TO THE

OHIO POWER SITING BOARD

FOR A

CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

FOR

Powell Creek Solar

Putnam County, Ohio

Case No. 20-1084-EL-BGN

October 2020

Powell Creek
SOLAR PLANT

REDACTED

Prepared for:

Powell Creek Solar, LLC
a subsidiary of Avangrid Renewables, Inc.
1125 NW Couch Street, Suite 600
Portland, OR 97209
Contact: Jefferey Reinkemeyer
Tel: 262.354.2370

Prepared by:

Environmental Design & Research, Landscape Architecture,
Engineering & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000
Syracuse, NY 13202
Contact: Lindsay Donahoe, Project Manager
Tel: 315.471.0688

Bricker & Eckler LLP
100 South Third Street
Columbus, OH 43215
Office: 614.227.2300
Fax: 614.227.2390

Dylan F. Borchers
Direct Dial: 614.227.4914
dborchers@bricker.com
www.bricker.com
info@bricker.com

October 7, 2020

Via Electronic Filing

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

Re: Powell Creek Solar, LLC,
OPSB Case No. 20-1084-EL-BGN

Dear Ms. Troupe:

Enclosed for filing in the above-referenced case is a copy of the Application of Powell Creek Solar, LLC ("Powell Creek") for a Certificate of Environmental Compatibility and Public Need is proposing to develop, construct, and operate a 150 megawatt ("MW") solar-powered electric facility in Liberty and Palmer Townships, Putnam County, Ohio.

Name of Applicant: Powell Creek Solar, LLC
whose authorized representative is:
Jeffrey J. Reinkemeyer, P.E. CEM
Director, Eastern Renewables Development
Avangrid Renewables
120 South Sixth Street, Suite 1725
Minneapolis, MN 55402
Telephone: (262)-354-2370
E-mail: jeffrey.reinkemeyer@avangrid.com

Name/Location of Proposed Facility: Powell Creek Solar, LLC
150 MW Solar-Powered Electric Facility
Liberty and Palmer Townships, Putnam County, Ohio

Authorized Representative Technical: Matthew Becker
Sr. Permitting & Environmental Manager
Avangrid Renewables
120 South Sixth Street, Suite 1725
Minneapolis, MN 55402
Telephone: (847) 345.8730
E-mail: matthew.becker@avangrid.com

Authorized Representative

Legal: Dylan F. Borchers
Devin D. Parram
Kara H. Herrnstein
Bricker & Eckler LLP
100 South Third Street
Columbus, OH 43215
Telephone: (614) 227-2300
Facsimile: (614) 227-2390
E-Mail: dborchers@bricker.com
dparram@bricker.com
jherrnstein@bricker.com

Since the pre-application notification letter was filed, there have been no revisions that appear in the application.

Notarized Statement: See Attached Affidavit of Jeffrey J. Reinkemeyer, on behalf of Powell Creek Solar, LLC

Sincerely on behalf of
POWELL CREEK SOLAR, LLC

Dylan F. Borchers

Enclosure

BEFORE
THE OHIO POWER SITING BOARD

In the Matter of the Application of **Powell Creek Solar, LLC** for a Certificate of Environmental Compatibility and Public Need for a Solar Facility Located in Putnam County, Ohio.	)))))	Case No. 20-1084-EL-BGN

AFFIDAVIT OF JEFFREY J. REINKEMEYER OF AVANGRID RENEWABLES

STATE OF ILLINOIS :
: ss.
COUNTY OF KNOX :

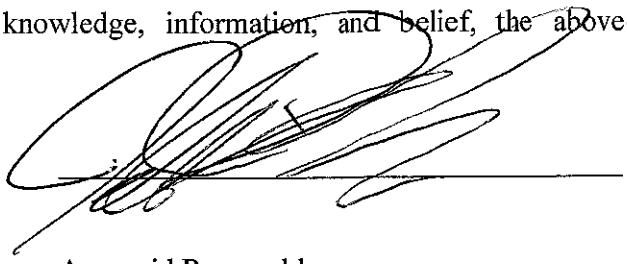
I, Jeffrey J. Reinkemeyer, being duly sworn and cautioned, state that I am over 18 years of age and competent to testify to the matters stated in this affidavit and further state the following based upon my personal knowledge:

1. I am the Director, Eastern Renewables Development of Avangrid Renewables, LLC a subsidiary of Avangrid, Inc. and part of IBERDROLA Group ("Avangrid") is the sole owner of Powell Creek Solar, LLC ("Powell Creek").

2. Powell Creek's Application to the Ohio Power Siting Board for a Certificate of Environmental Compatibility and Public Need to develop, construct, and operate a 150 megawatt ("MW") solar-powered electric facility was prepared and reviewed by Avangrid employees that are the primary individuals in charge of the development of Powell Creek on whom I reasonably rely as Avangrid 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.



Avangrid Renewables

Sworn to before and signed in my presence this 30th day of September 2020.

Rachel A Tucker

Notary Public

[SEAL]

OFFICIAL SEAL
RACHEL A. TUCKER
NOTARY PUBLIC-STATE OF ILLINOIS
MY COMMISSION EXPIRES 09-04-2022

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF EXHIBITS

ABBREVIATIONS AND ACRONYMS

AC	Alternating Current
APE	Area of Potential Effect
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
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

Powell Creek Solar, LLC (hereafter referred to as the Applicant), a wholly owned subsidiary of Avangrid Renewables, LLC, is proposing to construct the Powell Creek Solar Farm (Facility), a solar-powered electric generation facility located in rural portions of Liberty and Palmer Townships, Putnam County, Ohio. The materials contained herein and attached hereto constitute the Applicant's submittal (Application) for a Certificate of Environmental Compatibility and Public Need (hereafter referred to as the Certificate), prepared in accordance with Section 4906.06 of the Ohio Revised Code (Revised Code). This Application was prepared in accordance with Chapter 4906-4-01 through 4906-4-09 of the Ohio Administrative Code (OAC), Certificate Applications for Electric Generation Facilities.

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, including more than 10 years of experience with renewable energy facilities in Ohio.

(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 being filed separate from this Application, the Applicant is requesting a waiver, in part, from the provisions of OAC 4906-4-08(A)(1)(c), which requires the submission of manufacturers' safety manuals or similar documents and any manufacturer recommended setbacks, and OAC 4906-4-08(D)(2) and (4), which requires the study of impacts to cultural resources within 10 miles of the project area.

4906-4-02 PROJECT SUMMARY AND APPLICANT INFORMATION

(A) PROJECT SUMMARY

The Applicant is proposing to construct the Facility in a rural portion of Putnam County. The Facility will consist of photovoltaic (PV) panels, access roads, electric collection cables, a collection substation, an operations and maintenance (O&M) building, laydown areas for construction staging, and inverters. The energy generated at the Facility will deliver power through a generation interconnection transmission line from the collection substation to the proposed Point of Interconnect (POI) switching station, located adjacent to the existing East Leipsic – Richland 138 kilovolt (kV) transmission line.

(1) General Purpose of the Facility

The general purpose of the Facility is to 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 on approximately 2,013 acres on private land in Palmer and Liberty Townships (Project Area). The footprint of the Facility will only be approximately 1,000 acres. The Facility will have an alternating current (AC) nameplate capacity of 150 megawatts (MW) and will consist of PV panels, collection lines, access roads, inverters, an O&M building, a laydown yard, a collection substation, a transmission line, and POI switchyard. The Facility is expected to operate with an annual capacity factor of 25.6% in Year 1, generating a total of approximately 336,600 megawatt-hours (MWh) of electricity in Year 1. The preliminary Facility layout is provided in Figure 03-2. A detailed description of the Facility, include each Facility component, is provided in Section 4906-4-03(B) of this Application.

(3) Description of the Suitability of the Preferred and Alternate Routes

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.

(4) Project Schedule

Acquisition of land and land rights began in 2018 and continued through mid-2020. Due to the current COVID pandemic and resulting "shelter in place" mandates in Ohio, a series of virtual public interactions in combination with a "social distancing" centric public information meeting were conducted during July of 2020, including a conference call with residents living in the Project Area on July 30, 2020 and a virtual public information meeting open for public participation held (via Zoom) on July 29, 2020. All of these meetings and interactions were held to facilitate public interaction with the Applicant and expert consultants, and included information on Avangrid, visual/aesthetics, ecological studies, and solar technology. Final designs will be completed in 2021. Construction is anticipated to begin in late 2021 and be completed within 16 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 150 MW.

(2) Description of Applicant and Operator

Avangrid Renewables, LLC, a subsidiary of Avangrid and part of the Iberdrola S.A. Group, will construct and operate the proposed Facility. Iberdrola S.A. has been a company for over a century and currently employs more than 28,000 people in nearly 40 countries. In the United States, Avangrid Renewables is responsible for 60 renewable energy projects providing power for its utility-scale customers. Avangrid Renewables is one of the leading providers of clean, renewable power in the U.S. with more than 6,000 MW of owned and controlled wind and solar power facilities, demonstrating their financial stability and manufacturing success.

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 Parks Service (NPS), Garmin, and more. Among other information, Figure 03-1 shows the following features:

(a) The Proposed Facility

The preliminary layout includes the fenceline, PV panel area, below ground collection lines, inverters, access roads, collection substation, O&M building, laydown yard, transmission line, and POI switching station 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 Liberty and Palmer townships and Miller City in Putnam County, Ohio. The nearest population center is Miller City, which contains a central northern portion of the Project Area. The Facility is also located 3 miles northwest of the Village of Glandorf, 5.2 miles east of the Village of Continental, 5.2 miles west of the Villages of Leipsic and West Leipsic, 6 miles north of the Village of Kalida, 6.9 miles south of the Village of New Bavaria, and 7.3 miles east of the Village of Dupont. The closest metropolitan area in Ohio is the City of Defiance located approximately 13.5 miles northwest of the Facility.

(c) Transportation Routes and Gas and Electric Transmission Corridors

The Project Area is bounded by Road 15-C to the west, Road 12 to the east, Road G to the south and Road E to the north. The Project Area is traversed by three roads running north-south, State Route (SR) 108, Road 13-C, and Road 13, and two roads running east-west, Road F-12, and SR 613. No gas pipelines are located within 2 miles of the Facility. One transmission line, the East Leipsic – Richland 138kV line, runs in a general northwest – southeast direction and traverses the northeastern portion of the Project Area. No additional transmission lines are located within 2 miles of the Facility.

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

There are three streams located within 2 miles of the Facility including Miller City Cutoff, Blanchard River, and Bear Creek. Miller City Cutoff runs north-south, branching off of Blanchard River and traverses the southwestern portion of the Project Area. Blanchard River runs in a general east-west direction and is located approximately 1.3 miles south of the Project Area. Bear Creek runs north-south, branching off of Blanchard River, and is located approximately 1.9 miles south of the Project Area.

(e) Major Institutions, Parks, and Recreational Areas

Two schools are located within 2 miles of the Facility, Miller City Highschool and Miller City – New Cleveland Elementary and Middle School. These schools are adjacent to one another, and collectively are located approximately 25 feet northwest of the Project Area. No additional major institutions, parks, or recreational areas exist within 2 miles of the Facility.

(2) Area of All Owned and Leased Properties

A total of 2,013 acres of private property are owned and/or under lease by the Applicant for construction and operation of the proposed Facility. Easement agreements have been established on 5 acres of land. This 2,013-acre Project Area is comprised of 56 parcels that have lease or easement agreements with the Applicant. While 2,013 acres are under lease or agreement, the Applicant only intends to use approximately 1,000 acres for 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 Details for the Project

(a) *Type and Characteristics of Solar Panels*

Generation equipment for the Facility includes PV modules, a racking system, and inverters to convert from electrical output from direct current (DC) to AC. The PV panels proposed for this Facility will be dual glass, mounted on single axis trackers and installed in linear arrays. Representative solar panels and trackers under consideration are provided in Exhibit A. The panels will move along one axis of movement and will be installed in linear arrays. Based on the total generating capacity of 150 MW, the Applicant anticipates using approximately 477,400 solar panels. The panels will operate continuously but will not produce electricity over night or during periods with overcast skies. The anticipated annual net capacity factor for the Facility is anticipated to be 26.7% (in Year 1). Accounting for a total generating capacity of 150 MW and an annual capacity factor of 26.7%, the Facility will generate approximately 351,300 MWh of electricity in Year 1. 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) Description of Major Equipment

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 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 fencing to secure the site.

(a) *Solar Modules and Racking System*

Once access roads are complete for the Project Area, construction of the trackers and mounting of the PV modules will commence. Since the majority of the site is relatively flat, minimal grading is anticipated in 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 an approximate depth between 7 and 10 feet. Pile driving negates the need for excavation for PV module installation.

Single-axis tracker designs vary by manufacturer, but generally consist of a series of mechanically linked horizontal steel support beams known as torque tubes, with a drive train system usually located in the center of the rows, dividing the array into two sides. The number of rows within a tracker block is typically limited by the drive system's ability to move multiple torque tube assemblies. This row design is also determined by the amount of the desired solar output to the inverters. Rows would be aligned north to south and the PV panels would pivot, tracking the sun's motion from east to west throughout the day. PV panels will be a maximum of 9.5 feet in height and will be surrounded by a 7-foot chain link fence with a 1-foot tall barbed wire strand. PV panels used in the Facility are anticipated to consist of tempered coated dual glass and are anticipated to be approximately 7 feet (length) by 3.5 feet (width) by 1.4 inches (thickness), with an understanding that final panel selection may result in different dimensions and materials. Additional information regarding dimensions and materials for the solar panel model under consideration is provided in Exhibit A.

The Applicant will utilize the Ohio Environmental Protection Agency (Ohio EPA) *Guidance on Post-Construction Storm Water Controls for Solar Panel Arrays* (Ohio EPA, 2019). This guidance will be considered in the final Facility layout.

