the Project Area is included in Exhibit V.

Table 08-8. Scenic and Recreational Areas within 5 Miles

Recreational Area	Location	Distance from Project Area (Miles)
Paint Creek Lake Wildlife Area	Buckskin and Paint townships, Ross County; Madison, Fairfield, and Paint townships, Highland County	Adjacent to the Project Area
Mitchell Park	Village of Greenfield, Highland County	0.9
Paint Creek State Park	Paint townships, Highland County and Ross County	1.2
Wildlife Production Area 48	Buckskin Township, Ross County	1.4
Paint Creek Recreation Trail	Village of Greenfield, Highland County	1.5
Christian Union Campgrounds	Village of Greenfield, Highland County	1.8
Paint Creek, Main Branch Canoe Launch (3 total)	Madison Township, Highland County Perry Township, Fayette County Wayne Township, Fayette County	0.6 2.6 4.7
Paint Creek State Park Canoe Launch (3 total)	Paint Township, Ross County Paint Township, Highland County Paint Township, Highland County	2.8 3.4 3.9
Paint Creek State Park Boat Ramp (3 total)	Paint Township, Ross County Paint Township, Highland County Paint Township, Highland County	2.9 3.2 3.9
Paint Creek State Park Fishing Access (5 total)	Paint Township, Ross County Paint Township, Ross County Paint Township, Highland County Paint Township, Ross County Paint Township, Highland County	2.9 2.9 3.4 3.5 3.7
Lake Scenic Overlook	Paint Township, Highland County	3.7
Paint Creek State Park Courtesy Boat Dock and Boat Swim Area	Paint Township, Highland County Paint Township, Highland County	4.0 4.4
Highlands Nature Sanctuary and Canoe Launch	Paint Township, Highland County	4.8

Paint Creek Lake Wildlife Area is located adjacent to the west side of the Project Area. The Wildlife Area is popular for hunting and fishing, and includes several boat ramps, an overlook, a playground, and picnic areas. Based on the viewshed analysis results, the Project Area is anticipated to be visible from some areas along the edge of the Wildlife Area. However, visibility within the heavily used areas of the Wildlife Area are minimal and visibility is only anticipated along a small portion of the Wildlife Area boundary.

Michell Park is a local park located in Greenfield, approximately 0.9 mile to the northwest of the Project Area. According to the viewshed analysis results, visibility within the park towards the Project Area is limited due to existing vegetation and structures.

Paint Creek State Park is located approximately 1.2 miles south of the Project Area. The park offers campgrounds, trails, fishing, hunting, boating, swimming, picnicking, disc golf, and other recreational opportunities to visitors and nearby residents. Based on the viewshed analysis, visibility of the Facility from Paint Creek State Park is not anticipated.

Wildlife Production Area 48 is 1.4 miles north of the Project Area, in Buckskin Township, Ross County. Wildlife Production Areas are managed by the ODNR to facilitate hunting and trapping activities. According to the viewshed analysis results, visibility to the project area is limited to areas with a higher elevation within the Wildlife Production Area and will largely be obscured by vegetation.

Paint Creek Recreation Trail, also known as Tri-County Triangle Trail, is located in the Village of Greenfield, Highland County, 1.5 miles west of the Project Area. Paint Creek Recreation Trail consists of more than 32 miles of public, multi-use trail connecting the City of Chillicothe, the Village of Frankfort, and the City of Washington Court House, with a small, disconnected segment within the Village of Greenfield. The Facility is not anticipated to be visible from this trail.

The Christian Union Campgrounds is located in Greenfield, approximately 1.8 miles northwest of the Project Area. Based on aerial imagery, the site holds a children's playground and a shelter structure. According to the viewshed analysis, extremely limited views of the Facility from the Christian Union Campground are anticipated.

There are three canoe launches documented by the ODNR along Paint Creek, which are located at 0.6, 2.6, and 4.7 miles north of the Project Area. In addition, three canoe launch sites are available at Paint Creek State Park, located 2.8 miles southwest, 3.4 miles south, and 3.9 miles south of the Project Area. Based on the viewshed analysis, visibility of the Facility from these locations is not anticipated.

Data obtained from the ODNR shows three boat ramps available at Paint Creek State Park, located 2.9 miles southwest, 3.2 miles southwest, and 3.9 miles south of the Project Area. These three

launch ramps provide boat access to the lake. Based on the viewshed analysis, visibility of the Facility from these locations is not anticipated.

