

Staff Report of Investigation

Harvey Solar Project
Harvey Solar I, LLC

Case No. 21-0164-EL-BGN

February 25, 2022



Mike DeWine, Governor | **Jenifer French**, Chair

**In the Matter of the Application of Harvey Solar I, LLC)
for a Certificate of Environmental Compatibility and)
Public Need.)**

Case No. 21-0164-EL-BGN

Staff Report of Investigation

Submitted to the
OHIO POWER SITING BOARD

BEFORE THE POWER SITING BOARD OF THE STATE OF OHIO

**In the Matter of the Application of Harvey Solar I, LLC)
for a Certificate of Environmental Compatibility and) Case No. 21-0164-EL-BGN
Public Need.)**

Chair, Public Utilities Commission	Director, Department of Natural Resources
Director, Department of Agriculture	Public Member
Director, Department of Development	Ohio House of Representatives
Director, Environmental Protection Agency	Ohio Senate
Director, Department of Health	

To the Honorable Power Siting Board:

In accordance with the Ohio Revised Code (R.C.) 4906.07(C) and rules of the Ohio Power Siting Board (Board), the staff of the Public Utilities Commission of Ohio (Staff) has completed its investigation in the above matter and submits its findings and recommendations in this Staff Report for consideration by the Board.

The findings and recommendations contained in this report are the result of Staff coordination with the following agencies that are members of the Board: Ohio Environmental Protection Agency, the Ohio Department of Health, the Ohio Department of Development, the Ohio Department of Natural Resources, and the Ohio Department of Agriculture. In addition, Staff coordinated with the Ohio Department of Transportation, the Ohio Historic Preservation Office, the U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers.

In accordance with R.C. 4906.07(C) and 4906.12, copies of this Staff Report have been filed with the Docketing Division of the Public Utilities Commission of Ohio to be served upon the Applicant or its authorized representative, the parties of record, and pursuant to Ohio Administrative Code 4906-3-06, the main public libraries of the political subdivisions in the project area.

The Staff Report presents the results of Staff's investigation conducted in accordance with R.C. Chapter 4906 and the rules of the Board, and does not purport to reflect the views of the Board nor should any party to the instant proceeding consider the Board in any manner constrained by the findings and recommendations set forth herein.

Respectfully submitted,



Theresa White
Executive Director
Ohio Power Siting Board

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I. EXECUTIVE SUMMARY

The authority of the Ohio Power Siting Board (Board or OPSB) is prescribed by Ohio Revised Code (R.C.) Chapter 4906. R.C. 4906.10 specifies that the Board shall not grant a certificate for the construction, operation, and maintenance of a major utility facility, either as proposed or as modified by the Board, unless it finds and determines eight specified criteria. Staff investigated the application presented by Harvey Solar I, LLC (Applicant) and recommends that the Board approve the Applicant's request for a certificate of environmental compatibility and public need subject to the proposed conditions contained in this report.

II. POWERS AND DUTIES

OHIO POWER SITING BOARD

R.C. 4906.03 authorizes the Board to issue certificates of environmental compatibility and public need for the construction, operation, and maintenance of major utility facilities defined in R.C. 4906.01. Included within this definition of major utility facilities are: electric generating plants and associated facilities designed for, or capable of, operation at 50 megawatts (MW) or more; electric transmission lines and associated facilities of a design capacity of 100 kilovolts (kV) or more; and gas pipelines greater than 500 feet in length and more than nine inches in outside diameter, and associated facilities, designed for transporting gas at a maximum allowable operating pressure in excess of 125 pounds per square inch. In addition, pursuant to R.C. 4906.20, the Board authority applies to economically significant wind farms, defined in R.C. 4906.13(A) as wind turbines and associated facilities with a single interconnection to the electrical grid and designed for, or capable of, operation at an aggregate capacity of five MW or greater but less than 50 MW. R.C. 4906.13 excludes from economically significant wind farms, one or more wind turbines and associated facilities that are primarily dedicated to providing electricity to a single customer at a single location and that are designed for, or capable of, operational at an aggregate capacity of less than 20 MW, measured at the customer's point of interconnection (POI) to the electrical grid.

