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July 30, 2020

Via Electronic Filing

Ms. Tanowa Troupe
Administration/Docketing
Ohio Power Siting Board
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3793

Re: Arche Energy Project, LLC, Case No 20-979-EL-BGN

Dear Ms. Troupe:

Enclosed for filing in the above-referenced case is a copy of the Application of Arche Energy Project LLC ("Arche Energy") for a Certificate of Environmental Compatibility and Public Need to develop, construct, and operate a 107 megawatt ("MW") solar-powered electric facility in Gorham Township, Fulton County, Ohio.

Name of Applicant: Arche Energy Project, LLC
whose authorized representative is
Cliff Scher
Senior Director, Development
7X Energy, Inc.
3809 Juniper Trace Suite 100
Austin, TX 78738

Name/Location of Proposed Facility: Arche Energy Project, LLC
107 MW Solar-Powered Electric Facility
Gorham Township, Fulton County, Ohio

Authorized Representative Technical: Cliff Scher
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Since the pre-application notification letter was filed, there have been no revisions that appear in the application.

Notarized Statement: See Attached Affidavit of Scott Pryor, on behalf of Arche Energy Project, LLC

Sincerely on behalf of
ARCHE ENERGY PROJECT, LLC

Dylan F. Borchers

Enclosure

BEFORE
THE OHIO POWER SITING BOARD

In the Matter of the Application of **ARCHE ENERGY PROJECT LLC** for a Certificate of Environmental Compatibility and Public Need to Develop, Construct, and Operate a 107 MW Solar-Powered Electric Facility in Gorham Township, Fulton County, Ohio.	))))))	Case No. 20-979-EL-BGN

AFFIDAVIT OF SCOTT PRYOR OF 7X ENERGY, INC.

STATE OF TEXAS :
: ss.
COUNTY OF TRAVIS :

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

1. I am the Chief Development Officer of 7X Energy, Inc. ("7X Energy") which indirectly owns 100% of the membership interests of Arche Energy Project LLC ("Arche Energy").

2. Arche Energy's Application to the Ohio Power Siting Board for a Certificate of Environmental Compatibility and Public Need to develop, construct, and operate a 107 MW solar-powered electric facility was prepared and reviewed by 7X Energy employees that are the primary individuals in charge of the development of Arche Energy on whom I reasonably rely as 7X Energy subject matter experts.

3. To the best of my knowledge, information, and belief, the information and materials contained in the above-referenced Application are true and accurate.

4. To the best of my knowledge, information, and belief, the above-referenced Application is complete.

Scott Pryor
Chief Development Officer
7X Energy, Inc.

Sworn to before and signed in my presence this 22 day of July 2020.

[SEAL]

Notary Public

APPLICATION

TO THE

OHIO POWER SITING BOARD

FOR A

CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

FOR

Arche Solar

Fulton County, Ohio

Case No. 20-0979-EL-BGN

July 2020

Prepared for:

Arche Energy Project, LLC
a wholly-owned subsidiary of 7X Energy, Inc.
3809 Juniper Trace, Suite 100
Austin, TX 78738
Contact: Cliff Scher, Director of Project Development
Tel: 866.298.1632

Prepared by:

Environmental Design & Research, Landscape Architecture,
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ACRONYMS AND ABBREVIATIONS

AC	Alternating Current
ANSI	American National Standards Institute
BMP	Best Management Practices
CAUV	Current Agricultural Use Value
dBA	Decibels (A-Weighted)
DC	Direct Current
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
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
NOI	Notice of Intent
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
OGS	Ohio Genealogical Society
OHI	Ohio Historic Inventory
OPSB	Ohio Power Siting Board
PJM	PJM Interconnection, LLC
POI	Point of Interconnection
PV	Photovoltaic
ROW	Right(s)-of-Way
SHPO	State Historic Preservation Office
SR	State Route
SWPA	Source Water Protection Area
SWPPP	Storm Water Pollution Prevention Plan
US	U.S. Route
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 CERTIFICATE APPLICATIONS

Arche Energy Project, LLC (the Applicant) is proposing to construct Arche Solar (the Project), a 107 megawatt (MW) solar-powered electric generation facility (the Facility) located in Fulton County. The materials contained herein and attached hereto constitute the Applicant's submittal (the Application) for a Certificate of Environmental Compatibility and Public Need (the Certificate), prepared in accordance with Chapter 4906-4 of the Ohio Administrative Code (OAC), Certificate Applications for Electric Generating Facilities and associated facilities.

As permitted by OAC 4906-3-04, a major utility facility and any associated project that qualifies for accelerated review may be combined into a single standard certificate application. Arche Solar, a major utility facility, has an associated 138 kV generation interconnection (gen-tie) line of approximately 100 feet. Requirements for this associated gen-tie line are addressed in Section 4906-6-05 of this Application.

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 20 years of experience with siting and permitting renewable electric generation 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 is requesting a waiver, in part, from the provisions of OAC 4906-4-08(D)(2) and (4), which requires the study of impacts to cultural resources within 10 miles of the project area, and 4906-4-05(B)(2), which requires applicants to provide system studies on their generation interconnection request. In light of the COVID-19 emergency, a waiver has been granted from provisions of OAC 4906-3-03(B) requiring a public information meeting be held in the area where the project is to be located. Instead of an in-person public information meeting, the Applicant hosted a web-based information meeting and a telephone conference call meeting, mailed additional Project information to affected landowners, and are maintaining an updated Project information website.

4906-4-02 PROJECT SUMMARY AND APPLICANT INFORMATION

(A) PROJECT SUMMARY

The Applicant is proposing to construct the Facility in a rural portion of Fulton County. The Facility will consist of photovoltaic (PV) panels, along with access roads, electric collection lines, a collection substation, a short generation interconnection (gen-tie) line (approximately 100 ft), a laydown area for construction staging, an operation and maintenance (O&M) building, and pyranometers. The energy generated at the Facility will deliver power to the existing East Fayette substation, located adjacent to the existing 138 kilovolt (kV) transmission line.

(1) General Purpose of the Facility

The general purpose of the Facility is to produce solar-powered electricity that will maximize energy production from available 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 transmission grid operated by PJM Interconnection, LLC (PJM) for sale at wholesale or under a power purchase agreement.

(2) Description of the Facility

The Facility will be located within approximately 1,000 acres of private land in Gorham Township, Fulton County (Project Area). The 107 MW Facility is expected to operate with an average annual capacity factor of 28.5%, generating a total of approximately 220,000 megawatt-hours (MWh) of electricity each year. Figure 03-2 depicts the proposed Facility. A detailed description of the Facility, including each Facility component, can be found in Section 4906-4-03(B) of this Application.

The Facility layout presented in this application is considered preliminary and represents a typical 30% design. By solar industry standards, a 30% design includes a general site boundary of the project, location of module racking, and the relative location of inverters and medium voltage transformers. All of these features, and fencing, collection line locations, laydown yard, and access roads are depicted in Figure 03-2. A final Facility design will be submitted prior to construction and will include the quantity of electrical cables, cable length, trenching locations, and more features that will be determined by Facility and environmental constraints. Additionally, final Facility design will include makes and models of Facility components, which is dictated by the then-available technology and market conditions. Panel technology is rapidly advancing, both from a cost and performance perspective, which requires final panel selection to occur close to the commencement of construction. If the Applicant were to select a panel model (or models) prior to Certificate issuance, both the panel and resulting design would be less economically viable before project financing and the start of construction. Accordingly, once a panel model is selected, final engineering of the Facility will be completed

to identity the final locations of the panels, select and locate inverters, and adjust other components including piles, collection lines, and roads.

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

The Project Area site selection analysis concluded that the site presented herein meets all the 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, highly compatible land-use characteristics, and few environmentally sensitive areas. A detailed description of Arche's siting process and the Project Area's suitability is included in Section 4906-4-04 of this Application.

(4) Project Schedule

Acquisition of land and land rights began in the first quarter of 2019 and continued through the second quarter of 2020. During this time, the Applicant conducted meetings and outreach to landowners throughout the Project vicinity. Public information meetings were held on July 14 and July 16, 2020, to facilitate public interaction with the Applicant and expert consultants, and included information on 7X Energy, visual/aesthetics, ecological studies, and solar technology. Final designs will be completed in the third quarter of 2021. Construction is anticipated to begin in the fourth quarter of 2021 and be completed within 12 months, 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 has no future plans for additional capacity at this site. This point of interconnection has a maximum capacity of 107 MW.

(2) Description of Applicant and Operator

Arche Energy Project, LLC is held under a development holding company named 7X DEV, LLC, wholly owned by 7X Energy, Inc. 7X Energy, Inc. is a trusted utility-scale solar development company. Founded in 2016, 7X Energy is headquartered in Austin, Texas, and is independently owned by its employees. 7X Energy offers solar energy power to utilities, municipalities, cooperatives, and corporate customers, demonstrating their financial stability and development success. Each solar project is housed in a separate project LLC for financing purposes.

7X Energy employs a team of industry experts who have held leadership positions with prominent renewable energy development companies and construction companies including SunPower, SunEdison, RES

Americas, and Pattern Energy. The 7X development team has a proven track record with more than 10 gigawatts of collective utility-scale wind and solar expertise, spanning from site acquisition and permitting to interconnection and engineering nationwide. 7X Energy's principals have developed, financed, built, and monetized over 2,500 MW of operating utility-scale renewable projects in markets across the United States and have led development of over 10 GW of renewable projects across the last ten years. 7X Energy has approximately 1,225 MWAC of solar projects under construction or in operation where 7X Energy is the lead or originating developer. Table 02-1 lists contracted utility-scale solar projects that were developed by 7X Energy.

Table 02-1. Utility-Scale Solar Projects Developed by 7X Energy

Project	State	MWAC	Commercial Operation Date	Offtaker
Lapetus	TX	100	2019	Brazos Electric Power, Coserv Electric
Phoebe*	TX	250	2019	Shell Energy
Foxhound*	VA	83	2021	T-Mobile
Taygete I	TX	250	2020	Undisclosed Buyer
Prospero*	TX	300	2020	Shell Energy
Taygete II	TX	250	2021	Undisclosed Buyer
Elara	TX	130	2021	EDF Energy Services, Undisclosed Buyer

* Projects jointly developed by 7X and Longroad Development Company. The joint development arrangement terminated on Dec. 31, 2018.

Construction of the Facility

The Applicant's construction philosophy is to partner with an Engineering, Procurement, and Construction (EPC) firm early in the project lifecycle. 7X Energy has strong relationships with the top-tier EPCs and equipment suppliers in the industry and has completed numerous large-scale renewable projects with these vendors.

The Applicant will complete all preliminary design (30%) and resource analysis prior to contracting with an EPC. The selected EPC will take the in-house engineering work product and advance the designs to "Issued for Construction" status. The Applicant will review the detailed designs at each step. As the design is progressed, the full EPC contract and technical exhibits will be negotiated and executed no later than financial close. During construction, the Applicant will have a dedicated project manager and on-site personnel to manage the EPC contractor and major suppliers. The Applicant will remain the main point of contact to the lenders, buyer, utilities, landowners, and any other external party.

Operations & Maintenance

The Applicant will provide EPC management and O&M oversight for the Facility. The Applicant will select a Tier 1 O&M team (minimum of 2,000 MW of O&M experience) that will manage operational and commercial

matters related to the site. The Applicant will solicit top-tier providers to offer bids for the O&M for the project. The O&M provider will furnish the following resources to ensure safety and complete readiness by the commercial operation date:

- Permanent staff recruiting;
- Staff training and safety;
- Policy and procedure guidance and manuals;
- Operations and engineering readiness;
- Maintenance services readiness; and
- Installation of Supervisory Control and Data Acquisition (SCADA) and asset management systems.

The O&M provider will supply a fully-integrated, data-driven O&M strategy that maximizes Project value. Its in-house operations capabilities will include real-time resource monitoring and analysis, on-site O&M personnel, and Commercial Asset Management staff.

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 of the Project Area and the surrounding area within a 2-mile radius. This mapping was developed using the "Esri World Topographic Map," which consists of data from the U.S. Geological Survey (USGS), U.S. Environmental Protection Agency (EPA), U.S. National Park Service (NPS), Garmin, and more. Among other information, Figure 03-1 shows the following features:

(a) The Proposed Facility

The preliminary Facility layout includes the fenceline, PV panel area, belowground and aboveground collection lines, gen-tie line, inverters, access roads, substation, and O&M building and laydown yard area contained in 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 that has been studied for environmental, cultural, engineering, and visual impacts and will be subject to the various conditions and constraints laid out in this Application, and stipulations and conditions identified upon Certificate issuance.

(b) Population centers and administrative boundaries

The Facility is located in Gorham Township in Fulton County, Ohio. The nearest population center is the City of Fayette, located approximately 0.5 mile west of the Project Area. The Facility is also located approximately 2 miles south of the Michigan-Ohio border, 4.5 miles southwest of the City of Morenci, Michigan, 6 miles northeast of the Village of West Unity, 8 miles north of the Village of Archbold, 8 miles northwest of the City of Wauseon, and 10 miles west of the Village of Lyons. The closest metropolitan area in Ohio is the City of Defiance, located approximately 25 miles south of the Facility.

(c) Transportation routes, gas pipelines, and electric transmission corridors

The Project Area is bounded by County Road (CR) 21 to the east, CR 23 to the west, CR T to the north, and CR N to the south. The Project Area is traversed by four roads including U.S. Route (US) 20 and CR R, which run east-west, and CR 22 and CR 21-2, which run north-south. There is one hydrogen gas liquid

pipeline located approximately 0.4 mile south of the Project Area, running in a southwest-northeast direction. No gas pipelines are located within 2 miles of the Project Area (U.S. Energy Information Administration, 2017; USDOT, 2020). Three electric transmission lines are located within 2 miles of the Project Area. One transmission line, the East Fayette – Holiday City 69 kV line, runs east-west and connects to an existing substation located immediately adjacent to the northwest side of the Project Area along CR 23. The Lyons – Fayette 138 kV line traverses the northern end of the Project Area, running in an east-west direction and connecting to the existing substation station adjacent to the Project Area. The third transmission line, the Stryker – East Fayette 138 kV line, runs in a general north-south direction with some east-west turns and connects to the existing substation adjacent to the Project Area.

(d) Named rivers, streams, lakes, and reservoirs

There are seven streams located within 2 miles of the Facility. Deer Creek is the stream that traverses the Project Area, running in a general southeast-northwest route. Spring Brook and Spring Creek both extend from Deer Creek, with Spring Brook located approximately 30 feet northeast of the Project Area and Spring Creek located 0.3 mile northwest of the Project Area. Bean Creek, Old Bean Creek, and Stag Run all extend from the Tiffin River. Bean Creek is located approximately 0.67 mile southeast of the Project Area, Old Bean Creek is located approximately 1.5 miles southeast of the Project Area, and Stag Run is located 1.7 miles southwest of the Project Area. Iron Creek appears to extend from Bean Creek and is located approximately 1.3 miles northeast of the Project Area.

(e) Major institutions, parks, and recreation areas

One wildlife area, one park, and two schools are located within 2 miles of the Project Area. The Tiffin River Wildlife Area is located approximately 1.6 miles south of the Facility (ODNR, 2017a). One local park, Normal Park, is located approximately 0.8 mile west of the Project Area in the City of Fayette. Two schools, Fayette High School and the adjacent Fayette Elementary, are located approximately 0.7 miles west of the Project Area.

(2) Area of All Owned and Leased Properties

A total of approximately 1,000 acres of private property are under contract within the Project Area, of which 598 acres are leased under long-term lease agreements. 253 acres are optioned under option to purchase agreements. 157 acres are included in an easement agreement. The Project Area is comprised of 15 separate tax parcels. While approximately 1,000 acres are under contract, the Applicant only intends to use approximately 650 acres, approximately 65% of total leased lands, for construction and operation.

(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 OPSB Staff prior to construction. Any changes in equipment specifications from what is presented here are not expected to increase potential impacts.

(1) Description of Generation Equipment

(a) Type and Characteristics of Solar Panels

Generation equipment for the Facility includes PV modules, a racking system, and inverters to convert electrical output from direct current (DC) to alternating current (AC). The PV panels proposed for this Facility are standard crystalline panels, mounted on single-axis trackers and installed in linear arrays. Based on the total generating capacity of 107 MW, the Applicant anticipates using approximately 361,000 PV panels. The panels will operate continuously but will not produce electricity during nighttime hours or during periods with overcast skies. The annual average capacity factor for the Facility is anticipated to be 28.5%. Accounting for a total generating capacity of 107 MW and an annual capacity factor of 28.5%, the Facility would generate approximately 220,000 MWh of electricity each year. Because no fuel will be burned by the generating equipment, 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) Construction Method and Description of Facility Components

This section describes, based on information available at the time of submission of the Application, the construction method, site preparation and reclamation method, materials, color and texture of surfaces, and dimensions of all facility components. The primary steps for Facility construction include the following: (1) securing the perimeter of the construction areas; (2) installation of storm-water and erosion control measures; (3) clearing vegetation where necessary; (4) minor earthwork or grading where necessary; (5) construction of access roads; and, (6) installation of equipment, such as pilings, racking, panels, inverters, pyranometers, the substation, and security fencing.

(a) Solar Modules and Racking System

Once access roads are complete for the Project Area, construction and assembly of the trackers and mounting of the PV modules will commence. Since the majority of the site is relatively flat, minimal grading is anticipated to accommodate the PV arrays. The PV modules will be secured on a single-axis tracker racking system supported on metal piles that will be driven into the ground to a depth between 5 and 10 feet. Pile driving activities will occur in two stages: (1) preparing the site and (2) setting and driving pile. Pile driving does not require excavation in order to install PV modules.

Single-axis tracker designs vary by manufacturer, but generally consist of a series of mechanically-linked horizontal steel support beams. The number of rows within a tracker block is typically determined by multiple factors, including equipment capacity, site constraints and the amount of desired solar electricity output to the inverters. Rows will be aligned north to south and the PV panels will pivot, tracking the sun's motion from east to west throughout the day. Each panel will be 4.1 feet by 3.3 feet, 1.57 inches thick, and made of tempered glass with an anti-reflective coating. The panels will be a maximum of 14 feet in height from the ground when tilted to their highest position and will be surrounded by a 6-foot chain-link fence with a 1-foot section of barbed wire at the top. For additional detail on PV panel specifications, see the manufacturer's equipment specifications (Exhibit A), which are representative of the PV panels that will be selected for the Facility.

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

Fuel tanks for construction equipment will be stored in the laydown yard during Facility construction. However, PV panels generate electricity without the use of fuel or water, and without generating waste. Therefore, the proposed Facility does not include any significant facilities for fuel, waste, water, or other storage facilities.

(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. The O&M building will be served by an on-site well and septic system developed for the Project.

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

The Facility will include a 138 kV gen-tie line, which will be approximately 100 feet in length. This gen-tie line will run overhead from the collection substation to the point of interconnection (POI), the existing East Fayette 138 kV substation, owned by American Transmission Systems, Inc. (ATSI). The Project will be connected to the ATSI transmission system by installing a new 138 kV breaker at the existing East Fayette 138 kV substation to connect the East Fayette 138 kV ring bus substation and the new line exit to the collection substation. The new line will be suspended from one to two wood or steel poles, not more than 100 feet in height. The determination to install one or two poles between the existing East Fayette 138kV substation and the collection substation will be based on feedback from ATSI on the preferred direction of entry into the existing East Fayette 138 kV substation. The pole(s) will be installed using typical installation techniques to carry 138 kV electric lines, such as a caisson foundation, for example. There are no gas pipelines associated with the Facility.

(f) Buried and Overhead Electric Collection Lines

Each solar array will have a network of electric cable and associated communication lines that collect the electric power from the solar modules and transmit it to a centralized location through a DC combiner harness. Power from the DC collector will be transmitted through a series of related electrical components including a DC-to-AC inverter, a medium-voltage transformer that will increase the voltage to 34.5 kV, and a cabinet of power control electronics, all housed inside the power conversion station which will be mounted on a steel skid and set on a steel pile or concrete pad foundation.

The medium-voltage transformer on each power conversion station will increase the voltage to 34.5 kV. Several power conversion stations will be connected in series to form a medium-voltage circuit. These circuits are commonly referred to as the medium-voltage collection system. Medium-voltage cables for each circuit will be either buried underground or run overhead through the Project Area. Approximately 8.3 miles of buried collection cable will be used in the Facility.

The underground portion of the medium-voltage collection system will be installed using either the direct burial method or horizontal directional drilling (HDD). The majority of the underground collection cables will be installed using the direct burial method. HDD may be used to cross wetlands, streams, or roads.

The direct burial method relies on a trencher which uses a large blade or "saw" to excavate an open trench, generally 24 to 36 inches wide, with an adjacent sidecast area. Using the direct burial method, underground cable is buried to a minimum depth of 36 inches below the surface and requires up to a 20-foot width of clearing and surface disturbance for equipment access. Once cable is placed in the trench, native soil will be placed around the cable and compacted.

HDD is a widely used underground drilling technique to install buried utilities with minimal impact, by routing the utility under a road or a sensitive feature such as a stream, river, or wetland. More information on HDD can be found in Section 4906-4-08(B). Restoration of disturbed areas will be achieved by seeding with a native mix. If drainage tile is damaged and not functioning properly, a drainage system will be installed to allow the site to drain properly and avoid negative impacts to non-participating landowners.

In addition to buried collection lines, the Project may include approximately 0.6 miles of overhead medium-voltage collection lines. Overhead collection lines will be supported by wooden pole structures that are approximately 40 feet tall. The 0.6-mile overhead collection line included in the layout would require an estimated nine poles. Wooden pole structures would extend into the ground for approximately 8 feet.

(g) Substations, Switching Substations, and Transformers

Each solar array will have a network of electric cable and associated communication lines that collect the electric power from the solar modules and transmit it to a centralized location through a DC combiner harness. Approximately 9,000 combiner harnesses are anticipated for the Facility. Power from the DC collector will be transmitted through a series of related electrical components including a DC-to-AC inverter, a medium-voltage transformer that will increase the voltage to 34.5 kV, and a cabinet of power control electronics, all housed inside the power conversion station which will be mounted on a steel skid and set on a steel pile or concrete pad foundation.

The medium-voltage transformer on each of the approximately 33 power conversion stations will increase the voltage to 34.5 kV. Several power conversion stations will be connected in series to form a medium-voltage circuit. Each medium-voltage circuit will terminate at the project collection substation, where an additional voltage step-up from 34.5 kV to 138 kV will occur. The collection substation will be located adjacent to the existing East Fayette 138 kV substation, on the northwestern side of the Project Area, southeast of the intersection of US 20 and CR 23.

Prior to construction of the collection substation, erosion and sediment control features such as silt fencing will be installed. Given the flat topography in the vicinity of the Project, limited grading is anticipated. Following the installation of erosion and sediment control features, topsoil will be stripped and stored, the site will be graded as necessary, and gravel will be installed around each concrete foundation. After site preparation, permanent erosion and sediment control features will be installed and topsoil will be replaced and seeded. The collection substation will be approximately 200 feet by 200 feet in size and enclosed by a chain-link fence. Additional features of the collection substation include a dead-end support structure for the 138 kV gen-tie, main power transformer, circuit breakers, surge arrestors, insulators, lightning mast, and controls inside the O&M building. The tallest structure within the substation is the lightning mast, which is approximately 60 feet tall.