Five Paint Creek State Park fishing access points in Ross and Highland counties are found to be at 2.9 miles, 2.9 miles, 3.5 miles, and 3.7 miles southwest; and 3.4 miles south of the Project Area. Based on the viewshed analysis, visibility of the Facility from these locations is not anticipated.

The Lake Scenic Overlook is located in Paint Township, Highland County at 3.7 miles southwest of the Project Area. Based on the viewshed analysis, visibility of the Facility from this location is not anticipated.

Paint Creek State Park Courtesy Boat Dock and Boat Swim Area are located in Paint Township, Highland County, and are situated at 4.0 and 4.4 miles, respectively, south of the Project Area. Based on the viewshed analysis, visibility of the Facility from these locations is not anticipated.

The Highlands Nature Sanctuary is located primarily in Paint Township, Highland County, about 4.8 miles south of the Project Area. One canoe launch is documented by the ODNR in the Highlands Nature Sanctuary, on Rocky Fork Creek. According to the viewshed analysis, visibility of the Facility is not anticipated.

(4) Visual Impact

EDR prepared a Visual Resource Assessment (VRA) for the proposed Facility (Exhibit V). EDR staff who contributed to the report include licensed landscape architects, GIS professionals, and environmental specialists with experience preparing visual resource assessments, including several for applications to the OPSB. OAC 4906-4-08(D)(4) requires that visual impacts to recreational, scenic, and historic resources be evaluated within a 10 mile radius. However, based on the low profile of the proposed equipment, and the results of the visibility analysis presented herein, it was determined that 10 miles would be an excessive study area for this Facility. To define an appropriately sized visual study area (VSA), a viewshed analysis was conducted to better understand the Facility's area of potential effect. This viewshed analysis indicates that only limited corridors of potential Facility visibility extend out to 5 miles from the Facility (see Figures 2.1 and 2.3 of the VRA report), with only pockets of visibility extending beyond 1.5 miles from the Facility. As such, the Applicant requested a partial waiver of this paragraph, to reduce the study area for the evaluation of visual impacts down to 5 miles.

Potential Facility visibility will be concentrated primarily within 0.5 mile of the proposed Facility components. The VSA encompasses approximately 116.1 square miles, including portions of Buckskin, Paint and Paxton townships in Ross County; Madison, Paint, and Fairfield townships in Highland County; and Perry and Wayne townships in Fayette County.

(a) Project Visibility and Viewshed Analysis

The viewshed analysis conducted for the Facility incorporated screening effects of topography, structures, and vegetation by using lidar data for Ross, Highland, and Fayette counties. A digital surface model (DSM) of the VSA was created from the lidar data, which included the elevations of buildings, trees, and other objects large enough to be resolved by lidar technology. DSM elevation values were set to bare earth elevations for all electric transmission line corridors and all areas within 50 feet of road centerlines. This was necessary because elevated electric lines appear as solid walls in the lidar data. Additionally, all areas within the PV array fenceline were cleared of any vegetation to reflect the bare-earth elevation in these locations. From the DSM, a viewshed analysis was conducted for the PV panels and the substation.

Based on the results of the viewshed analysis, PV panels will be screened from approximately 88.7% of the VSA by intervening landforms, vegetation, and structures. Similarly, the substation will be screened from approximately 89.8% of the of the VSA. Visibility will be concentrated primarily within the Project Area, and within the open fields immediately adjacent. The viewshed analysis also suggests that panel visibility is highest within 0.5 mile of the Project Area and diminishes between 0.5 and 1.5 miles. Beyond 1.5 miles only limited areas of potential visibility exist. Additional information on methods and results of the viewshed analysis is provided in the VRA (see Exhibit W).

(b) Description of Scenic Quality of Existing Landscape

Landscape types within the VSA were categorized based on the similarity of various features, including landform, vegetation, water, and/or land use patterns, in accordance with established visual assessment methodologies. Pasture/cropland is the dominant landscape within the VSA (54.0%) and comprises most of the area that will host Facility components. Given the fact that agricultural land in this region typically offers the greatest potential for long distance views, this landscape type is likely to have the greatest opportunities for views

of the Facility. Forest landscape is the second most predominate landscape, comprising approximately 36.6% of the VSA. Views of the Facility will be limited within forest land due to the presence of dense vegetation. Developed land comprises 5.6% of the VSA and includes the villages of Greenfield and South Salem, both of which have limited outward views due to the presence of closely situated buildings, utility poles, and other visual clutter. Wetlands and open water landscapes comprise 1.8% of the VSA, primarily concentrated in the southern portion of the VSA, associated with Paint Creek Lake, where long distance views are limited due to the presence of tree-lined banks and adjacent forested areas. Grassland/shrubland landscapes are also a small component of the VSA, occupying approximately 2.0% of the VSA.