Membership of the Board is specified in R.C. 4906.02(A). The voting members include: the Chairperson of the Public Utilities Commission of Ohio (PUCO or Commission) who serves as Chairperson of the Board; the directors of the Ohio Environmental Protection Agency (Ohio EPA), the Ohio Department of Health (ODH), the Ohio Department of Development (ODOD), the Ohio Department of Agriculture (ODA), and the Ohio Department of Natural Resources (ODNR); and a member of the public, specified as an engineer, appointed by the Governor from a list of three nominees provided by the Ohio Consumers' Counsel. Non-voting Board members include four members of the Ohio General Assembly (with alternates) selected by leadership from each house of the Ohio General Assembly.

NATURE OF INVESTIGATION

The Board has promulgated rules and regulations, found in Ohio Administrative Code (Ohio Adm.Code) 4906:1-01 et seq., which establish application procedures for major utility facilities and economically significant wind farms.

Application Procedures

Any person that wishes to construct a major utility facility or economically significant wind farm in this state must first submit to the Board an application for a certificate of environmental compatibility and public need.¹ The application must include a description of the facility and its location, a summary of environmental studies, a statement explaining the need for the facility and how it fits into the Applicant's energy forecasts (for transmission projects), and any other information the Applicant or Board may consider relevant.²

Within 60 days of receiving an application, the Chairperson must determine whether the application is sufficiently complete to begin an investigation.³ If an application is considered complete, the Board or an administrative law judge will cause a public hearing to be held 60 to 90 days after the official filing date of the completed application.⁴ At the public hearing, any person may provide written or oral testimony and may be examined by the parties.⁵

Staff Investigation and Report

The Chair will also cause each application to be investigated and a report published by the Board's Staff not less than 15 days prior to the public hearing.⁶ The report sets forth the nature of the investigation and contains the findings and, in the event the Board determines that a certificate should be granted, conditions recommended by Staff.⁷ The Board's Staff, which consists of career professionals drawn from the staff of the PUCO and other member agencies of the Board, coordinates its investigation among the agencies represented on the Board and with other interested agencies such as the Ohio Department of Transportation (ODOT), the Ohio Historic Preservation Office (OHPO), and the U.S. Fish and Wildlife Service (USFWS).

The technical investigations and evaluations are conducted pursuant to Ohio Adm.Code 4906-1-01 et seq. The recommended findings resulting from Staff's investigation are described in the Staff Report pursuant to R.C. 4906.07(C). The report does not represent the views or opinions of the Board and is only one piece of evidence that the Board may consider when making its decision. Once published, the report becomes a part of the record, is served upon all parties to the proceeding and is made available to any person upon request.⁸ A record of the public hearings and all evidence, including the Staff Report, may be examined by the public at any time.⁹

1. R.C. 4906.04 and 4906.20.

2. R.C. 4906.06(A) and 4906.20(B)(1).

3. Ohio Adm.Code 4906-3-06(A).

4. R.C. 4906.07(A) and Ohio Adm.Code 4906-3-08.

5. R.C. 4906.08(C).

6. R.C. 4906.07.

7. Ohio Adm.Code 4906-3-06(C).

8. R.C. 4906.07(C) and 4906.10.

9. R.C. 4906.09 and 4906.12.

Board Decision

The Board may approve or deny an application for a certificate of environmental compatibility and public need as filed, or modify and approve it upon such terms, conditions, or modifications as the board considers appropriate.¹⁰ The certificate is also conditioned upon the facility being in compliance with applicable standards and rules adopted under the Ohio Revised Code.¹¹

Upon rendering its decision, the Board must issue an opinion stating its reasons for approving, modifying and approving, or denying an application for a certificate of environmental compatibility and public need.¹² A copy of the Board's decision and its opinion is memorialized upon the record and must be served upon all parties to the proceeding.¹³ Any party to the proceeding that believes the Board decision to be unlawful or unreasonable may submit within 30 days an application for rehearing.¹⁴ An entry on rehearing would then be issued by the Board within 30 days and may be appealed within 60 days to the Supreme Court of Ohio.¹⁵