(h) Pyranometer

The project will include up to five pyranometers supported on towers with steel pile embedment up to 10 feet.

(i) Access Roads

The Facility will require the construction of approximately 6.6 miles of new access roads within the Project Area. The roads will be gravel-surfaced and typically 20 feet in finished width.

Road construction will involve topsoil stripping and grubbing of stumps, if necessary. Stripped topsoil will be stockpiled along the road corridor for use in site restoration. Any grubbed stumps will be removed, chipped, or buried. Following removal of topsoil, subsoil will be graded, compacted, and surfaced with gravel or crushed stone at a depth to be determined by the final geotechnical analysis. If required, a geotextile fabric will be installed beneath the road surface to provide additional support. To the extent practicable, local sources will be used to obtain gravel and other construction materials that may be needed in support of Facility construction.

During construction, access road installation and use could result in temporary soil disturbance of a maximum width of 50 feet in some areas, to accommodate two-way traffic. Once construction is complete, temporarily disturbed areas will be seeded.

(j) Construction Laydown Areas

One laydown yard is proposed for the Facility, located along US 20. The laydown yard will be approximately 6.1 acres and located on privately-owned land. It will accommodate material and equipment storage, parking for construction workers, and construction management trailers. The laydown yard will be equipped with temporary lighting, and temporary erosion and sediment control methods, most

of which will be removed upon completion of Facility construction. The laydown yard will be enclosed by a 6-foot chain-link fence with a 1-foot section of barbed wire at the top. Construction and reclamation of the laydown area will be similar to that for access roads. Approximately 1 acre of the 6.1-acre laydown area will remain for material and equipment used to perform maintenance on the Facility.

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

The solar modules and racking system, power conversation station, collection substation, and O&M building will all be fenced with a 6-foot chain-link fence with a 1-foot section of barbed wire at the top. The O&M building will be located near the intersection of CR 23 and US 20. The O&M building will be approximately 2,000 square feet, located on privately-owned land, and will serve as a workspace for operations personnel. A typical O&M building is a metal building with a standing seam roof and walls that are approximately 14 feet high (see Inset 03-1). Lighting will be attached to the perimeter of the building. Construction of the O&M building will follow all applicable local building codes.

Inset 03-1. Typical O&M Building

(l) Other Pertinent Installations

Permanent storm water treatment infrastructure will be installed for the Facility to meet all 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.

(3) Need for New Transmission Lines

The Facility will require construction of a short gen-tie line, which will be approximately 100 feet in length. The gen-tie line is discussed in detail in Section 4906-6-05 of this Application. The gen-tie line will transmit energy from the collection substation to the POI at the existing East Fayette 138 kV substation, owned by ATSI. The Facility will be connected to the ATSI transmission system by installing a new 138 kV breaker at the existing East Fayette 138 kV substation to connect the East Fayette 138 kV ring bus substation and the new line exit to the collection substation through the gen-tie line. The existing East Fayette 138 kV substation connects to the Allen Junction – East Fayette 138 kV line.

(4) Project Area Map

The proposed layout of all Facility components is illustrated on Figure 03-2, including the following features:

(a) Aerial Photograph

Mapping was developed using Esri ArcGIS Online "World Imagery" map service.

(b) The Proposed Facility

Facility components, as discussed above in Section 4906-4-03(B)(2), were provided by the Applicant.

(c) Road Names

Road name data was obtained from the Ohio Department of Transportation (ODOT) Transportation Information Mapping System.

(d) Property Lines

Property line data was obtained from the Fulton County Auditor's Office geographic information system (GIS) server.

(C) DETAILED PROJECT SCHEDULE

(1) Schedule

A Gantt-style chart is presented as Inset 03-2, illustrating major activities and milestones, including:

(a) Acquisition of Land and Land Rights

Acquisition of land and land rights began in the first quarter of 2019 and continued through the second quarter of 2020.

(b) Wildlife Surveys/Studies

Ecological surveys/studies began in September 2019 and were completed in March 2020.

(c) Receipt of Grid Interconnection Studies

Grid interconnection studies were initiated in March 2019. Two sets of interconnection studies were prepared for this Facility (see Section 4906-4-05). The Feasibility Studies were issued in July 2019 and January 2020. The System Impact Study for Queue Project AE2-282 was issued in March 2020. The System Impact Study for Queue Project AF1-120 is anticipated to be issued in the third quarter of 2020.

(d) Preparation of the Certificate Application

Preparation of the Application began in the fourth quarter of 2019 and public meetings were held July 14 and July 16, 2020.

(e) Submittal of the Application for Certificate

This Application was officially submitted in the second quarter of 2020.

(f) Issuance of the Certificate

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

(g) Preparation of the Final Design

It is expected that final designs and detailed construction drawings will be completed in the third quarter of 2021.

(h) Construction of the Facility

Construction is anticipated to begin in the fourth quarter of 2021 and be completed in 12 months.

(i) Placement of the Facility in Service

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

(2) Construction Sequence

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

- General clearing of the Project Area, particularly for PV arrays, access roads, laydown yards, and substation;
- Grading for laydown yards and substation areas;
- Minimal grading for access roads and PV arrays;
- Construction of access roads;
- Installation of piles for support of racking;

- Installation of the electrical collection system;
- Installation of power conversion stations;
- Installation of single axis tracker system (racking)
- Installation of PV modules;
- Construction and installation of substation;
- Facility commissioning and energization;
- Restoration activities.

Graded areas will be smoothed, compacted and freed from irregular surface changes, and sloped to drain. Final earth grade adjacent to equipment will be below the finished floor slab and sloped away from the structure to maintain proper drainage. Slopes of embankments shall be protected against rutting and scouring during construction in a manner similar to that required for excavation slopes. Site grading will be compatible with the general topography and use of adjacent properties, right-of-way, setbacks, and easements.

Construction of PV module foundations, assembly, access road construction, and installation of collection lines are described above in Section 4906-4-03(B)(2).

Once construction is complete, temporarily disturbed areas will be restored. Exposed soils in the Project Area will be stabilized by seeding, mulching, and/or plantings.

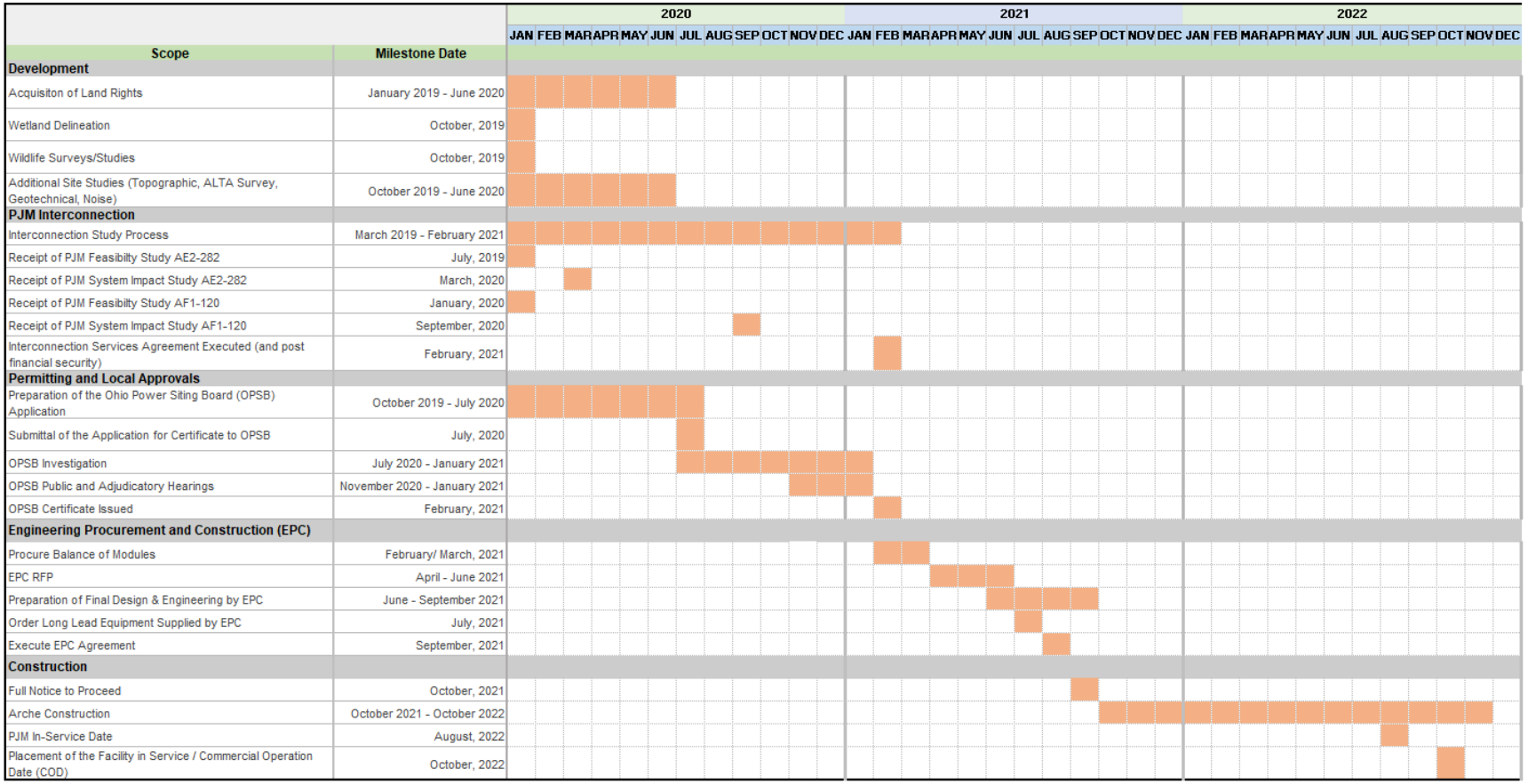
(3) Impact of Critical Delays

Critical delays may have material, adverse effects on Facility financing, including the Applicant's ability to procure PV panels and other Facility components. Such delays may push the in-service date back. In addition, considerable costs would be incurred if the delays prevented the Facility from meeting deadlines for federal incentive programs such as the Investment Tax Credit.

Inset 03-2. Project Schedule Gantt Chart

ARCHE - PROJECT SCHEDULE - 107MW AC

Scope	Milestone Date
Development	
Acquisiton of Land Rights	January 2019 - June 2020
Wetland Delineation	October, 2019
Wildlife Surveys/Studies	October, 2019
Additional Site Studies (Topographic, ALTA Survey, Geotechnical, Noise)	October 2019 - June 2020
PJM Interconnection	
Interconnection Study Process	March 2019 - February 2021
Receipt of PJM Feasibilty Study AE2-282	July, 2019
Receipt of PJM System Impact Study AE2-282	March, 2020
Receipt of PJM Feasibilty Study AF1-120	January, 2020
Receipt of PJM System Impact Study AF1-120	September, 2020
Interconnection Services Agreement Executed (and post financial security)	February, 2021
Permitting and Local Approvals	
Preparation of the Ohio Power Siting Board (OPSB) Application	October 2019 - July 2020
Submittal of the Application for Certificate to OPSB	July, 2020
OPSB Investigation	July 2020 - January 2021
OPSB Public and Adjudicatory Hearings	November 2020 - January 2021
OPSB Certificate Issued	February, 2021
Engineering Procurement and Construction (EPC)	
Procure Balance of Modules	February/ March, 2021
EPC RFP	April - June 2021
Preparation of Final Design & Engineering by EPC	June - September 2021
Order Long Lead Equipment Supplied by EPC	July, 2021
Execute EPC Agreement	September, 2021
Construction	
Full Notice to Proceed	October, 2021
Arche Construction	October 2021 - October 2022
PJM In-Service Date	August, 2022
Placement of the Facility in Service / Commercial Operation Date (COD)	October, 2022



4906-4-04 PROJECT AREA SELECTION AND SITE DESIGN

The selection of appropriate sites for a solar-powered electric generation facility is constrained by numerous factors that are essential considerations for the Facility to operate in a technically and economically viable manner. This section described the general site selection process, along with associated siting constraints and requirements.

(A) PROJECT AREA SELECTION

(1) Description and Rationale for Selecting Study Area

The availability and quality of solar resource, proximity to the bulk power transmission system, topography, and land use are the initial screening criteria evaluated in the site selection process for any solar power project. The Applicant's initial evaluation was based on publicly available data, such as the National Renewable Energy Laboratory's (NREL) "U.S. National Solar Radiation Database," along with site visits and capacity analysis for nearby transmission lines. Exhibit B depicts solar resources in Ohio using data obtained from the NREL National Solar Radiation Database (Sengupta, et al., 2018). The data suggests a suitable solar resource in the northwestern region of Ohio, including Fulton County.

Adequate access to the bulk power transmission system is also an important siting criterion, as the system must be able to accommodate the interconnection and accept and transmit power from the Facility. As depicted in Figure 04-1, existing bulk transmission lines are located within the vicinity of the Facility in Fulton County. The transmission lines in Fulton County are owned and operated by ATSI within the PJM Interconnect. A characteristic which makes the PJM Interconnect suitable for a solar power project is the ability to sell electricity to customers in the region without connecting directly to those customers' facilities. Additionally, the capacity of the East Fayette substation and nearby transmission lines were evaluated to determine that the required network upgrades are likely to be within an acceptable range for a solar power project of approximately 100 MW.

Land use in Fulton County is primarily agricultural and characterized by open spaces suitable for hosting a utility-scale solar power project. Initial site visits to the area provided visual verification that the predominate land use in the study area is agricultural with limited residential development, which is compatible with solar project development.

Proximity to major transportation routes is another consideration in identifying a site for the Facility. Located approximately one mile east of the Village of Fayette and approximately four miles southwest of the City of Morenci, Michigan, the Project Area is situated just south of the Michigan and Ohio border and north of Interstate (I) 80/90 (Ohio Turnpike). Additionally, several county roads surround the Project Area, and U.S.

Route 20 intersects the Project Area. These major 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 identified a group of willing Project landowners adjacent to a suitable POI that met the various other siting criteria listed in this section. With a group of 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

Siting criteria used for the selection of the Project Area include:

Adequate solar resource

The Applicant determined through an initial screening process utilizing a statewide solar resource map (see Exhibit B) that global horizontal irradiance was likely to be at a level of 3.85 W/m^2. The Applicant utilized on-site measurements collected from May 2019 through May 2020 to confirm that the Project Area has an adequate solar resource.

Adequate access to the bulk power transmission system

The Applicant determined that the existing transmission infrastructure was adequately accessible from the standpoints of proximity and ability of the system to accommodate the interconnection at a reasonable cost. This determination was made through an initial internal preliminary assessment and subsequent interconnection requests filed with PJM. See Section 4906-4-05 of this Application for additional detail.

Willing land lease participants and host communities

Solar generation facilities can only be sited on private property where the landowner has agreed to allow such construction. The Applicant obtained private lease agreements and option to purchase agreements 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. In addition, the Applicant has engaged local and state stakeholders and the local community 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 Exhibit C and Figure 03-1).

Appropriate geotechnical conditions

The Applicant determined that significant geotechnical constraints, including but not limited to steep topography, potential for rockfalls and landslides, karst topography, and sinkholes are not anticipated for the Facility (Exhibit D).

Distance from airports

The proposed Facility is sited approximately four miles from the nearest airport of record, reducing potential impacts from glare. 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) and Exhibit 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 see Section 4906-4-08(C).

Limited sensitive ecological resources

The Project Area has adequate open space available to avoid impacting sensitive ecological resources. See Section 4906-4-08(B) and Exhibit F of this Application for more information on ecological resources.

Cultural resources

The Project Area is located so that direct impacts to any identified existing cultural resources can be avoided. For additional information on cultural resources, see Section 4906-4-08(D) and Exhibit G 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 in order 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

As noted above, the selection of possible sites for development of solar power facilities is constrained. Particularly, projects must be located in areas with adequate solar resource, near electric transmission lines with unused capacity sufficient to accept energy from the facility, and situated in locations that can accommodate land use and environmental restrictions imposed by local, state, and federal laws. The Applicant identifies and selects possible sites for development by using 7X Energy, Inc's proprietary mapping program called Smart Power Maps. Smart Power Maps accelerates and optimizes site selection and development by screening potential sites utilizing more than 100 geospatial layers, many of which are

generated internally for use in Smart Power Maps. The Applicant uses Smart Power Maps to evaluate environmental constraints, transmission infrastructure, property ownership and existing generator locations to determine economically-feasible project locations. Smart Power Maps is also used to generate customizable maps that are helpful in outreach to landowners and local officials. Smart Power Maps allowed the Applicant to identify optimal project locations early and reduce project risk and costs. Other identified potential sites were determined to not be viable, or are under development and cannot be disclosed at this time.

(5) Description of Project Area Selected for Evaluation

Based on the criteria listed in Section 4906-4-04(A)(3) of this Application, the Project Area site selection analysis concluded that the site presented herein meets all the factors necessary to support a viable solar energy facility. The proposed site possesses adequate solar resources, manageable access to the bulk power transmission system, sufficiently low population density, positive feedback from landowners and local officials, highly compatible land-use characteristics, and few environmentally-sensitive areas. Siting of solar facilities relies on signing agreements with multiple landowners. Once a region is identified, it is not practical to evaluate multiple project areas in the same vicinity. Instead, the project area is determined by landowner interest.

(B) FACILITY LAYOUT DESIGN PROCESS

The Facility layout presented in this Application is considered 30% complete. If the Applicant were required to select a panel model (or models) prior to certificate issuance, both the panel and resulting design would be less economically viable before Project financing and the start of construction. Accordingly, once a panel model is selected, final engineering and design of the Project will be completed to: identity the final locations of the panels, select and locate inverters, and adjust other components including piles, collection lines and roads. The Applicant commits to provide the final Facility layout to the Board's Staff at least 60 days prior to the start of construction, which will include panel model, panel layout, and the final location of other ancillary components. The final Facility layout will: (1) not alter the boundaries of the Project Area, (2) comply with the Project setbacks set forth in this Application, and (3) not create any additional material adverse impact. The Facility layout could also be adjusted due to engineering constraints discovered during the geotechnical survey, to avoid alterations to stormwater flow, to refine panel locations for appropriate panel capacity, or to accommodate specific property characteristics. These types of changes would primarily consist of realignment of access roads and collection lines, and alterations to PV panel placement within the Project Area. These changes are not expected to alter the boundaries of the Project Area or the properties on which Facility components will be located. The final layout will be provided to the OSPB prior to construction.

(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 further limit siting alternatives within the participating parcels.

In addition to investigating the layout within the constraints discussed above, numerous expert analyses and field studies have been conducted to ensure that the PV panel arrays are sited so as to minimize environmental impacts to the maximum extent practicable, while still allowing for a successful project. 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 siting of project components within a given project area is governed by site-specific factors, including agricultural constraints, noise constraints, wetland and stream constraints, road and property setbacks, and landowner considerations. Once it was determined that the general project site was adequate, the Applicant worked with various consultants to conduct detailed assessments, which identified and defined the siting factors and constraints discussed below. Through the use of 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. The constraints used in designing the Facility layout are discussed in additional detail below.

Agricultural Constraints

Agriculture is the predominant land use within the Project Area. The Applicant has designed the Facility footprint in order to minimize impacts to active agricultural land. These efforts included co-locating collection lines and access roads wherever practicable, and designing, installing, and reseeding areas around collection lines in order to minimize permanent loss of active agricultural land to the maximum extent practicable. For additional information on agricultural land, see Section 4906-4-08(E) of this Application.

Noise Constraints

No existing national, state, county, or local laws specifically limit noise levels produced by solar energy facilities. However, previous OPSB certificates granted to solar projects have included a Facility-related noise limitation of 5 A-weighted decibels (dBA) over the night average (L_{eq}) background level at non-participating parcel boundaries. The Facility layout is designed to minimize noise impacts to nearby residences. For additional information on noise, see Section 4906-4-08(A)(3) and Exhibit H of this Application.

Wetland and Stream Constraints

In order to avoid and minimize impacts to streams and wetlands, on-site investigations were conducted to establish the locations of streams and wetlands, and Facility components were sited in an effort to avoid impacts to these resources to the maximum extent practicable. The Applicant applied a 30-foot setback from delineated wetlands when designing the Facility. For all identified stream and wetland crossing points, appropriate construction techniques will be used to avoid and minimize impacts to the extent practicable. As a result, the vast 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) and Exhibit F of this Application.

Road and Property Setbacks

The Applicant applied a setback of 25 feet from the edge of public roads to the fenceline of the Facility. In addition, the fenceline will be set back at least 10 feet from the edge of the Project Area property boundaries, and at least 100 feet from non-participating residences. Furthermore, PV panels will be located at least 20 feet inside the fenceline, increasing the total setback between PV panels and public roads, property boundaries, and non-participating residences.

Landowner Considerations

The Applicant has and will continue to meet with participating landowners to review the Facility footprint on their property. Among other things, these meetings often involve field analysis to ensure that Facility components are sited in a manner that allows continued efficient use of land for agricultural purposes and avoids any site features of importance to the landowner. Additionally, to minimize the number of PV panels located near residences, the Applicant designed the Facility with an internal setback of 100 feet from the fenceline to non-participating residences.

(3) Description of Number and Type of Comments Received

Written and oral comments were received at the public informational meeting, which was held July 14 and July 16, 2020. The public comments addressed a range of topics, with no focus on any particular issue. Topics included glare, noise, decommissioning, visual screening, and participation in the OPSB process. These issues are addressed in this Application. All written comments submitted at the public meeting are attached hereto as Exhibit I.

4906-4-05 ELECTRIC GRID INTERCONNECTION

(A) CONNECTION TO THE REGIONAL ELECTRIC GRID

In order to interconnect new generation to the electric transmission grid, the Facility owner must obtain approval from PJM Interconnection (PJM). PJM is a regional transmission organization (RTO) 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. The Facilities Study is not required for all projects (PJM, n.d.).

The OPSB requires submission of two of these studies with the Application, the Feasibility Study and System Impact Study. The OPSB also requires the Applicant to obtain and provide a signed Interconnection Service Agreement with PJM prior to construction.

The proposed Facility will connect to the American Transmission Systems, Inc. (ATSI) transmission system at the East Fayette 138 kV substation. The interconnection would involve installing a new 138 kV breaker at the East Fayette 138 kV substation and connecting the East Fayette 138 kV ring bus substation and the new line exit to the point of interconnection (POI). There is no additional land required for the addition of a 138 kV breaker to the East Fayette 138 kV substation. The Applicant will work with ATSI to obtain any necessary permits for the addition of a 138 kV breaker, and will be responsible for the construction costs. ATSI will continue to own and operate the substation.

(B) INTERCONNECTION INFORMATION

(1) Generation Interconnection Request Information

The Applicant will utilize two PJM queue positions to interconnect the Facility. The first queue position, AE2-282, is for 67 MW of energy, with 43.9 MW of that as capacity. The queue name is East Fayette 138 kV, and the queue date for AE2-282 is March 29, 2019.