Upon completion of the installation of access roads, piles, racking, and panels, compacted soils will be decompacted via tilling to prepare for the establishment of vegetation. Vegetation will be established per the Vegetation Management Plan (Exhibit B). All permanent or temporary stabilization associated with

the Facility will be completed to meet the requirements of Ohio EPA Permit No. OHC000005 (Ohio EPA, 2018).

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

Fuel tanks for construction equipment will be stored in the laydown yard during Facility construction. In addition, there will be a back-up propane generator in the collection substation with a 1,000-gallon propane tank. 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 tap into the existing Village of Miller City water system. The Village of Miller City's water supply is sufficient to meet the needs of the Project without constraining the supply for other uses. The O&M building will either be served by a septic system or tie into the Village of Miller City's waste system.

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

The Facility will include the installation of a 138-kV transmission line which will be approximately 1.6 miles in length. This transmission line will run overhead from the collection substation to the POI switching station and the energy generated will tap into the existing East Leipsic – Richland 138 kV Transmission Line, owned by American Electric Power (AEP). The Facility will be connected to the AEP transmission system by installing a new, three-circuit 138 kV switching station (the POI switching station). There will be approximately 20 pole locations located along the transmission line. There will be approximately 750 feet between pole locations. Preliminary details of the transmission line are included in Exhibit C.

There are no gas pipelines associated with the Facility.

(f) *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 up to the 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 buried underground. Approximately 13.7 miles of buried collection cable will be used in the Facility. Underground collection lines will be installed using the direct burial method. Direct burial methods may include the use of a trencher. The trencher uses a large blade or "saw" to excavate an open trench, generally 24 to 36 inches wide, with an adjacent sidecast area. Alternatively, a backhoe or excavator may be used to excavate the trench. Using the direct burial method, cable will be installed to a minimum depth of 36 inches and requires up to a 20-foot width of clearing and surface disturbance for installation machinery and access. Once cable is placed in the trench, suitable native soil will be placed around the cable and compacted.

(g) *Substations, Switching Substations, and Transformers*

Each solar field will have a network of electric lines and associated communication lines that collect the electric power form the various arrays and transmit it to a centralized location at combiner harnesses. Power from the combiner harnesses 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, housed inside the power control station. The preliminary Facility layout includes 29 double and 4 single inverters. The inverters, medium-voltage transformer, and power control electronics will be mounted on a skid or concrete pad. Manufacturer's specifications for representative inverters under consideration are provided in Exhibit A.

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. Once the power is raised at the transformer, collection lines will deliver power to the collection substation, where an additional voltage step up from 34.5 kV to 138 kV occurs. The collection

substation will be located in the central-eastern portion of the Project Area, along SR 613, in Palmer Township. The area within the substation will be graveled to minimize vegetation growth in the area and to reduce fire risk. The substation will be enclosed by a 7-foot tall chain-link fence with 1-foot barbed wire strand. Preliminary design drawings of the collection substation are included in Exhibit C.

Prior to construction of the collection substation, erosion and sediment control features (e.g. 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, gravel will be installed. After site construction, permanent erosion and sediment control features will be installed. The collection substation will be approximately 250 feet by 250 feet in size, major equipment will be positioned on concrete foundations, and enclosed by a chain link fence. Additional features of the collection substation include dead-end support structures for collection lines, circuit breakers, surge arrestors, insulators, and a lightning mast. The tallest structure within the substation will be the lightning mast, which will be approximately 65 feet tall.

Once the voltage is stepped up to 138-kV, electricity will be delivered, through an overhead transmission line to the POI switching station. The POI switching station will be located along Township Road 12, north of its intersection with SR 613, in Liberty Township. Site preparation for the POI switching station will mimic that of the collection substation. Preliminary design drawings of POI switching station are included in Exhibit C.

(h) *Pyranometer*

The Facility will include between 15 and 30 pyranometers, which will be mounted to the PV racking system. These features will be approximately 6 inches in diameter and approximately 3 feet tall.

(i) *Access Roads*

The Facility will require the construction of approximately 7.6 miles of new access roads within the Project Area. The roads will be gravel-surfaced and typically 20 feet in finished width. New gravel-surfaced access roads will be constructed in locations selected to minimize potential impacts. Large cranes will not be utilized in the construction of the Project; therefore, there are no designated crane paths for the Facility.

Road construction will involve topsoil stripping and grubbing of stumps, as 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 (depth to be determined on a case by case basis), and a geotextile fabric or grid will be installed beneath the road surface if necessary, to provide additional support. To the extent practicable, local sources will be used to obtain gravel and other construction materials that may be needed (e.g., sand) in support of Facility construction.

During construction, access road installation and use could result in temporary soil disturbance of a maximum width of 30 feet. Once construction is complete, temporarily disturbed areas will be restored, including removal of excess road material and rocks greater than 12 inches, and returned to their approximate pre-construction contours as necessary.

(j) *Construction Laydown Areas*

Two laydown yards are proposed for the Facility. One laydown yard which totals approximately 5.9 acres, is located southwest of the SR 613 – Road 13 intersection, immediately east of the O&M building. The second laydown yard which totals approximately 4.0 acres, is located on the eastern side of Road 13, south of its intersection with Road F-12. The laydown yards will accommodate material and equipment storage, parking for construction workers, and construction management trailers. The laydown yards will be temporary structures, equipped with temporary lighting, fencing, and erosion and sediment control methods, all of which will be removed upon completion of Facility construction. Construction and reclamation of the laydown areas will be similar to that for access roads. Following construction, laydown yards will be decompacted, topsoil redistributed, and reseeded per the specifications of the Vegetation Management Plan.

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

The Facility will be surrounded by a 7-foot tall fence, with 1-foot barbed wire strand on top. The fence will be made from galvanized steel, supported on steel posts. Lighting will be located at Facility entrances, the O&M building, substation, and inverters.

The O&M building will be located southwest of the SR 613 and Road 13 intersection. The O&M building will be approximately 5.1 acres, located on privately-owned land, and will serve as storage for materials and supplies. A typical O&M building is a metal building with a standing seam roof and walls that are approximately 14 feet high. Lighting will be attached to the perimeter of the building. Construction of the O&M building will follow all applicable local building codes.

(l) *Other Pertinent Installations*

Permanent stormwater treatment infrastructure will be installed for the Facility to meet all requirements of the Ohio EPA Permit No. OHC000005 (Ohio EPA, 2018). Permanent stormwater treatment infrastructure is anticipated to be minimal and will primarily consist of infiltration swales and ditches adjacent to roads.

(3) Need for New Transmission Lines

The Facility will require the use of an overhead transmission line, which will be approximately 1.6 miles in length. The transmission line will transmit the energy generated by the Facility from the collection substation to the POI switching station to the existing East Leipsic – Richland 138 kV circuit. The Facility will connect to the AEP transmission system by installing a new, three-circuit 138 kV switching station (the POI switching station). The transmission line is described in detail in Section 4906-4-03(B)(2)(e) and preliminary drawings are included in Exhibit C.

(4) Project Area Map

The proposed layout of all Facility components is illustrated on Figure 03-2.Prepared at a 1:12,000 scale, Figure 03-2 illustrates the following features:

(a) *Aerial Photograph*

Mapping was developed using Ohio Statewide Imagery Program 6-inch orthoimagery aerial photographs map service.

(b) *The Proposed Facility*

Facility components, as discussed above in Section 4906-4-03(B)(2), are provided in Figure 03-2.

(c) *Road Names*

Road name data was obtained from the Putnam County Auditor's Office website.

(d) *Property Lines*

Property line data was obtained from the Putnam County Auditor's Office website.

(C) DETAILED PROJECT SCHEDULE

(1) Schedule

A Gantt-style chart is presented below, illustrating major activities and milestones including:

(a) *Acquisition of Land and Land Rights*

Acquisition of land and land rights began in 2018 and continued through the second quarter of 2020.

(b) *Wildlife Surveys/Studies*

Ecological surveys/studies began in 2019 and were completed in the second quarter of 2020

(c) *Receipt of Grid Interconnection Studies*

Grid interconnection studies were initiated in 2019. The Feasibility Study was issued in October 2019. The System Impact Study was issued in February 2020.

(d) *Preparation of the Certificate Application*

Preparation of the Application began in the fourth quarter of 2019.

(e) *Submittal of the Application for Certificate*

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

(f) *Issuance of the Certificate*

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

(g) *Preparation of the Final Design*

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 16 months.

(i) *Placement of the Facility in Service*

The Facility will be placed in service upon completion of construction, anticipated for the second quarter of 2023.

(2) Construction Sequence

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

- Installation of storm water and erosion control measures;
- General clearing of the Project Area, particularly where PV arrays, access roads, laydown yards, and substation will occur;
- 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 PV modules;
- Installation of single-axis tracker system;
- Installation of PV modules;
- Installation of the electrical collection system;
- Construction and installation of substations;
- Installation of inverters;
- Facility commissioning and energization;
- Final grading and drainage; and
- Restoration activities.

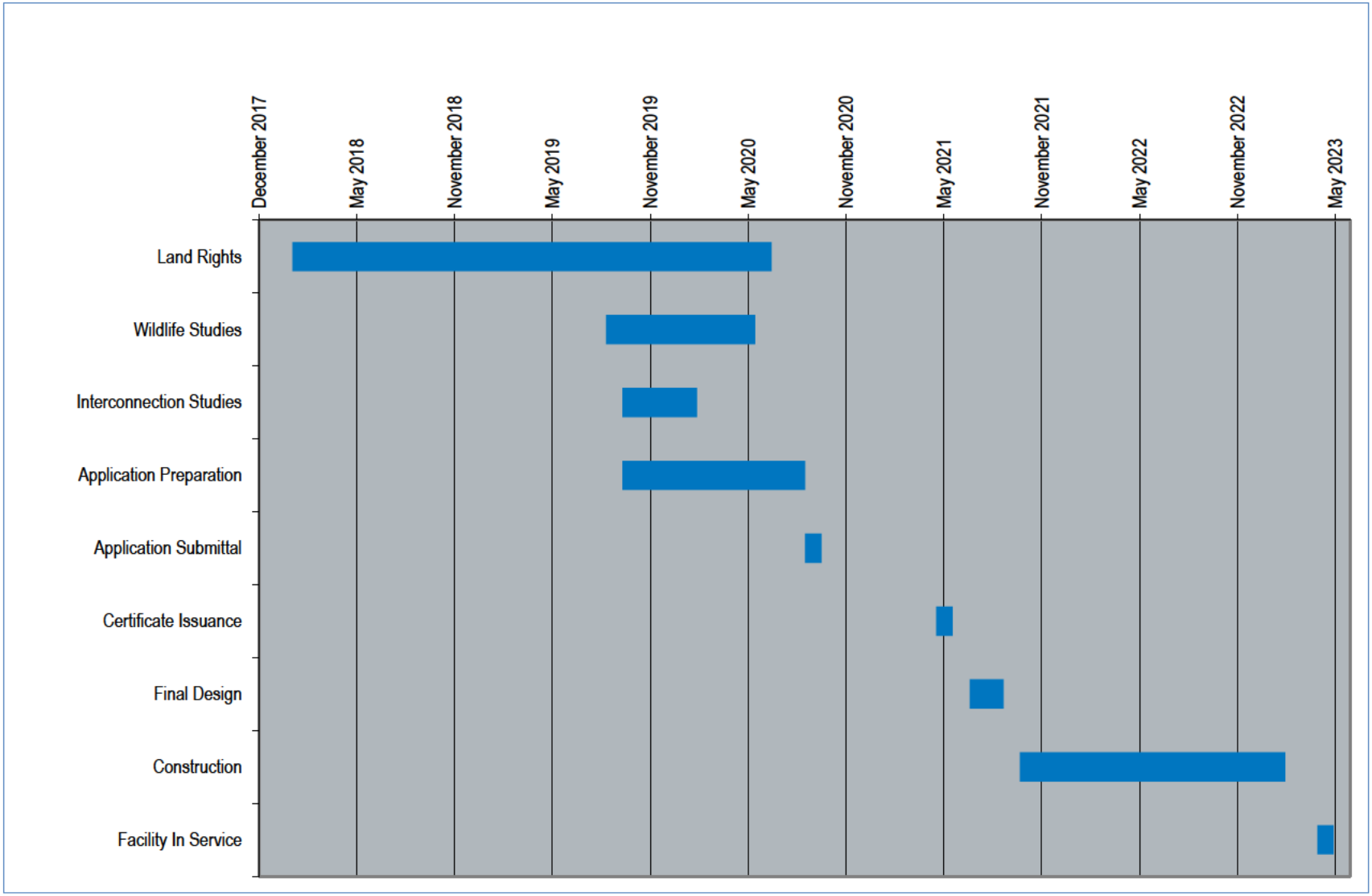
Graded areas will be smoothed, compacted, and freed from irregular surface changes, and sloped to drain. Final earth grade adjacent to equipment will be sloped away from the structure to maintain proper drainage. Slopes of embankments shall be protected against rutting and scouring during construction 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 (including removal of excess road material, de-compaction, and rock removal in agricultural areas) and returned to their approximate pre-construction contours. Exposed soils in the Project Area will be stabilized by seeding, mulching, and/or plantings.

(3) Impact of Critical Delays

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 form meeting deadlines for federal incentive programs such as the Production Tax Credit.


December 2017
May 2018
November 2018
May 2019
November 2019
May 2020
November 2020
May 2021
November 2021
May 2022
November 2022
May 2023
Land Rights
Wildlife Studies
Interconnection Studies
Application Preparation
Application Submittal
Certificate Issuance
Final Design
Construction
Facility In Service

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 Project Area

The availability and quality of solar resource and proximity to the bulk power transmission system 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 D depicts solar resources in Ohio using data obtained from the NREL National Solar Radiation Database (NREL, 2017a). The data suggests a suitable solar resource in the northwestern region of Ohio, including Putnam County.