CRITERIA

Staff developed the recommendations and conditions in this *Staff Report of Investigation* pursuant to the criteria set forth in R.C. 4906.10(A), which reads, in part:

The board shall not grant a certificate for the construction, operation, and maintenance of a major utility facility, either as proposed or as modified by the board, unless it finds and determines all of the following:

- (1) The basis of the need for the facility if the facility is an electric transmission line or gas pipeline;
- (2) The nature of the probable environmental impact;
- (3) That the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations;
- (4) In the case of an electric transmission line or generating facility, that the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems and that the facility will serve the interests of electric system economy and reliability;
- (5) That the facility will comply with Chapters 3704, 3734, and 6111 of the Revised Code and all rules and standards adopted under those chapters and under section 4561.32 of the Revised Code. In determining whether the facility will comply with all rules and standards adopted under section 4561.32 of the Revised Code, the board shall consult

10. R.C. 4906.10(A).

11. R.C. 4906.10.

12. R.C. 4906.11.

13. R.C. 4906.10(C).

14. R.C. 4903.10 and 4906.12.

15. R.C. 4903.11, 4903.12, and 4906.12.

with the office of aviation of the division of multimodal planning and programs of the department of transportation under section 4561.341 of the Revised Code;

- (6) That the facility will serve the public interest, convenience, and necessity;
- (7) In addition to the provisions contained in divisions (A)(1) to (6) of this section and rules adopted under those divisions, what its impact will be on the viability as agricultural land of any land in an existing agricultural district established under Chapter 929 of the Revised Code that is located within the site and alternative site of the proposed major utility facility. Rules adopted to evaluate impact under division (A)(7) of this section shall not require the compilation, creation, submission, or production of any information, document, or other data pertaining to land not located within the site and alternative site; and
- (8) That the facility incorporates maximum feasible water conservation practices as determined by the board, considering available technology and the nature and economics of the various alternatives.

III. APPLICATION

APPLICANT

Harvey Solar I, LLC (Applicant) is owned by Clean Planet Renewable Energy, LLC, which is a joint venture partnership between Eolian, L.P. and Open Road Renewables, LLC. Eolian L.P., formerly MAP Energy, Inc. is a private renewable energy investment firm with a portfolio consisting of over 6,000 MWs of operating wind and solar projects. Open Road Renewables, LLC develops utility scale solar projects and is responsible for over 565 MWs of renewable energy projects currently operating or under construction. Staff has found that these developers currently have four other projects in various development stages with the Board (Alamo Solar, Hillcrest Solar, Angelina Solar, and Willowbrook Solar). Eolian and Open Road have collaborated on a variety of utility-scale renewable energy projects over the past ten years. The Applicant intends to select another entity to construct and operate the solar facility through a competitive process, which would then be subject to Board approval through a transfer of the certificate obtained in this case.¹⁶

HISTORY OF THE APPLICATION

On June 24, 2021, the Applicant filed a pre-application notification letter regarding the project.

On July 14, 2021 and July 15, 2021, respectively, the Applicant held an in-person and a virtual public informational meeting for the project.

On August 6, 2021, as supplemented on September 17, 2021, the Applicant filed the Harvey Solar application as well as a motion for a waiver in part from Ohio Adm.Code 4906-4-08(D)(2)-(4) to allow for a reduced study area regarding the review of cultural resources, landmarks, and visual impacts.

Between September 15, 2021 and February 7, 2022, the Applicant filed responses to data requests received from Staff.

On October 4, 2021, the Executive Director of the OPSB issued a letter of compliance regarding the application to the Applicant.

On November 5, 2021, the Engineer of Licking County filed a notice of intervention.

On November 5, 2021, Save Hartford Twp., LLC, Janeen Baldrige, Edward and Mary Bauman, Julie and Richard Bernard in their personal capacity and as trustees for the Richard J. Bernard and Julie A. Bernard Family Trust, Anthony Caito, Robert Hoenie, John Johnson, Daniel Adam Lanthorn, Nancy and Paul Martin in their personal capacity and as trustees for The Martin Family Trust, Gary O'Neil, Jr., and Edward Rahde filed a petition for leave to intervene.