The second queue is an uprate to the first position. Queue position AF1-120 is for 40 MW of energy, with 26.6 MW of that as capacity. The queue name is East Fayette 2 138 kV, and the queue date for AF1-120 is August 30, 2019.

The combined capacity of the two queue positions is 107 MW of energy, with 70.5 MW of that as capacity. The website for the PJM queue is https://www.pjm.com/planning/services-requests/interconnection-

queues.aspx. Find the queue positions for this project by entering the queue numbers into the "Queue/OASIS ID" search field.

(2) System Studies

(a) Feasibility Study

AE2-282

PJM issued the Generation Interconnection Feasibility Study Report for Queue Project AE2-282 (AE2-282 Feasibility Study) in July 2019. This report evaluated the project for 67 MW of energy, with 43.9 MW of that as capacity. A secondary POI was proposed in the AE2-282 Feasibility Study but was removed from consideration for the System Impact Study. The potential issues, along with network upgrades that could alleviate these concerns, are described in greater detail in the AE2-282 Feasibility Study (Exhibit J).

AF1-120

PJM issued the Generation Interconnection Feasibility Study Report for Queue Project AF1-120 (AF1-120 Feasibility Study) in January 2020. This report evaluated the project as a 40 MW uprate to Queue AE2-282, with 26.6 MW of that as capacity. The potential issues, along with network upgrades that could alleviate these concerns, are described in greater detail in the AF1-120 Feasibility Study (Exhibit J).

(b) System Impact Study

AE2-282

PJM issued the Revised Impact Study Report for Queue AE2-282 (AE2-282 System Impact Study) in March 2020. This report evaluated the project for 67 MW of energy, with 43.9 MW of that as capacity. The potential issues, network upgrades, and approximate cost allocations are described in greater detail in the AE2-282 System Impact Study (Exhibit J).

AF1-120

The System Impact Study for this queue position is currently in progress and is expected to be issued by September 2020. Based on studies to date and information provided by an independent third-party consultant, no network upgrades are anticipated for the Project. The Applicant has the ability to downsize and will do so to avoid any network upgrades. The System Impact Study for this queue will be provided to the OPSB immediately upon completion by PJM.

4906-4-06 ECONOMIC IMPACT AND PUBLIC INTERACTION

(A) OWNERSHIP

The Applicant will construct, own, and operate all structures and equipment associated with the Facility, except for the upgrades to the East Fayette substation. 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 where the collection line route crosses US 20, County Road (CR) R, CR 22, and CR 21-2, from one participating parcel to another. The Applicant has obtained the necessary leases and agreements from participating property owners. For the purposes of this Application, participating parcels include any parcels anticipated to be under a lease or easement agreement at the time of Facility construction. The proposed Facility will not change the ownership status of the public road rights-of-way. All other components of the Facility will be located entirely on privately-owned land secured by lease and option to purchase agreements. For approximately one quarter of the Project Area, private landowners preferred to voluntarily enter into option to purchase agreements in place of lease agreements. That portion of the Project Area which will be purchased by the Applicant prior to construction will be for the location of the collection substation, and a portion of the area for panels and other project infrastructure.

The Applicant is a wholly-owned subsidiary of 7X Energy, Inc. (7X). Founded in 2016, 7X has developed or jointly developed approximately 1,400 MW of solar projects that are currently operating or under construction. Headquartered in Austin, TX, 7X is establishing itself as a strong developer in the United States, successfully developing multiple utility-scale solar projects.

(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, paragraph 2 of the unredacted version of the Socioeconomic Report (Exhibit E), filed under seal with this Application. As described in Section 4906-4-04, the Applicant has not proposed alternative project areas. Therefore, no cost comparison between alternatives is available.

(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 September 2018 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).

By way of further comparison, installed solar project costs in the midwestern region in 2018 had a median of around $1,600/kW_AC (Bolinger, Seel, & Robson, 2019). These costs are slightly higher than the average cost estimated for the Facility, which could be attributed to locational and system size differences. However, the estimated cost of the Facility is not 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 in the Socioeconomic Report. 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

Annual operation and maintenance expenses are included in the unredacted version of the Socioeconomic Report (Exhibit E), filed under seal with this Application.

(2) Operation and Maintenance Cost Comparisons

O&M costs are anticipated to be consistent with the average costs compiled by the Berkeley Laboratory, and with O&M costs at other solar energy facilities developed by the Applicant. A more detailed O&M cost comparison is included in the unredacted version of the Socioeconomic Report (Exhibit E), filed under seal with this Application.

(3) Present Worth and Annualized Operation and Maintenance

The annual O&M costs itemized in the Socioeconomic Report will be subject to real and inflationary increases. Therefore, these costs are expected to increase with inflation after the first two years. Additional details are included in the unredacted version of the Socioeconomic Report (Exhibit E), filed under seal with this Application. 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 would depend on various factors. If the delay were to occur in the permitting stage, 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. There could also be penalties associated with failing to meet a delivery deadline under a potential Power Purchase Agreement. In addition, significant losses would be incurred if the delays prevented the

Facility from meeting deadlines to qualify 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. For estimates of the cost of delays, see the unredacted version of the Socioeconomic Report (Exhibit E).

(E) ECONOMIC IMPACT OF THE PROJECT

Information provided in this section was obtained from the Socioeconomic Report, prepared by EDR (see Exhibit E). 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. Income generated from direct employment during the construction and operation phases of the project 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, the Photovoltaics Job and Economic Development Impact (JEDI) model (version PV12.23.16) was used, which was created by the NREL, a branch of the U.S. Department of Energy. The JEDI model requires project-specific data input such as year of construction, size of project, module, and location, and calculates the impacts described above using state-specific multipliers. These multipliers account for the change in jobs, earnings, and output likely to occur throughout the local, regional, and statewide economy as a result of project-related expenditures. The most currently available 2017 IMPLAN multipliers for the state of Ohio were used during the time of analysis (IMPLAN Group, 2019). The multipliers are paired with industry standard values such as wage rates and data reflecting local personal spending patterns to calculate on-site, supply chain, and induced impacts (U.S. Bureau of Labor Statistics, 2019). This model allows impacts to be estimated for both the construction and operation phases of the proposed development.

Applying input assumptions of varying levels of confidence, the JEDI model allows users to estimate the jobs, earnings, and economic development impacts from solar power generation projects for both the construction and operation phases (U.S. Bureau of Labor Statistics, 2019). These economic development impacts include earnings and related economic outputs from on-site jobs, local revenue and supply chain jobs, and induced jobs (see Part IV of Exhibit E for a description of impacts and indicators).

(1) Construction and Operation Payroll

Annual estimated construction and operation payroll is provided in Table 06-1 below. For additional discussion of inputs used to calculate these estimates, see the Socioeconomic Report.

Table 06-1. Local Economic Impacts

During Construction Period	Jobs	Earnings (Millions)	Output (Millions)
On-site Labor and Project Development	321	$20.0	$24.3
Construction and Installation Labor	166	$10.7	-
Construction Related Services	156	$9.2	-
Module and Supply Chain Impacts	190	$11.7	$30.4
Induced Impacts	144	$7.9	$24.3
Total Construction Impacts	655	$39.5	$79.0
During Operating Years (Annual)	**Jobs**	**Earnings (Millions)**	**Output (Millions)**
On-site Labor Impacts	5	$0.2	$0.2
Local Revenue and Supply Chain Impacts	2	$0.1	$0.4
Induced Impacts	4	$0.2	$0.8
Total Annual Operational Impacts	11	$0.6	$1.3

Notes: Earnings and Output values are millions of dollars in 2020 dollars. Construction and operating period jobs are full-time equivalent 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. Source: NREL JEDI Model (version PV12.23.16) (U.S. Bureau of Labor Statistics, 2019)

Based upon JEDI model computations, it is anticipated that construction of the proposed Facility will directly generate employment of an estimated 321 full-time equivalent (FTE) on-site construction and project development positions. The JEDI model estimated a total of $20.0 million for annual earnings of the 321 on-site construction jobs. The present worth of construction payroll, over the course of the first year of construction, is estimated to total $14.3 million.

Module trade and supply chain industries could in turn generate an additional 190 jobs over the course of Facility construction. In addition, Facility construction could induce demand for 144 jobs through the spending of additional household income. The total impact of 655 new jobs could result in up to approximately $39.5 million of earnings, assuming a 2021 construction start and wage rates consistent with statewide and nationwide averages.

Local employment will primarily benefit those in the construction trades, including laborers and electricians. Facility construction will also require workers with specialized skills, such as panel assemblers, specialized excavators, and high-voltage electrical workers. It is anticipated that many of the highly specialized workers will come from outside the area and will remain only for the duration of construction.

Based upon JEDI model computations, the operation and maintenance of the proposed Facility is estimated to generate five direct FTE jobs with estimated annual earnings of approximately $0.2 million. Wage rates for the direct operational employees are projected to be $28.00 per hour with 45.6% employer payroll overhead,

consistent with Ohio state averages, which are estimated to be approximately $22 per hour for installation, maintenance, and repair occupations (U.S. Bureau of Labor Statistics, 2019). The present worth of operations payroll, over the course of the first year of operation, is estimated to total $291,200.

(2) Construction and Operation Employment

Demand for new jobs associated with the Facility 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. The results shown in Exhibit E and discussed above describe the potential impact of the Facility on industries throughout the state, including the direct labor impacts that occur specifically within the local economy.

Approximately 80% of the construction workforce will be filled by workers domiciled in Ohio. In addition, other jobs will be created that play a supportive role. The increased wealth from jobs and spending will have a ripple effect in the local economy, thereby creating the need for additional jobs in the area as the wages of local workers go towards supporting households and local businesses.

(3) Local Tax Revenues

The proposed Facility will have a significant positive impact on the local tax base, including local school districts and other taxing districts in the area. Taxing districts within the Project Area include Gorham Township in Fulton County, and one school district (Fayette Local School District).

Solar energy projects in the state of Ohio can be exempted from tangible personal property and real property tax payments if they meet certain conditions. If an applicant is granted exemption from taxation for any of the tax years 2011 through 2023, the Qualified Energy Project will be exempt from taxation for tax year 2024 and all ensuing years, as long as the property was placed into service before January 1, 2024 and pays a Payment In Lieu Of Taxes (PILOT) to the county treasurer. The PILOT for this Facility has been approved by Fulton County with the annual rate of $7,500 per MW of nameplate capacity. Assuming an aggregate nameplate capacity of 107 MW, the Facility will provide revenue of $802,500 annually to the local tax base.

(4) Economic Impact 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 $79.0 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

In public meetings and presentations, the Applicant presented the maximum planned extent of the Facility. As described above, changes to the current Facility layout may occur as Facility design progresses, but any such changes will not increase the maximum extent of the Facility, will not require the leasing of additional properties, and would not impact new property owners or create additional impacts for existing adjacent property owners.

(1) Public Interaction

The Applicant will continue to make general information about solar power, and specific information about the proposed Facility, available to community members, elected officials, the media, and local civic organizations. Information has been shared through the following platforms and meetings: Hundreds of interactions with participating and non-participating landowners in and around the Project Area; multiple conversations with Gorham Township Trustees; consultations with the Office of the Fulton County Engineer, Fulton County Economic Development Corporation, Fayette Village Mayor, and Fulton County Board of Commissioners; a presentation to the Fayette Local School District School Board on May 11, 2020 at 7pm; a virtual public information meeting held on July 14, 2020 from 7pm to 9pm; a mailing to affected residents including printed copies of the Facility layout and presentation materials for the public information meeting; a telephone information meeting on July 16, 2020 from 7pm to 9pm; and additional conversations with participating and non-participating landowners discussing the Facility, sharing information and addressing concerns.

A draft Complaint Resolution Plan is included as Exhibit K. The purpose of this plan is to address public complaints, should they arise during construction or operation of the Facility. The Applicant will establish a toll-free number which will be provided to county commissioners, township trustees, emergency responders, schools, and public libraries near the Project Area. A complainant can call that number at any hour and leave a message with the complaint. Complainants will receive correspondence from the Applicant no later than 72 hours after filling the complaint. The purpose of this initial correspondence is to get more information about the complaint. Within 60 days of complaint receipt, the Applicant will complete an assessment of the issue and propose reasonable solutions or mitigation measures. All complaints will be recorded in a logbook which will contain pertinent information about the person making the complaint, issues surrounding the complaint, the date it was received, and the proposed resolution and date of resolution.

(2) Liability Insurance

The Applicant will acquire and maintain throughout the term of the Facility, at its sole cost, insurance against claims and liability for personal injury, death, and property damage arising from operation of the Facility. The

insurance policy or policies will insure the Applicant to the extent of their interests. 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 prepared by Hull & Associates, Inc. (Hull) attached hereto as Exhibit C. The study identifies vehicles to be used, probable delivery and transportation routes, evaluates existing characteristics of and potential impacts to roadways, bridges, and culverts, identifies mitigation measures for potential impacts, and identifies potential permits required.

Construction/Delivery Vehicles

During the construction phase, impacts to local traffic are anticipated to be minimal due to low existing traffic volumes. Construction traffic associated with the Facility will consist of standard construction equipment and hauling trucks to deliver Facility components. Most Facility components and construction material will be delivered to the Project Area using fixed-bed trucks or tractor semi-trailers, and multi-axle dump trucks. In addition, typical automobiles and pickup trucks will be used to transport construction staff and for incidental truck trips. Most of the 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 collection substation.

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 south by way of Interstate 80/90 to State Route (SR) 66 to U.S. Route 20. Hull also identified an alternative route from the east or west utilizing U.S. Route 20, which bisects the Project Area. Within the Project Area, county and township roads and new private gravel access roads will be used to transport equipment and materials. Roads surrounding the Project Area experience limited levels of traffic, so no delays to local traffic are anticipated except where delivery vehicles may need to travel narrow roadways such as CR R and CR 21-2 (i.e., less than two lanes). If delivery vehicles require the use of these narrow roadways, traffic control measures will be utilized. Potential traffic control measures will be detailed in a Traffic Control Plan which will be shared with local law enforcement, schools, and local landowners.

Hull conducted a visual analysis of roads, bridges, and culverts along potential transportation routes for the Facility to identify hazardous conditions. The conditions of roads within the Project Area are categorized as

either ‘good’ or ‘fair,’ with ‘good’ meaning that minor to moderate cracking was observed, and ‘fair’ pavement containing more weathered conditions like rutting and potholes (see Table 1 of Exhibit C). Hull contacted the Fulton County Engineer’s office to determine if any restrictions existed for bridges or roadways identified in the Project Area. No load restrictions were identified for any roads in the Project Area. Two bridges, ODOT Bridge No. 2634821 along CR 23 and ODOT Bridge No. 2634732 along CR 22, are expected to be load-posted for weight restrictions in 2020 when both bridges are re-analyzed based on current load ratings. Three culverts, two along CR 22 and one along CR R, were identified in the Project Area and visually examined to determine overall conditions. All three culverts were categorized as ‘good’ or ‘fair’ based on the structural appearance of the culvert and the amount of coverage over the culvert. No culverts were identified in the Route Evaluation Study as having significant structural issues.

Hull also examined overhead and width restrictions along roadways in the Project Area. Permanent structures that cross over roads and restrict the clearance of oversized loads, such as bridges or overpasses, were not observed along evaluated routes. Additionally, no overhead cables deemed obstructive were identified along evaluated routes. If an overhead cable presents an obstruction, utility providers can temporarily or permanently raise the cable and/or move the poles. Therefore, cables are not anticipated to be a limiting feature for road usage.

Impacts and Mitigation

During construction, routes identified in the Route Evaluation Study will experience an increase in trucking traffic; however, delays to local traffic are anticipated to be minimal due to low traffic volume in the Project Area. The previously mentioned Traffic Control Plan will include procedures used to manage traffic during construction. Increased traffic during the operation of the Facility is not anticipated.

The following mitigation techniques may be utilized to avoid or minimize transportation-related impacts and/or to provide long-term improvement to the local road system:

Insufficient Roadway Width

- Rerouting over-width vehicles to wider roadways.

Insufficient Vertical Clearance

- Temporarily relocating overhead utility lines and poles.
- Rerouting over-height vehicles to roadways with sufficient vertical clearance.

Poor Pavement Condition or Insufficient Pavement Durability

- Roadside drainage improvement.
- Pavement patching.

- Replacing pavement during or after construction if damaged by construction traffic (may include subgrade improvements).
- Rerouting heavy-loaded vehicles to avoid insufficient pavement.

Insufficient Cover over Drainage Structures

- Adding temporary gravel and/or asphalt cover over structures.
- Using bridge jumpers to clear structures.
- Repairing structures during or after construction if damaged by construction traffic.
- Rerouting heavy-loaded vehicles to avoid structures.

Poor Structure Condition

- Replacing structure during or after construction if damaged by construction traffic.
- Using bridge jumpers to clear structures.
- Rerouting heavy-loaded vehicles to avoid structures.

Inadequate Bridge Capacity

- Using bridge jumpers to clear bridges.
- Rerouting heavy-loaded vehicles to avoid bridges.

Insufficient Roadway Geometry

- Rerouting over-sized vehicles to avoid insufficient roadway geometry.
- Profile adjustments to roadways with insufficient vertical geometry.
- Permanent or temporary plan adjustments to roadways with insufficient horizontal geometry.

Impacts to roadways are anticipated to be minimal; however, roads evaluated in the Route Evaluation Study will be monitored during the construction phase for deterioration to ensure roads are safe for local traffic. Following the completion of construction activities, roadways will be repaired to pre-construction conditions. Requirements for roadway repairs and improvements will be detailed in a Road Use and Maintenance Agreement between the Fulton County Engineer and the Applicant.

(4) Transportation Permits

Prior to construction, the selected transportation provider will obtain all necessary permits from ODOT and the Fulton County Engineer. The vast majority of vehicles used for the construction and operation of the Facility meet current legal dimensions and weight (see Table 2 of Exhibit C). Therefore, very few transportation-related permits are anticipated. Special Hauling Permits may be required for a few vehicles that will transport the switchgears and transformers for the collection 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 any crossing of roads and county-maintained ditches by buried or overhead collection and transmission lines.

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. Maintenance of traffic will be addressed in the Traffic Control Plan and may utilize the assistance of law enforcement officers, escorts, and/or flaggers. Final transportation plans will be provided to government agencies upon final Facility design, prior to construction commencement, and all road work will be coordinated with the appropriate regulatory agency prior to construction.

(5) Decommissioning

Utility-scale solar facilities typically have a life expectancy of approximately 30 years. If panels or ancillary equipment were to fail before the useful lifetime of the Facility, they will be replaced with operational components. However, if not upgraded, or if large solar arrays are non-operational for an extended period of time, such that there is no expectation of their returning to operation, they will be decommissioned. The Applicant's plan for decommissioning is comprised of two primary components: removal of Facility components/improvements and financial assurance. Each of these is described in additional detail below:

Removal of Facility Improvements

At the termination of the lease, the Applicant will dismantle and remove Facility components and above-ground property owned or installed by the Applicant. At the time of decommissioning, panels may be reused, recycled, or disposed of. Solar panel recycling is increasingly available. Below-ground structures, such as buried collection lines, will be removed to a minimum depth of 36 inches. Any underground infrastructure installed to a greater depth may remain in place. If necessary, the Applicant will re-grade disturbed areas, restoring slopes and contours to their pre-decommissioning grade, to the extent practical and in coordination with landowners. Upon request of the landowner, the Applicant may consider allowing roads, foundations, buildings, structures, or other improvements to remain in place. However, the Applicant will not be obligated to leave any components or improvements and will only consider such action so long as it does not violate any permits or legal requirements.

Financial Assurance

The Applicant, through this Application, is committing to provide financial assurances for Facility decommissioning and reclamation. Prior to the start of construction, the Applicant will retain an independent and registered professional engineer to calculate the net decommissioning costs for the solar farm as outlined in the plan. Cost estimates will be recalculated every ten years over the life of the Project. This calculation will

include the total cost estimate for implementing the decommissioning plan, accounting for any unanticipated contingencies and estimates of salvage value of the project components. Arche will post and maintain a surety bond or similar financial assurance instrument in that amount for the removal of the project. If a subsequent calculation of the decommissioning cost increases or decreases, the financial assurance instrument will be adjusted to a reflective amount.

A draft decommissioning plan is provided as (Exhibit L). The plan will be updated with Facility-specific decommissioning costs upon final engineering, and the updated plan will be provided to the OPSB prior to construction.

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

(A) PURPOSE

This section provides information about compliance with existing air, water, solid waste, and aviation regulations, including current site conditions, potential impacts of the proposed Facility, and any proposed mitigation measures.

(B) AIR

(1) Preconstruction

The Facility does not require any preconstruction air permits. Therefore, this section does not apply.

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

Best management practices will be utilized and implemented to minimize the amount of dust generated by construction activities (Exhibit N). The extent of exposed/disturbed areas on the site at any one time will be minimized and restored/stabilized as soon as possible. Water or a dust suppressant such as calcium carbonate will be used to suppress dust on unpaved roads (public roads, as well as Facility access roads) as needed throughout the duration of construction activities. Any unanticipated construction-related dust problems will be identified and immediately reported to the construction manager and contractor. In addition, all construction vehicles will be maintained in good working condition to minimize emissions from construction-related activities.

(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. In fact, the Facility may lead to improvements in air quality by reducing the need for traditional energy systems that negatively contribute to air pollution. Therefore, this requirement does not apply to the proposed Facility.

(C) WATER

(1) Preconstruction

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

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

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

- A Water Quality Certification from the Ohio EPA (as determined after final engineering)
- An Ohio Isolated Wetland Permit (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. Furthermore, the Facility will add only small areas of impervious surface, which will be dispersed throughout the Project Area, and 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 in Section 4906-4-07(C)(1)(b), there are no bodies of water likely to 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

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 so rain can runoff the panel and fall onto the pervious underlying surface. The collection substation and O&M building are the only sources of impervious surfaces within the Facility and are anticipated to generate minimal runoff. Therefore, no significant changes to the rate, make-up, or volume of storm water runoff are anticipated.

Construction of the proposed Facility will have minimal, localized impacts to groundwater. Site-specific studies are ongoing to determine the extent of grading required for the Facility. 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

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

As mentioned in Section 4906-4-07(C)(1)(a), the Facility will require a NPDES Construction Storm Water General Permit (OHC000005) from the Ohio EPA. This permit is required for all construction sites disturbing 1.0 or more acres of ground. To obtain this permit, the Applicant will develop a Storm Water Pollution Prevention Plan (SWPPP) and file a Notice of Intent (NOI) letter with the Ohio EPA at least 21 days prior to the commencement of construction activities.

The SWPPP will address all minimum components of the NPDES permits and conform to the specifications of the Rainwater and Land Development manual, which describes Ohio's standards for storm water management, land development, and urban stream protection (ODNR, 2006). 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 best management practices that reduce pollutants in storm water discharges during construction.