The state of Ohio is included within the PJM Interconnection region, which is a market that enjoys a very strong potential customer interest. Multiple utility based and private (commercial-industrial) customers have, in the past, solicited renewable energy products from various project developers in the PJM (including Ohio), and this interest is anticipated to grow for the foreseeable future as the region (and nation) continues its transformation to a competitive clean energy society.

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 03-1, existing bulk transmission lines are located within the vicinity of the Facility in Putnam County.

Land use in Putnam 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, which is compatible with solar project development. Additionally, the topography in the Project Area is conducive to efficient installation and operation of a large scale solar facility.

Proximity to transportation routes is another consideration in identifying a site for the Facility. The Project Area is close to several state routes, including SR 108, SR 613, SR 15, and SR 109. Interstate 75 is about 20 miles to the east of the Project Site. These major roads provide accessibility for the transportation of Facility components, construction equipment, and staff.

Finally, the Project Area was strategically chosen to be adjacent to the Village of Miller City. For the past decade, Miller City has been unable to grow due to the need for a new wastewater treatment system, but without additional growth, Miller City has been unable to finance this needed infrastructure. Through intensive community engagement, led by the Applicant, the local municipalities have identified a solution to enable the village to finance and construct a new wastewater treatment system through payments made by the Applicant. Additional detail on economic benefits is provided in Section 4906-4-06(E) of this Application.

(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. 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:

a) Adequate solar resource

The Applicant determined through an initial screening process utilizing a statewide solar resource map (see Exhibit D), satellite solar irradiation data sources, and subsequent on-site measurements that the Project Area has an adequate solar resource. On-site measurements were conducted from December 2018 to January 2020.

b) 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.

c) *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. This was one of the primary factors that the Applicant considered when selecting the site for the Project Area. The Applicant obtained private lease agreements and good neighbor agreements for contiguous areas of land necessary to support the Facility. As mentioned above, the Project Area was also chosen because of its proximity to the adjacent Village of Miller City. 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.

d) *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 (Figure 03-2 and Exhibit E).

e) *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 planned construction of the Facility (Exhibits F, G, and H).

f) *Limited residential development*

The Project Area and surrounding communities have 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 I of this Application for additional detail on demographics in the vicinity of the Project Area.

g) *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.

h) 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 J of this Application for more information on ecological resources.

i) 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 K 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, proximate to 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. Finally, community acceptance and support of hosting a solar power facility is an important consideration. Multiple meetings with area landowners and stakeholders were held to gauge this level of support and acceptance, which for this site showed this support to be very strong. The Applicant has developed a Public Interaction Plan (Exhibit L) that documents the public outreach that the Applicant has conducted for the Project to date.

(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 strong solar resources compared to the remainder of the state, 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. Because siting of solar facilities relies on signing lease agreements with multiple landowners, once a region is identified, it is not practical to evaluate multiple project areas.

(B) FACILITY LAYOUT DESIGN PROCESS

The Facility layout presented in this Application is considered preliminary. Changes to the current Facility layout may occur due to unexpected surface conditions, changes in equipment selection, landowner considerations, and general optimization as the design matures. These changes would primarily consist of changes to access roads, collection and transmission line routing, inverter sizing, placement of PV panels within the currently outlined Project Area, etc. The changes are not expected to alter the boundaries of the Project Area or the properties on which Facility components will be located, will comply with the setbacks set forth in this Application, and will not create any additional material adverse impact. The final layout will be provided to the OSPB in the third quarter of 2021.

If the Applicant were required to select a panel model (or models) prior to Certificate issuance, both the panel and the resulting design would be obsolete well 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 identify the final locations of panels, select and locate inverters, and adjust other components, including piles, collection lines, and roads.

(1) Constraint Map

A constraints map of the Project Area showing setbacks, property lines, 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 land use constraints, noise constraints, solar resource constraints, wetland and stream constraints, agricultural constraints, 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 geographic information system (GIS) tools and consultant assessments, the Applicant performed numerous layout design iterations

to develop the proposed Facility layout as presented and described in this Application. 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 to minimize impacts to active agricultural land. Site-specific investigations were conducted in order to site PV panel arrays and access roads in a way that minimizes temporary disturbance and permanent loss of active agricultural land. This includes the co-location of access roads with collection lines and utilizing existing farm lanes wherever practicable. For additional information on agricultural land, see Section 4906-4-08(E) of this Application.

Noise Constraints

Sound levels associated solar power equipment are low and unlike other power facilities, one would not require hearing protection when standing near solar equipment. In addition, as solar facilities utilize the sun to generate power, their sound emissions occur primarily during the daylight hours. Nonetheless, solar inverters have been located on the interior of the solar panel arrays and the project will abide by the typical OPSB guideline of limiting the increase in sound level to 5 decibels (dBA) at non-participating dwellings.

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. For all identified stream and wetland crossing points, appropriate construction techniques will be used to avoid and minimize impacts. As a result, the vast majority of stream and wetlands 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 J of this Application.

Landowner/Resident 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, the Applicant designed the Facility to minimize the number of PV panels located near non-participating residences.

(3) Description of Number and Type of Comments Received

The public was able to provide comments to the Applicant through the Applicant's website, by mail, at the virtual public informational meeting, which was held July 29, 2020, and during the phone-based teleconference held on July 30, 2020. Exhibit M contains each public comment received by the Applicant and a response addressing the comment. The public comments addressed a range of topics, with no focus on any particular issue. Topics included glare, visual impacts, and economic benefits, among others. In addition to comments received during the public informational meeting and the teleconference, the Applicant is accepting comments through the Project's website and through the Project email address (PowellCreekSolar@Avangrid.com).

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. 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 AEP East Leipsic-Richland 138 kV line via a new 138 kV switching station (POI). The new station design includes a three-circuit breaker system configured in a breaker and half bus arrangement but operated as a ring-bus, associated protection and control equipment, 138 kV risers, and supervisory control and data acquisition (SCADA). The Applicant will obtain all necessary permits and land for the new transmission facilities, and will be responsible for construction costs. AEP will own and operate the POI switching station. The Applicant anticipates executing an Interconnection Agreement with PJM in the fourth quarter of 2021.

(B) INTERCONNECTION INFORMATION

(1) Generation Interconnection Request Information

The name of the interconnection queue position for this Facility is East Leipsic-Richland 138 kV. The queue number is AE2-072, and the queue date is February 14, 2019. The proposed in-service date used by PJM for the interconnection studies is December 31, 2021. The website for the queue is https://www.pjm.com/planning/services-requests/interconnection-queues.aspx. Find this project by entering the queue number AE2-072 into the “Queue/OASIS ID” search field.

(2) System Studies

(a) *Feasibility Study*

PJM issued the Generation Interconnection Feasibility Study Report for Queue Project AE2-072 (AE2-072 Feasibility Study) in October 2019. This report evaluated the project for 150 MW generating capability, with 90 MW of this output being recognized by PJM as capacity. The potential issues, along with network upgrades that could alleviate these concerns, are described in greater detail in the *AE2*-072 Feasibility Study (Exhibit N).

(b) *System Impact Study*

PJM issued the Generation Interconnection System Impact Study Report for Queue Project AE2-072 (AE2-072 System Impact Study) in February 2020. The report evaluated the project for 150 MW generating capability, with 90 MW of this output being recognized by PJM as Capacity. The study estimated $10.3 million in upgrade costs for which the project will be responsible. The potential issues, network upgrades, and approximate cost allocations are described in greater detail in the AE2-072 System Impact Study (Exhibit N).

4906-4-06 ECONOMIC IMPACT AND PUBLIC INTERACTION

(A) OWNERSHIP

The Applicant will construct and own all structures and equipment associated with the Facility, except the POI switching station. 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 SR 108, SR 613, and Road 13, between participating parcels. The Applicant continues to communicate with property owners and is in the process of obtaining the necessary leases, easements, and other agreements supportive to constructing the Project. 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 such rights-of-way. The land that hosts the O&M building, the collection substation, and the POI switching station will be purchased by the Applicant. The POI switching station will be sold to AEP. All other components of the Facility will be located entirely on privately-owned land, and voluntary lease agreements between the Applicant and private landowners will accommodate the Facility. The proposed Facility and associated lease agreements are not expected to change the ownership status of private lands within the Project Area.

The Applicant is a wholly-owned subsidiary of Avangrid Renewables, LLC (Avangrid) which is a subsidiary of Avangrid, Inc, (NYSE: AGR) and part of the Iberdrola S.A. Avangrid currently owns and operates wind and solar facilities that produce over 6,000 MW in over 20 states. In total, Avangrid generates power from nearly 60 renewable energy projects in the United States and has a diversified energy portfolio, including wind, thermal, solar, and biomass generation.

(B) CAPITAL AND INTANGIBLE COSTS

(1) Estimated Capital and Intangible Costs by Alternative

Due to the sensitive nature of economic data and the potential advantage it could provide to industry competition, capital and intangible costs are included in Part III, Section 2 of the unredacted version of the Socioeconomic Report (Exhibit I), 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, and 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, and Robson, 2019). These costs are not substantially different from the average cost estimated for the Facility.

(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 unredacted version of the Socioeconomic Report (Exhibit I). 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 I), 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 I), 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 I). 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 I).

(E) ECONOMIC IMPACT OF THE PROJECT

Information provided in this section was obtained from the Socioeconomic Report prepared by EDR (see Exhibit I). 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 United States Department of Energy (USDOE). 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 2018 IMPLAN multipliers for the state of Ohio were used during the time of analysis (IMPLAN, 2020). 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 (NREL, 2017b). 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 (NREL, 2017b). These economic development impacts include earnings and related economic outputs from onsite jobs, local revenue and supply chain jobs, and induced jobs (see Part IV of Exhibit I 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)
Project Development and On-site Labor Total	388	$32.8	$35.1
Construction and Installation Labor	309	$28.1	-
Construction Related Services	79	$4.7	-
Module and Supply Chain Impacts	142	$8.9	$24.3
Induced Impacts	150	$8.2	$25.1
Total Construction Impacts	680	$49.9	$84.5
During Operating Years (Annual)	**Jobs**	**Earnings (Millions)**	**Output (Millions)**
On-Site Labor Impacts	1	$0.04*	0$0.04*
Local Revenue and Supply Chain Impacts	1	$0.1	$0.2
Induced Impacts	4	$0.2	$0.7
Total Annual Operational Impacts	5	$0.3	$0.9

Source: NREL JEDI Model (version PV12.23.16) (USDOE NREL, 2017)
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. * = Indicates rounding to show non-zero impact.

Based upon JEDI model computations, it is anticipated that construction of the proposed Facility will directly generate employment of an estimated 309 full-time employee (FTE) on-site construction and project development positions. The JEDI model estimated a total of $28.1 million for annual earnings of the 309 on-site construction jobs. The present worth of construction payroll, over the course of the first year of construction, is estimated to total $19.3 million.

Module trade and supply chain industries could in turn generate an additional 142 jobs over the course of Facility construction. In addition, Facility construction could induce demand for 150 jobs through the spending of additional household income. The total impact of 680 new jobs could result in up to approximately $49.9 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 one direct FTE job with estimated annual earnings of less than $0.04 million. Wage rates for the direct operational employees are projected to be $21.39 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. Department of Labor, 2018). The present worth of operations payroll, over the course of the first year of operation, is estimated to total $44,408.

(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 following construction, 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 as it ripples through the economy. The results shown in Exhibit I 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 50% 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 that service in the area where the proposed Facility is to be located. Taxing districts within the Project Area include Liberty and Palmer Townships, and Miller City, Putnam County, as well as two school districts (Ottawa-Glandorf Local School District and Miller City-New Cleveland 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. The amount of

Payment In Lieu Of Taxes (PILOT) to be paid annually to the county treasurer is assessed per MW of nameplate capacity, with the rate of at least $7,000/MW. Assuming an aggregate nameplate capacity of 150 MW, the increase in local tax revenues will be at least $1.05 million annually from the Facility.

(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 $84.5 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 presenting the Facility to the public, the Applicant has presented the maximum 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 alter 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 has and 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 Project website, a virtual public information meeting held on July 29, 2020, and a phone-based teleconference on July 30, 2020. The Public Interaction Plan (Exhibit L) includes additional details on meetings with the local officials, landowners, and benefits to the surrounding communities.

A complaint resolution procedure will be implemented to ensure that any complaints regarding the Facility construction or operation are adequately investigated and resolved. Once construction beings, a phone number for the construction manager will be provided to township trustees and posted on signage at the laydown yard and can be used for receiving and documenting complaints. Additional methods for filling complaints include in-person at the temporary construction office or a written letter to the Applicant. These complaints will be fully investigated by onsite staff. At least seven days prior to the start of construction, the

Applicant will notify affected property owners and tenants of the approved Complaint Resolution Plan and other sources of information about the Facility. A Complaint Resolution Plan is attached hereto as Exhibit O. Any updates to the Complaint Resolution Plan will be provided to OPSB Staff before construction begins.

(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 construction, operation, and decommissioning of the Facility. The insurance policy or policies will insure the Applicant to the extent of their interests and extent of their liability. 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 construction, operation, and decommissioning 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/Traffic Study prepared by Westwood attached hereto as Exhibit E. The study identifies traffic levels during construction and operation of the probable transportation routes, types of vehicles and construction equipment used during construction and operational phases, and required transportation permits.