On December 3, 2021, the Licking County Soil & Water Conservation District filed a notice of intervention.

16. See R.C. 4906.04.

On February 10, 2022, the Board of Trustees of Hartford Township, Licking County, filed a notice of intervention.

On February 14, 2022, the Village of Hartford filed to intervene in the case.

A local public hearing has been scheduled for March 14, 2022, at 5:00 p.m., at Northridge High School, 6066 Johnstown-Utica Road, Johnstown, Ohio 43031. The adjudicatory hearing is scheduled to commence on April 6, 2022, at 10:00 a.m., and shall be conducted via virtual hearing technology.

This summary of the history of the application does not include every filing in case number 21-02164-EL-BGN. The docketing record for this case, which lists all documents filed to date, can be found online at <http://dis.puc.state.oh.us>.

PROJECT DESCRIPTION

The Applicant intends to construct a 350 MW solar-powered generating facility in Hartford and Bennington townships in Licking County. The project will consist of large arrays of photovoltaic (PV) modules, commonly referred to as solar panels, ground-mounted on a tracking rack system. The project will occupy approximately 1,880 acres within an approximate 2,630-acre project area comprised of private land secured by the Applicant through agreements with the landowners. The project will include associated facilities such as access roads, operations and maintenance (O&M) building, underground and aboveground electric collection lines, weather stations, inverters and transformers, a collection substation, and a 138 kV gen-tie electric transmission line. The project will be secured by perimeter fencing which will be seven-foot tall with no barbed wire and accessed through gated entrances. The Applicant will ensure that solar modules are setback a minimum of 100 feet from adjacent non-participating property lines.

Solar Panels and Racking

The solar panels will be attached to metal racking. The racking will include steel piles driven approximately 10 feet into the ground. While PV modules have not yet been procured for the project, the Applicant anticipates using one of two types of solar panel technology: crystalline or thin-film. The crystalline modules are silicon-based and the thin-film modules use one of several alternative semi-conducting compositions.¹⁷ In Exhibit B of the application, the Applicant submitted manufacturer specifications for one representative solar panel module: the Longi Hi-Mo 5 LR5-72HBD. The Applicant would provide manufacturer specifications to the Board on the chosen modules prior to construction. If the Applicant uses a technology that significantly differs from that included in Exhibit B, the manufacturer specification will be provided to the Board prior to construction. The Applicant would follow the US EPA's test procedures to ensure that the selected panel model is compliant with the US EPA's Toxicity Characteristics Leaching Procedure (TCLP) testing protocol. The facility would include approximately 809,018 to 1,390,500 panels.¹⁸ The solar panel arrays will be grouped in large clusters that will be fenced in with gated entrances

17. Current solar panel technology are one of two basic types: crystalline or thin-film. Crystalline modules are silicon-based. Thin-film modules use several alternative semi-conducting compositions (such as cadmium telluride or copper indium gallium selenide). When the selected panel is a thin-film module, the panels typically contain only exceedingly small amounts of potentially hazardous materials, all of which are safely encased in polymer and tempered glass within an aluminum frame.

18. Application at page 7 and Exhibit B.

and electronic security systems. The highest point of each module will be approximately 15 feet. The project's arrays will be mounted on a single-axis tracking system to track the sun as it moves through the sky each day.

Collection System

The Applicant will install an underground collector system made up of a network of electric and communication lines that will transmit the electric power from the solar arrays to a central location. Most portions of the collector system will be buried while some others will be above ground. The underground lines will be installed by direct burial method or horizontal directional drilling (HDD). The below grade portion of the collector system will be buried at least 36 inches. The electricity from the solar panels will be generated in direct current (DC). DC power from the solar panels will be delivered to circuits, which will be routed through cable trays, then to combiner boxes. Power from the combiner boxes will be transmitted to groups of components, collectively called an inverter, which will include a DC-to-alternating current (AC) inverter, a step-up transformer that will increase the voltage to 34.5 kV, and a cabinet containing power control electronics. This will be housed in a power conversion station mounted on a concrete foundation.