As described below in Section 4906-4-08(E)(2)(c), topsoil removal and de-compaction will occur in agricultural areas for construction of access roads and the collection substation. These practices, and those described in the Ohio EPA document "Guidance on Post-Construction Storm Water Controls for Solar Panel Arrays" will also mitigate any potential impacts that soil compaction could have on infiltration of rain and snowmelt, thereby further reducing any potential impact to groundwater recharge (Ohio EPA, 2019). The construction footprint will be minimized by defining/delineating the work area in the field prior to construction and adhering to work area limits during construction. These measures will limit potential impacts of soil compression on normal infiltration rates.

On-site investigations were conducted to establish the locations of streams and wetlands, and Facility components were sited to avoid impacts to these resources to the maximum extent practicable. Impacts to surface waters will be minimized through the use of overhead collection lines, and narrow crossings wherever possible. Equipment restrictions, herbicide use restrictions, and erosion and sediment control measures will also be utilized to reduce adverse impacts to water quality, surface water hydrology, and aquatic organisms. In addition, vegetation clearing along stream banks and in wetland areas will be kept to an absolute minimum. For more information on mitigation measures to protect wetlands and surface water see Section 4906-4-08(B)(2)(b).

(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. Therefore, this section is not applicable.

(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 NOI and associated fee for the Construction Activities General Permit 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 proposed Facility will not generate any sewage; however, the O&M building will be served by septic system developed for the project.

(ii) Blow-down

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

(iii) Chemical and Additive Processing

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

(iv) Waste Water Processing

The proposed 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 to their preconstruction condition. Facility operation will not result in further soil disturbance, aside from occasional repair activities. Therefore, this section is not applicable.

(e) Water Conservation Practices

Aside from very limited quantities of water that may be used for the occasional cleaning of solar panels, the only Facility component requiring water sources will 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. Modern, efficient fixtures will be installed and will be maintained 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 the U.S. Department of Energy and the National Renewable Energy Laboratory, 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) Preconstruction

(a) Nature and Amount of Solid Waste

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

(b) Plans for Waste Removal

No waste removal is necessary or planned.

(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 yard. A private contractor will empty the dumpsters on an as-needed basis and dispose of the refuse at a licensed solid waste disposal facility. 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 building could include wood, cardboard, metal packing/packaging materials, used oil, general refuse, universal waste, and used antifreeze. The O&M building will generate solid wastes comparable to a typical small business office.

(b) Methods for Storage and Disposal of Waste

As described above, Facility operation will not result in generation of debris or solid waste. Therefore, this section is not applicable.

(4) Licenses and Permits

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

(E) AVIATION

(1) Aviation Facilities List and Map

There are no known private or public use airports, helicopter pads, or landing strips within 5 miles of the Project Area. One previously active private airport, Mundron Field (87OH), is located approximately 4 miles northwest of the Project Area. The owner of the property where Mundron Field was located indicated that the airport is no longer in use. The property was previously rented for use as an airport. The airport tenant is now deceased and the owner of the Mundron Field propery has not insured nor operated it as an airport for approximately 10 years. A letter was sent to the owner of the property where Mundron Field is located, documenting the conversation confirming that the airport is no longer in operation and informing them of the proposed Facility.

(2) FAA Filing Status and Potential Conflicts

The Federal Aviation Administration (FAA) requires notification for objects affecting navigable airspace per 14 CFR Part 77. Any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA:

- Any construction or alteration exceeding 200 ft above ground level
- Any construction or alteration
    - within 20,000 ft of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 ft.
    - within 10,000 ft of a public use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 ft.
    - within 5,000 ft of a public use heliport which exceeds a 25:1 surface
- Any highway, railroad or other traverse way whose prescribed adjusted height would exceed that above noted standards
- When requested by the FAA
- Any construction or alteration located on a public use airport or heliport regardless of height or location

Since the proposed Facility does meet any of the above criteria, the FAA does not need to be notified. In addition to obstruction, reflectivity or glare is a potential concern from the FAA regarding solar facilities. Given that no airports, helicopter pads, or landing strips are located within 2 miles of the Facility, impacts from glare are not anticipated. More information on potential glare from the Project can be found in the Glint and Glare Analysis (Exhibit O).

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 prevent unauthorized entrance to the Project Area, safety measures will be employed during the construction and operation phases. Signage will be utilized around the Project Area during construction, warning of the potential dangers within the site and discouraging entrance by the public. Personnel exposed to public vehicular traffic shall be provided with and shall wear warning vests or other suitable reflective or high-visibility garments. Similar signage will be utilized at the Facility during operation, along with perimeter fencing. During operation, security at the Facility will be maintained by a combination of perimeter security fencing, controlled access gates, electronic security systems, and potentially remote monitoring. Though the public will not have open access to the Facility, once construction is complete, the Facility may be available for guided tours at specific times.

(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], National Electrical Code [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. The Applicant will follow all safety and setback requirements as outlined in the manufacturer product manuals and specifications. Internal setbacks, defined by the Applicant, are discussed in Section 4906-4-04(B)(2) of this Application.

(d) Measures to Restrict Public Access

The public does not have access to the private land on which the Facility is located; hence, the public would only encounter the proposed Facility by trespassing. However, to further restrict public access, a 6-foot chain-link fence with a 1-foot section of barbed wire at the top will be constructed around the Facility. During operation, security of the Project Area will be maintained by a combination of perimeter security fencing, controlled access gates, electronic surveillance 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 Project Area.

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

The Applicant has met with Fulton County Emergency Services, including local fire and EMS officials, to discuss safety plans and training protocol. The Applicant will work with emergency personnel to ensure appropriate access. An Emergency Action Plan will be finalized based on ongoing coordination with Fulton County Emergency Services and will be submitted to the OPSB prior to Facility construction.

(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 examines current background sound levels, modeled results of sound levels from the Facility on nearby residences, and sound levels from construction activities. The Noise Assessment is included as Exhibit H.

(a) Construction Noise Levels at the Nearest Property Boundary

Construction activities associated with the Facility include road construction, substation construction, trenching, inverter installation, piling, and racking. Construction will be relatively short in duration, with construction of the substation lasting the longest. Construction of the Facility will result in sound above ambient levels and will occur between 7:00 AM to 7:00 PM or dusk, whichever is later. For areas of the Project within 500’ of a non-participating residence, pile driving will be limited to the hours of 8:00 AM to 6:00 PM, Monday through Saturday. Table 08-1 below presents the maximum sound pressure levels for various pieces of construction equipment at 15 meters (50 feet) away and 40 meters (131 feet) away, the latter of which represents the shortest distance between a non-participating residence and a solar array where racking and piling will take place. Sounds levels from construction activities at 15 meters from a solar array range from 80 dBA (e.g., compactor) to 85 dBA (e.g., excavator, dozer, grader). Sound levels from construction activities at 40 meters from a solar array range from 65 dBA to 70 dBA.

Table 08-1. Maximum Sound Levels from Various Types of Construction Equipment

Equipment	Maximum Sound at 40 meters (131 feet) (dBA)	Maximum Sound at 15 meters (50 feet) (dBA)
Excavator	70	85
Dozer	70	85
Grader	70	85
Roller	70	85
Dump Truck	69	84
Concrete Mixing Truck	70	85
Concrete Pumper Truck	67	82
Man-lift	70	85
Flatbed Trick	69	84
Large Crane	70	85
Small Crane	68	83
Trencher	68	83
Compactor	65	80
Forklift	70	85
Boom Truck	69	84
Small Pile Driver	69	84

(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" and used the CadnaA modeling software. A total of 33 receivers were modeled at residences surrounding the Project Area, at a height of 4 meters (13 feet) above ground level. Sound propagation modeling also included the use of L-shaped barriers for select inverters to reduce the sound level at nearby non-participating residences along CR 22 and CR 21-2. Results from sound modeling at each receptor are included in Table 08-2 below and show that all non-participating residences are anticipated to experience a sound level of 47 dBA or less during daytime and nighttime. During the day, the substation is anticipated to produce the greatest amount of sound due to the transformer and associated cooling fans, resulting in a sound level of 47 dBA. At night, inverters are anticipated to be produce the greatest amount of sound, also resulting in a sound level of 47 dBA. Sound modeling for the Facility conservatively assumed inverters to be consistently operational throughout the night; however, constant operation of the inverters is not anticipated. Nighttime operation of the inverters is only anticipated if providing volt-ampere reactive support.

Table 08-2. Modeled Sound Levels at Each Receptor

Receptor ID	Participation Status	Daytime Modeled Sound Level (dBA)	Nighttime Modeled Sound Level (dBA)
1	Non-participating	42	42
2	Non-participating	43	42
3	Non-participating	43	43
4	Non-participating	47	46
5	Non-participating	46	46
6	Non-participating	46	46
7	Participating	49	49
8	Non-participating	44	44
9	Non-participating	45	45
10	Non-participating	45	45
11	Non-participating	44	44
12	Non-participating	44	44
13	Non-participating	44	44
14	Non-participating	44	44
15	Non-participating	36	36
16	Non-participating	40	40
17	Non-participating	43	43
18	Non-participating	45	45
19	Non-participating	44	44
20	Non-participating	46	46
21	Participating	46	46
22	Non-participating	46	46
23	Participating	51	51
24	Participating	50	50
25	Non-participating	47	47
26	Non-participating	43	43
27	Non-participating	38	38
28	Non-participating	39	39
29	Non-participating	39	39
30	Non-participating	38	38
31	Non-participating	40	40
32	Participating	35	-
33	Participating	40.5	-

(ii) Processing equipment

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

(iii) Associated road traffic

As stated in Section 4906-4-06(F)(3), traffic levels during construction will not increase significantly. Noise produced from construction equipment/vehicles is provided in Table 4 of the Noise Assessment. Post-construction traffic will be associated with operations personnel traveling to and from the Project Area and will not be a significant source of noise.

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

Residences within the vicinity of the Facility are mapped with sound level data in Figures 15 and 16 of the Noise Assessment. Residences are mapped out to a 30 dBA sound level, which is equivalent to a quiet rural area, according to Appendix A of Exhibit H. Structures that may be sensitive to sound are mapped within 1 mile of the Project Area in Figure 08-4.

(d) Mitigation of Noise Emissions during Construction and Operation

As previously stated, construction of the Facility will occur between 7:00 AM to 7:00 PM or dusk, whichever is later. For areas of the Project within 500 feet of a non-participating residence, pile driving will be limited to the hours of 8:00 AM to 6:00 PM, Monday through Saturday. Construction equipment will minimize the use of back-up alarms to the greatest extent practicable. Additionally, staging areas will be located away from sensitive receptors to the greatest extent practicable.

Setbacks have been implemented into Facility design which may help to mitigate sound impacts from the Facility, including a 100-foot setback for the Facility's fenceline from non-participating residences. If additional mitigation is deemed necessary for Facility operation, sound barriers or manufacturer mitigation techniques may be installed.

(e) Pre-construction Background Noise Study

Continuous background noise was measured at three locations representative of adjacent residences between June 12 and 19, 2020. Sound level meters were mounted at a height of 1.5 meters (4.9 feet) and covered with a 7-inch weather-resistant windscreen to reduce influence of wind-induced noise. 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 include lawn equipment operating in proximity to monitors and agricultural operations.

Table 1 of the Noise Assessment includes the L_{eq}, upper 10th percentile (L_{10}), median (L_{50}), and lower 10^{th} percentile (L_{90}) background noise levels. The nighttime L_{eq} across the Project Area is 42 dBA and the daytime L_{eq} across the Project Area is 45 dBA.

Though the OAC does not define sound level limits for solar projects, a design goal of 5 dBA over ambient level (L_{eq}) was established based on precedent set by the OPSB. Given the ambient levels referenced above, 5 dBA over those values results in a nighttime L_{eq} of 47 and a daytime L_{eq} of 50 dBA. Comparatively, the modeled sound level for nighttime and daytime was 47 dBA. This anticipated sound level from modeling is within the 5 dBA design goal for the Facility.

(4) Water Impacts

Hull & Associates, Inc. (Hull) completed a Groundwater, Hydrogeological and Geotechnical Desktop Document Review Summary Report (Hydrology and Geotech Desktop Report) for the proposed Facility, attached as Exhibit D.

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

Hull conducted a well survey within the Project Area as part of the preliminary Geotechnical Report. The survey was mailed to property owners identified as participating at the time the survey was initiated. A total of six surveys were mailed and five were returned. Of the five respondents, four indicated having no wells, while one respondent identified a well on their property. The well was reported to be drilled to 190 feet below ground surface (bgs), with a steel casing. In addition to wells identified by mailed survey, wells identified by the ODNR exist within the vicinity of the Project Area, including two within the Project Area. These wells are presented on Figure 7 of Exhibit D. All wells identified by the ODNR are located adjacent to the house. While the exact location of the well identified in the mailed survey is unknown, it is assumed to be near the residence. Given that Facility components will not be sited in the immediate vicinity of residences, and based on the information gathered and the associated analysis in the preliminary Geotechnical Report, construction and operation of the Facility is not anticipated to result in any significant negative impact to private water supplies.

Hull also examined Source Water Protection Areas (SWPAs) for public water systems within and surrounding the Project Area. Details on those protection areas for surface water and groundwater are provided below in Section 4906-4-08(A(4)(d); however, Hull concluded that impacts to public sources are not anticipated.

The principal groundwater source for the majority of the Project Area is the unconsolidated, Williams Complex Aquifer. Groundwater yields from this aquifer can range up to 500 gallons per minute for properly-constructed, large-diameter wells. Recharge is moderate to low due to flatter topography and the relatively low permeability of the clayey soils that make up the vadose zone.

(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 7 in the Hydro Geotech Desktop Report depicts existing aquifers and water wells in the Project Area. The Ohio EPA map of SWPAs near the Project Area is included as Attachment A in the Hydro Geotech Desktop Report. Figure 08-1 of this Application includes water wells, streams, groundwater protection areas, SWPAs, aquifers, and the Project Area.

(d) Compliance with Local Water Source Protection Plans

SWPAs, as defined and approved by the Ohio EPA for the protection of drinking water sources, were evaluated in the Hydro Geotech Desktop Report. One SWPA, Archbold Corridor Management Zone, was identified within the Project Area. This area is delineated 500 feet from each bank of the tributaries that transect the Project Area. The nearest downstream Groundwater Protection Area is located approximately 12 miles south of the Project Area. This Groundwater Protection Area acts as a protective measure for potable water resources at two community wells located in Stryker, Ohio, which draw water from an unconsolidated aquifer approximately 142 feet from the ground surface.

The Ohio EPA and other regulatory agencies restrict specific activities within SWPAs. These activities include concentrated animal feeding operations; sanitary, industrial, or residual waste landfills; land application of biosolids; and voluntary brownfield cleanups. The restrictions typically apply to SWPAs relying on groundwater as their drinking water source. Hull has reviewed the range of programs which have adopted rules related to the presence of SWPAs and has concluded that construction of the proposed solar farm facility will not constitute an activity that would be restricted within either a surface water or groundwater SWPA.

(e) Prospects of Floods in the Area

A floodplain is flat land adjacent to a stream or river that experiences occasional or periodic flooding. For regulatory purposes, the floodplain is divided into two areas, based on water velocity: the floodway and the flood fringe. The floodway includes the channel and the portion of the adjacent floodplain required to pass the 100-year flood without increasing flood heights. Typically, this is the most hazardous portion of the floodplain where the fastest flow of water occurs. Due to the high degree of hazard, most floodplain regulations require that proposed floodway developments do not block the free flow of flood water, as this could dangerously increase that water's depth and velocity. The flood fringe is the remaining portion of the floodplain, outside of the floodway, that usually contains slow-moving or standing water. Development

in the fringe will not normally interfere as much with the flow of water. Therefore, floodplain regulations for the flood fringe typically allow development to occur but require protection from floodwaters through flood proofing so that water cannot enter the structure (ODNR, 2019a).

Surface water within the Project Area includes several small streams, tributaries, ditches, and ponds. The streams generally flow from the northwest to the southeast. Most of the surface water runoff flows into Spring Creek, which bisects portions of the Project Area. Spring Creek flows into Deer Creek, Bean Creek, Tiffin River, Maumee River, and Lake Erie.

Information on floodplains in the vicinity of the Project Area was obtained from ODNR and the Federal Emergency Management Agency (FEMA), as part of the Hydro Geotech Desktop Report. Areas surrounding Spring Creek, bisecting the central-northern and southwestern portions of the Project Area, are within the 100-year flood plain. Most Facility components will be sited outside the floodplain, except for collection lines, which may be installed either underground or overhead. Therefore, impacts to the Facility from flooding are not anticipated. Additionally, construction and operation of the Facility is anticipated to only require minor grading, thereby avoiding significant changes to topography within the Project Area. Therefore, construction and operation of the Facility is not anticipated to result in significant adverse impacts to the 100-year floodplain.

(5) Geologic Suitability

The Hydro Geotech Desktop Report includes several figures depicting existing geological features in the Project Area. Bedrock geology is provided as Figure 2; known karst is provided on Figure 4, and seismic features are depicted on Figure 5; existing oil and gas wells are shown on Figure 7; soil types are included in Figure 8; and underground and surface mines are shown on Figure 9. Topographic contours, oil and gas wells, bedrock formations, and the Facility layout are included on Figure 08-2 of this Application.

(a) Suitability of Site Geology

Existing Conditions

Bedrock dips east from 600 to 540 feet mean sea level (msl) across the Project Area. ODNR water well logs indicate bedrock was not encountered during well drilling of several domestic water wells in the Project Area. According to information obtained from ODNR, Division of Geological Survey, no karst features are located in the immediate vicinity of the Project Area. The nearest mapped karst feature, an inactive sink, is approximately 54 miles east of the Project Area in Washington Township, Sandusky County.

Figure 9 of the Hydro Geotech Desktop Report illustrates that no known coal, underground, abandoned, or surface mines are mapped within the Project Area. There are no mapped abandoned underground or

surface mines in the Project Area. There are active and inactive sand and gravel surface mines mapped greater than 4 miles from the Project Area.

A review of seismic information for the Project Area is included in the Hydro Geotech Desktop Report. No epicenters lie within the Project Area. The nearest seismic event occurred in 1926 and was a 3.4-magnitude earthquake located in Lucas County, Ohio, with an epicenter located approximately 35 miles east of the Project Area. No faults were identified within the Project Area. The two nearest faults to the Project Area are the Maumee and the Bowling Green Fault Systems located approximately 30 miles east of the Project Area in Lucas County. These seismic features are shown on Figure 7 of the Hydro Geotech Desktop Report.

Site Suitability

Based on their experience with earthwork in the region, Hull indicates that solar array equipment is lightly loaded, and conventional driven steel piles and helical piles are typical foundation support for solar modules. However, suitability of these foundation supports will need to be confirmed through geotechnical exploration and evaluation for each solar module. If it is determined that driven steel piles or helical piles are not suitable for structural support, alternate foundation systems, such as auger cast piles, concrete foundations, ballasted foundations, or rammed aggregate pier systems may be necessary to support solar modules and site improvements. The structural engineer will evaluate the subsurface conditions identified in the geotechnical report for determining appropriate foundation support of the planned improvements, foundation that are suitable for the site soils. Test borings have been conducted on the site and are discussed further in paragraph (c) below.

(b) Soil Suitability

Existing Conditions

Hull examined soils properties in the Project Area using the U.S. Department of Agriculture Soil Conservation Service Soil Survey of Fulton County. Soil surveys furnish surface soil maps and provide general descriptions and potentials of the soil to support specific uses and can be used to compare the suitability of large areas for general land uses. Surface soils in the vicinity of the Project Area are comprised primarily of Haskins loam (approximately 16% of the Project Area), Fulton silt loam (approximately 15% of the Project Area), and Sloan silty clay loam (approximately 10% of the Project Area). The remainder of the Project Area is covered by various silt loams as show in the soil types map, Figure 8 of the Hydro Geotech Desktop Report. The characteristics of these soils are described further in the Hydro Geotech Desktop Report.

Site Suitability

To maintain soil stability during construction, adequate surface water run-off drainage will be established and properly controlled at the Project Area to minimize any increase in the moisture content of the subgrade material. Positive drainage of each construction site will be created by gently sloping the surface toward drainage swales. It should be noted that sub-grade soils are subject to shrinking and swelling due to variation in seasonal moisture contents, and consideration should be given during constructability reviews to determine how best to deal with potential moisture fluctuations.

Based on a review of the soil survey information and Hull's experience with earthwork in the area, the soils on-site are anticipated to be suitable for grading, compaction, and drainage when each solar array is prepared, as discussed in the Hydro Geotech Desktop Report.

(c) Plans for Test Borings

A total of 50 bores were performed within the area of PV panel arrays, all to a depth of 15 feet below existing site grades, unless restrictive layers were encountered. Boring log results are included in the Figures section of the Preliminary Geotechnical Engineering Report (Exhibit M). These borings followed the plan set forth in the Exploration and Testing Procedures, included as an Attachment to Exhibit M. Boring closure followed standard procedures and methods and the test bores were backfilled with the auger cuttings and bentonite chips following completion. Groundwater was observed during drilling in 29 of the 50 boring locations, with depth to groundwater ranging from 3 feet to 14.5 feet. Upon drilling completion, groundwater was observed at 11 of the 50 boring locations, with the depth to groundwater ranging from 6.5 feet to 12.5 feet.

Subsurface conditions encountered during borings include glacially derived deposits with very soft to very hard and very loose to very dense soils. Cobbles and boulders are common in glacially deposited soils and may be present across the Project Area, specifically where sampler refusal was encountered at depths of 14 to 15 feet. Where pile driving activity may be difficult, pre-drilling of undersized holes and additional testing may be necessary to accommodate the foundation system for the PV panels.

As test borings have been provided as part of this Application, and additional borings would inform very specific engineering consideration, it is not proposed that any additional geotechnical boring logs or data will be provided to the OPSB. If additional borings are determined to be necessary, the onsite contractor will prepare and follow a plan similar to the attachment in Exhibit M 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). 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). 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 gen-tie line pole(s), with a height of no more than 100 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 overhead collection lines. 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 F.

(a) Open Spaces and Facility Map

Figure 08-3 shows the proposed Facility and ecological features within 0.5 mile of the Project Area (Ecological Assessment [EA] Study Area), including the following features:

(i) The proposed Facility and Project Area boundary

The proposed Facility layout includes PV panels, collection lines, access roads, inverters, laydown and O&M area, fenceline, substation, and gen-tie line.

(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, grassland, and barren land. Of the approximately 3,910 acres that make up the 0.5-mile radius around the Project Area, approximately 131 acres are undeveloped. Undeveloped land data was derived from the USGS National Land Cover Database (NLCD).

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

No wildlife areas were noted within the EA Study Area. Wildlife areas located within 2 miles of the Project Area are illustrated on Figure 03-1.

(iv) Surface bodies of water

Several waterbodies are located within the EA Study Area, including Spring Brook, Spring Creek, and Deer Creek. All waterways are illustrated on Figure 08-3.

(v) Highly erodible soils and steep slopes

Highly erodible and potentially highly erodible soils, as well as steep slopes, are depicted on Figure 08-3.

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

Vegetative Communities

Vegetative communities were initially identified by Cardno via a desktop analysis of aerial photography, then later field verified during surveying efforts. Four communities were identified, including agricultural land, disturbed/developed, forestland, and potential wetland areas. No successional communities were identified in the EA Study Area.