Construction/Delivery Vehicles: Traffic associated with material deliveries for the Facility will likely consist of flatbed trucks, semi-trailer dump trucks, concrete trucks, semi-trailers, 40-foot container trucks, cable trailers, water trucks, and multi-axle trucks. Anticipated vehicles for the delivery of construction equipment include lowboy semi-trailers, single unit flatbed truck, and small flatbed trailers. Most of the vehicles will be of legal weight and dimensions; however, some overweight/oversize (OW/OS) vehicles may be required for the delivery of the switchgear or transformer for the collection substation. In addition to these vehicles, typical automobiles and pick-up trucks will be used to transport staff and other incidentals. Operation and maintenance traffic will be limited to a few passenger vehicles per day following construction of the Facility.

Delivery Route: Roadways within the Project Area were categorized by the Ohio Department of Transportation (ODOT) functional classifications and include one minor arterial road (SR 108), one major collection road (SR 613), and five local roads (Road 12, 13, 15-C, E, and G). These classifications are based on physical characteristics such as, and width, shoulder width, average annual daily traffic, divided/undivided status, and

access control (see Appendix A of Exhibit E). SR 108 and SR 613 are 2-lane, 22-foot wide paved roads with a 2-foot shoulder on either side. All local roads identified in the Route/Traffic Study are paved and have an approximate width of 12 feet. Shoulder width along the local roads vary from 0 to 4 feet and are a mix of gravel and unimproved areas. It is assumed that most vehicular traffic will originate from an interstate or four-lane highway, before approaching the identified routes.

Impacts and Mitigation: Due to low average daily traffic volumes along potential transportation routes, impacts to traffic are anticipated to be minimal. Therefore, no capacity improvements are anticipated at this time. Temporary impacts to traffic will be addressed in a Road Use and Maintenance Agreement (RUMA) between the Applicant and the Putnam County Engineer. This plan will address procedures for temporary road closures, lane closures, road access restrictions, and traffic control. The RUMA will also include measures that will be taken to repair any roads or bridges to their pre-construction condition.

(4) Transportation Permits

Prior to construction, the transportation contractor will obtain all necessary permits from ODOT and the Putnam County Engineer. The vast majority of vehicles used for the construction and operation of the Facility meet current legal dimensions and weight; therefore, very few transportation-related permits are anticipated. Special Hauling Permits may be required for a few vehicles that will transport the switchgears and transformers for the collection substation. Two additional permits that will be required include a permit with Putnam County for driveway access on County and Township Roads, and a road crossing permit for ODOT or the Putnam County Engineer for collection lines.

(5) Decommissioning

Utility-scale solar facilities typically have a life expectancy of 30 to 40 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:

<u>Removal of Facility Improvements</u>

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 in accordance with the current regulations at the time of decommissioning. Below-ground

structures, such as buried interconnect lines, will be removed to a minimum depth of 36 inches. Any underground infrastructure installed to a greater depth will remain in place. 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. Any sites that have been excavated and backfilled will be graded to their preconstruction condition as dictated by landowner lease agreements. Topsooil will be placed on disturbed areas and seeded with appropriate vegetation or in coordination with landowners within agricultural land.

Financial Assurance

The Applicant, through this application, is committing to provide financial assurances for Facility decommissioning and reclamation. Specifically, six months prior to the beginning of the tenth year of each lease's term, the Applicant will retain an independent demolition contractor with solar experience to provide a good faith estimate of the total cost to decommission the Facility including restoring any changes made to the property (the Reclamation Estimate). The Reclamation Estimate will not include an offset for the salvage value of the Facility. No later than the beginning of the tenth year of each lease's term, the Applicant will deliver to the property owner a payment bond or a letter of credit issued by a credit worthy bonding company or financial institution, as applicable, in an amount equal to one hundred ten percent (110%) of the Reclamation Estimate, less any other financial assurance that the Applicant has provided to any government agency for restoration of the property covered by the lease.

A draft decommissioning plan is provided as Exhibit P. An updated plan will be provided to OPSB Staff prior to construction.

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

(A) PURPOSE

This section details how the Applicant will comply with regulations for air and water pollution, solid and hazardous wastes, and aviation.

(B) AIR

(1) Preconstruction

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

(2) Plans to Control Emissions and Fugitive Dust During Site Clearing and Construction

Best management practices (BMPs) will be utilized and implemented to minimize the amount of dust generated by construction activities. The extent of exposed or disturbed areas on the site at any one time will be minimized and restored or stabilized as soon as possible per the requirements of Ohio EPA Permit No. OHC00005. During construction, 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. Should any complaints regarding dust generation be received via the complaint resolution process, the Applicant will work to resolve them as quickly as practicable. 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 stormwater general permit, Ohio EPA Permit No. OHC000005
- An individual permit or nationwide permit under Section 404 of the Clean Water Act (if necessary, as determined after final engineering)
- A Water Quality Certification from the Ohio EPA (if necessary, as determined after final engineering)
- An Ohio Isolated Wetland Permit (if necessary, as determined after final engineering)

(b) *Water Quality Map*

The Facility will not discharge water or waste into streams or water bodies, 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, and the remainder of this section does not apply.

(c) *Description of Water Monitoring and Gauging Stations*

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

(d) *Existing Water Quality of Receiving Stream*

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

(e) *Permit Application Data*

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

(2) Construction

(a) *Water Quality Map*

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

(b) *Quantity/Quality of Construction Runoff*

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 run off the panel and fall onto the pervious underlying surface. The collection substation and access roads are the only source 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.

(c) *Mitigation*

As described above, construction of the proposed Facility is not anticipated to have any significant impacts to 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 (SWP3) and file a Notice of Intent (NOI) letter with the Ohio EPA at least 21 days prior to the commencement of construction activities.

The SWP3 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 SWP3 will identify potential sources of pollution that may reasonably be expected to affect the quality of storm water discharges associated with construction activities. The SWP3 will also describe and ensure the implementation of BMPs that reduce pollutants in storm water discharges during construction. Exhibit Q contains typical BMPs that may be used during construction of the Facility. Final, site-specific BMPs will be included in the SWP3.

As described below in Section 4906-4-08(E)(2)(c), topsoil removal and de-compaction will occur in agricultural areas, which constitutes most of the Facility footprint. 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, 2019d). 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 have been minimized through feature avoidance, horizontal directional drilling (HDD) of underground collection lines, and BMPs. 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 a 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 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*

The Facility will not produce any water or water-borne wastes, and will produce negligible runoff. Therefore, flow diagram information is not applicable to the proposed Facility.

(e) *Water Conservation Practices*

Aside from very limited quantities of water that may be used for the occasional cleaning of solar panels, no on-site Facility components requiring water sources, such as an office space, are planned for the Facility. Any onsite water usage will be applied with modern fixtures that conserve water. In addition, a study supported by the NREL demonstrates that water use is lower for PV panels than other generation technologies (Meldrum, et al., 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 for Facility development.

(2) Construction

(a) *Nature and Amounts of Solid Waste during Construction*

Facility construction will generate minimal solid waste, primarily consisting of plastic, wood, cardboard, and metal packing materials; construction scrap; and general refuse.

(b) *Methods for Storage and Disposal of Solid Waste during Construction*

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 as needed 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 Amount 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, 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*

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

(4) Licenses and Permits

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

(E) COMPLIANCE WITH AVIATION REGULATIONS

(1) Aviation Facilities List and Map

The closest known airport open for public use is Ruhe's Airport (Federal Aviation Administration [FAA] Identifier: R47), owned by Bob Ruhe Agricultural Service, located approximately 2 miles east of the Project Area. This airport is illustrated in Figure 08-5. Two additional private airstrips , Agner and Hiltner airstrips,

were identified using FAA data obtained from the Ohio GIS Support Office; however, these airstrips are no longer in use.

(2) FAA Filing Status and Potential Conflicts

The 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.

Reflectivity or glare is a potential concern from the FAA regarding solar facilities. Glare from solar panels has the ability to cause brief loss of vision for pilots during their final approach to a runway or to air traffic controllers (Rogers et al., 2015). In 2013, the FAA established an Interim Policy that reviewed the impacts of solar energy system projects on federally obligated airports. This review states that, in order to receive FAA notice of "no objection," there should be no potential for glare from the solar facility in the Airport Traffic Control Tower or along the final approach path, defined as "two miles from fifty feet above the landing threshold using a standard three-degree glidepath" (Federal Register, 2013, p. 2). The Applicant engaged Capitol Airspace Group to conduct a Glare Analysis for the Facility (Exhibit R). The analysis indicated that there is no predicted glare to approaches of runways for nearby airports. Similarly, there is no predicted glare to residences or roadways as a result of the Facility.

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

(A) HEALTH AND SAFETY

The Applicant has used conservative impact area assumptions for all project components; therefore, as detailed project design decisions are finalized, these impact calculations will remain the same or decrease.

(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. During Facility construction, temporary, chain-link fencing will be used around Facility components and staging and storage areas. The Applicant will coordinate with local emergency responders during construction activities. 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 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 Electric Code [NEC], National Electrical Safety Code [NESC], American National Standards Institutes [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.

(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 7-foot security fence with an additional 1-foot of barbed wire 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, and electronic security systems. Additionally, "No Trespassing" and "High Voltage Equipment" signs will be placed around the perimeter of the fencing, warning the public of the hazards within the fenced Facility Site.

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

The Applicant plans to coordinate with Putnam County Emergency Management Services (EMS), including local fire and EMS officials, to discuss safety plans and training protocol prior to construction. An Emergency Action Plan will be finalized based on coordination with Putnam County Emergency Services and will be submitted to 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

Jacobs was retained by the Applicant to evaluate potential noise levels from the proposed Facility in accordance with OAC requirements. The analysis was overseen by an acoustical engineer (Acoustical P.E.) who is also Board Certified by the Institute of Noise Control Engineering. This study, hereafter referred to as the Sound Assessment, consists of 3 phases: (1) evaluation of potential sound levels during construction, (2) a background sound level survey, (3) modeling of future sound levels for the substation transformer and inverters. The Sound Assessment is included as Exhibit X and summarized below

(a) *Construction Noise Levels at the Nearest Property Boundary*

Table 2-1 of the Sound Assessment (Exhibit X) identifies commonly used construction equipment for solar facilities, assuming no attenuation from trees or terrain. The table conservatively identifies the sound level at 15 meters (50 feet) for equipment, which can be applied to Facility construction nearby to property boundaries. The table identifies that the loudest emissions at this distance for any type of equipment used on site is anticipated to be 88 decibels (dBA). Table 2-2 of the Sound Assessment presents the expected

average construction equipment noise levels at various distances. The closest non-participating residence to the solar array is approximately 200 feet away. While construction is occurring at this distance, the sound level is expected to be approximately 78 dBA. However, increased sound levels due to construction of the Facility will be temporary and limited to daytime hours.

(i) Blasting activities

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

(ii) Operation of earth moving equipment

Noise emission levels associated with earth moving equipment, including backhoes, dozers, graders, and loaders are included in Table 2-1 of the Sound Assessment.

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

Small hydraulic drivers will be used to install the metal posts that hold the racking system for the PV panels. The sound level of these drivers is expected to be similar to other general construction equipment with a nominal sound level of approximately 85 dBA at 50 feet. Equipment used for earth moving and HDD is anticipated to be consistent with general construction equipment used on a variety of infrastructure projects. See Table 2-1 of Exhibit X for sound levels associated with this equipment.

(iv) Erection of structures

The equipment used to erect structures is anticipated to be consistent with general construction equipment used on a variety of infrastructure projects. See Table 2-1 of Exhibit X for sound levels associated with this equipment.

(v) Truck traffic

The sound level from truck traffic is expected to be 84 dBA at 50 feet during construction.

(vi) Installation of equipment

Table 2-1 of the Sound Assessment presents the maximum sound pressure levels for various pieces of equipment at 15 meters (50 feet) away and Table 2-2 presents sound levels as a function of distance (Exhibit S). Sound levels for equipment 15 meters (50 feet) from a non-participating

residence ranges from 76 dBA to 88 dBA. General construction sound levels are estimated to be 78 dBA when equipment is working in close proximity to the nearest non-participating residence.

(b) *Operational Noise Levels at the Nearest Property Boundary*

(i) Operational noise from generation equipment

A detailed operational noise model was developed based on the Facility layout. Sound sources in the model include inverters and transformers, the sound levels of which were developed from measurements of similar equipment or vendor specifications. The representative inverter and transformer sound levels were used to develop a three-dimensional sound model based on the ISO 9613-2 standard for propagation of sound outdoors. Results from sound modeling showed that all non-participating residences are anticipated to receive sound levels of 42 dBA or less. Figure 3-1 of the Sound Assessment (Exhibit X) illustrates surrounding residences and anticipated sound levels to be produced by the Facility.

Based on the sound model, the highest sound level anticipated at a non-participating property boundary from noise emitting equipment during operation of the Facility is anticipated to be 44 dBA. This sound level is located in the eastern portion of the Project Area. See Figure 3-1 of the Sound Assessment for a depiction of predicted sound levels at residences and properties in the vicinity of the Project Area.

Overall, the equipment sound levels associated with transformers are low and unlike other power facilities, one would not require hearing protection when standing near the solar equipment. When the Facility is not operating at full load, the sound level would be less than the values provided above and in the Sound Assessment. During the nighttime hours, the inverters are not at full capacity and emit substantially less noise. Additionally, the cooling requirements for the transformers are expected to be diminished as the transformer is not loaded during the nighttime hours, allowing the fans to operate at a lower speed or not at all resulting in lower sound levels.

(ii) Processing equipment

There is no processing equipment associated with this Facility. Therefore, this section is not applicable

(iii) Associated road traffic

Once operational, the proposed Facility will not significantly contribute to traffic on local roads. Operational traffic is anticipated to be minimal, primarily pickup trucks used by a small operation and maintenance staff for periodic maintenance, and will not be a significant source of noise.