Collection Substation and Transmission Line

The facility collection substation will occupy approximately 1.15 acres of land near American Electric Power's (AEP) Centerburg Substation. The major components of the Applicant's substation will include all the components necessary to step up the collection line voltage of 34.5 kV to the transmission voltage of 138 kV. The collection substation will be located in the northern part of the project area on Clover Valley Road near the Licking-Knox county line. An approximate 1,900-foot, 138 kV electric transmission gen-tie line will connect the project substation to the AEP Centerburg Substation. The collection substation is denoted on the maps in this report.

Roads

The Applicant proposes to construct new access roads for construction, operation, and maintenance of the solar facility. The access roads will be surfaced with gravel and be up to 16 feet in width.

Construction Laydown Area

The Applicant proposes to use approximately 23 construction laydown areas consisting of approximately 1-5 acres and collectively occupy up to a maximum of 30.19 acres. The laydown areas will be utilized for material and equipment storage, construction parking, and construction trailers. All laydown areas will be temporary and restored to the previous condition after construction.

Weather Stations

The project will include up to ten pyranometer stations mounted to a maximum height of 15-feet. These devices will measure solar irradiance. Solar irradiance is the amount of solar energy per square meter received from the sun. These stations will also contain communications equipment.

O&M Building

The Applicant proposes to construct one O&M building. The building's purpose will be to provide a workspace for operations personnel as well as a place to house items necessary for the operation and maintenance of the facility. The building will not include water or sewer service. The building

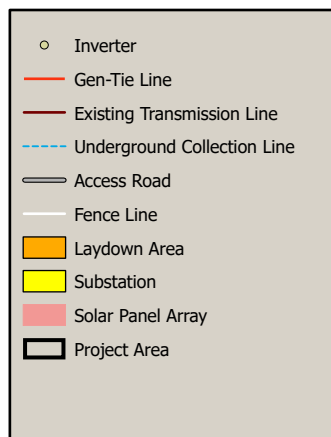
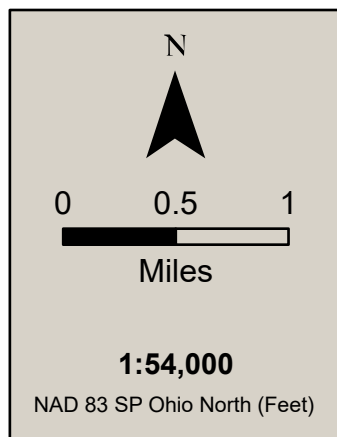
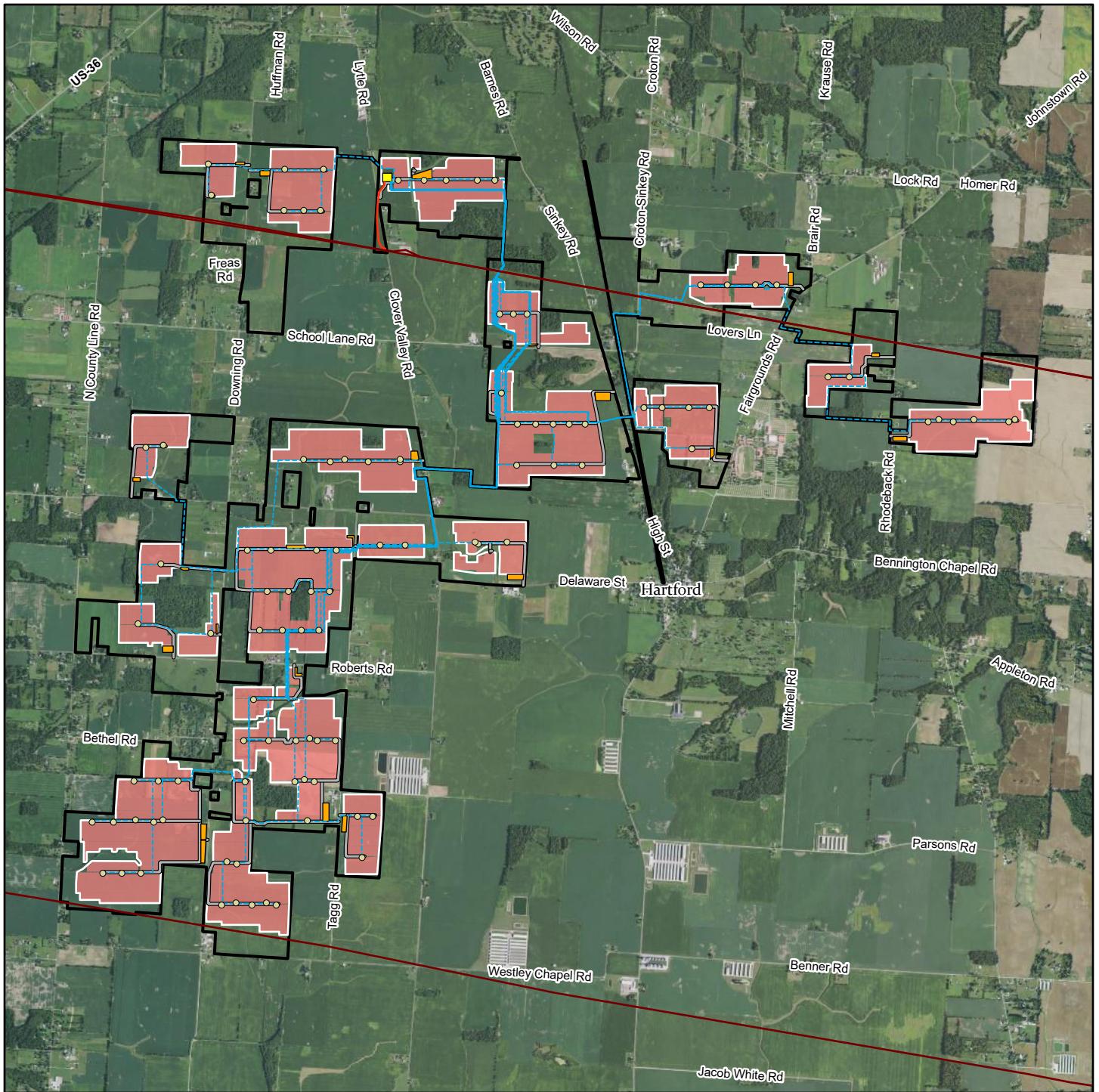
will be located on the same parcel as the collection substation and occupy less than 400 square feet.