Agricultural land is the predominate vegetative community within the EA Study Area, comprising approximately 92% of the area. Vegetation on agricultural lands includes tilled corn, soybean, winter wheat, legumes, and grass-legume mixtures. These areas also contain grassy swales with a mix of herbaceous species including reed canary grass (*Phalaris arundinacea*) and various other grasses (*Festuca sp. and Fescue sp.*). Along agricultural field edges, the following species were observed: Canada goldenrod (*Solidago canadensis*), pokeweed (*Phytolacca americana*), Queen Anne's lace (*Daucus carota*), common teasel (*Dipsacus fullonum*), purple deadnettle (*Lamium purpureum*), willows (*Salix sp.*), black locust (*Robinia pseudoacacia*), and sycamores (*Platanus occidentalis*).

Developed open space and isolated woodlots are the second most predominate vegetative communities, each making up 3% of the EA Study Area. Developed land is characterized by residences and farmsteads with lawns, landscaped areas, driveways, and unpaved roads. Woodlots within the EA Study Area are isolated areas with deciduous trees located between cultivated fields and along roads. Along the edges of these woodlots, aggressive, weedy species such as pokeweed, blackberry (*Rubus sp.*), and poison ivy (*Toxicodendron radicans*) were observed. Woodlot interiors were primarily comprised of walnuts (*Juglans sp.*), oaks (*Quercus sp.*), cherry (*Prunus sp.*), pawpaw (*Asimina triolba*), American beech (*Fagus grandifolia*), Osage orange (*Maclura pomifera*), and a few shagbark hickories (*Carya ovata*). Potential wetland areas comprise 1% of the EA Study Area.

Wetland and Stream Delineations

Cardno conducted surface water delineations within the Project Area. Wetland delineations were conducted in accordance with the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0). These two manuals outline three criteria that must be met in order to determine the presence of a wetland, including hydrophytic vegetation, hydric soils, and sufficient hydrology.

Delineated wetlands were then scored using the Ohio EPA's Ohio Rapid Assessment Method (ORAM). The ORAM is used to determine the ecological quality and functionality of a wetland in order to meet requirements under Section 401 of the Clean Water Act. Wetlands are scored based on hydrology, upland buffer, habitat alteration, special wetland communities, and vegetative communities. Each of these subject areas is further divided into subcategories under ORAM v5.0, resulting in a score that ranges from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Based on these scores, there are three possible categories to which wetlands may be assigned:

- Category 1 wetlands are typically isolated emergent marshes dominated by cattails with little to no upland buffer, often located in agricultural fields. The designation of Category 1 is assigned to wetlands whose ORAM scores fall between 0 and 29.9. Wetlands whose ORAM scores are between 30 and 34.9 fall in a transitional zone. When this occurs, a wetland should be assigned the higher category unless scientific data has been collected that suggests the lower category.
- Category 2 wetlands are considered "good" quality wetlands. A Category 2 wetland can be considered a "Modified" Category 2 when it shows signs of degradation but has the potential to restore some of the lost functionality. Wetlands designated as Category 2 have ORAM scores between 35 and 59.9. Wetlands whose ORAM scores are between 60 and 64.9 fall in a transitional zone. When this occurs, a wetland should be assigned the higher category, unless scientific data has been collected that suggests the lower category.
- Category 3 wetlands have high levels of diversity, a high proportion of native species, and/or high functional values. Category 3 wetlands often include wetlands which contain or provide potential habitat for rare, threatened, and endangered (RTE) species, are high quality mature forested wetlands, vernal pools, bogs, fens, or other features scarce regionally or statewide. The designation Category 3 is assigned to wetlands whose ORAM scores fall between 65 and 100.

Four wetlands were delineated during field surveys, totaling 1.24 acres in the Project Area. Two of these wetlands were identified as palustrine forested wetlands (PFO) and two were identified as palustrine emergent (PEM). All wetlands were classified as Category 2 wetlands, with one wetland identified as a Modified Category 2. Vegetation observed in the delineated wetlands included silver maple (*Acer saccharinum*), creeping Jenny (*Lysimachia nummularia*), reed canary grass (*Phalaris arundinacea*), calico aster (*Symphyotrichum lateriflorum*), cockspur grass (*Echinochloa crus-galli*) Canadian clearweed (*Pilea pumila*), and stout wood reed (*Cinna arundinacea*). All four wetlands could be jurisdictional based on hydrologic connectivity to potential waters of the U.S. Delineated wetlands and streams are mapped

in Appendix B of the Wetland and Stream Delineation Report, which is attached to the Ecological Assessment (Exhibit F).

Cardno also delineated streams in the Project Area and assessed them using the Ohio Headwater Habitat Evaluation Index (HHEI) and/or the Ohio Qualitative Habitat Evaluation Index (QHEI) scoring method, as applicable. Both methods yield a numerical score for the section of streams evaluated, which Cardno used to estimate the extent of existing aquatic life use of each stream.

Three streams delineated in the field were assessed using the HHEI as outlined in the Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams Review. The HHEI is used to determine the status of smaller streams as one of three classes of primary headwater habitats (PHWH). The method scores streams on a range of 0 to 100 based on physical characteristics. Scores less than 30 indicate a Class I PHWH (ephemeral streams); scores 30 to 50 indicate a Class II PHWH (intermittent, interstitial, or perennial warm water streams); scores greater than 50 can be either Class II or Class III depending on their conditions; and scores 75 or greater indicate a Class III PHWH (perennial, cool water streams).

Additional assessments were performed on three streams which were identified as potentially having a drainage area of greater than one square mile (259 hectares) or with predominant pools having maximum pool depths over 40 cm using the Ohio EPA's QHEI. The QHEI assessment examines a number of stream characteristics and yields a score ranging from 0 to 100. Scores less than 32 typically indicate a limited resource water (LRW). Scores of 32 to 60 may be indicative of a modified warmwater habitat (MWH), meaning a WWH that has been disturbed but could potentially recover. A score of 60 typically indicates a stream has the physical characteristics needed to support diverse macroinvertebrate and fish populations and attain the warmwater habitat (WWH) designation. Scores that are greater than 75 are indicative of a possible exceptional warmwater habitat (EWH).

A total of six waterbodies were delineated in the Project Area, including five streams and one pond. One of the five streams was separated into two segments based on differing characteristics throughout the waterbody. Three streams and the pond were identified as perennial waterbodies, while two streams were identified as ephemeral. Three of the six streams were evaluated with a HHEI score. The scores for these streams were 32, 47, and 52, meaning that all three streams are classified as Class II PHWH. Two of the six streams were evaluated using QHEI scores, including the stream that was separated into two segments due to differing characteristics. The scores for these streams and stream segments are 26, 41, and 46, meaning that one stream is designated as an LRW, while the other stream is designated as an MWH. Based on the QHEI/HHEI scoring, eight of the waterbodies delineated have the potential to provide suitable aquatic habitat; however, due to surrounding disturbances and modifications from existing land

uses, the waterbodies identified in the Project Area are unlikely to support significant aquatic communities. Additional information on delineated streams can be found in Exhibit F.

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

This section provides the results of a literature survey of the plant and animal life within at least one quarter mile of the Project Area boundary. The literature survey is broken into two sections: (i) for plants and (ii) for animals.

Aquatic and Terrestrial Plants

The review of plant resources within 0.25 mile of the Project Area boundary focuses on species of commercial or recreational value, and species designated as endangered or threatened. This information was compiled through review and analysis of existing data from the ODNR.

Species of Commercial or Recreational Value

Aside from crops, there are no known plant species of commercial or recreational value within 0.25 mile of the Project Area.

Threatened and Endangered Species

Based on ODNR's records for state-listed species, there are six endangered and 15 threatened plant species known to occur in Fulton County (ODNR, 2016b). The status and general habitat requirements for each of these species are summarized below in Table 08-3. None of the species below are federally listed.

Table 08-3. Threatened and Endangered Plant Species in Fulton County

Scientific Name	Common Name	General Habitat[1]	Ohio Status[2]
Androsace occidentalis	western rock-jasmine	well-drained ledges and sand barrens	E
Dichanthelium praecocius	early panic grass	dry open prairies, fields, and sand barrens	E
Hesperostipa spartea	porcupine grass	Full sun, prairies, dunes, oak woods	E
Hieracium longipilum	long-bearded hawkweed	moist to dry, prairies, open woods, fallow fields	E
Monarda punctata	dotted horsemint	dry, sandy soils, open to semi-open areas	E
Phlox latifolia	mountain phlox	open woods, thickets, alluvial meadows	E
Anemone cylindrica	prairie thimbleweed	dry open woods and slopes, prairies, sandy ridges, quarries, and roadsides	T
Carex conoidea	field sedge	moist meadows, fens, and wet prairies	T
Carex crus-corvi	raven-foot sedge	swampy woods, wooded floodplains, road ditches	T
Chimaphila umbellata	pipsissewa	sandy, acidic soils, dry woods, pine wood	T
Comptonia peregrina	sweet-fern	dry, in full sun, sandy soil, open woodlands, pastures, old fields	T
Descurainia pinnata	tansy mustard	dry, open, sparsely wooded	T

Scientific Name	Common Name	General Habitat[1]	Ohio Status[2]
Desmodium sessilifolium	sessile tick-trefoil	dry, sandy or gravelly soils, open woods and prairies	T
Juncus greenei	Greene's rush	moist or dry swales, dunes, fields	T
Krigia virginica	Virginia dwarf-dandelion	dry, open woods, prairies, dunes, meadows, fallow fields	T
Lechea minor	thyme-leaved pinweed	full sun, sandy woods, clearings, roadside banks	T
Lithospermum caroliniense	plains puccoon	beach ridges, barrens, fields, roadsides	T
Penstemon pallidus	downy white beard-tongue	fields, roadsides, open woods	T
Polygala polygama	racemed milkwort	dry to moist open woods, wood borders, dunes, banks, and fields	T
Pycnanthemum verticillatum var. pilosum	hairy mountain-mint	dry to moist woods, thickets, and clearings	T
Viola pedata	birdfoot violet	well-drained woods, fields, prairies, roadsides	T

1 Generalized Habitat Source: ODNR's 2018-2019 Rare Native Ohio Plants Status List (ODNR, 2020a)
2 E=Endangered, T=Threatened

Aquatic and Terrestrial Animals

Animal resources within 0.25 mile of the Project Area boundary were identified through review and analysis of existing data sources, including the North American Breeding Bird Survey, Audubon Christmas Bird Count, American Society of Mammologists, Ohio Aquatic Gap Analysis Project, and ODNR field guides and databases. Information from these sources has been synthesized and is presented below for birds, mammals, reptiles/amphibians, aquatic species, commercial species, and recreational species. Each of these discussions identifies potential presence of species designated as endangered or threatened in accordance with the U.S. and Ohio threatened and endangered species lists. Table 08-4 provides a summary of listed species with potential presence in the Project Area. See Section 4906-4-08(B)(1)(d) below for discussion of field surveys conducted on-site.

Table 08-4. Federal and State-Listed Species with Potential Presence in the Project Area

Scientific Name	Common Name	Listing[1]
Birds		
Circus hudsonius	northern harrier	S-E
Grus canadensis	sandhill crane	S-T
Chondestes grammacus	lark sparrow[2]	S-E
Cygnus buccinator	trumpeter swan[2]	S-T
Mammals		
Myotis sodalis	Indiana bat	F-E, S-E
Myotis septentrionalis	northern long-eared bat	F-T, S-T

Scientific Name	Common Name	Listing[1]
Reptiles		
Emydoidea blandingii	Blanding's turtle	S-T
Clonophis kirtlandii	Kirkland's snake	S-T
Fish		
Moxostoma valenciennesi	greater redhorse	S-T
Bivalve		
Ligumia recta	black sandshell	S-T
Obliquaria reflexa	threehorn wartyback	S-T
Villosa fabalis	rayed bean	F-E, S-E
Pleurobema clava	clubshell	F-E, S-E

1 S-State-listed, F-Federally-listed; E-endangered, T-threatened
2 This species was not identified in the sources listed below, however was identified by Cardno's Ecological Assessment

Birds

Breeding Birds: The North American Breeding Bird Survey (BBS), overseen by the Patuxent Wildlife Research Center of the USGS, is a long-term, long-scale international avian monitoring program that tracks the status and trends of North American bird populations. Each survey route is 24.5 miles long, with 3-minute point counts conducted at 0.5-mile intervals. During the point counts, every bird seen or heard within a 0.25-mile radius is recorded. No BBS routes traverse the Project Area. However, the Lockport route is located 6 miles south of the Project Area, running east-west. Due to its proximity, species observed along the Lockport route are likely reflective of species that may occur within 0.25 mile of the Project Area.

From 1966 to 2018, a total of 98 species have been recorded. Since 2000, the most observed species include the American robin (*Turdus migratorius*), house sparrow (*Passer domesticus*), common grackle (*Quiscalus quiscala*), red-winged blackbird (*Agelaius phoeniceus*), barn swallow (*Hirundo rustica*), mourning dove (*Zenaida macroura*), and killdeer (*Charadrius vociferus*) (Pardieck, et al., 2020). Of species recorded during breeding bird surveys, only one state-listed species was observed, the endangered northern harrier (*Circus cyaneus*), last recorded in 1994. Impacts from the Facility on the northern harrier are not anticipated due to the lack of preferred habitat within the Project Area. See section 4906-4-08(B)(3)(b) for additional information on measures to limit impacts to listed species.

Wintering Birds: Data from the Audubon Christmas Bird Count (CBC) provides an overview of the birds that inhabit a region during early winter. Counts take place on a single day during a three-week period around Christmas, when birdwatchers comb a 15-mile (24 km) diameter circle in order to count the number of bird species and individuals observed. The Goll Woods count circle is centered approximately 6 miles south of the Facility and overlaps the Project Area. Between 2018 and 2019, a total of 54 species

were recorded in the Goll Woods count circle (National Audubon Society, 2020). The most common wintering bird species observed include the mallard (*Anas platyrhynchos*), sandhill crane (*Grus canadensis*), European starling (*Sturnus vulgaris*), house sparrow, rock pigeon (*Columba livia*), and Canada goose (*Branta canadensis*) (National Audubon Society, 2020). Two state-listed species, the endangered northern harrier and threatened sandhill crane, were documented between 2018 and 2019. No federally listed endangered or threatened bird species were recorded (National Audubon Society, 2020; ODNR, 2020b);. See Section 4906-4-08(B)(3)(b) for additional information on measures to limit impacts to listed species.

Migratory Birds: The Hawk Migration Association of North America (HMANA) collects hawk count data from almost 200 affiliated raptor monitoring sites throughout the United States, Canada, and Mexico. The closest hawk watch site to the Project Area is located approximately 70 miles northeast, at the Pointe Mouillee State Game Area in Rockwood, Michigan. Due to the distance and landform differences between the Project Area and the Pointe Mouillee State Game Area hawk watch site, this site was not considered representative of conditions for migrating raptors in the vicinity of the proposed Facility.

Mammals

The occurrence of mammalian species was documented through evaluation of species range and available habitat, including data from the American Society of Mammologists and ODNR field guides. This effort suggests that approximately 35 species of mammals could occur in the area, including but not limited to: white-tailed deer (*Odocoileus virginianus*), eastern chipmunk (*Tamias striatus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), woodchuck (*Marmota monax*), striped skunk (*Mephitis mephitis*), common muskrat (*Ondatra zibethicus*), American mink (*Mustela vison*), long-tailed weasel (*Mustela frenata*), big brown bat (*Eptesicus fuscus*), little brown bat (*Myotis lucifugus*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), tri-colored bat (*Perimyotis subflavus*), and a variety of small mammals such as mice, moles, voles, and shrews. Most of the mammal species likely to occur in the area are common and widely distributed throughout Ohio. However, the Indiana bat (*Myotis sodalis*) is both state and federally listed as endangered, and the northern long-eared bat (*Myotis septentrionalis*) is both state and federally listed as threatened. Fulton County is identified by the ODNR as being within the distribution range of these species; however, impacts to these species are not anticipated due to the lack of suitable roosting and hibernation habitat within the Project Area (ODNR, 2016a). See section 4906-4-08(B)(3)(b) for additional information on measures to limit impacts to listed species.

Amphibian and Reptile

Reptile and amphibian presence in the vicinity of the Project Area was determined through review of the amphibian and reptile ODNR field guide, and ODNR's listed species in Fulton County. Based on this information, along with documented species ranges, it is estimated that 30 reptile and amphibian species could occur 0.25 mile of the Project Area boundary. These species may include, but are not limited to: common mudpuppy (*Necturus maculosus*), American toad (*Anaxyrus americanus*), eastern cricket frog (*Acris crepitans*), western chorus frog (*Pseudacris triseriata*), Cope's gray treefrog (*Hyla chrysoscelis*), gray treefrog (*Hyla versicolor*), snapping turtle (*Chelydra serpentina*), eastern box turtle (*Terrapene carolina carolina*), midland painted turtle (*Chrysemys picta marginata*), common watersnake (*Nerodia sipedon*), eastern milk snake (*Lampropeltis triangulum*), common ribbonsnake (*Thamnophis sauritus*), and eastern massasauga (*Sistrurus catenatus*) (ODNR, 2012; ODNR, 2008). Two state-listed threatened species, the Blanding's turtle (*Emydoidea blandingii*) and Kirtland's snake (*Clonophis kirtlandii*), were identified as potentially inhabiting Fulton County. These species have the potential to occur along the banks of streams or in areas frequently inundated with water; however, the Facility will be sited to avoid or minimize impacts to streams and inundated areas. The remainder of species identified in Fulton County are generally common and widely distributed throughout Ohio. See section 4906-4-08(B)(3)(b) for additional information on measures to limit impacts to listed species.

Aquatic Species

The potential occurrence of aquatic species in the vicinity of the Project Area was determined through review of the Ohio Aquatic Gap Analysis Project and ODNR data. Based on this information, it is estimated that approximately 74 species of fish, 39 species of bivalves, and five species of crayfish could occur in the area.

Fish species that may inhabit streams within 0.25 mile of the Project Area include, but are not limited to: American brook lamprey (*Lethenteron appendix*), black bullhead (*Ameiurus melas*), fantail darter (*Etheostoma flabellare*), freshwater drum (*Aplodinotus grunniens*), ghost shiner (*Notropis buchanani*), golden redhorse (*Moxostoma erythrurum*), Johnny darter (*Etheostoma nigrum*), longear sunfish (*Lepomis megalotis*), mimic shiner (*Notropis volucellus*), mottled sculpin (*Cottus bairdi*), northern hogsucker (*Hypentelium nigricans*), pumpkinseed (*Lepomis gibbosus*), rainbow darter (*Etheostoma caeruleum*), river redhorse (*Moxostoma carinatum*), rockbass (*Ambloplites rupestris*), shorthead redhorse (*Moxostoma macrolepidotum*), suckermouth minnow (*Phenacobius mirabilis*), tadpole madtom (*Noturus gyrinus*), trout-perch (*Percopsis omiscomaycus*), walleye (*Stizostedion vitreum v.*), yellow bullhead (*Ameiurus natalis*), and yellow perch (*Perca flavescens*).

Mollusk species that may occur within 0.25 mile of the Project Area boundary include, but are not limited to: creeper (*Strophitus undulates*), creek heelsplitter (*Lasmigona compressa*), cylindrical papershell (*Anodontoides ferussacianus*), deertoe (*Truncilla truncate*), elktoe (*Alasmidonta marginata*), fatmucket (*Lampsilis radiata*), giant floater (*Pyganodon grandis*), grooved fingernailclam (*Sphaerium simile*), kidneyshell (*Ptychobranchus fasciolar*), lilliput (*Toxolasma parvus*), long fingernailclam (*Musculium transversum*), mapleleaf (*Quadrula quadrula*), mucket (*Actinonaias ligamentina*),paper pondshell (*Utterbackia imbecillis*), pink heelsplitter (*Potamilus alatus*), Purple wartyback (*Cyclonaias tuberculata*), rainbowshell (*Villosa iris*), round hickorynut (*Obovaria subrotunda*), round pigtoe (*Pleurobema sintoxia*), river fingernailclam (*Sphaerium fabale*), salamander mussel (*Simpsonaias ambigua*), spike (*Elliptio dilatata*), striated fingernailclam (*Sphaerium striatinum*), threehorn wartyback (*Obliquaria reflexa*), threeridge (*Amblema plicata*), wabash pigtoe (*Fusconaia flava*), and wavyrayed lampmussel (*Lampsilis fasciola*).

Crayfish species that may occur within 0.25 mile of the Project Area boundary include big water crayfish (*Cambarus robustus*), devil crayfish (*Cambarus diogenes*) , paintedhand mudbug (*Cambarus species B*), papershell crayfish (*Orconectes immunis*), and rusty crayfish (*Orconectes rusticus*).

These aquatic species are generally common and widely distributed throughout Ohio. However, the following state-listed threatened aquatic species may occur in watersheds in the vicinity of the Project Area: greater redhorse (*Moxostoma valenciennesi*), black sandshell (*Ligumia recta*), and threehorn wartyback (*Obliquaria reflexa*). Two additional state and federally listed endangered species, the rayed bean (*Villosa fabalis*) and clubshell (*Pleurobema clava*), may also be found within 0.25 mile of the Project Area (ODNR, 2020b).

A majority of the federally-listed and state-listed species that may occur within the Project Area are located within the Stag Run – Bean Creek and Deer Creek – Bean Creek watersheds (hydrological unit codes [HUC] 04100006-020-020 and 04100006-020-030) (Covert, Kula, & Simonson, 2007). The Facility has been designed to avoid high-quality streams that may provide habitat for state or federal RTE species. Additionally, site-specific surveys were conducted for RTE species, the results of which showed no presence of such species. As a result, impacts to RTE species are not anticipated. See Section 4906-4-08(B)(1)(d) for results of site-specific field surveys. See section 4906-4-08(B)(3)(b) for additional information on measures to limit impacts to listed species.

Commercial Species

Commercial species consist of those trapped or hunted for fur. The ODNR regulates the hunting and trapping of the following furbearers in Fulton County: common muskrat, raccoon, red fox, gray fox

(*Urocyon cinereoargenteus*), coyote, American mink, Virginia opossum, striped skunk, long-tailed weasel, and American beaver (ODNR, 2019b). Each of these species is briefly described below, based on habitat and distribution data published by the ODNR (ODNR, 2020c; ODNR, 2020b).