In addition to these landscape types, the VRA reviewed visually sensitive resources within the VSA, including historic properties, scenic resources, public lands, recreational resources, and high use public areas. Additional information on these visually sensitive resources is included in paragraph (d) below and in the VRA.

(c) Landscape Alterations and Impact on Scenic Quality of the Landscape

Construction and operation of the proposed Facility will result in the alteration of existing landscape through the introduction of low-profile PV panels. While not totally out of place in a working production landscape, the presence of the Facility will change the perceived land use focus in areas of high visibility from agriculture to solar energy production. However, the visibility and visual impact of the Facility will be highly variable, based on landscape setting, the extent of natural screening, the presence of other man-made features in the view, and the distance of the viewer from the Facility. When in close proximity to the viewer, a notable change includes the blocking of more distant landscape features by PV panels, thereby reducing the sense of openness in the existing view. As distance increases from the PV panels, the panels become more difficult to perceive, and begin to appear as thin grayish tan horizontal lines. For additional details on landscape alterations and impacts, see Exhibit V.

(d) Visual Impacts to Landmarks of Cultural Significance

A total of 140 visually sensitive resources were identified within the VSA, including 101 properties of historic significance, 1 designated scenic resource, 27 public lands and recreational resources, and 11 high-use public areas. Figure 1.5 in the VRA shows the location of visually sensitive resources relative to the Project Area. Of the 140 resources identified

within the VSA, 31 have the potential for Facility visibility. Additional information on visually sensitive resources is provided as Appendix E in the VRA (Exhibit V), which includes a list of all identified resources, their distance from the Facility, and estimated visibility of the Facility from the identified resource. See paragraph 4906-4-08(D)(2) for potential visual impacts to architectural resources identified in the Phase I History Architecture Reconnaissance Survey (Exhibit T).

(e) Photographic Simulations

To illustrate anticipated visual changes associated with the proposed Facility, photographic simulations of the Facility were developed from four selected viewpoints. These simulations allow the viewer to better evaluate visibility, appearance, and contrast with the existing landscape, with and without vegetative mitigation. The visual simulations are discussed in detail in the VRA (Exhibit V), in Section 2.2 and Appendix D. Viewpoint locations were selected to show representative views of the Facility from public vantage points near the Project Area.

(f) Impact Minimization Measures

Project Area Location and Facility Layout

The proposed Facility is located in a rural, sparsely populated area. To further reduce impacts from those living in the area, the Applicant designed the Facility to account for setbacks to the PV panels from non-participating sensitive receptors (300 feet), centerlines of public roads (50 feet), and non-participating property boundaries (50 feet).

Lighting

A Lighting Plan is included as Exhibit F to this Application. Lighting during construction is anticipated to be minimal, with construction hours generally limited to 7:00 AM to 7:00 PM, or until dusk when the sun sets after 7:00 PM. Construction equipment will have lighting necessary for safe operation, and active work sites will be illuminated with portable lighting equipment. Security lighting will be oriented toward the interior of the Facility, when practicable. During operation of the Facility, lighting will be necessary for security purposes and for meeting various electric codes and standards. Lighting at the substation will be downward facing and active throughout nighttime hours. Downward facing, motion-activated lighting will be used at Facility entrances, the O&M building, and inverters.

Visual Screening

The introduction of screening will lessen the visual impact of the Facility. Native vegetation will be used to blend the Facility into the existing landscape, and this selection of material aids in the creation of ecological habitat. Visual screening introduces natural, vertical elements that break up the horizontal lines created by the PV arrays and fence line. This helps the Facility blend into the background vegetation rather than stand out as a foreground element. For additional information on visual screening, see the visual simulations (Section 2.2 and Appendix D), and the Landscape Mitigation Plan in Appendix C of the VRA (Exhibit V).

Facility Materials and Coloration

PV modules use non-reflective glass and are designed to absorb the light that hits the panels, reducing potential for glare. The fencing for the Facility will be made of welded wire mesh supported on wooden posts, a form of fencing more traditionally utilized in agricultural settings. Relative to chain link fence, this fencing will help the Facility blend into the agricultural landscape of the area. The racking system for the panels allows panel rows to follow some variation in topography, limiting the landscape alteration needed for installation.