Lighting

Lighting will be installed at the O&M building. The lighting will be minimal, downlit, and faced toward the facility to the extent practicable. The Applicant indicates that motion-activated lighting will be used.

Project Schedule

The Applicant expects to finalize the project design in the fourth quarter of 2022. Construction would start in the fourth quarter of 2022 and be completed by the fourth quarter of 2023. The facility is expected to be placed in service during the first quarter of 2024. The Applicant stated that delays to this timeline could impact project financing as well as the project's eligibility for certain financial incentives.



Overview Map

21-0164-EL-BGN

Harvey Solar

Maps are presented solely for the purpose of providing a visual representation of the project in the staff report, and are not intended to modify the project as presented by the Applicant in its certified application and supplemental materials.

IV. CONSIDERATIONS AND RECOMMENDED FINDINGS

In the Matter of the Application of Harvey Solar I, LLC for a Certificate of Environmental Compatibility and Public Need, Staff submits the following considerations and recommended findings pursuant to R.C. 4906.07(C) and 4906.10(A).

Considerations for R.C. 4906.10(A)(1)

BASIS OF NEED

Pursuant to R.C. 4906.10(A)(1), the Board must determine the basis of the need for the facility only if the facility is an electric transmission line or gas pipeline. Therefore, Staff has found an analysis of R.C. 4906.10(A)(1) to be inapplicable to the facility in question.

Recommended Findings

Staff recommends that the Board find that the basis of need as specified under R.C. 4906.10(A)(1) is not applicable to this facility, as the facility is neither an electric transmission line nor a gas pipeline.

Considerations for R.C. 4906.10(A)(2)

NATURE OF PROBABLE ENVIRONMENTAL IMPACT

Pursuant to R.C. 4906.10(A)(2), the Board must determine the nature of the probable environmental impact of the proposed facility. Staff has found the following with regard to the nature of the probable environmental impact.