- Common muskrat: Muskrat are abundant throughout Ohio, and prefer habitats with slow-moving water, such as creeks and wetlands. This species is likely to occur in the vicinity of the Project Area.
- Raccoon: Raccoon are common statewide, occupying a wide variety of habitats near water, including forests, cropland, and developed land. This species is likely to occur in the vicinity of the Project Area.
- Red fox: Red fox are common statewide, occupying a wide variety of habitats, including forests, cropland, and developed land. This species is likely to occur in the vicinity of the Project Area.
- Gray fox: Less common in Ohio than the red fox, gray fox prefers forested and shrubland habitats, avoiding open areas. Species density is low in Fulton County, but it could occur in low numbers in area woodlots and shrubland.
- Coyote: Once extirpated in Ohio, coyotes are now common statewide, occupying a wide variety of habitats, including forests, cropland, shrubland, and developed land. This species has a high density in Fulton County and is likely to occur in the vicinity of the Project Area.
- American mink: This semi-aquatic weasel has a statewide distribution and favors forested wetlands with abundant cover. Although the Project Area is predominantly open agricultural land, this species could occur in low numbers in the area woodlands.
- Virginia Opossum: Opossum are common statewide, occupying a wide variety of habitats, including forests, cropland, and developed land. This species has a high density in Fulton County and is likely to occur in the vicinity of the Project Area.
- Striped skunk: Skunk are common statewide, occupying a wide variety of habitats, including forests, cropland, and developed lands. This species has a high density in Fulton County and is likely to occur in the vicinity of the Project Area.
- Long-tailed weasel: Found in a wide variety of habitats including forests, cropland, and shrubland, this species is Ohio's most common weasel and is likely to occur in the vicinity of the Project Area.
- American beaver: Beavers are common statewide, inhabiting and modifying permanent sources of water of almost any type, particularly low gradient streams and small lakes and

ponds with outlets. Species density is moderate in Fulton County, so the species could occur in the vicinity of the Project Area.

Recreational Species

Recreational species consist of those hunted as game. The ODNR regulates the hunting of the following species in Fulton County: white-tailed deer, wild turkey (*Meleagris gallopavo*), gray squirrel (*Sciurus carolinensis*), red squirrel (*Tamiasciurus hudsonicus*), fox squirrel (*Sciurus niger*), cottontail rabbit (*Sylvilagus floridanus*), ring-necked pheasant (*Phasianus colchicus*), American crow (*Corvus brachyrhynchos*), mourning dove, and various waterfowl (ODNR, 2019b). Each of these species are briefly described below, based on habitat and distribution data published by the ODNR (ODNR, 2020c; ODNR, 2013; ODNR, 2016a), and the Christmas Bird Count (National Audubon Society, 2020).

- White-tailed deer: Deer are common statewide, occupying a wide variety of habitats, including forests, shrubland, cropland, and developed land. This species is likely to occur in the vicinity of the Project Area.
- Wild turkey: Once extirpated in Ohio, this species has re-established populations statewide, and is especially common in the southern and eastern parts of the state. Wild turkey is an adaptable species that prefers mature forest habitats but live successfully in areas with as little as 15% forest cover. This species has been documented in the Audubon CBC and is likely to occur in the vicinity of the Project Area.
- Gray, red, and fox squirrels: The fox squirrel is primarily an inhabitant of open woodlands, while the gray squirrel and the red squirrel prefer more extensive forested areas. However, all three species have adapted well to landscaped suburban areas and are often found around structures. These tree squirrels occur throughout Ohio and are likely to occur in the vicinity of the Project Area.
- Eastern cottontail rabbit: Cottontails are widespread and abundant statewide. The species prefers open areas bordered by brush and open woodlands and have adapted well to developed areas. Density for this species is moderate in Fulton County so this species may occur in the vicinity of the Project Area.
- Ring-necked pheasant: Although not native to North America, the pheasant is naturalized in northern and western Ohio and occupies open habitats such as agricultural landscapes and old fields. Historically, this species had been present in the vicinity of the Project Area. This species was last documented near the Project Area by the USGS BBS in 2010 and the Audubon CBC in 2008. This species is unlikely to occur in the Project Area.

- American crow: Crows are common statewide, occupying a wide variety of habitats, including forests, cropland, shrubland, and developed land. This species has been documented in the vicinity of the Project Area in the Audubon CBC.
- Mourning dove: Mourning doves are common statewide, occupying a wide variety of habitats, including cropland, shrubland, and developed land. This species was documented in the Audubon CBC.
- Waterfowl: The following waterfowl game species have been recorded in the vicinity of the Project Area by the Audubon CBC or USGS BBS: Canada goose, snow goose (*Chen caerulescens*), green-winged teal (*Anas carolinensis*), Ross's goose (*Chen rossii*), American black duck (*Anas rubripes*), and wood duck (*Aix sponsa*).

(d) Results of Field Surveys for Plant and Animal Life Identified in Literature Review

The literature review discussed in Section 4906-4-08(B)(1)(c) identified the potential presence of plants and animals in the vicinity of the Project Area based on previously published data and Cardno's agency consultations. This review largely identified common species, but also indicated that some RTE species could occur in the vicinity of the Project Area. Of particular concern are listed mussel species. According to mussel survey protocol outlined by the ODNR and U.S. Fish and Wildlife Service (USFWS), an official mussel survey is not required for this Facility because a majority of the streams on-site have drainage areas less than 10 square miles, and any potential impacts will be mitigated through the use of HDD installation of collection lines. However, Cardno conducted visual reconnaissance surveys simultaneously with stream delineations to determine the presence of mussels in the Project Area. If any mussels were found during streams delineations, the stream would be identified, and a follow-up survey would commence. No mussel species were observed during visual reconnaissance.

Cardno staff observed minimal wildlife use in the Project Area and did not observe any RTE species. This is likely due to the low-quality, highly disturbed nature of the area. Because of this, no additional studies were performed for identified state or federally listed species. Cardno consulted with the ODNR Division of Wildlife and the USFWS to determine the potential presence of listed species and impact avoidance or minimization efforts. Results of the consultation efforts are detailed in Sections 4906-4-08(B)(2)(b) and (3)(b), and in Appendix B of Exhibit F.

(e) Summary of Additional Ecological Impact Studies

All ecological impact studies are discussed above in Section 4906-4-08(B)(1)(b) and (d).

(2) Construction Impacts

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

Because the Facility is located entirely on leased private land, there will be no construction-related impacts to recreational areas, parks, wildlife areas, nature preserves, or other conservation areas. Potential impacts to undeveloped areas, plants, and animals may occur during construction as a result of the installation of PV panels, access roads, and electrical interconnects; development and use of the laydown yard; and the construction of the collection substation. Anticipated impacts to these resources are discussed below.

Impacts to Plants

Construction activities that may result in impacts to vegetation include site preparation, earth-moving, excavation, and backfilling activities associated with construction of the laydown yard, access roads, substations, and buried collection lines. These activities will result in the cutting and clearing of vegetation, the removal of stumps and root systems, and increased exposure or disturbance of soil. Along with direct loss of, and damage to, vegetation, these impacts can result in a loss of wildlife food sources and habitat, increased soil erosion and sedimentation, increased risk of colonization by non-native invasive species, and disruption of normal nutrient cycling; however, it is not anticipated that any plant species occurring in the Project Area will be extirpated or significantly reduced in abundance as a result of construction activities.

Impacts to Wildlife Species

Construction-related impacts to wildlife are anticipated to be very limited given that the Facility will be sited on agricultural land, which provides habitat for only a limited number of wildlife species. Potential impacts from construction are described below.

Incidental Injury and Mortality: Because most Facility components are sited in active agricultural land that provides limited wildlife habitat, and which currently and historically experiences frequent agricultural-related disturbances, such impacts are anticipated to be very minor.

Siltation and Sedimentation: To prevent adverse effects to water quality and aquatic habitat during construction, runoff will be managed under an NPDES construction storm water permit and the associated SWPPP. An erosion and sediment control plan will be developed prior to construction that will use appropriate runoff diversion and collection devices (Exhibit N). Also, because the majority of Facility components are being sited in active agricultural land, soil disturbance or exposure due to Facility construction will generally occur in areas already subject to regular agricultural disturbances such as plowing, tilling, and harvesting.

Habitat Loss: The Facility will be built on or adjacent to agricultural land, which provides habitat for mostly common wildlife species. In addition, most of these areas are already subject to periodic disturbance from agricultural activities. Forest communities have largely been avoided and will experience less than 0.1 acre of construction-related disturbance.

Disturbance/Displacement: Some wildlife displacement may also occur due to increased noise and human activity as a result of Facility construction. The significance of this impact will vary by species and the seasonal timing of construction activities. Because most of the Facility will be located on agricultural land, species utilizing those habitats are most likely to be temporarily disturbed or displaced by Facility construction; however, the few bird and mammals species observed by Cardno during field investigations should have the capability of vacating the Project Area during construction. Additionally, similar habitat is available adjacent to the Facility for displaced species.

Impacts to Habitat

Table 08-5 and Table 08-6 quantify the temporary and permanent impacts to natural resources. Impacts were calculated using the impact assumptions outlined in the Ecological Assessment.

Table 08-5. Temporary Impacts to Natural Resources

Impact Type	Upland Soil (acres)	Wetland (acres)	Streams (acres)	Ditches (acres)	Ponds (acres)
Access Roads	22.23	0	0	0	0
Buried Collection Line	10.04	0	0	0	0
Overhead Collection Line	0.5	0	0	0	0
Laydown Area	5.15	0	0	0	0
Substation	<0.5	0	0	0	0
Array Pilings / Panels	0	0	0	0	0
Gen-Tie Line	0.1	0	0	0	0
Inverter Pads	0	0	0	0	0
Pyranometer	0	0	0	0	0
Total	38.52	0	0	0	0

Table 08-6. Permanent Impacts to Natural Resources

Impact Type	Upland Soil (acres)	Forested Uplands (Tree Clearing) (acres)	Wetland (acres)	Streams (acres)	Ditches (acres)	Ponds (acres)
Access Roads	16.13	0.04	0	0	0	0
Buried Collection Line	0	0.19	0	0	0	0
Overhead Collection Line	0.01	0	0	0	0	0
Laydown Area	1	0	0	0	0	0

Substation	1.8	0	0	0	0	0
Array Pilings / Panels	1.3	3	0	0	0	0
Gen-Tie Line	0.05	0	0	0	0	0
Inverter Pads	0.2	0	0	0	0	0
Pyranometer	<0.01	0	0	0	0	0
Total	20.5	3.23	0	0	0	0

Impacts to Wetlands and Surface Water Habitats

The proposed Facility has been designed to avoid impacting wetlands and surface waters, to the extent practicable, and to minimize such impacts where avoidance is not possible. The Facility has been sited in upland areas that are currently or were recently used for agricultural production. Additionally, collection lines that cross wetlands or streams have been routed overhead, or will be installed via HDD to further reduce potential impacts.

Temporary impacts to wetlands and streams could occur during cut and fill activities for the access roads or trenching for underground collection lines. The Facility is not sited to cross any delineated wetlands on-site, so no temporary or permanent impacts are anticipated. Additionally, only one stream is will be crossed by a Facility component. This crossing will occur from an underground collection line, which will be installed using HDD techniques. HDD installation of the underground line is not anticipated to cause any temporary or permanent impact to the stream it is crossing. Due to careful Facility design, no direct impacts to streams or wetlands are anticipated. For additional information on wetland impacts, see Appendix E of Exhibit F.

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

(i) Site restoration and stabilization of disturbed soils

Following completion of construction, temporarily impacted areas will be restored to their pre-construction condition. Restoration activities are anticipated to include the following:

- Buried electrical collection line routes 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.
- The laydown yard will be removed post-construction, followed by gravel removal and soil decompaction, as necessary.

All removed inorganic 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 transportation.

The objectives of reclamation and revegetation are to return the disturbed areas to approximately pre-construction use and capability. This involves the treatment of soil as necessary to preserve approximate pre-construction capability and the stabilization of the work surface in a manner consistent with the initial land use.

(ii) Frac out contingency plan

Facility construction will include the use of trenchless excavation methods known as HDD. This widely used technique accomplishes the installation of buried utilities with minimal impact, by routing the utility under a sensitive feature such as a stream, river, or wetland. HDD operations have the potential to inadvertently release drilling fluids into the surface environment. This inadvertent release is referred to as a "frac out" and occurs due to pressurization of the drill hole beyond the containment capability of the overburden soil material, or through fractured bedrock into the surrounding rock. The HDD procedure uses a bentonite slurry, a fine clay material, as a drilling lubricant. Although bentonite is non-toxic and non-hazardous, it has the potential to adversely impact aquatic species if released into waterbodies. Seepage of drilling fluid is most likely to occur near the bore entry and exit points where the drill head is shallow. Frac outs can occur, however, in any location along a directional bore.

An Inadvertent Release of Drilling Fluid Contingency Plan is included as Appendix F of the Ecological Assessment (Exhibit F) and sets forth response measures for inadvertent returns and containment methods for various locations (e.g., inland, wetlands, or streams), notification procedures, and clean-up activities.

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

The boundaries of jurisdictional streams and wetlands within and immediately adjacent to the construction limits of disturbance will be demarcated with highly visible flagging, staking, or fencing prior to construction. These sensitive areas will also be depicted on construction drawings. 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

The Applicant will seek coverage for the Facility under the Ohio EPA construction stormwater general NPDES permit. The NPDES permit requires development of a SWPPP for erosion control and stormwater management.

To avoid and minimize impacts to aquatic resources resulting from construction-related siltation and sedimentation, an approved SWPPP will be implemented. To protect surface waters, wetlands, groundwater, and stormwater quality, erosion and sediment control measures will be installed and maintained throughout site development. Such measures might include silt fence, hay bales, and/or temporary siltation basins. Examples of best management practices (BMPs) for erosion and sedimentation control are provided in Exhibit N. The location of these features will be detailed on the construction drawings, approved by the Ohio EPA as part of the NPDES review, and reviewed by the contractor prior to construction.

Erosion and sediment control measures will be inspected by a qualified individual throughout the construction phase to assure that they are functioning properly until completion of all restoration work. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site vehicle tracking. Inspections will be conducted at least once every seven calendar days, and within 24 hours after any storm event with 0.5 inch or greater of rain. This inspection frequency may be reduced to once every month if the entire site is temporarily stabilized and runoff is unlikely due to weather conditions such as snow, ice, or frozen ground.

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

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

- any corrective actions recommended.

For three years following the submittal of a notice of termination form, the Applicant will maintain a record summarizing the results of the SWPPP inspections described above, including the names(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWPPP, and a signed certification as to whether the Facility is in compliance with the SWPPP.

As described above, a duly-qualified individual will also inspect these features throughout the construction phase to assure that they are functioning properly until completion of all restoration work.

(v) Measures to protect vegetation

Protection of vegetation will primarily be accomplished through careful site planning. Nearly all 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 BMPs during construction; and maintaining a clean work area within the designated construction sites. Following construction activities, temporarily disturbed areas will be seeded to reestablish vegetative cover in these areas. Other than in active agricultural fields, native species will be allowed to revegetate all temporarily disturbed areas.

(vi) Options for clearing methods and disposing of brush

Although the Facility is located almost exclusively on agricultural land, some vegetative and tree clearing may be required. Trees cleared from the work area will be cut into logs and either left for the landowner or removed, while limbs and brush will be buried, chipped, or otherwise disposed of as directed by the landowner and as allowed under federal, state, and local regulations. Using these methods avoids the need for and movement of heavy vehicles, further limiting the impact of construction at the Project Area.

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

Based on Cardno's consultations with the ODNR and USFWS and on-site field surveys, habitat for state or federal RTE species within the Project Area is minimal. The Facility has been sited to avoid

the majority of woodlots and all high-quality streams. If the Facility requires tree clearing, such activities will be conducted between October 1 and March 31, per USFWS guidelines, to further avoid potential impacts to the Indiana and northern long-eared bats. Additionally, potential impacts to RTE aquatic species will be mitigated through the use of BMPs, as previously discussed, to reduce risks of erosion and sedimentation, and through low-impact installation methods such as HDD for buried collection lines.

(3) Operation 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. As previously indicated, the Facility is located entirely on leased private land. Therefore, 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

The Applicant has sited the Facility to avoid wetlands and streams to the maximum extent practicable. Once operational, the Facility is not anticipated to result in additional impacts to wetlands and streams.

Forested areas that may contain mature trees will be avoided to the maximum extent practicable, minimizing impacts of forest fragmentation and suitable wildlife habitat. While additional tree clearing is not expected during the operational phase of the Facility, if required due to shading, tree clearing activities will be conducted between October 1 and March 31 to avoid impacts to bat species. Additional vegetation management practices may include the application of herbicide, as necessary, around fence lines. Applications will be made by a licensed professional and in accordance with manufacturer instructions. A Vegetation Management Plan is included as Exhibit O.

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. Because 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

Land uses within 1 mile of the Project Area are shown on Figure 08-4. Land use mapping was developed using parcel data obtained from the Fulton County Auditor's Office. Among other information, Figure 08-4 shows the following features:

(a) Land Use Map

(i) The proposed Facility

The proposed Facility layout includes PV panels, collection lines, access roads, inverters, laydown and O&M area, fenceline, substation, and gen-tie line.

(ii) Land use

Land use was mapped within 1 mile of the Project Area. A majority of land use is agricultural, with some residential parcels and more diverse land use near the Village of Fayette.

(iii) Structures

Structures within 1 mile of the Project Area primarily include residences. Structures were digitized based on aerial imagery, and confirmed through existing databases, and include residences and other buildings people congregate for extended periods of time.

(iv) Incorporated areas and population centers

Only one population center, the Village of Fayette, is located within 1 mile of the Facility.

(b) Structures Table

(i) Distance between structures/property lines and the nearest PV panel (for structures within 1,500 feet)

Distances between the PV panels and existing structures within 1,500 feet are shown in Table 08-7 below. Distance between PV panels and property lines within 1,500 feet are shown in Table 08-8.

There are 34 structures within 1,500 feet of a PV panel. Table 08-7 presents the distance to the nearest PV panel and the participation status of the underlying parcel (i.e., participating or non-participating).

Table 08-7. Structures Within 1,500 Feet of a PV Panel

Structure Type	Distance to PV Panel (Feet)	Participation Status of Underlying Parcel[1]
Residence	131.1	Non-participating
Residence	145.6	Non-participating
Residence	170.6	Non-participating
Residence	180.6	Non-participating
Residence	184.4	Non-participating
Residence	185.6	Participating
Residence	202.0	Participating
Residence	214.4	Non-participating
Residence	226.7	Non-participating
Residence	233.8	Non-participating
Residence	309.6	Participating
Residence	327.4	Non-participating
Residence	409.8	Non-participating
Residence	456.3	Non-participating
Residence	491.0	Non-participating
Residence	549.5	Non-participating
Residence	565.8	Participating
Residence	598.5	Non-participating
Residence	631.7	Non-participating
Residence	647.7	Non-participating
Residence	680.7	Non-participating
Residence	831.9	Non-participating
Residence	834.8	Non-participating
Residence	848.7	Non-participating
Residence	894.6	Non-participating
Residence	940.4	Non-participating
Residence	1,081.1	Non-participating
Residence	1,082.9	Non-participating
Residence	1,087.9	Non-participating

1 Landowners with parcels anticipated to be under a lease or easement agreement at the time of Facility construction are identified as participating residences for the purposes of this Application.

There are 91 properties within 1,500 feet of a PV panel. For each of these properties, Table 08-8 presents the distance to the nearest PV panel and the lease status of the parcel (i.e., participating or non-participating).

Table 08-8. Parcels Within 1,500 Feet of a PV Panel

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status[2]
18-035928-01.000	0	Participating
18-035904-00.000	0	Participating
18-035908-00.000	0	Participating
18-036192-00.000	0	Participating
18-036220-02.000	0	Participating
18-036168-02.000	0	Participating
18-036176-00.000	0	Participating
18-036180-01.000	0	Participating
18-036160-00.000	0	Participating
18-036164-00.000	0	Participating
18-035992-00.000	0	Participating
18-035936-00.000	0	Participating
18-035988-00.000	30.0	Non-participating
18-035908-01.000	30.0	Non-participating
18-036168-01.000	30.1	Non-participating
18-036196-00.000	30.1	Non-participating
18-035988-01.000	30.6	Non-participating
18-036160-02.000	32.3	Participating
18-035928-00.000	34.1	Non-participating
18-036160-01.000	35.4	Participating
18-035940-00.000	37.3	Participating
18-036220-01.000	43.3	Participating
18-036172-00.000	45.4	Non-participating
18-036204-00.000	47.0	Non-participating
18-036212-00.000	47.6	Participating
18-035932-00.000	47.8	Non-participating
18-036164-02.000	48.4	Non-participating
18-036224-00.000	52.5	Non-participating
18-036172-01.000	52.7	Non-participating
18-035944-00.000	55.8	Non-participating
18-036180-00.000	57.4	Non-participating
18-036192-01.000	58.6	Non-participating
18-036220-00.000	60.7	Non-participating
18-036188-00.000	62.8	Non-participating
18-036164-01.000	67.4	Non-participating
18-036208-00.000	69.2	Non-participating
18-036136-00.000	70.7	Participating
18-036144-00.000	70.7	Non-participating

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status[2]
18-035964-00.000	84.5	Non-participating
18-035924-00.000	88.7	Non-participating
18-035928-02.000	89.0	Non-participating
18-036140-00.000	89.6	Participating
18-035900-00.000	93.5	Non-participating
18-036152-01.000	97.3	Participating
18-035628-00.000	99.6	Non-participating
18-035900-01.000	143.6	Non-participating
18-036056-00.000	153.5	Non-participating
18-035916-00.000	185.7	Participating
18-035936-01.000	192.9	Non-participating
18-101800-10.000	300.0	Non-participating
18-035968-00.000	329.5	Non-participating
18-036168-00.000	411.7	Non-participating
18-035936-02.000	425.2	Non-participating
18-036000-00.000	455.9	Non-participating
18-035976-00.000	499.2	Non-participating
18-036004-00.000	515.1	Non-participating
18-035956-00.000	556.8	Non-participating
18-035980-00.000	564.2	Non-participating
18-036184-00.000	662.0	Participating
18-101800-00.000	705.0	Non-participating
18-035896-00.000	711.3	Non-participating
18-035616-00.000	770.6	Non-participating
18-035932-01.000	772.0	Non-participating
18-035848-00.000	913.5	Non-participating
18-035848-01.000	927.9	Non-participating
18-035852-00.000	935.5	Non-participating
18-035868-01.000	936.7	Non-participating
18-036472-00.000	960.9	Non-participating
18-036508-00.000	964.6	Non-participating
18-036508-01.000	970.5	Non-participating
18-036460-00.000	977.0	Non-participating
18-035868-00.000	978.1	Non-participating
18-036524-00.000	979.2	Non-participating
18-036152-00.000	1,033.7	Participating
18-036548-00.000	1,044.6	Participating
18-036476-02.000	1,209.5	Non-participating
18-035596-01.000	1,228.3	Non-participating
18-035996-00.000	1,270.3	Non-participating

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status[2]
18-036200-00.000	1,355.8	Non-participating
18-036216-00.000	1,371.4	Non-participating
18-035612-00.000	1,430.8	Non-participating
18-036128-00.000	1,435.7	Non-participating
18-036012-01.000	1,436.9	Non-participating
18-035868-02.000	1,450.1	Non-participating
18-035856-00.000	1,450.4	Non-participating
18-035856-01.000	1,452.4	Non-participating
18-035684-00.000	1,457.0	Non-participating

1 Distances that equal zero represent parcels that contain PV panels.
2 Landowners with parcels anticipated to be under a lease or easement agreement at the time of Facility construction are identified as participating for the purposes of this Application.

(ii) Distance between structures/property lines and associated facility (for structures within 250 feet of access road, collection line, or other associated facility)

Distances between associated facilities and existing structures within 250 feet are shown in Table 08-9. Distances between the associated facilities and property lines within 250 feet are shown in Table 08-10.