(E) Agricultural Land

(1) Agricultural Land and Agricultural District Land Map

Agricultural districts and crop cover are shown on Figure 08-4. Information on agricultural districts and Current Agricultural Use Value (CAUV) parcels was obtained from the Ross County auditor's offices in June of 2020. All of the agricultural parcels within the Project Area are in the CAUV program, and therefore are not depicted as such in Figure 08-4. Additionally, in order to see the crop cover below the PV panels, the panels are not depicted on Figure 08-4. However, the fenceline is included, and is approximately representative of the agricultural area that will be covered by PV panels.

(2) Potential Impacts and Proposed Mitigation

(a) Acreage Impacted

Table 08-9 provides total impacts to agricultural land uses based on the fenced area of the Project, which is anticipated to be unavailable for use by the landowner. Impacts of the small segments of Facility components that are proposed to be located outside of the fenceline

were calculated separately and added to the total. Agricultural land use data was derived from land use codes included in parcel data.

All agricultural parcels in the Project Area are enrolled in the CAUV program, so impacts to CAUV parcels will be identical to impacts provided in Table 08-9. No Facility components are located in agricultural districts; therefore, there will be no impacts to agricultural districts from the construction or operation of the Facility.

Table 08-9. Total Agricultural Land Use Impacts

Agricultural Land Use	Temporary Disturbance (Acres)[5]	Permanent Loss (Acres)	Total Disturbance (Acres)
Agricultural Vacant (100)			
Area Inside Fenceline[1]	0	316.7	316.7
Area Outside Fenceline	0.9	0.3	1.2
Access Roads[2]	0.1	0.1	0.2
Belowground Collection Lines[3]	0.8	0.0	0.8
Gen-tie Line[4]	0.0	0.2	0.2
Total Agricultural Vacant (100)	0.9	317.0	317.9
Cash Grain or General Farm (101)			
Area Inside Fenceline	0	606.3	606.3
Area Outside Fenceline	0.2	0.3	0.5
Belowground Collection Lines	0.1	0.0	0.1
Access Roads	0.1	0.2	0.3
Gen-tie Line	0.0	0.1	0.1
Total Cash Grain or General Farm (101)	0.2	606.6	606.8
Total Agricultural Land Use Impact	**1.1**	**923.6**	**924.7**

1. As the entire fenced area is anticipated to be unavailable to landowners, permanent land use impacts include the entire area within fenceline.
2. Access roads will have a temporary width of 25 feet, and a permanent width of 16 feet.
3. A temporary, 15 foot wide work area will be required for belowground collection line installation. In areas where collection lines and access roads overlap, the impact area of the access road was used in the calculations, because it represents the larger, permanent impact.
4. Temporary impact areas represent only the additional impact area during construction and do not include the permanent impact area. The temporary and permanent impact areas are added together in the total impact column.
5. The gen-tie line will be located within a 50-foot wide ROW.

Table 08-10 presents agricultural land use impacts by Facility components.

Table 08-10. Agricultural Land Use Impacts by Facility Components

Agricultural Land Use	Temporary Disturbance (Acres)[6]	Permanent Loss (Acres)	Total Disturbance (Acres)
Agricultural Vacant (100)			
Solar Arrays[1]	0.0	228.0	228.0
Access Roads[2]	5.2	9.5	14.7
Belowground Collection Lines[3]	5.3	0.0	5.3
Inverter Pads and Weather Stations[4]	0.0	1.1	1.1
Laydown Yards	3.6	0.0	3.6
Gen-tie Line[5]	0.0	0.2	0.2
Total Agricultural Vacant (100)	14.1	238.8	252.9
Cash Grain or General Farm (101)			
Solar Arrays	0.0	428.3	428.3
Access Roads	8.0	14.4	22.4
Belowground Collection Lines	6.1	0.0	6.1
Inverter Pads and Weather Stations	0.0	1.3	1.3
Substation	0.0	2.8	2.8
O&M Building	0.0	1.4	1.4
Laydown Yards	2.6	0.0	2.6
Gen-tie Line	0.0	0.1	0.1
Total Cash Grain or General Farm (101)	16.7	448.3	465.0
Total Impact for Components	**30.8**	**687.1**	**717.9**

1. Permanent land use impacts from solar arrays include the entire area underneath and between the panels, because that area will be taken out of its current use for- the life of the Facility.
2. Access roads will have a temporary width of 25 feet, and a permanent width of 16 feet.
3. A temporary, 15 foot wide work area will be required for belowground collection line installation. In areas where collection lines and access roads overlap, the impact area of the access road was used in the calculations, because it represents the larger, permanent impact.
4. Includes 37 inverter pads each with an approximate area of 2,800 square feet, and nine weather stations each with an approximate area of 2 square feet.
5. The gen-tie line be located in a 50-foot wide ROW.
6. Temporary impact areas represent only the additional impact area during construction and do not include the permanent impact area. The temporary and permanent impact areas are added together in the total impact column.