Overview

As described above, membership of the Board is specified in R.C. 4906.02(A) and its voting membership is comprised of leadership from the PUCO, Ohio EPA, ODH, ODOD, ODA, ODNR, and a member of the public specified as an engineer. Also as described above, the Board's Staff consists of career professionals from member agencies of the Board and their areas of expertise. Therefore, consideration of the nature of the probable environmental impact of a proposed facility incorporates such areas of expertise, as described below.

Community Impacts¹⁹

Land Use

The predominant land use within the project area is agriculture. There are some residences in the project area, and some varied commercial and institutional uses within one mile of the project area. The Applicant states that 1,868 acres of agricultural land, ten acres of residential land, 1.8 acres each of deciduous forest and herbaceous land would be impacted, totaling approximately 1,880 acres of land to be converted for the proposed solar facility. Impacts from construction would be temporary in nature and contained to the properties participating landowners. Significant impacts to residential, commercial, industrial, recreational, and institutional land uses are not anticipated, and surrounding agricultural land use would continue with minimal disruption.

Regional Planning

Comprehensive land use plans provide citizens, elected officials and developers with a conceptual planning framework. These plans may be utilized by governmental actors (such as planning boards) to aid in land use decisions; however, it is important to note that comprehensive plans are primarily authored to provide generalized guidance on market-based growth trends and many areas of these plans are deliberately not written with any binding force. In the project area, Hartford Township has put forth a comprehensive plan which includes goals to guide land use in the township. The Hartford Township Comprehensive Plan lists preserving a rural character,

19. "The Ohio Department of Development is committed to creating jobs and building strong communities, while ensuring accountability and transparency of taxpayer money and exceptional customer service." (Ohio.gov, Department of Development, <https://development.ohio.gov/feat/whatisdsa.htm>). R.C. 122.011(A)(6) states, in part, that the department of development shall develop and promote plans and programs designed to assure that state resources are efficiently used, economic growth is properly balanced, community growth is developed in an orderly manner, and local governments are coordinated with each other and the state, and for such purposes may, among other things, cooperate with and provide technical assistance to state departments, regional and local planning commissions, and other appropriate organizations for the solution of community problems. According to R.C. 122.01(B)(1), "community problems" includes, but is not limited to, taxation, fiscal administration, governmental structure and organization, intergovernmental cooperation, education and training, employment needs, community planning and development, air and water pollution, public safety and the administration of justice, housing, mass transportation, community facilities and services, health, welfare, recreation, open space, and the development of human resources."

supporting and strengthening agriculture, and keeping future development compatible with a rural character as the top priorities. The plan identifies residential development as the main threat to the rural character of the community. The Applicant states this project will help support these goals by preserving the land from residential development for the life of the project. The Applicant also states this project would not be expected to “have any significant adverse effect on regional development, including housing, commercial and industrial development, schools, transportation system development, or other public services or facilities.”²⁰

Recreation

Construction and operation of the facility would not physically impact any recreational areas. The Applicant identified 3 recreational areas within five miles of the project area. The nearest recreational area to the project footprint is P.E. Grubb Lake. This lake is located about 1.51 miles away from the closest solar panels. Hartford fairgrounds is located about 650 feet away from the closest solar panels. The panels will be partially visible from the Hartford fairgrounds. All other recreational facilities are at distances that exceed likely visibility. Staff’s review of the Applicant’s viewshed analysis determined that significant adverse aesthetic impacts are not likely.

Aesthetics

Aesthetic impacts and considerations are always measured against the surrounding land use features and potential viewers’ subjective opinions. The rural nature of the project vicinity limits the number of potential viewers. Transportation corridors typically are smaller and much more lightly traveled, which reduces the number of viewing impacts. Existing woodlots are also able to offer additional natural screening. The project area predominantly consists of agricultural land. Traffic volume on roads throughout the project area is typically light, thus abating the potential number of viewers.