There are four structures within 250 feet of an associated Facility component including collection lines, access roads, laydown yard, O&M building, or collection substation.

Table 08-9. Structures Within 250 Feet of a Facility Component

Structure Type	Distance (Feet)	Closest Facility Component	Lease Status of Underlying Parcel[1]
Residence	78.8 137.0	Access Road Underground Collection Line	Participating
Residence	205	Underground Collection Line	Non-participating
Residence	216.9	Underground Collection Line	Non-participating
Residence	245.2	Underground Collection Line	Non-participating

1 Landowners with parcels anticipated to be under a lease or easement agreement at the time of Facility construction are identified as participating residences for the purposes of this Application.

There are 29 parcels within 250 feet of an associated Facility component, including 26 parcels that are within 250 feet of multiple Facility components. For each occurrence of an associated Facility component within 250 of a property line, Table 08-10 presents the distance to the parcel boundary and the lease status of the parcel (i.e., participating or non-participating).

Table 08-10. Parcels Within 250 Feet of a Facility Component

Parcel ID	Distance (Feet)[1]	Associated Facility Component	Lease Status[2]
18-035908-01.000	78.4 130.2	Access Road Underground Collection Line	Participating
18-035936-02.000	12.2 15.2 26.0 119.1 119.6 219.8	O&M Building Collection Line Laydown Yard Overhead Collection Line Underground Collection Line Access Road	Non-participating
18-035928-00.000	14.3 231.4	Access Road Access Road	Non-participating
18-035924-00.000	48.4 127.3 149.3 155.6 202.8	Access Road Underground Collection Line Underground Collection Line Overhead Collection Line Underground Collection Line	Non-participating
18-036224-00.000	110.6 215.3	Access Road Underground Collection Line	Non-participating
18-036192-01.000	60.5	Underground Collection Line	Non-participating
18-035932-00.000	10.7 88.6 97.8	Access Road Access Road Underground Collection Line	Non-participating
18-035940-00.000	0 0 15.7 79.6	Underground Collection Line Overhead Collection Line Access Road Access Road	Participating
18-035916-00.000	98.3 176.1	Overhead Collection Line Laydown Yard	Participating
18-036160-01.000	39.1 62.7 201.8	Access Road Underground Collection Line Underground Collection Line	Participating
18-036164-02.000	31.6 29.6 53.3	Access Road Underground Collection Line Underground Collection Line	Non-participating
18-035928-01.000	0 0	Access Road Underground Collection Line	Participating
18-035904-00.000	0 0	Access Road Underground Collection Line	Participating
18-036164-01.000	92.7	Underground Collection Line	Non-participating
18-036192-00.000	0 0 8.1	Access Road Underground Collection Line Access Road	Participating
18-036220-02.000	0 0	Access Road Underground Collection Line	Participating

Parcel ID	Distance (Feet)[1]	Associated Facility Component	Lease Status[2]
18-035908-00.000	0 0 54.5 9.2 10.6	Access Road Underground Collection Line Overhead Collection Line Access Road Access Road	Participating
18-036220-01.000	0 42.6 47.3 48.7 117.2	Underground Collection Line Access Road Access Road Underground Collection Line Underground Collection Line	Participating
18-036220-00.000	56.5 75.6 78.2	Underground Collection Line Access Road Underground Collection Line	Participating
18-036160-02.000	116.8 173.3	Access Road Underground Collection Line	Participating
18-036176-00.000	0.0 0.0	Access Road Underground Collection Line	Participating
18-036180-01.000	0 0 127.0	Access Road Underground Collection Line Access Road	Participating
18-036168-02.000	0 0	Access Road Underground Collection Line	Participating
18-036160-00.000	0 0 234.7	Access Road Underground Collection Line Access Road	Participating
18-036164-00.000	0 0 7.0 10.3 11.0 72.4	Access Road Underground Collection Line Access Road Access Road Access Road Access Road	Participating
18-035936-01.000	62.3 207.7	Access Road Collection Substation	Non-participating
18-035992-00.000	0 0 0 10.6 11.7 53.1 59.6	Access Road Access Road Underground Collection Line Access Road Access Road Underground Collection Line Access Road	Participating
18-035928-02.000	101.6	Underground Collection Line	Non-participating

Parcel ID	Distance (Feet)[1]	Associated Facility Component	Lease Status[2]
18-035936-00.000	0	Access Road	Participating
	0	Underground Collection Line	
	0	Overhead Collection Line	
	0	Collection Substation	
	0	O&M Building	
	0	Laydown Yard	
	39.5	Access Road	

1 Distances that equal zero represent parcels that contain associated Facility Components
2 Landowners with parcels anticipated to be under a lease or easement agreement at the time of Facility construction are identified as participating for the purposes of this Application

(iii) Land/lease status of the property for each structure

The lease status for each structure and property is presented above in Table 08-7 through Table 08-10.

(c) Land Use Impacts

Table 08-11 below represents the impact assumptions used to calculate land use impacts for each Facility component.

Table 08-11. Impact Assumptions

Facility Components	Area of Temporary Disturbance (maximum area of disturbance)[3]	Area of Permanent Disturbance (fill/structures)	Area of Total Soil Disturbance (temporary and permanent)
Solar Arrays[1]	None	572 acres	572 acres
Access Roads[4]	30 feet wide per linear foot of road	20 feet wide per linear foot of road	50 feet wide per linear foot of road
Buried Collection Line	20 feet wide per linear foot of cable	None	20 feet wide per linear foot of cable
Overhead Collection Line	None	50-foot ROW	50-foot ROW
Collection Substation	0.4 acre	1.8 acres	1.8 acres
O&M Building	None	1 acre	1 acre
Laydown Yard	5.1	1.0 acres	6.1 acres
Inverter Pad[2]	None	0.2 acre	0.2 acre
Gen-tie Line	None	0.2 acre	0.2 acre

1 The area of permanent disturbance refers to the entire area under and between the panels, as that land will be taken out of production for the lifetime of the Facility.
2 The footprint of one inverter pad is up to 265 square feet. Up to 33 inverter pads are proposed for the Facility.
3 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.
4 Up to a 50-foot area of temporary disturbance is included to accommodate access road locations with two-way traffic, or cut and fill activities.

Table 08-12 presents the total, temporary, and permanent land use impacts on land uses illustrated on Figure 08-4, for each land use type and by Facility component. Facility-related impacts to land use were

calculated based on the impact assumptions provided in Table 08-11 and the land use codes for each parcel, obtained from the Fulton County Auditor's Office. In ArcGIS, Facility components were intersected with the parcel data, resulting in areas of impact to each land use associated with the respective Facility components, and then the impact areas or lengths for all Facility components were entered into a spreadsheet for calculation.

The land use impact from PV panels is considered permanent because this land will be unavailable for other uses for the life of the Facility. This permanent loss totals 572 acres. All parcels containing PV panels have a land use code that indicates agricultural use, so the 572 acres of impact is to agricultural land. For linear components such as access roads and collection lines, the appropriate impact widths from Table 08-11 were multiplied by the component 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 and for each land use type.

Table 08-12. Land Use Impacts

Land Use	Temporary Disturbance (acres)[1]	Permanent Loss (acres)	Total Disturbance (acres)
Agricultural (100)			
PV Panel	0.0	572.0	572.0
Access Roads	22.3	16.1	38.4
Buried Collection Line	10.0	0.0	10.0
Overhead Collection Line	0.0	4.2	4.2
Laydown Yard	5.1	1.0	6.1
O&M Building	0.0	1.0	1.0
Collection Substation	0.4	1.8	2.2
Inverter Pads	0.0	0.2	0.2
Gen-tie Line	0.0	<0.1	<0.1
Commercial (400)			
Gen-tie Line	0.0	0.2	0.2
Total	37.8	596.5	634.3

1 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.

Although changes in land use are anticipated within the Project Area as a result of Facility operation, no changes are predicted outside the Project Area. The presence of the PV panels, the collection substation, and other ancillary structures will result in the cumulative conversion of 596.5 acres of land from its current use to built facilities, which represents approximately 59% of the Project Area (1,010 acres). During

Facility operation, no additional impacts to land use are anticipated. All of the impacts from Facility construction and operation will occur on agricultural land.

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

No structures will be removed or relocated as part of construction or operation of the Facility.

(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

Fulton County is the only Ohio jurisdiction within 5 miles of the Project Area with formally adopted plans for future land use.

The 1998 Fulton County Comprehensive Plan is complimented by a Natural Resource Amendment, which was prepared in 2004 and updated in 2011. The 1998 Comprehensive Plan is primarily focused on projected population increases with land use strategies that will adequately provide civic features and economic stability, and conserve resources to serve future residents. The plan establishes goals within the following categories: growth, community character, asset management, agricultural preservation, transportation, economic development, and implementation.

Sprawl mitigation and appropriate land use are the focal points of the plan. As stated in the plan, “Fulton County seeks to preserve its heritage and character as it grows. This means establishing a plan that keeps the cities and villages from growing together into a single mass” (p. 13). Some related goals are to “support the preservation of agricultural land not needed for development” and “provide adequate land for a full range of economic opportunities in commercial, service and industrial segments” (p. 14 and 15). The Project does not threaten the intention of this plan to prevent inappropriate suburban development

from encroaching on the county's open space. Furthermore, the Project would not significantly disturb or damage agricultural viability of the land in a manner which would prevent future farming activities.

Goals for economic development include providing adequate land for a full range of economic opportunities in commercial, service, and industrial segments and increasing the percentage of the Fulton County work force that can be employed within the County. The Facility represents a diversification of the economic landscape, as well as new jobs through the construction and operational phases.

The 2004 Natural Resource Amendment to the 1998 Comprehensive Plan provides specific focus on Fulton County's natural resource landscape. Ohio's landscape and related statewide policies are addressed in this amendment. For example, Ohio passed an law requiring that energy providers must have one quarter of their energy come from alternative sources by 2025, a policy which was not included in the 1998 Comprehensive Plan. The document includes a summary of Ohio and Fulton County's solar resource, mapped solar energy projects, a list of incentives for solar projects, and a general endorsement of solar and other renewables for Fulton County. These initiatives included in the 2004 Natural Resource Amendment compliment the Facility, which can aid the state in reaching renewable energy goals.

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

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

(c) Impact on Regional Development

Housing

The Facility is not anticipated to impact local housing. The Facility will not result in a significant increase in rental property owners, and given the availability of vacant housing, the Facility is not anticipated to have a destabilizing effect on current renters. For additional information on housing within the 5-mile study area, see Exhibit E.

Commercial and Industrial Development

The impact of the Project on local commercial and industrial development during construction and operation is discussed further in Section 4906-4-06(E) of this Application. The Project will generate employment opportunities during construction and operation. Employee earnings, spending on accommodations, food, and activities during construction, and direct payments to landowners participating in the Project are expected to increase spending in the local economy. This spending would support commercial development in the region.

Schools

The Facility is located within the Fayette Local School District. Development of the Facility will result in substantial positive economic benefits to the school district in the form of the PILOT payment, discussed in further detail in Section 4906-4-06(E)(3). The Project will bring jobs to the region, primarily during construction. It is expected that most of these workers will travel to the area rather than relocating permanently; therefore, the Project is not expected to increase the need for services from the school district.

Transportation System Development

Transportation within the 5-mile study area includes numerous state, county, and local roads, one freight line, and a private airport which is no longer operating. The Facility is not anticipated to impact roadway traffic, given the existing low traffic volumes, nor the conditions of the roads. For more information on roadway impacts, see Exhibit C and Section 4906-4-06(F)(4). Impacts to the freight line are not anticipated because the transportation of Facility components will not utilize the rail system. Adverse impacts to air navigation are also not anticipated from Facility construction due to the large distance between the Facility and the nearest airport (4 miles away), which is no longer in use. Additional discussion on glare and impacts to aviation facilities is provided in Section 4906-4-07(D). While the Project will bring jobs to the area, causing a temporary increase in traffic, this traffic will not impact the development of the transportation system in the region.

Other Public Services and Facilities

The Facility is not expected to have significant growth-inducing effects on the surrounding locales. Therefore, no significant impact on local public services and facilities is expected. Workers will commute to the work site daily. Local employees will be hired to the extent possible. Hiring of non-resident workers would occur only when local residents with the required skills were not available or competitive. It is expected that non-resident workers would commute or stay in regional transient housing or motels, and not require new housing. It is also assumed that non-resident workers would not bring families that might require family healthcare or additional school facilities. The principal impact on public services in the site locale would be a temporary increase in traffic on roads leading to the Project Area, due to deliveries of equipment and materials during construction.

(d) Regional Plan Compatibility

There would be no impacts to regional plans or regional growth as a result of this Facility. As discussed in Section 4906-4-08(C)(3)(a), one entity within 5 miles of the Project Area has adopted comprehensive land use plans, strategic downtown plans, and/or economic development plans. The compatibility of the Facility with those plans is discussed above in Section 4906-4-08(C)(3)(a).

(e) Current and Projected Population Data

Table 08-13 presents the population trends for the Ohio counties, townships, and villages located within 5 miles of the Project Area, including percent change in population from 2000 to 2018. A majority of these jurisdictions have experienced slight population decreases. The population trends experienced by each community from 2000 to 2018 are expected to continue regardless of whether the proposed Facility is built.

Table 08-13. Population of Ohio Jurisdictions within 5 Miles

Jurisdiction	2000 Population	2018 Population	Annual Growth Rate (2000-2018)	Projected 2030 Population	Projected Total Growth (2018-2030)	2018 Population Density (people per square mile)
Fulton County	41,654	42,305	0.2%	42,748	1.0%	104
Williams County	38,105	36,936	-0.4%	36,188	-2.0%	87
Chesterfield Township	1,050	988	-0.3%	950	-3.9%	34
Gorham Township	2,372	2,221	-0.4%	2,129	-4.2%	51
Village of Fayette	372	353	-0.3%	341	-3.4%	384
Franklin Township	739	610	-1.0%	543	-11.0%	21
German Township	6,355	6,416	0.1%	6,457	0.6%	126
Dover Township	1,468	1,743	1.0%	1,974	13.2%	81
Mill Creek Township	900	828	-0.4%	785	-5.2%	34

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

Although construction employment for 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 region.

(D) CULTURAL AND ARCHAEOLOGICAL RESOURCES

(1) Landmarks of Cultural Significance Map

Figure 08-5 depicts formally adopted land and water recreation areas, recreation trails, scenic rivers, scenic routes or byways, and registered landmarks of historic, religious, archaeological, scenic, natural, or other cultural significance in Ohio within 10 miles of the Project Area.

EDR conducted a literature review for archaeological and historic resources within 2 miles of the Project Area (Cultural Resources Study Area). Results of the review are provided in the Phase 1A Cultural Resources Survey (Phase 1A Survey), included as Exhibit G. The purpose of the Phase 1A Survey is to assist the Ohio State Historic Preservation Office (SHPO) in the review of the Facility. The Phase 1A Survey documents

previously identified cultural resources located within the Cultural Resources Study Area, that could potentially be affected by the construction and operation of the Facility. The Phase 1A Survey also includes proposed research designs for subsequent archaeological and historical resources field surveys that the Applicant anticipates will be necessary for the Facility.

EDR reviewed numerous sources of information relating to archaeological and historic resources located within the Cultural Resources Study Area, including:

- National Register of Historic Places (NRHP)
- NRHP Determination of Eligibility (DOE)
- National Historic Landmarks (NHL)
- Ohio Historic Inventory (OHI)
- ODOT Historic Bridge Inventory
- Ohio Archaeological Inventory (OAI)
- Ohio Genealogical Society (OGS) cemetery files
- Mills Archaeological Atlas of Ohio (1914)
- SHPO previous cultural resources surveys

Within the Project Area, one OGS cemetery was identified. Within the Cultural Resources Study Area, two additional OGS cemeteries were identified, along with 136 OHI properties and three archaeological resource sites. In addition to identified resources, five previous cultural surveys have been conducted in the vicinity of the Facility, including one in the Project Area, and the remaining four within the Cultural Resources Study Area. No NRHP properties, NRHP-eligible properties, National Historic Landmarks, historic bridges, or OAI sites were identified within the Cultural Resources Study Area.

(2) Impact to Landmarks and Mitigation Plans

Currently, on-site surveys assessing direct effects on archaeological resources and indirect effects on historic resources in the vicinity of the Facility are in progress by Cardno. These surveys include a pedestrian surface survey, shovel testing, and artifact collection and analysis for archaeological resources, and a historic resources survey with completion of SHPO inventory forms for historic resources. Work plans for these surveys have been submitted to the SHPO, and all work will be conducted in accordance with SHPO requirements and guidance.

Significant direct effects to archaeological resources are not anticipated because the majority of the Facility is sited on open, agricultural land, which allows for potential affects to be mitigated by minor layout modifications. In the event that a potentially NRHP-eligible archaeological site cannot be avoided by the

proposed Project, then additional Phase II site investigations and, potentially, Phase III data recovery/mitigation would be conducted at the site. In most instances, the types of finds noted below will not be considered NRHP-eligible. As such, they will not require avoidance or additional archaeological investigations:

- isolated pre-contact finds,
- isolated historic-period finds,
- small low-density lithic scatters that lack diagnostic artifacts and/or indications of intact subsurface features,
- low-density scatters of historic-period artifacts (particularly in agricultural fields, which likely represent artifacts associated with manuring practices that cannot be associated with specific households or contexts), and
- artifacts/deposits of clearly modern origin.

The Facility may cause indirect effects on historic resources. Indirect effects are defined as changes in the setting of a historic resource resulting from the introduction of solar panels or other Project components, and include effects such as alterations to the visual or auditory landscape. The extent of these impacts will be determined through reconnaissance surveying of architectural resources throughout the Facility's area of potential effect.

(3) Impact to Recreational Areas and Mitigation Plans

Existing scenic and recreational area within a 10-mile radius in Ohio of the proposed Facility are depicted on Figure 08-5 and listed in Table 08-14 below. Recreational areas were identified using the following resources: ODNR, Esri Topographic Map, Ohio Statewide Imagery Program, North Country Trail Association, and local municipal websites.

Table 08-14. Recreational Areas Within 10 Miles

Recreational Area	Location	Distance from Project Area (miles)
Normal Grove Community Park	Village of Fayette, Fulton County	0.9
Tiffin River Wildlife Area	Franklin Township, Fulton County	1.7
Harrison Lake State Park and Trails	Gorham Township, Fulton County	3.4
4H Camp Palmer	Gorham Township, Fulton County	3.6
North Country Trail	Clinton and German Townships, Fulton County Brady and Jefferson Townships, Williams County	5.2
Goll Woods Nature Preserve and Trails	German Township, Fulton County	7.4
West Unity Memorial Park	Village of West Unity, Williams County	8.3

Recreational Area	Location	Distance from Project Area (miles)
North Pointe Park	Village of Archbold, Fulton County	8.7
Ruihley Park	Village of Archbold, Fulton County	8.9
Tiffin River Canoe Launch	Brady Township, Williams County	8.9
Archbold Reservoir	Village of Archbold, Fulton County	9.4
South Street Park	Village of Archbold, Fulton County	9.4
Biddle Park	City of Wauseon, Fulton County	9.6
Memorial Park	Village of Archbold, Fulton County	9.7
Rotary Park and the Goodwin Preserve	City of Wauseon, Fulton County	9.7
North Park	City of Wauseon, Fulton County	9.8

As listed in Table 08-14 above, 16 scenic and recreational areas occur within 10 miles of the Facility. Each of these recreational sites is described below, along with an assessment of potential impacts from the Facility. Additional information regarding the results of the viewshed analysis is provided in Section 4906-4-08(D)(4).

Normal Grove Community Park is a small, recreational park located in the Village of Fayette, approximately 0.9 mile west of the Project Area. Based on aerial imagery, it appears to contain two baseball diamonds, a running track, and a small playground. According to the viewshed analysis, partial visibility of the Facility is possible from Normal Grove Community Park.

The Tiffin River Wildlife Area is a 463-acre wooded preserve in Fulton County, located approximately 1.7 miles south of the Project Area. According to Cornell's Lab or Ornithology eBird database, this area is frequented by birders. According to the viewshed analysis, partial visibility of the Facility is possible from the Tiffin River Wildlife Area.

Harrison Lake State Park and associated trails are located approximately 3.4 miles southwest of the Project Area. This 142-acre wooded park, situated in an agricultural region, is a popular spot for swimming, fishing, camping, hiking, and paddling (Ohio Development Services Agency, 2020). According to the viewshed analysis, partial visibility of the Facility is possible from Harrison Lake State Park.

4H Camp Palmer is located directly north of Harrison Lake State Park, approximately 3.6 miles southwest of the Project Area. This camp is a 160-acre facility open to the public for camping, events, and recreational purposes. Approximately half of the property is surrounded by large tree stands, while the remainder appears to be open fields, based on aerial photography. Facilities on-site include cabins, recreational hall, dining hall, swimming pool, and a designated recreational area (Camp Palmer, 2020). All facilities at the camp appear to be surrounded by tree stands. According to the viewshed analysis, partial visibility of the Facility is possible from 4H Camp Palmer.

The North Country Trail spans from Vermont to North Dakota, and traverses part of Ohio, before continuing northward through Michigan. The North County Trail is located approximately 5.2 miles south of the Project Area at its closest point. This trail spans 160 federal, state, and local public lands, including 10 National Forests, four areas of the National Park Service, and over 100 state parks, forests, and game areas. Within Ohio, the North Country Trail joins up with the Wabash Cannonball Trail, which runs along two paths originally established by the Wabash Railroad. Visual impacts from the Facility on those recreating along the North Country Trail are not anticipated, as the trail is over 5 miles away from the Project Area at its closest point, which is well beyond the extent of visual impacts, based on the viewshed analysis.

Goll Woods Nature Preserve is an approximately 310-acre wooded preserve located 7.4 miles southwest of the Project Area, with nature trails used for hiking, walking, nature trips, and birding. This forested preserve is known for its old growth forest and diverse collection of wildlife flowers (Old-Growth Forest Network, 2020). Visual impacts from the Facility on the Goll Woods Nature Preserve are not anticipated because the preserve is located well outside the extent of visual impacts, as determined by the viewshed analysis conducted for the Facility.

West Unity Memorial Park is centrally located in the Village of West Unity, approximately 8.3 miles southwest of the Project Area, and contains four baseball/softball fields, a running track, and open space for additional recreational opportunities. Visual impacts from the Facility on the West Unity Memorial Park are not anticipated because the park is located well outside the extent of visual impacts, as determined by the viewshed analysis conducted for the Facility.

North Pointe Park is centrally located in the Village of Archbold, approximately 8.7 miles south of the Project Area and surrounded by large residential areas (Village of Archbold, 2017). This park consists of a playground, lighted basketball court, picnic shelter, and a sledding hill. Visual impacts from the Facility on the North Pointe Park are not anticipated because the park is located well outside the extent of visual impacts, as determined by the viewshed analysis conducted for the Facility.