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

Noise sensitive areas within the immediate vicinity of the Facility are mapped with sound level data in Figure 3-1 of the Sound Assessment. Noise sensitive areas within 1 mile are included in Figure 3-2 of the Sound Assessment. As noted above, the highest modelled sound level from noise generating equipment at a non-participating sensitive receptor was determined to be 42 dBA

(d) *Mitigation of Noise Emissions during Construction and Operation*

Although noise emissions during construction and operation of the Facility are anticipated to be minor, mitigation measures will include the following:

- Implementing BMPs for sound abatement during construction, including use of appropriate mufflers, proper vehicle maintenance, and limiting hours of construction to daylight hours, unless there is a compelling reason to work beyond those hours. It is anticipated that the work would be completed in 8- to 10-hour shifts, for a total of five shifts per week (Monday–Friday) with the possibility of up to seven shifts per week when necessary.
- Notifying landowners of construction commencement.

In addition, a complaint resolution procedure will be used to ensure that any complaints are adequately investigated and resolved. A Complaint Resolution Plan is attached hereto as Exhibit O.

(e) *Pre-construction Background Noise Study*

A week-long sound level monitoring effort was conducted August 10 through 18, 2020 at four locations with the Project Area. Data logging Larson Davis 831C, ANSI S1.4 Type 1, precision, sound level meters were used for this survey. Data was collected in 10-minute increments over the 7-day survey period. The monitoring locations are depicted on Figure 5-1 of the Sound Assessment.

Table 5-3 of the Sound Assessment provides the average sound level for each monitoring locations for daytime and nighttime hours. Given the solar nature of the Facility, the emphasis was placed on the daylight results. However, the overall site wide average, 47 dBA, is the same for daytime and nighttime

hours. The modeled sound level of 42 dBA at the nearest non-participating residence is less than the average ambient sound level of 47 dBA.

(4) Water Impacts

Westwood Professional Services (Westwood) conducted a desktop review of available hydrogeology and geotechnical information for the proposed Facility (Exhibit F).

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

Wells in the vicinity of the Facility are displayed in Figure 08-1 and in Exhibit 2 of Exhibit F. Wells were identified using public well records obtained from the Ohio Department of Natural Resources (ODNR) Division of Water Resources and indicates that five wells are located within the Project Area. The wells range in depth from 55 feet to 225 feet below ground surface, all within a limestone aquifer. For the wells with known testing yields, yields were between 12 to 30 gallons per minute. Additional detail on the water wells located within the Project Area is provided in Table 1 and Appendix D of Exhibit F.

Existing on-site water wells located in the Project Area may be utilized for construction activities including, but not limited to, moisture conditioning of the soil, dust control, and vegetation reestablishment. Operational activities, such as module washing, may also use water from on-site wells. These activities are not anticipated to require significant pumping rates from the wells for extended periods of times. Construction and operational activities are not anticipated to have significant negative impact to the irrigation and drinking wells located on private properties. The Applicant will coordinate with landowners to identify specific well locations, avoidance and mitigation measures, or capping. Given that the Facility will not be constructed within the immediate vicinity of residences, impacts to water wells are not anticipated.

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

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

(c) *Water Resources Map*

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

(d) *Compliance with Local Water Source Protection Plans*

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

(e) *Prospects of Floods in the Area*

A Hydrology Study was completed for the Project Area (Exhibit G). This study analyzed risk of flooding and ponding, and their potential to cause scour, which could hinder the integrity of the solar pilings and racking. The Project Area contains a portion of mapped Federal Emergency Management Agency (FEMA) Zone A 100-year floodplain. However, no Facility components are sited within that floodplain. The Hydrology Study indicated that low to moderate depths and low velocities were found across the majority of the Project Area, with minimal concern for scour. All hydrologic concerns can be addressed via avoidance or through design measures in the final Facility layout.

(5) Geological Features Map

Figure 08-2 depicts the geologic features of the proposed Project Area, as well as topographic contours, existing oil and gas wells, and injection wells.

(a) *Geologic Suitability*

A geotechnical evaluation of the Project Area was completed by Mott MacDonald (Exhibit H). The report provided an overview of the local geology, test pit investigations, soil boring explorations, pile load testing, field electrical resistivity testing, laboratory thermal resistivity testing, laboratory soil material testing, and limited chemical testing. Geotechnical considerations noted in the report can be addressed via standard engineering techniques and methods. Recommendations of the report will be considered throughout the engineering and procurement process to ensure selection and construction techniques will be implemented to support the viability of the Facility throughout its operational life.

The Facility is not anticipated to require extensive grading, given the flat to gently sloped topographic relief of the Project Area. Bedrock within the Project Area is assumed to exist at approximately 50 feet below ground surface and karst areas are not expected to exist within the Project Area. Construction of the proposed solar project is not anticipated to create significant impacts to the regional geology. Groundwater was not encountered within any of the boreholes or test pit excavations. However, if groundwater was encountered during construction, dewatering activities will be conducted in accordance with all requirements of Ohio EPA Permit No. OHC000005. Based on a review of subsurface conditions, computed Seismic Site Class ratings, and review of USGS's 2014 National Seismic Hazard Map, the

geotechnical report concluded that there is a low risk of significant seismic activity that could impact the proposed Facility.

(b) *Soil Suitability*

Soils encountered in the Project Area consist of approximately 6 inches (up to 12 inches in a few locations) of topsoil, followed by medium stiff to very stiff clays to a maximum explored depth of 20 feet. Testing was conducted to determine the corrosivity, thermal resistivity, and electrical resistivity of the soils. Results for those tests can be found as attachments to Exhibit H.

The site can be classified as having medium corrosivity. The Applicant will evaluate specific materials, as recommended in Exhibit H, for additional protection against corrosion. Given the location of the Project and the soils encountered during the geotechnical investigation, the Facility could be subject to adfreeze stress. The Applicant will consider the design recommendations related to adfreeze stress during foundation sizing and design. Based on the properties of the soils in the Project Area, the Geotechnical Report includes foundation design and construction recommendations. The Applicant will evaluate these recommendations during final engineering and design of the Facility.

(c) *Plans for Test Borings*

The geotechnical investigation included 14 exploratory test pits and 31 soil borings throughout the Project Area. Boring logs and test pit logs are included as Appendix C and D of Exhibit H, respectively. As noted previously, groundwater and bedrock were not encountered at any of the soil borings or test pits. Soil characteristics identified from the borings and pits are discussed in 4906-4-08(A)(5)(b). Recovery is provided in the boring log.

(6) Prospects of High Winds in the Area

The Facility will be engineered and installed to withstand typical high-wind occurrences as required by the enacted code at the time of construction permitting. The Facility design will factor in wind speeds based on building code wind speed maps or a site-specific study as determined appropriate by the engineer of record. The Facility is proposed to be designed using Risk Category I factors from the building code and based on the maximum expected three-second gust at the code applicable recurrence interval.

(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. The central inverters in 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 many household appliances (NC Clean Energy Technology Center, 2017). The central inverters in the PV arrays will be located such that any EMFs will not be detectible at the project boundary. 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 and 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 overhead transmission line support structures, with a maximum height of approximately 95 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). However, components of this Facility are low in profile with the tallest structures being the overhead transmission line poles. 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 (NREL, 2017).

(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 J. The assessment includes a review of applicable literature and desktop information, summarizes consultations with the ODNR and the U.S. Fish and Wildlife Service (USFWS), provides results of field studies in the Project Area, and reports anticipated Facility impacts.

(a) *Open Spaces and Facility Map*

Figure 08-3 shows the proposed Facility and ecological features within 0.5-mile of the Project Area. This map was developed using ESRI ArcGIS Online "World Topographic Map" map service. Figure 08-3 shows the following features:

(i) The proposed Facility and Project Area boundary

The proposed Facility layout includes PV panels, collection lines, access roads, inverters, laydown yards, O&M building, fenceline, collection and POI substations, and transmission 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, shrub/scrub, and barren land. Of the approximately 6,963 acres that make up the 0.5-mile radius around the Project Area, approximately 224 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, nature preserves, or other conservation areas are located within 0.5-mile of the Project Area. Wildlife areas, nature preserved, and other conservation areas within 10 miles of the Project Area are illustrated in Figure 08-5.

(iv) Surface bodies of water

One waterbody, Miller City Cutoff, is located within the 0.5-mile study area. This waterway is depicted on Figure 08-3. Waterbodies within 2 miles of the Project Area are illustrated on Figure 03-1.

(v) Highly erodible soils and steep slopes

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

(b) *Field Survey and Map of Vegetative Communities*

Vegetative Communities

Vegetative communities were characterized in Section 5 of the Ecological Assessment (Exhibit J) via a desktop analysis of NLCD data then later verified during field surveys. The primary communities identified include agricultural land, disturbed/developed land, and clusters of deciduous forests. Agricultural land was the predominant land use in the Project Area and was dominated by corn and soybean, with some areas of winter wheat. Disturbed/developed land use was present in low densities and consisted of residences with lawns or landscaped areas, driveways, and unpaved roads. Limited forestland was present as isolated woodlots. Many of the woodlots contained vehicles paths for farm equipment access. A map of the vegetative communities is included as Figure 2 of the Ecological Assessment.

Wetland and Stream Delineations

Surface water delineations were completed within the Project Area. A Wetland and Stream Delineation Report is provided as Appendix D to the Ecological Assessment. A map of delineated wetland and streams is included as Figure 6 in the Ecological Assessment.

A total of 18 wetlands were delineated, comprising approximately 29.1 acres. Of the 18 wetlands, 13 were identified as palustrine forested wetlands and 5 were identified as palustrine emergent wetlands. Two of the wetlands could potentially be jurisdictional, based on potential hydrologic connectivity to a potential Waters of the U.S. (WOUS). A total of 12 waterbodies were identified, ten streams and 2 ponds. Of the 10 streams identified, eight are anticipated to be considered WOUS due to their hydrologic connection to a WOUS and flow regime. Based on the preliminary Facility layout, approximately 0.11 acre of wetland will be impacted during construction, and only approximately 0.02 acre of wetland will be permanently impacted during operation. Additional detail on the individual wetlands and waterbodies can be found in the Ecological Assessment.

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

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

Plants

Aside from crops, there are no known plant species of commercial or recreational value within 0.25 mile of the Project Area. The Applicant consulted with the ODNR regarding state and federally listed plant species that may occur in the vicinity of the Project Area. The ODNR indicated that there were no records of state endangered or threatened plants within the Project Area.

Animals

Section 4.4.1 of the Ecological Assessment includes a discussion on wildlife species potentially existing in the Project Area. Table 4.3 in the Ecological Assessment (Exhibit J) provides a comprehensive table of all state and federal listed species that were identified by the ODNR or USFWS as potentially occurring in the Project Area, and if they were observed during field surveys. For additional information on these species and agency consultation, see the Ecological Assessment.

Federally Listed Species

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

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

The Project is within the range of the three federally endangered mussels. However, the mussel reconnaissance survey did not observe any live or fresh dead mussels within the Project Area. In addition, none of the delineated streams in the Project Area were determined to be suitable mussel habitat. Therefore, mussels are not likely to be impacted.

State Listed Species

The Project is within the range of six mussel species, two fish species, and one bird species identified by the ODNR as threatened or endangered listed species. No critical habitat areas exist for these species within the Project Area. Therefore, impacts to these species are not anticipated.

Game Species

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

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

No additional wildlife surveys are anticipated for the Facility. Based on adherence to agency avoidance and mitigation guidelines, consultation with the ODNR and USFWS did not result in the suggestion of additional surveys. Those guidelines, along with other avoidance and minimization techniques, are provided below in section 4906-4-08(B)(2)(b).

(e) *Summary of Additional Ecological Impact Studies*

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*

Since the Facility is located entirely on leased private land, there will be no construction-related impacts to recreational areas, parks, wildlife areas, nature preserves, or other conservation areas. 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. Additional details, including acreage of potential impacts are included in the Ecological Assessment (Exhibit J).

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 electrical interconnect. As described in the Ecological Assessment, the majority of the plants that will be impacted will be agricultural crops (corn and soybeans). 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. Based on the studies conducted to date, none of the construction-related impacts will be significant enough to affect local populations of any resident or migratory 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 a NPDES construction storm water permit and the associated SWP3. An erosion and sediment control plan will be developed prior to construction that will use appropriate runoff diversion and collection devices. 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 plowing, tilling, harvesting, etc. Therefore, impacts are anticipated to be very minor.

Habitat Loss: The Facility will be built on or adjacent to agricultural land, which generally provides habitat for only a limited suite of wildlife species. In addition, most of these areas are already subject to periodic disturbance in the form of mowing, plowing, harvesting, etc. Forest communities have largely been avoided and will experience limited construction-related disturbance.

Forest Fragmentation: As stated above, impacts to forest habitat will be largely avoided.

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 occurs on agricultural land, species utilizing those habitats are most likely to be temporarily disturbed or displaced by Facility construction. As species utilizing this land experience disturbance from agricultural activities, impacts from the construction of the Facility are anticipated to be negligible.

<u>Impacts to Upland Habitat</u>

The extent of vegetation clearing is included in Section 6.2 of the Ecological Assessment. The Project will have limited environmental impacts, in part due to the minimization of potential impacts to habitats that may support significant wildlife by avoiding all woodlots. The vast majority of upland impacts will be

to agricultural areas, which provide minimal habitat for floral and faunal communities. A Vegetation Management Plan is included as Exhibit B to this Application and includes measures to minimize clearing of woody vegetation.