(b) Impacts on Agricultural Facilities and Practices

(i) Field operations

The Facility will occupy approximately 924 acres of agricultural land, taking it out of use for the life of the Facility. Therefore, plowing, planting, cultivating, spraying, aerial applications, and harvesting will be halted on the land occupied by the Facility for its lifetime. Once the Facility has reached the end of its useful life, Facility components will

be removed, and the underlying Project Area will be restored for potential agricultural use.

(ii) Irrigation

Potential interference to irrigation systems on non-participating parcels is not anticipated. Irrigation systems on participating parcels will be identified via coordination with participating landowners prior to construction.

(iii) Field drainage systems

Construction of the Facility could result in impacts to drain tile systems in the Project Area. The Applicant coordinated with the following stakeholders to identify and assess drain tiles within the Project Area: Ross County, Ross County Soil and Water Conservation District, and participating landowners. This data has been aggregated and is available for reference in the Drain Tile Mitigation Plan (Exhibit E). Some impacts to drain tile likely cannot be avoided, and additional mitigation measures are outlined in Exhibit E.

Overland drainage in the form of ditches or swales within the Project area is not anticipated to be significantly altered. Minimal grading is anticipated, and the Facility will follow existing contours to the extent practicable. Post construction stormwater controls will be implemented per Ohio EPA Permit No. OHC000005. It is anticipated that these controls will include the use of ditches or swales adjacent to Facility access roads. As noted previously, a Hydrology Study (Exhibit R) was completed for the Project Area, and no major drainage concerns in the form of flooding, ponding, or scour were noted within the Project Area.

(iv) Structures used for agricultural operations

No impacts to agricultural structures are anticipated.

(v) Viability as agricultural district land

Figure 08-4 depicts parcels within the Project Area that are enrolled in the agricultural district program. Though agricultural districts are located within the Project Area, no Facility components are proposed to be located on those parcels. Therefore, no impacts to agricultural district land are anticipated.

(c) Proposed Mitigation Procedures

(i) Avoidance/minimization of damage to field tile drainage systems

Per the Drain Tile Mitigation Plan (Exhibit E), drain tiles will be avoided to the maximum extent practicable, and any known tiles will be illustrated on final construction drawings and mains will be flagged in the field. Unavoidable damage to drain tile may occur during construction of the Facility. Additional details regarding assessment and repair of damaged tile is identified below.

(ii) Timely repair of damaged field tile systems

The Drain Tile Mitigation Plan identifies the procedures for assessing damaged drain tile for repair. The plan ensures that no adverse impacts to drain tile systems extend outside of the Project Area. If it is determined that a drain tile main was impacted, or if there is uncertainty regarding the impacted tile extending outside of the Project Area, repairs will be implemented to ensure the integrity of the greater drainage system. Lateral drain tile lines that are damaged and contained within the Project Area may not be repaired depending on the need to replace the lateral drain tile lines and subject to individual landowner agreements previously negotiated during the leasing process. Repairs will be completed by a qualified contractor within 30 days of the discovery of damage, unless otherwise agreed to by the landowner. Additional information regarding repairs and repair specifications to tiles is provided in the Drain Tile Mitigation Plan (Exhibit E).

(iii) Topsoil segregation, decompaction, and restoration

The Applicant will take care to ensure that topsoil and subsoil are appropriately segregated throughout the site. Topsoil segregation ensures that vegetation can quickly establish following construction, and so that agricultural production can commence following Facility decommissioning. Topsoil that is displaced for laydown yards, workspaces, grading, or access roads will be stockpiled separately so that it can be redistributed prior to final stabilization. Similarly, topsoil and subsoil will be segregated and subsequently backfilled during the installation of belowground collection lines. Excess materials, such as rock utilized for entrance pads, will be removed following construction. Upon removal, soil will be decompacted, regraded, and stabilized with a native, low-growth seed mix.

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