Ruihley Park is a 27-acre area, valued for its serene setting, located in the Village of Archbold, approximately 8.9 miles south of the Project Area. This park consists of Ruihley Park Pavilion, Scout Cabin, and Cottage, a swimming pool, two tennis courts, horseshoe pits, two playgrounds, walking paths, sand volleyball courts, restrooms, open shelters, and a baseball diamond (Village of Archbold, 2017). Visual impacts from the Facility on Ruihley Park are not anticipated because the park is located well outside the extent of visual impacts, as determined by the viewshed analysis conducted for the Facility.

Based on data obtained from the ODNR, there is a canoe launch located approximately 8.9 miles southwest of the Project Area along the Tiffin River in Brady Township, Williams County, Ohio. This canoe launch

provides access to the Tiffin River from the road at the Lockport Covered Bridge. The boat access point is well beyond the visual limits of the Facility; therefore, no impacts are anticipated.

Archbold Reservoir, located 9.4 miles south of the Project Area on the western edge of the Village of Archbold, is a public fishing location. To the east, the reservoir is surrounded by agricultural fields, while to the north, west, and south, it is surrounded by industrial and residential development. Visual impacts to those fishing along the banks of the reservoir are not anticipated due to the distance between the reservoir and the Facility.

South Street Park is a small neighborhood park in the Village of Archbold, located approximately 9.4 miles south of the Project Area. This park consists of a playground and basketball court. Visual impacts from the Facility on South Street Park are not anticipated because the park is located well outside the extent of visual impacts, as determined by the viewshed analysis conducted for the Facility.

Biddle Park is located in the northeastern portion of the City of Wauseon, approximately 9.6 miles southeast of the Project Area, and is open for use between the months of April to October. This park consists of eight baseball/softball fields, three tee ball fields, two batting cages, three basketball courts, three sand volleyball courts, one football field, nine soccer fields, three open-air pavilions, four restrooms, and four concession stands (City of Wauseon, 2020). Visual impacts from the Facility on Biddle Park are not anticipated because the park is located well outside the extent of visual impacts, as determined by the viewshed analysis conducted for the Facility.

Memorial Park is a 40-acre park located on the southwestern edge of Village of Archbold, approximately 9.7 miles south of the Project Area. This park consists of basketball courts, a large playground, four tennis courts, restrooms, and a picnic shelter (Village of Archbold, 2017). Often used by recreational sport groups and by the high school, Memorial Park also provides open space for additional recreational opportunities. Visual impacts from the Facility on Memorial Park are not anticipated because the park is located well outside the extent of visual impacts, as determined by the viewshed analysis conducted for the Facility.

Rotary Park is centrally located in the City of Wauseon, approximately 9.7 miles southeast of the Project Area, surrounded by residential development. This park consists of a shelter with full kitchen facilities, fishing pond, playground, and the Goodwin Preserve. The Goodwin Preserve is 3-acre wooded area with grills, picnic spots, and a walking path (City of Wauseon, 2020). Visual impacts from the Facility on Rotary Park or Goodwin Preserve are not anticipated because the park and preserve are located well outside the extent of visual impacts, as determined by the viewshed analysis conducted for the Facility.

North Park (formerly Memorial Park) is centrally located in the City of Wauseon, approximately 9.8 miles southeast of the Project Area, surrounded by residential development. This neighborhood park consists of a

playground, half basketball court, and a war memorial statue (City of Wauseon, 2020). Visual impacts from the Facility on North Park are not anticipated because the park is located well outside the extent of visual impacts, as determined by the viewshed analysis conducted for the Facility.

(4) Visual Impact

EDR prepared a Visual Resource Assessment (VRA) for the proposed Facility (Exhibit Q). 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 OSPB. 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 areas of potential Facility visibility do not extend beyond 5 miles (see Figure 2.1 of the VRA), with only small corridors and pockets of visibility extending beyond 2 miles from the Project.

Potential Facility visibility will be largely concentrated within 0.5 mile of the proposed Facility components. Furthermore, since this analysis is limited to the state of Ohio, the northern boundary of the VSA follows the Ohio/Michigan state line, which lies 1.8 miles north of the Project Area. The resulting VSA encompasses approximately 88.9 square miles and includes Gorham, Franklin, Dover, German, and Chester townships in Fulton County, and Mill Creek Township in Williams County.

(a) Project Visibility and Viewshed Analysis

The viewshed analysis conducted for the Facility incorporated screening effects of topography, structures, and vegetation. A digital surface model of the VSA was created from lidar data, which include the elevations of buildings, trees, and other objects large enough to be resolved by lidar technology. Areas within the panel array fenceline were cleared of any vegetation in the model, as were small woodlots and hedgerows that will be cleared during construction of the Facility, in order to reflect the bare-earth elevation in these locations. From the digital surface model, a viewshed analysis was conducted for the PV panels, overhead collection line, substation, and transmission POI.

Based on the results of the viewshed analysis, the Facility will be screened from approximately 73.3% of the VSA. Above ground electrical components (collection substation, overhead collection line, and gen-tie line) will be screened from approximately 83.9% of the VSA. Screening of these components is attributed to intervening landforms, vegetation, and structures. The viewshed analysis also suggests that panel visibility is highest within 0.5 mile, substantially diminishes between 0.5 and 1.5 miles, and beyond

1.5 miles only small areas of potential visibility exist. Visibility of the above ground electrical components is anticipated to be largely concentrated within 1.5 miles of the Project Area. Based on the viewshed analysis, some areas past 1.5 miles could experience views due to the height of the lightning masts and gen-tie structures. Additional information on methods and results of the viewshed analysis is provided in the VRA.

(b) Description of Scenic Quality of Existing Landscape

Landscape types within the VSA were categorized based on the similarity of the 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 (85.5%) and comprises most of the area that will host Facility components. This landscape type is likely to provide the greatest opportunities for views of the Facility.

Developed landscape is the second most predominant landscape, comprising approximately 5.3% of the VSA. The Village of Fayette and hamlet of Tedrow are the main sources of developed landscape and will have limited views of the Facility due to the presence of buildings and closely situated houses, vegetation, utility poles, and other visual obstructions.

Wetlands and open water landscapes comprise 5.2% of the VSA and are scattered throughout the VSA, primarily concentrated around rivers and streams where long-distance views are likely limited due to the presence of tree-lined riverbanks and adjacent forest slopes. Forest landscapes comprise 3.5% of the VSA and provide limited visibility of the Facility due to the presence of dense vegetation. The remaining portions of the VSA are comprised of 0.4% of shrub/scrub and 0.1% of grassland landscapes.

In addition to these landscape types, the VRA included a review of 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 the existing landscape through the introduction of low-profile PV panels. The visibility and visual impact of the Facility will vary due to the extent of natural screening, the presence of other man-made features in the view, and distance of the viewer from the Facility. The most notable changes include the introduction of a gray horizontal line in previously open landscapes, blocking of background and middle ground vegetation and structures by PV panels, and enclosing areas that were once open. As distance increases beyond 1,000 feet from the

Facility, the panels become more difficult to perceive, and begin to appear as thin horizontal lines of grayish tan color.

The new collection substation, overhead collection line, and adjacent O&M building will be built on the crest of a hill, adjacent to an existing substation and transmission line. The above-ground electrical facilities and O&M building are likely to result in visual effects from foreground viewpoints along County Road 23 (Meyerholtz Highway); however, their effect on landscape character is minimized due to the presence of the existing transmission line and substation.

(d) Visual Impacts to Landmarks of Cultural Significance

A total of 174 visually sensitive resources were identified within the VSA, including 146 properties of historic significance, 21 public lands and recreational resources, and 7 high-use public areas. Figure 1.5 in the VRA shows the location of visually sensitive resources relative to the Project Area. Of the 174 resources identified within the VSA, 32 have the potential for PV array visibility. Additional information on visually sensitive resources is provided as Appendix E in the VRA (Exhibit Q), which includes a list of all identified resources, their distance from the Facility, and estimated visibility of the Facility from the identified resource.

(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 simulations show panels mounted on a tracking system that would result in a maximum panel height of 14 feet in a fully-tilted position. The visual simulations are included as Appendix D to the VRA (Exhibit Q) along with detailed discussions of each simulation. Viewpoints were selected to show representative locations at various distances from the Facility from public vantage points near the Project Area.

(f) Impact Minimization Measures

<u>Project Area Location and Facility Layout</u>

The proposed Facility is located in a rural, sparely populated area. To further reduce impacts to those living in the area, the Applicant designed the Facility to account for setbacks to the fenceline from non-participating structures (100 feet) and edge of public roads (25 feet).

<u>Lighting</u>

Lighting during construction is anticipated to be minimal, and will be restricted to construction hours (7:00 AM to 7:00 PM, or until dusk when the sun sets after 7:00 PM). To the extent practicable, lighting will be

oriented toward the interior of the Facility, away from roadways and adjacent residences. Lighting during Facility operation will be downlit. Motion-activated lighting will be used at the O&M building.

Visual Screening

The installation of native vegetative mitigation will help screen the Facility to lessen potential visual impact. Visual screening introduces natural, vertical elements that break up the horizontal lines created by the PV arrays and fenceline. This helps the Facility fall into the background vegetation rather than stand out as a foreground element. Representation of potential vegetative mitigation is included in the visual simulations for each viewpoint. Details regarding vegetative mitigation are included in the Landscape Mitigation Plan provided as Appendix C to Exhibit Q.

Facility Materials and Coloration

PV modules will use anti-reflective glass coating and are designed to absorb the light that hits the panels, reducing potential for glare. Additionally, the racking system for the panels allows panel rows to follow some variation in topography, limiting the landscape alteration needed for installation.

(E) AGRICULTURAL RESOURCES

(1) Agricultural Land and Agricultural District Land Map

Agricultural land is the dominant land use in Fulton County, consisting of 200,760 acres of land. Similarly, the Project Area consists almost exclusively of agricultural land. Figure 08-6 depicts agricultural land, agricultural districts, and crop cover within and surrounding the Project Area.

(2) Potential Impacts and Proposed Mitigation

The Facility will be almost entirely sited on agricultural land and will take that land out of production for approximately 30 to 40 years. After the useful life of the Facility, it will be decommissioned, and the site will be restored to pre-construction conditions.

(a) Acreage Impacted

Table 08-15 quantifies impacts to agricultural land uses, and Table 08-16 presents impacts to agricultural district land, based on the typical area of vegetation clearing column presented in Table 08-11. Impacts to CAUV land are the same as those presented in Table 08-15, because all of the agricultural parcels are enrolled in the CAUV program.

Table 08-15. Impacts to Agricultural Land Uses

Agricultural Land Use[1]	Temporary Disturbance (acres)[3]	Permanent Loss (acres)	Total Disturbance (acres)
Agricultural Vacant (110)			
PV Panel	0.0	572	572
Access Roads	22.3	16.1	38.4
Buried Collection Line	9.6	0.0	9.6
Overhead Collection Line	0.0	1.4	1.4
Laydown Yard	5.1	1.0	6.1
O&M Building	0.0	1.0	1.0
Collection Substation	0.4	1.8	2.2
Inverter Pads	0.0	0.2	0.2
Gen-tie Line	0.0	<0.1	<0.1
Cash Grain or General Farm (111)			
Buried Collection Line	0.4	0.0	0.4
Overhead Collection Line	0.0	2.8	2.8
Other Agricultural Use (199)			
Buried Collection Line	<0.1	0.0	<0.1
Gen-tie Line	0.0	0.0	0.0
Total	37.8	596.3	634.1

1 Derived from land use codes in obtained by the Fulton County Auditor's Office.
2 The footprint of one inverter pad is up to 265 square feet. Up to 33 inverter pads are proposed for the Facility.
3 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.

Table 08-16. Impacts to Agricultural District Land

Agricultural District Land[1]	Temporary Disturbance (acres)[3]	Permanent Loss (acres)	Total Disturbance (acres)
PV Panel	0.0	8.1	8.1
Access Roads	0.4	0.4	0.8
Buried Collection Line	0.5	0.0	0.5
Overhead Collection Line	0.0	1.4	1.4
Laydown Yard	5.1	1.0	6.1
O&M Building	0.0	1.0	1.0
Collection Substation	0.4	1.8	2.2
Inverter Pads[2]	0.0	0.0	0.0
Gen-tie Line	0.0	<0.1	<0.1
Total	6.4	13.7	20.1

1 Derived from land use codes in obtained by the Fulton County Auditor's Office.
2 The footprint of one inverter pad is up to 265 square feet. Up to 33 inverter pads are proposed for the Facility.
3 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 596.3 acres of agricultural land, taking it out of use for approximately 30 to 40 years. Therefore, plowing, planting, cultivating, spraying, aerial applications, and harvesting will be halted on land occupied by the Facility during the lifetime of the Facility. 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

Irrigation systems are not in widespread use in the Project Area. Potential interference to irrigation operations is very limited and coordination with affected landowners will alleviate potential for significant long-term disruption.

(iii) Field drainage systems

Construction of the Facility could result in damage to subsurface drainage systems. Avoidance and mitigation of damage to drainage systems will be incorporated into the final Facility design. Additional information regarding the identification of field drainage systems, as well as avoidance and mitigation measures to repair potential damage, is detailed below in Section 4906-4-08(E)(2)(c).

(iv) Structures used for agricultural operations

No agricultural structures will be impacted or removed for Facility construction or operation.

(v) Viability as agricultural district land

Figure 08-6 depicts parcels enrolled in the agricultural district program. Once the Facility is constructed, parcels within the Project Area that are enrolled as agricultural district land will no longer be eligible for inclusion in that program. The Applicant will pay additional property taxes incurred due to the disenrollment of property in the program and will be responsible for responding to nuisance lawsuits. Once the Facility is decommissioned, the parcels could be re-enrolled in the program

(c) Proposed Mitigation Procedures

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

Drainage tiles were identified through consultations with participating landowners and the Fulton County Engineer. In addition, a survey was conducted using a combination of aerial imagery extraction using thermal analysis and ground penetrating radar. The locations of identified drainage tiles are presented in the Drain Tile Maintenance Plan (Exhibit R).

The Applicant will avoid known drainage tiles to the extent commercially practicable. A hydrology study which considers a 100-year flood will be completed prior to final engineering, which will help determine areas for avoidance, in addition to known drainage tile locations. Where avoidance is not practicable, measures will be implemented during construction and operation of the Facility to mitigate potential impacts. Mitigation measures such as grading and drainage routing will be included in a grading plan, which will be prepared as part of final engineering plans for the Facility. The detailed grading and drainage plan will include mitigation for neighboring properties as well as participating landowners.

(ii) Timely repair of damaged field tile systems

If drainage tiles are impacted during construction of the Facility, the Applicant will evaluate the damage and either repair or replace the tile with a functionally equivalent system, unless otherwise specified by the landowner. If the Applicant becomes aware of drainage tile damage that is affecting adjacent properties or public drains during operation of the Facility, the Applicant will investigate the damage and implement mitigation techniques, to the extent commercially practicable. Mitigation efforts may include drainage routing or corrections in stormwater flow through retention facilities.

(iii) Topsoil segregation, decompaction, and restoration

Topsoil movement will occur during installation of foundations for the collection substation and inverters, trenching of collection lines, installation of the laydown yard, and the installation of access roads. In areas where grading is proposed, topsoil will be stripped where required by federal, state, and/or local environmental regulations. Any topsoil that is to be stripped prior to site grading shall be stockpiled on-site in a manner that meets all federal, state and/or local requirements.

Gravel used for the laydown yard and any excess materials used for the temporary access roads will be removed. Upon removal, soil will be de-compacted, regraded, and stabilized with a native, low-growth seed mix. All temporary BMPs will be removed following construction. Additionally, construction debris will be removed from the site and disposed of properly.

4906-6-05 ACCELERATED APPLICATION REQUIREMENTS FOR GEN-TIE LINE

(A) FORM AND CONTENT REQUIREMENTS

As permitted by OAC 4906-3-04, a major utility facility and any associated project that qualifies for accelerated review may be combined into a single standard certificate application. Arche Solar (the Facility), a major utility facility, has an associated 138 kV generation interconnection (gen-tie) line of approximately 100 feet. As part of the combined application, this section addresses the requirements of OAC 4906-6-05, accelerated application requirements, for the gen-tie line associated with Arche Solar. This section complies with the form and content requirements of OAC 4906-2.

(B) DATA AND INFORMATION REQUIREMENTS

(1) Applicant and Project Information

The 138 kV gen-tie line will be approximately 100 feet in length. This gen-tie line will run overhead from the collection substation to the point of interconnection (POI), the existing East Fayette 138 kV substation, owned by American Transmission Systems, Inc. (ATSI). The gen-tie line will connect the Facility to the ATSI transmission system by installing a new 138 kV breaker at the existing East Fayette 138 kV substation to connect the East Fayette 138 kV ring bus substation and the new line exit to the collection substation.

The new line will be suspended from no more than two wood or steel poles, not more than 100 feet in height. The determination on the number or presence of poles between the existing East Fayette 138kV substation and the collection substation will be based on feedback from ATSI on the preferred direction of entry into the existing substation. If pole(s) are required, they will be installed using typical installation techniques to carry 138 kV electric lines, such as a caisson foundation, for example.

The gen-tie line meets the requirements of a construction notice application as defined in Appendix A of OAC 4906-1-01 because it is an electric power transmission line not greater than 0.2 miles in length.

(2) Need for the Proposed Facility

The proposed gen-tie line is needed in order to connect the proposed Arche Solar power generation project to the electric transmission grid. For more information on interconnection, see Section 4906-4-05 of this Application.

(3) Location of the Project

The gen-tie line and existing transmission lines are shown on Figure 03-1.

(4) Route Alternatives

Due to the proximity of the Facility collection substation and the POI, there are no practical alternative routes. The proposed route for the gen-tie line is the most direct and shortest possible route, minimizing land use and ecological impacts.

(5) Public Information Program

The gen-tie line was included in all maps, presentations, and public notices provided for Arche Solar. Affected property owners will continue to be notified about the gen-tie line as part of the required notifications for the generation facility. See Section 4906-4-06(F) for more information on the Applicant's public information program and Complaint Resolution Plan.

(6) Construction Schedule

Construction is anticipated to begin in the fourth quarter of 2021. The Facility will be placed in service upon completion of construction, anticipated for the fourth quarter of 2022.

(7) Facility Map

The gen-tie line is shown at 1:12,000 scale with roads and an aerial image on Figure 03-2.

(8) Easements

The approximately 100-foot gen-tie line will span two parcels, one that will contain the Facility's collection substation, and another that contains the existing East Fayette 138 kV substation. The parcel that will contain the collection substation (18-035936-00.000) is under contract by the Applicant, while the parcel containing the existing East Fayette 138 kV substation (18-035936-02.000) will contain an easement for the gen-tie line route.

(9) Technical Features of the Project

(a) Facility Characteristics

The gen-tie line will extend approximately 100 feet from the collection substation to the East Fayette 138 kV substation and will be supported by no more than two wooden or steel poles, no greater than 100 feet tall. The pole(s) will be installed using typical installation techniques to carry 138 kV electric lines, such as a caisson foundation. The gen-tie line will operate at 138 kV and will have a right-of-way (ROW) of approximately 100 feet. The parcel which contains the collection substation is under an option to purchase contract by the Applicant. The gen-tie line will extend west from the collection substation to an adjacent parcel containing the POI. The gen-tie will extend on this adjacent parcel under an easement agreement.

(b) EMF

This section is not applicable to the Project because the gen-tie line is not within 100 feet of an occupied residence.

(c) Capital Cost

The capital cost of the gen-tie line is estimated to be in the range of $200,000 to $500,000 and will be dependent on the final design.

(10) Social and Ecological Impacts

(a) Land Use

The gen-tie line will span two parcels, one agriculturally vacant parcel that will contain the collection substation, and one commercial parcel that contains the POI, both of which are located in Gorham Township, Fulton County. Ohio. Parcels surrounding the gen-tie line consist of largely agricultural uses with some residential development. Figure 08-4 illustrates land use within a 1-mile radius of the gen-tie line.

(b) Agricultural Land

Approximately 16 feet of the 100-foot gen-tie line will be located on vacant agricultural land enrolled in the CAUV program and located in an agricultural district. An approximate 100-foot wide ROW around the gen-tie line will be cleared and managed for the lifetime of the Facility, resulting in a total permanent impact of less than 0.1 acre of agricultural land. Limited soil disturbance is anticipated as a result of the gen-tie line. Soil disturbance will be largely limited to the installation of gen-tie line support structures. Land within the ROW of the gen-tie line may be taken out of agricultural production. Once the Facility has reached the end of its useful life, the gen-tie line will be removed, and the underlying ROW may be restored for potential agricultural use.

(c) Cultural Resources

A Phase 1A Cultural Resources Survey was conducted for a 2-mile radius around the Project Area to locate previously identified cultural resources. No previously identified cultural resources are located within the ROW of the gen-tie line. The closest, previously identified cultural resources is an OHI property, Brehm Farms, located approximately 770 feet north, along U.S. Route 20. Additionally, within the immediate vicinity of the gen-tie line, one previous cultural survey was conducted for the Allen Junction – East Fayette Transmission Line Rebuild project, which connects to the existing East Fayette 138 kV substation that will be used for this Facility. For more information on previously identified cultural resources, see Exhibit G.

On-site surveys assessing direct effects on archaeological resources and indirect effects on historic resources in the vicinity of the Facility are in progress by Cardno and EDR, respectively. Once completed, these surveys will be provided to the OPSB.

(d) Other Agency Requirements

Environmental permits required for the Facility and gen-tie line are included in Section 4906-4-07(C)(1)(a). Transportation permits are discussed in Section 4906-4-06(F)(4). Permitting may be required for the addition of a 138 kV breaker to accommodate the injection of the Facility into the existing East Fayette 138 kV substation. The Applicant will work with ATSI to obtain any necessary permits associated with this addition.

(e) Federal and State Designated Species

For a complete list of federal and state designated species that may occur in the vicinity of the gen-tie line, see Table 08-3 and Table 08-4 in Section 4906-4-08(B)(1)(c). Additional information on listed species can be found in Cardno's Ecological Assessment (Exhibit F), and through agency consultation with the ODNR and USFWS (Appendix B of Exhibit F).

(f) Areas of Ecological Concern

No national and state forests and parks, floodplains, wetlands, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, or wildlife sanctuaries are located within the immediate vicinity of the gen-tie line. Figure 08-5 illustrates state forests, parks, and wildlife areas within 10 miles of the Project Area, including the area surrounding the gen-tie line. Delineated wetlands and streams are mapped in Appendix B of the Wetland and Stream Delineation Report, which is attached to the Ecological Assessment (Exhibit F). Figure 6 of the Hydro Geotech Desktop Report (Exhibit D) depicts floodplains within the Project Area.

(g) Other Environmental, Social, Health, or Safety Impacts

Significant adverse environmental and socioeconomic impacts are not anticipated due to the construction and operation of the Facility or gen-tie line. Environmental impacts from the construction and operation of the gen-tie line will be the same as those discussed in Sections 4906-4-08(B)(2) and (3). Socioeconomic impacts for the Facility are discussed in Sections 4906-4-06 and 4906-4-08(C)(4). The gen-tie line is not anticipated to result in adverse impacts to the health and safety of the public.

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