Impacts to Wetland and Surface Water Habitats

Through careful design and avoidance measure, the Applicant anticipates minimal impact to delineated waterbodies within the Project Area. Detailed tables of anticipated wetland and waterbody impacts are provided in Appendix E of the Ecological Assessment. Temporary wetland disturbance from the of access road will impact approximately less than 0.01 acre of wetlands, and less than 0.01 acre of wetland will be permanently impacted by the installation of access roads. Stream crossings will result in approximately 0.11 acre of temporary impacts and 0.02 acre of permanent impacts.

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

(i) Site restoration and stabilization of disturbed soils

Restoration activities are anticipated to include the following:

- Underground electrical interconnect 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.

All removed material and 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 the 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 J) 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 marked on final construction documents. All contractors and subcontractors working on-site will be provided with training to understand the significance of the types of flagging used, and the importance of staying within defined limits of work areas, especially in and adjacent to marked sensitive resource areas such as wetlands.

(iv) Inspection procedures for erosion control measures

As noted previously, The Applicant will seek coverage for the Facility under the Ohio EPA Permit No. OCH00005. The permit requires development of a SWP3 for erosion control and stormwater management. This permit requires the regular inspection of erosion control measures, as described below.

Erosion and sediment control measures will be inspected by a qualified individual throughout the construction phase to assure that they are functioning properly. These features will be inspected until

70% permanent vegetated cover has been established across disturbed areas. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site vehicle tracking. Inspections will be conducted at least once every seven calendar days, and within 24 hours after any storm event with 0.5 inch or greater of rain. This inspection frequency may be reduced to once every month if the entire site is temporarily stabilized and runoff is unlikely due to weather conditions such as snow, ice, or frozen ground.

Following each inspection, the qualified inspector will complete and sign a checklist and inspection report. The inspection report will be distributed to the contractor and any corrective actions will be promptly addressed by onsite staff to ensure permit compliance.

Following site stabilization, a notice of termination form will be submitted to the Ohio EPA in accordance with NPDES permit requirements. For three years following the submittal of a notice of termination form, the Applicant will maintain a record summarizing the results of the SWP3 inspections described above, including the name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWP3, and a signed certification as to whether the Facility is in compliance with SWP3.

(v) Measures to protect vegetation

Protection of vegetation will be primarily accomplished through careful site planning. A majority of Facility components have been sited on agricultural land, thus avoiding significant impacts to successional grasslands, 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 re-established with vegetation. In addition to re-seeding temporarily disturbed areas, the Applicant will preserve mature trees within the Project Area to the maximum extent practicable.

(vi) Options for clearing methods and disposing of brush

Scattered trees and shrubs, as well as windrows, will be cleared and grubbed to accommodate construction and operation of the Facility. Trees cleared from the work area will be cut into logs and removed or left for the landowner, if requested. 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.

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

Based on consultations with the ODNR and USFWS and onsite field surveys, habitat for state or federal listed species within the Project Area is minimal. Neither the ODNR nor the USFWS recommended post-construction monitoring for the Project; therefore, no post-construction wildlife monitoring is necessary. Coordination letters are included in the Ecological Assessment (Exhibit J). Per agency guidance, tree clearing will be completed between October 1 and March 31.

(3) Operation Impacts

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

Aside from minor disturbance associated with routine maintenance and occasional repair activities, no other disturbance to plants, vegetative communities, wetlands, or surface waters are anticipated as a result of Facility operation. The Facility will not result in physical disturbance or impacts to recreational areas, parks, wildlife areas, nature preserves, or other conservation areas as identified in Section 4906-4-08(B)(1)(a).

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

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

Herbicide may be used, as necessary, around fence lines; however, applications will be made by a licensed professional and will be applied in accordance to manufacturer instructions.

Direct impacts to wildlife from an operational solar facility in Ohio are low. Since no significant operational impacts to these resources are anticipated, and because ODNR and USFWS did not indicate the need for mitigation, no mitigation measures are proposed.

(c) *Post-Construction Monitoring Plans*

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. As such, post construction monitoring for wildlife impacts is not warranted because no significant impacts from the construction or operation of the Facility are anticipated and neither the ODNR nor USFWS recommended such post-construction monitoring during consultation.

(C) LAND USE AND COMMUNITY DEVELOPMENT

(1) Land Use

(a) *Land Use Map*

Land uses within 1 mile of the Facility are shown on Figure 08-4. Land use mapping was developed using parcel data obtained from Putnam County's GIS Department. Among other information, Figure 08-4 shows the following information.

(i) The proposed Facility

The proposed Facility layout includes PV panels, collection lines, access roads, inverters, laydown yards, O&M building, collection substation, transmission line, and POI switching station.

(ii) Land use

Land use was mapped within 1 mile of the Project Area. A majority of land use is agricultural with some residential and vacant land dispersed throughout the study area. More diverse land use occurs near the Village of Miller City.

(iii) Structures

Structures within 1 mile of the Project Are primarily include residences. Structures were digitized based on aerial imagery, and confirmed through existing databases, and include residences, commercial centers or buildings, industrial buildings and installations, schools, hospitals, churches, civic buildings and other buildings where people may congregate for extended periods of time.

(iv) Incorporated areas and population centers

The Village of Miller City is the only population center located within 1 mile of the Facility.

(b) *Structures Table*

(i) Distance between structures/property lines and the generation equipment (for structures within 1,500 feet)

There are 120 structures and 396 parcels within 1,500 feet of a PV panel. Exhibit S presents the distance from structures and property lines to the nearest PV panel and the participation status of the property (i.e., participating or non-participating).

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

There are 11 structures and 87 parcels within 250 feet of an associated Facility component including collection lines, access roads, laydown yard, O&M building, collection substation, transmission line, and POI switching station. Exhibit S presents the distance from the structures and property lines to the associated Facility components.

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

The lease status for each structure and property is included in Exhibit S.

(c) *Land Use Impacts*

Table 08-1 below represents the impact assumption used to calculate land use impacts for each Facility component.

Table 08-1. Impact Assumptions

Facility Components	Area of Temporary Disturbance (maximum area of disturbance)[1]	Area of Permanent Disturbance (fill/structure)	Area of Total Soil Disturbance (temporary and permanent)
Solar Arrays[2]	None	916.8 acres	916.8 acres
Access Road	10 feet wide per linear foot of road	20 feet wide per linear foot of road	30 feet wide per linear foot of road
Collection Line	30 feet wide per linear foot of cable	None	30 feet wide per linear foot of cable
Collection Substation	0.6 acre	1.5 acres	2.1 acres
O&M Building	None	5.1 acres	5.1 acres
Laydown Yard	9.8 acres	None	9.8 acres
Inverter Pad[3]	Single Inverter – 560 square feet Double Inverter – 660 square fee	Single Inverter – 640 square feet Double Inverter – 840 square fee	Single Inverter- 1,200 Square Feet Double Inverter- 1,500 Square Feet
Transmission Line	None	150-foot ROW	150-Foot ROW

Facility Components	Area of Temporary Disturbance (maximum area of disturbance)[1]	Area of Permanent Disturbance (fill/structure)	Area of Total Soil Disturbance (temporary and permanent)
POI Substation	0.6 acre	1.5 acres	2.1 acres

[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 area are added together in the total impact column.
[2] 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.
[3] Up to 33 inverter pads are proposed for the Facility, four single and 29 double inverters.

Table 08-2 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 presented in Table 08-1 and the land use codes for each parcel, obtained from the Putnam County GIS 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 916.8 acres. All parcels containing PV panels have a land use code that indicates agricultural use, so the 916.8 acres of impact is to agricultural land. For linear components such as access roads and collection lines, the appropriate impact widths from Table 08-1 applied to the linear feet of each component. 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 08-2. Land Use Impacts

Land Use	Temporary Disturbance (acres)[1]	Permanent Loss (acres)	Total Disturbance (acres)
Agricultural (100)			
Solar Arrays[2]	0.0	916.8	916.8
Access Road	8.7	17.3	26.0
Collection Line	34.2	0.0	34.2
Collection Substation	0.6	1.5	2.1
O&M Building	0.0	5.1	5.1
Laydown Yard	9.8	0.0	9.8
Inverter Pad[3]	0.5	0.6	1.1
Transmission Line	0.0	19.1	19.1
POI Substation	0.6	1.5	2.1
Residential (500)			
Access Road	<0.1	<0.1	<0.1

Land Use	Temporary Disturbance (acres)[1]	Permanent Loss (acres)	Total Disturbance (acres)
Collection Line	<0.1	0.0	<0.1
Public Utility (800)			
Collection Line	<0.1	0.0	<0.1
Total	54.4	962.0	1016.4

[1]Temporary impact areas represent only the additional impact area during construction and does not include overlap with permanently impacted areas. The temporary and permanent impact areas are added together in the total impact column.
[2] Up to 33 inverters pads are proposed for the Facility; four single inverters and 29 double inverters.

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 simulative conversion of 961.8 acres of land from its current use to built facilities, which represents approximately 48% of the Project Area (2,013 acres). During Facility operation, no additional impacts to land use are anticipated. Impacts form Facility construction and operation will occur almost exclusively on agricultural land, with small impacts to residential and public utility 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*

One outbuilding will be removed for construction of the Facility, west of Town Road 13. The landowner has confirmed removal of this structure.

(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*

Henry County is the only municipality within 5 miles of the Facility with formally adopted plans for future use. The Henry County Comprehensive Plan stands as a guiding planning document for Pleasant and Marion Townships, which are within 5 miles of the Project Area. Adopted in 2003, the Plan includes topics including quality of life, natural resources, land use, infrastructure, economic development, and it particularly focuses on managing urban sprawl from the Toledo Metropolitan Statistical Area. The Plan includes objectives that balance the conservation of land resources with local economic development measures, exemplified by the following two objectives:

- Recognizing and promoting the importance of preserving prime farmland and other areas of natural significance.
- Promoting Henry County's agricultural sector through policies and strategies that assist farmers in making their farming operations more profitable.

The plan does not specifically address large scale solar development; however, the Facility would not negatively impact the goals or objectives set forth in the Henry County Comprehensive Plan, as only a small portion of the southern edge of Henry County is within the Study Area, and this area is far removed from the proposed Project Area. It is notable however, the Facility would not significantly disturb or damage agricultural viability of the land within the 5-mile study area in a manner which would prevent future farming activities.

(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*

<u>Housing</u>

The Facility is not anticipated to impact local housing. The Facility will not result in a significant increase for 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 I.

Commercial and Industrial Development

The impact of the Facility on local commercial and industrial development is discussed 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 Miller City New Cleveland Local School District and the Ottawa-Glandorf Local School District. Development of the Facility will result in substantial positive economic benefits to the school districts in the form of PILOT payment, discussed in 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 in addition to rail lines and small airports. The Project 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 E and Section 4906-4-06(F)(4). Impacts to the freight lines in the area 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. Additional discussion on impacts to air navigation is provided in Section 4906-4-07(D).

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 that plan is discussed above in Section 4906-4-08(C)(3)(a).

(e) *Current and Projected Population Data*

Table 08-3 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. The population of both Henry County and Putnam County have decreased slightly since 2000. At a more localized level, population trends are more nuanced with a portion of municipalities undergoing population decreases, while other municipalities have increased in populations. The population trends experienced by each community from 2000 to 2018 are expected to continue regardless of whether the proposed Facility is built.

Table 08-3. Populations for Ohio Jurisdictions within 5 Miles

Jurisdiction within a 5-Mile Radius of Facility	2000 Population	2018 Population	Annual Growth Rate (2000-2018)	Projected 2030 Population	Projected Total Growth (2018-2030)	2018 Population Density (people per square mile)
Putnam County	34,266	33,969	0.0%	33,773	-0.6%	70
Henry County	28,631	27,316	-0.3%	26,491	-3.0%	65
Greensburg Township	1,407	1,539	0.5%	1,638	6.4%	51
Liberty Township	1,575	1,867	1.0%	2,111	13.1%	51
Marion Township	1,417	1,221	-0.8%	1,113	-8.8%	34
Monroe Township	2,234	2,583	0.9%	2,865	10.9%	72
Ottawa Township	7,825	7,784	0.0%	7,757	-0.3%	214
Palmer Township	1,142	782	-1.8%	633	-19.1%	22
Perry Township	1,165	848	-1.5%	706	-16.7%	28
Pleasant Township	2,158	1,836	-0.8%	1,661	-9.5%	51
Village of Glandorf	839	997	1.0%	1,130	13.3.%	615
Village of Leipsic	2,131	2,402	0.7%	2,614	8.8%	671
Village of Miller City	135	133	0.0%	132	-1.0%	341
Village of Ottawa	4,311	4,377	0.1%	4,422	1.0%	966

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

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, recreational trails, scenic byways, registered landmarks of historic, religious, scenic, natural, or other cultural significance in Ohio without 10 miles of the Project Area.

EDR Phase 1A Cultural Resources Survey (Phase 1A Survey) includes 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 Survey, included as Exhibit K. 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)
- State Historic Preservation Office (SHPO) previous cultural resources surveys

No previously identified historic or archaeological resources were identified within the Project Area, however five OHI properties and five OGS cemeteries were identified within the Cultural Resources Study Area. No

NRHP-listed properties, NRHP DOE properties, NHLs, ODOT historic bridges, OAI sites, or previous cultural resource surveys were identified within the Cultural Resources Study Area.

(2) Impact to Landmarks and Mitigation Plans

Following the Phase 1A Survey, EDR conducted a Reconnaissance-Level Historic Resources Survey (Historic Resources Survey) which identified and evaluated historic landmarks located within the 2-mile Cultural Resources Study Area (Exhibit T). More specifically, the Historic Resources Survey identified resources in the Area of Potential Effect (APE) for Indirect Effects, determined by a viewshed analysis, within the 2-mile Cultural Resources Study Area. The purpose of this survey is to identify historic buildings that appear to satisfy National Register Criteria for Evaluation within areas where the Facility may result in indirect impacts on historic resources, such as visual effects.

The Historic Resources Survey included a site visit, conducted on June 18, 2020, to identify and photograph both previously identified and new historic resources, with the goal of identifying and documenting those buildings, sites, structures, objects, and/or districts within the APE that appear to satisfy NRHP eligibility criteria.

A total of 13 resources were evaluated as part of the Historic Resources Survey. The ten resources identified in the Phase 1A survey, which included five OHI properties and five OGS cemeteries, were evaluated as part of the Historic Resources Survey. Two OHI properties were recommended as noneligible for NRHP listing due to lack of National Register Criterion, while the remaining three properties were deemed no longer existent. Three of the OGS cemeteries were recommended by EDR as noneligible for NRHP listing due to lack of National Register Criterion. The remaining two OGS cemeteries were not visible from the public ROW, therefore recommendations were not made. Three newly identified historic resources were observed in the APE for Indirect Effects and recommended for NRHP eligibility. These structures include the St. Nicholas Catholic Church, and two Italianate-style commercial buildings. Based on the viewshed analysis and the open, flat landscape, the proposed Facility may result in a change to the visual setting of the three newly-identified historic resources in the APE for Indirect Effects.

Currently, on-site surveys assessing direct effects on archaeological resources in the vicinity of the Facility are in progress by Mannik Smith Group (MSG). The survey effort to date has included 555 acres of pedestrian surface survey, 51.5 acres of shovel testing, and artifact collection and analysis for archaeological resources. The work plan for this survey has been submitted and approved by the SHPO. MSG identified a total of 19 sites during the field survey, of which, only one may be potentially eligible for the NRHP. Based on the Facility

layout around that site, there are not any permanent impacts anticipated. A summary of the work done to date is included in Exhibit U. The archaeological survey will be resumed in the fall of 2020 once crops are harvested. The Applicant will provide the full results of the archaeological survey to OPSB staff and the SHPO when complete.

(3) Impact to Recreational and Scenic Areas and Mitigation Plans

Existing scenic and recreation areas within a 10-mile radius of the proposed Facility are depicted on Figure 08-5 and listed in Table 08-4, below. Recreational areas were identified using the following resources: ODNR, Esri Topographic Map, Ohio Statewide Imagery Program, Google Earth, and local municipal and interest group websites.

Table 08-4. Recreational Areas Within a 10-Mile Radius of the Facility

Recreational Area	Location	Distance from Project Area (miles)	Anticipated Project Visibility
Old Mill Stream Scenic Byway	Ottawa and Blanchard Townships, Putnam County	2.3	Not Visible
Blanchard River Canoe Launch (3 total)	Greensburg Township, Putnam County Village of Ottawa, Putnam County Village of Dupont, Putnam County	3.0 5.1 8.0	Not Visible Not Visible Not Visible
Glandorf Community Park	Village of Ottawa, Putnam County	3.4	Not Visible
Wildlife Production Area 51	Greensburg Township, Putnam County	4.6	Not Visible
Memorial Park	Village of Ottawa, Putnam County	4.8	Not Visible
Community Courts	Village of Ottawa, Putnam County	5.1	Not Visible
Ottawa Waterworks Park	Village of Ottawa, Putnam County	5.3	Not Visible
Wildlife Production Area 52	Perry Township, Putnam County	6.5	Not Visible
Cascade Wayside WA (and Canoe Launch)	Perry Township, Putnam County	7.7	Not Visible

As listed in Table 08-4 above, 9 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).

Old Mill Stream Scenic Byway follows the Blanchard River along US Route 224 and SR 37 and is located approximately 2.3 miles southeast of the Project Area at its nearest point. This scenic byway traverses Putnam and Hancock counties and got its name from the 1910 hit song "Down by the Old Mill Stream", a tune written by Hancock County native Tell Taylor while he sat on the banks of the Blanchard River (USDOT, 2019). Designation of the Old Mill Stream Scenic Byway occurred in 1998 by the ODOT for its scenery and heritage of Ohio's last frontier (Hancock County Convention and Visitors Bureau, 2020). This scenic byway stretches 52 miles and links the Lincoln Highway National Historic Byway to small villages, parks and landmarks (Hancock County Convention and Visitors Bureau, 2020). According to the viewshed analysis, visibility of the Facility for those traveling along the Old Mill Stream Scenic Byway is not anticipated.

There are three ODNR-identified canoe launches along Blanchard River, located approximately 3.0 miles southwest, 5.1 miles southeast, and 8.0 miles southwest of the Project Area. When comparing with aerial imagery, the two launches located 3 and 5.1 miles do not appear to have publicly accessible areas. The canoe launch site located 8.0 miles from the Project Area appears to have a small pull-off area along Centennial Road where those recreating could park and potentially launch a canoe or kayak. The canoe launch site along Centennial Road is located well beyond the visual limits of the Facility; therefore, no impacts are anticipated.

Glandorf Community Park is located approximately 3.4 miles southeast of the Project Area, and contains two baseball fields, walking paths, and open space for additional recreational opportunities. According to the viewshed analysis, visibility of the Facility for those recreating in Glandorf Community Park is not anticipated.

Wildlife Production Area 51 is located approximately 4.6 miles southwest of the Project Area. Based on aerial imagery, this 39-acre area consists exclusively of open field. Limited information is available on Wildlife Production Area 51, however according to the viewshed analysis, visibility of the Facility for those recreating in Wildlife Production Area 51 is not anticipated.

Memorial Park is located approximately 4.8 miles southeast of the Project Area, located in the Village of Ottawa and surrounded commercial and residential development. Based on aerial imagery, the park contains a baseball field with lights and seating, three additional baseball/softball fields, community pool, basketball courts, tennis courts, pavilions, and open space. According to the viewshed analysis, visibility of the Facility from those recreating in Memorial Park is not anticipated.

Community Courts contains six community tennis courts located in the Village of Ottawa, approximately 5.1 miles southeast of the Project Area. These tennis courts are located beyond the visual limits of the Facility; therefore, no impacts are anticipated.

Ottawa Waterworks Park is located in the Village of Ottawa, approximately 5.3 miles southeast of the Project Area. Based on aerial imagery, this park contains two tennis courts, three shuffleboard courts, a playground, pavilions, and open space for additional recreational opportunities. The Ottawa Waterworks Park is located beyond the visual limits of the Facility; therefore, no impacts are anticipated.

Wildlife Production Area 52 is located approximately 6.5 miles southwest of the Project Area. Based on aerial imagery, this 40-acre area consists exclusively of open field with scattered trees stands. Limited information is available on Wildlife Production Area 52; however, this area is located beyond the visual limits of the Facility and therefore, no impacts are anticipated.

Cascade Wayside Wildlife Area and associated canoe launch are located along the Auglaize River approximately 7.7 miles southwest of the Project Area. Based on aerial imagery, this area consists primarily of forestland, with a public parking area and river access, and is known as a birding hotspot according to Cornell's Lab or Ornithology eBird database. The Cascade Wayside Wildlife Area and canoe launch area are located well beyond the visual limits of the Facility; therefore, no impacts are anticipated.

(4) Visual Impact

EDR prepared a Visual Resource Assessment (VRA) for the proposed Facility (Exhibit V). EDR staff who contributed to the report include licensed landscape architects, GIS professionals, and environmental specialists with experience preparing visual resource assessments, including several for applications to the 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. The viewshed analysis indicates that areas of potential Project visibility, where the greatest number of PV panels will potentially be visible, are concentrated within 0.5 mile of the Project. However, in places these areas of potential visibility extend beyond 1.5 miles, and out to 4 miles in smaller but concentrated portions of the VSA to the west toward the Village of Continental, and from County Road 18 to the west of the Project toward the east and south of the Villages of West Leipsic and Leipsic. Only very small corridors of potential visibility extend to 5 miles from the Project. As

such it was determined that a 5-mile radius from the Project would be a sufficient VSA for the purposes of this study.[1] The resulting VSA encompasses a total of approximately 132.3 square miles.

(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 stands of tree 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, transmission line, collection substation, and POI substation.

Based on the results of the viewshed analysis, the Facility will be screened from approximately 67% of the VSA. Above ground electrical components (collection substation, POI switching station, and transmission line) will be screened from approximately 57.5% of the VSA. Screening of these components is attributed to intervening landforms, vegetation, and structures. The viewshed analysis also suggests that panel visibility is concentrated in the area out to 0.5 mile of the Project Area, while views from 0.5 mile to 1.5 miles are more well screened, and visibility is further reduced at distances beyond 1.5 miles. 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 Facility components. 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 (87.5%) 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.

[1] This methodology is consistent with other solar projects submitted to the OPSB (Case Nos. 19-1823-EL-BGN, 18-1024-EL-BGN, 18-1024-EL-BGN).

Developed landscape is the second most predominant landscape, comprising approximately 7.2% of the VSA and includes the Villages of Miller City, Glandorf, Ottawa, West Leipsic, and Leipsic. These areas typically find outward views across landscaped yards and planted vegetation, but may be limited due to the presence of closely situated buildings, utility poles, or other visual clutter.

Forest land comprises 4.5% of the VSA and occurs in small distinct locations throughout the VSA, including discrete locations within the Project Area. View of the Project from this landscape type are typically limited by the presence of dense vegetation. The remaining portions of the VSA are comprised of 0.6% of open water/wetland and 0.8% shrub/scrub 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*

The Project will result in varying levels of visual alteration when viewed from adjected roads and residences. The impact may be somewhat mitigated by the presence of seasonal crops in actively farmed fields, but during the rest of the year, the Project will introduce structures that will alter the scenic quality and/or existing agricultural character of the landscape. However, this visibility and potential visual impact diminishes rapidly as the Project is viewed from greater distances. Therefore, it is anticipated that changes in the landscape will largely be limited to areas directly adjacent to the Project.

The introduction of mitigation plantings at select locations along the perimeter of the PV arrays may lessen the visual impact of the Project when viewed at near-foreground distances. The plantings can provide significant screening and serve to break up the horizontal lines created by the PV panels and fence line, helping the Project blend with the landscape.

(d) *Visual Impacts to Landmarks of Cultural Significance*

A total of 124 visually sensitive resources were identified within the VSA, including 83 properties of historic significance, 27 high-use public areas, 13 public lands and recreational resources, and one designated scenic resource. Figure 1.5 in the VRA shows the location of visually sensitive resources relative to the Project Area. Of the 124 resources identified within the VSA, 30 have the potential for PV array visibility. Additional information on visually sensitive resources is provided as Appendix E in the VRA (Exhibit V),

which includes a list of all identified resources, their distance from the Facility, and estimated visibility of the Facility from the identified resource.

(e) *Photographic Simulations*

To illustrate anticipated visual changes associated with the proposed Facility, photographic simulations of the Facility were developed from six selected viewpoints. These simulations allow the viewer to better evaluate visibility, appearance, and contrast with the existing landscape. The simulations show panels mounted on a tracking system that would result in a maximum panel height of 9.5 feet in a fully-tilted position. The visual simulations are included as Appendix D to the VRA (Exhibit V) 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*

Project Area Location and Facility Layout

The proposed Facility is located in a rural, sparsely 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 nonparticipating structures (100 feet) and edge of public roads (25 feet).

Lighting

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 if practical.

Visual Screening

The installation of native vegetative mitigation at select locations will help screen portions of the Facility to lessen potential visual impact, as applicable. 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 Landscape Mitigation Plan (Appendix C to the VRA). Visual screening may also be implemented in the form of direct payment or reimbursement to affected residences to install their own vegetation or other screening. Details regarding vegetative mitigation are included in the Landscape Mitigation Plan provided as Appendix C to Exhibit V.

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. As described in 4906-4-07(C), the Project is not anticipated to result in glare for approaches to airport runways, residences or roadways. 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 DISTRICT IMPACTS

(1) Agricultural Land and Agricultural District Land Map

Agricultural districts and crop cover are depicted in Figure 08-6. Information on agricultural districts and Current Agricultural Use Value (CAUV) parcels were obtained from the Putnam County Auditor's Office in August of 2020.

(2) Potential Impacts and Proposed Mitigation

(a) *Acreage Impacted*

Table 08-5 quantifies impacts to agricultural land uses, based on the typical area of vegetation clearing column presented in Table 08-5.

Table 08-5. 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	519.5	519.5
Access Roads	4.6	9.2	13.8
Buried Electrical Collection Cable	23.0	0.0	23.0
Laydown Yard	3.7	0.0	3.7
O&M Building	0.0	4.8	4.8
Collection Substation	0.6	1.5	2.1
Inverter Pads[2]	0.3	0.3	0.6
POI Substation	0.6	1.5	2.1
Transmission Line	0.0	17.2	17.2
Cash Grain or General Farm (111)			
PV Panel	0.0	166.6	166.6
Access Roads	2.0	3.9	5.9

Agricultural Land Use[1]	Temporary Disturbance (acres)[3]	Permanent Loss (acres)	Total Disturbance (acres)
Buried Electrical Collection Cable	3.3	0.0	3.3
Laydown Yard	0.2	0.0	0.2
Inverter Pads[2]	0.1	0.1	0.2
Other Agricultural Use (199)			
PV Panel	0.0	230.7	230.7
Access Roads	2.1	4.2	6.3
Buried Electrical Collection Cable	7.9	0.0	7.9
Laydown Yard	5.9	0.0	5.9
O&M Building	0.0	0.3	0.3
Inverter Pads[2]	0.1	0.2	0.3
Transmission Line	0.0	1.9	1.9
Total	**54.4**	**962.0**	**1016.4**

[1] Derived from land use codes in obtained by the Putnam County GIS Department
[2] Up to 33 inverters 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 area are added together in the total impact column

Tables 08-6 and 08-7 quantify impacts to agricultural districts and CAUV land based on the typical area of vegetation clearing column presented in Table 08-1.

Table 08-6. Impacts to Agricultural District Land

Agricultural District Land[1]	Temporary Disturbance (acres)[3]	Permanent Loss (acres)	Total Disturbance (acres)
PV Panel	0.0	204.1	204.1
Access Roads	2.1	4.3	6.4
Buried Electrical Collection Cable	5.7	0.0	5.7
Inverter Pads[2]	0.1	0.1	0.2
POI Substation	0.0	1.4	1.4
Transmission Line	0.0	9.2	9.2
Total	**7.9**	**219.1**	**227.0**

[1] Information obtained from the Putnam County Auditor's Office
[2] Up to 33 inverters pads are proposed for the Facility; four single inverters and 29 double inverters.
[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 area are added together in the total impact column

Table 08-7. Impacts to CAUV Land

Current Agricultural Use Value Land[1]	Temporary Disturbance (acres)[3]	Permanent Loss (acres)	Total Disturbance (acres)
PV Panel	0.0	916.8	916.8
Access Roads	8.7	17.3	26.0
Buried Electrical Collection Cable	34.2	0.0	34.2
Laydown Yard	9.8	0.0	9.8
O&M Building	0.0	5.1	5.1
Collection Substation	0.6	1.5	2.1
Inverter Pads[2]	0.5	0.6	1.1
POI Substation	0.6	1.5	2.1
Transmission Line	0.0	19.1	19.1
Total	**54.4**	**962.0**	**1016.4**

[1] Information obtained from the Putnam County Auditor's Office
[2] Up to 33 inverters pads are proposed for the Facility; four single inverters and 29 double inverters.
[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 area are added together in the total impact column

(b) *Impacts on Agricultural Facilities and Practices*

(i) Field Operations

The Facility will occupy 1,016 acres of agricultural land, taking it out of use for approximately 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, aboveground 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

While operation and maintenance of the Facility should not impact field drainage systems within the Project Area, construction of the Facility could result in impacts to drainage systems. The Applicant has coordinated with Putnam County, a private contractor, and local landowners to identify and assess drain tiles within the Project Area. The Facility has been designed to avoid known drainage

mains to the extent practicable. Additional mitigation measures to minimize impacts to drain tiles are included in the Tile Maintenance Plan (Exhibit W).

(iv) Structures used for agricultural operations

Construction of the Facility may result in the removal of one outbuilding, under agreement by the landowner. No other impacts to agricultural structures are anticipated.

(v) Viability as agricultural district land

Figure 08-6 depicts parcels enrolled in the agricultural district program. Once the Facility is constructed and operating on these parcels, the parcels enrolled as agricultural district land will no longer be eligible for inclusion in that program. 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

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

(ii) Timely repair of damaged field tile systems

The Tile Maintenance Plan identifies the procedures for assessing damaged drain tile for repair. The plan ensures that adverse impacts to drain tile systems will not extend outside of the Project Area. If it is determined that a drain tile main was impacted, repairs will be implemented to ensure the integrity of the greater drainage system. Commercially reasonable efforts will be expended to repair tile main drains, completed (by a qualified contractor) within 14 days of the discovery of the damage (weather and soil conditions permitting). Lateral drain tile lines that are damaged, and contained within the Project Area, may not be repaired, as they are subject to individual landowner agreements previously negotiated during the leasing process. Additional information regarding repairs and repair specifications to tile drains is provided in the Tile Maintenance Plan (Exhibit W).

(iii) Topsoil segregation, decompaction, and restoration

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

4906-6-05 ACCELERATED APPLICATION REQUIREMENTS FOR TRANSMISSION 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. Powell Creek Solar Farm (the Facility), a major utility facility, has an associated 138 kV transmission line of approximately 1.6 miles and point of interconnect (POI) substation. As part of the combined application, this section addresses the requirements of OAC 4906-6-05, accelerated application requirements, for the transmission line and POI substation associated with Powell Creek 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 transmission line will be approximately 1.6 miles in length. This transmission line will run overhead from the collection substation to the proposed POI switchyard, located along Road 12, just north of its intersection with Road E-11. The POI switchyard will include a three circuit breaker system configured in a breaker and half bus arrangement but operated as a ring-bus, associated protection and control equipment, 138 kV risers, and supervisory control and data acquisition (SCADA), and will connect into American Electric Power's (AEP) East Leipsic-Richland 138 kV line. The new transmission line will be suspended from approximately 17 steel, single poles no more than 100 feet in height and tie into a new POI switchyard.

The transmission line meets the requirements of a letter of notification application as defined in Appendix A of OAC 4906-1-01 because it is an electric power transmission line greater than 0.2 mile in length, but less than 2 miles.

(2) Need for the Proposed Facility

The proposed transmission line is needed in order to connect the proposed Powell Creek 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 transmission line and existing transmission lines are shown on Figure 03-1.

(4) Route Alternatives

The proposed transmission route is a relatively direct route from the collection substation to the POI substation and is dependent on landowner agreements. Given the short distance between the collection substation and POI substation, and landowner agreements, there are no practical alternative routes proposed at this time. The proposed route for the transmission line is the most direct and shortest possible route, minimizing land use and ecological impacts.

(5) Public Information Program

The transmission line was included in all maps, presentations, and public notices provided for Powell Creek Solar. Affected property owners will continue to be notified about the transmission 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 (Exhibit O).

(6) Construction Schedule

Construction of the transmission line and POI switching station will follow the construction scheduled presented in Section 4906-4-03(C)(1). 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 second quarter of 2023.

(7) Facility Map

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

(8) Easements

The approximately 1.6-mile transmission line will span six parcels, including the parcels that contain the collection and POI substations. All six parcels are under lease by the Applicant and are listed below.

- 190331900000
- 190332000000
- 190341000000
- 190341000100
- 330160700000
- 330160800100

(9) Technical Features of the Project

(a) *Facility Characteristics*

The transmission line will extend approximately 1.6 miles east from the collection substation to the POI substation and will be supported by approximately 17 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 transmission line will operate at 138 kV and will have a right-of-way (ROW) of approximately 100 feet. Six parcels are traversed by the transmission line, all of which are under lease by the Applicant, including the two parcels which contain the collection and POI substations.

(b) *EMF*

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

(c) *Capital Cost*

The capital cost of the transmission line is estimated to be in the range of $[redacted] to $[redacted] and will be dependent on the final design.

(10) Social and Ecological Impacts

(a) *Land Use*

The transmission line will span six parcels, all of which are agricultural, in Liberty and Palmer townships, Putnam County, Ohio. Parcels surrounding the transmission line consist of largely agricultural uses with some residential development. Figure 08-4 illustrates land use within a 1-mile radius of the transmission line.

(b) *Agricultural Land*

The transmission line will be located exclusively on agricultural land enrolled in the CAUV program. One parcel traversed by the transmission line is located within an agricultural district. An approximate 100-foot wide ROW around the transmission line will be cleared on participating properties and managed for the lifetime of the Facility, resulting in the total permanent impact of 19.1 acres of agricultural land. However, landowners will be able to use the ROW to continue agricultural production, if they choose to. Limited soil disturbance is anticipated as a result of the transmission line. Soil disturbance will be largely limited to the installation of steel support structures. Land within the ROW of the transmission line may be taken out of agricultural production. Once the Facility has reached the end of its useful life, the transmission line will be removed, and the underlying ROW may be restored to previous land uses.

(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 transmission line. The closest, previously identified cultural resources are an OHI property, Pleasant Bend Depot, and an OGS cemetery, Saint Nicholas Cemetery, both located approximately 0.8 mile northwest of the transmission line in the Village of Miller City. For more information on previously identified cultural resources, see Exhibit K.

Site-specific surveys were conducted for historic resources as part of the Reconnaissance-Level Historic Resources Survey which examined both previously identified and new historic resources that appear to satisfy NRHP eligibility criteria. The Reconnaissance-Level Historic Resources Survey identified three additional historic resources, all of which are located at least 0.9 mile northwest from the transmission line. For more information on historic resources, see Exhibit K.

On-site surveying for archaeological resources in the vicinity of the Facility are in progress by Mannik Smith. Once completed, results of the survey will be provided to the OPSB.

(d) *Other Agency Requirements*

Environmental permits required for the Facility and transmission line are included in Section 4906-4-07(C)(1)(a). Transportation permits are discussed in Section 4906-4-06(F)(4).

(e) *Federal and State Designated Species*

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

(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 transmission line. Figure 08-5 illustrates state forests, parks, and wildlife areas within 10 miles of the Project Area, including the area surrounding the transmission 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 J). Exhibit 2 of the Hydrology Report (Exhibit G) depicts floodplains within the Project Area. The transmission line and POI switching station will not impact wetlands or floodplains.

(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 transmission line. Environmental impacts from the construction and operation of the transmission 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 transmission line is not anticipated to result in adverse impacts to the health and safety of the public.

References

Bolinger, M., Seel, J., & Robson, D. (2019, December). *Utility Scale Solar: Empirical Trends in Project Technology, Cost, Performance, and PPA Pricing in the United States - 2019 Edition.* Retrieved June 2020, from Berkeley Lab: https://eta-publications.lbl.gov/sites/default/files/lbnl_utility_scale_solar_2019_edition_final.pdf

FAA. (2013). *Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports.* 78 FR 63276. doi:2013-24729

Fulton County. (1998). *Documents.* Retrieved June 2020, from Fulton County, Ohio: https://www.fultoncountyoh.com/DocumentCenter/View/381/Fulton-County-1998-Comprehensive-Development-Plan

IMPLAN Group. (2020). *Understanding Multipliers*. Retrieved June 2020, from IMPLAN Help & Support: https://implanhelp.zendesk.com/hc/en-us/articles/115009505707-Understanding-Multipliers

Lawrence, M., & Magnotta, P. (2018, April). *Technical Guidance for Evaluating Selected Solar Technologies on Airports, Version 1.1.* doi:FAA-ARP-TR-10-1

Massachusetts Clean Energy Center. (2012). *Study of Acoustic and EMF Levels from Solar Photovoltaic Projects.*

Massachusetts Department of Energy Resources. (2015). *Clean Energy Results: Questions and Answers, Ground-Mounted Solar Photovoltaic Systems.*

Meldrum, J., Nettles-Anderson, S., Heath, G., & Macknick, J. (2013, March 12). Life cycle water use for electricity generation: a review and harmonization of literature estimates. *Environmental Research Letters, 8*(1). doi:015031

National Renewable Energy Laboratory (NREL). (n.d.). *About JEDI*. Retrieved June 2020, from National Renewable Energy Laboratory: https://www.nrel.gov/analysis/jedi/about.html

NREL. 2017a. Global Horizontal Solar Resource for Ohio. Produced for the U.S. Department of Energy. April 4, 2017.

NREL. 2017b. Jobs and Economic Development Impact (JEDI) model release PV12.23.16. (Accessed from NREL in November2017).

ODNR. (2006). *Rainwater and Land Development: Ohio's Standards for Stormwater Management Land Development and Urban Stream Protection.* Ohio Department of Natural Resources, Division of Soil and Water Conservation. Retrieved from https://epa.ohio.gov/dsw/storm/rainwater

ODNR. (2017a). ODNR Lands. *ODNR Geographic Information Management System*. Retrieved from https://apps.ohiodnr.gov/gims/

ODNR. (2017b). ODNR Points of Interest. *ODNR Geographic Information Management System*. Retrieved from https://apps.ohiodnr.gov/gims

ODNR. (2019a). Floodplain Regulations. Retrieved November 2019, from http://water.ohiodnr.gov/water-use-planning/floodplain-management/regulations

ODOT. (2018). State and US Bike Routes. *Transportation Information Mapping System*. Retrieved January 16, 2018, from https://gis.dot.state.oh.us/tims/Data/Download

Ohio EPA. (2018, April 23). *General Permit Authorization for Storm Water Discharges Associated with Construction Activity Under the Ntional Pollutant Discharge Elimination System.* Retrieved from Ohio EPA: https://www.epa.ohio.gov/portals/35/permits/OHC000005/Final_OHC000005.pdf

Ohio EPA. (2019, October). *Guidance on Post Construction Stormwater Controls for Solar Panel Arrays.* Retrieved June 2020, from Ohio EPA: https://epa.ohio.gov/Portals/35/storm/Guidance%20on%20Post-Construction%20Storm%20Water%20Controls%20for%20Solar%20Panel%20Arrays.pdf?ver=2019-10-22-122431-753

PJM. (n.d.). *Connecting to the Grid FAQs*. Retrieved April 2020, from PJM Interconnection: https://learn.pjm.com/three-priorities/planning-for-the-future/connecting-grid.aspx

Polisky, L. (2005). *White Paper: Identifying and Avoiding Radio Frequency Interference for Wind Turbine Facilities.* Ashburn, VA: Comsearch.

ReportAll. (2019, March). Parcel Data. Retrieved from https://reportallusa.com/

Rogers, J., Ho, C., Mead, A., Millan, A., Beben, M., & Drechsler, G. (2015). *Evaluation of Glare as a Hazard for General Aviation Pilots on Final Approach.* Federal Aviation Administration, Office of Aerospace Medicine. Retrieved from https://www.faa.gov/data_research/research/med_humanfacs/oamtechreports/2010s/media/201512.pdf

USDOT. (2020). National Pipeline Mapping System Public Viewer. Pipeline and Hazardous Materials Safety Administration. Retrieved November 2019, from https://pvnpms.phmsa.dot.gov/PublicViewer/

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

10/7/2020 10:00:41 AM

in

Case No(s). 20-1084-EL-BGN

Summary: Application of Powell Creek Solar, LLC electronically filed by Teresa Orahood on behalf of Dylan F. Borchers