The solar panels would be installed no higher than 15 feet above ground level. Based on the results of the Applicant’s two-mile visual resources report, the solar panels “would not be meaningfully visible at locations more than [two] miles away from the Project Area, nor from most areas within [two] miles of the Project Area.”²¹

In addition to setbacks exceeding 300 feet from non-participating residences, the Applicant proposes mitigation in the form of vegetative screening at selected sensitive areas around the project site. Staff reviewed the application regarding visual impact analysis (Exhibit W) and the preliminary landscape plan (Exhibit X), which “features a tiered set of landscape treatments just outside the fence that are tailored to specific locations and viewers. The locations and composition of the specific treatments are preliminary, flexible, and subject to on-going discussions with a number of neighbors.”²²

The Applicant’s landscape mitigation plan proposes the installation of planting modules, categorized into tiers based upon levels of aesthetic impact, along the facility fence line. The Applicant’s landscape plan increases overall vegetation density in relation to potentially greater aesthetic impacts. The goal of the mitigation plan is to soften viewshed impacts and to

20. Application, p. 71

21. Application, p. 76.

22. Application, p. 78.

blend the facility into the existing vegetation. The Applicant's plan would provide for the installation of numerous plant species that would vary in height and variety, as determined by the current location of sensitive receptors (such as non-participating residential structures) that are adjacent to the proposed facility.

Staff's landscaping condition requires that the Applicant consult with a certified professional landscape architect. To address impacts to the traveling public, nearby communities, and recreationalists, Staff also recommends that the Applicant adjust its landscape and lighting plan to incorporate appropriate planting measures such as shrub and tree planting or enhanced pollinator plantings.

Staff recommends that the Applicant's landscape and lighting plan incorporate design features to reduce impacts in areas where an adjacent non-participating parcel contains a residence with a direct line of sight to the project's infrastructure. Staff recommends that aesthetic impact mitigation include native vegetative plantings, alternate fencing, *good neighbor* agreements, or other methods in consultation with affected landowners and subject to Staff review.

The application states that the Applicant intends to construct a fence that "will be an agricultural-style metal fence [seven] feet high with no barbed wire."²³ While the proposed fence would be less aesthetically intrusive and suitable for fencing in an agricultural area, it is important that the perimeter fence also incorporate *wildlife friendly* features into its design. Staff recommends that the Applicant design the perimeter fence to also be small-wildlife permeable. With implementation of Staff's landscape-lighting and fencing conditions, the overall expected aesthetic impact would be minimal.

*Cultural Resources*²⁴

The Applicant enlisted a consultant (Cardno) to gather background information and complete cultural resources studies for this project. A Phase I cultural archaeological reconnaissance survey was completed and submitted to the Ohio Historic Preservation Office (OHPO) for review in November 2020 and May through July 2021. In the archaeology survey report, it was determined that a total of 323 archaeological sites were newly identified and nine sites were re-identified within the project area. All but 12 sites were recommended by Cardno as ineligible for listing in the National Register of Historic Places (NRHP) as they either do not appear to offer information important to the prehistory of the region or do not appear to be associated with important persons or events in the region. The OHPO agrees with Cardno that the 12 sites Cardno recommend as potentially eligible for listing in the NHRP are potentially eligible but also recommends that an additional three sites are potentially eligible for listing in the NHRP. OHPO recommends that the Applicant either avoid or conduct Phase II studies for the fifteen sites identified as potentially

23. Application, p. 9.

24. According to RC 149.53, "[a]ll departments, agencies, units, instrumentalities, and political subdivisions of the state shall cooperate with the Ohio history connection and the Ohio historic site preservation advisory board in the preservation of archaeological and historic sites and in recovery of scientific information from such sites, and for such purposes shall, whenever practical, by contract or otherwise provide for archaeological and historic survey and salvage work during the planning phases, before work on a public improvement begins or at other appropriate times." In Ohio, the Ohio Historic Preservation Office (OHPO) is part of the Ohio History Connection. (See, Ohio History Connection, About Section 106 Review, <<https://www.ohiohistory.org/preserve/state-historic-preservation-office/hpreviews/about-section-106-review>>).

eligible for listing in the NHRP. OHPO also recommends the project avoid the suspected location of the Potter Cemetery.

Cardno also conducted a historic architecture survey of the project area of potential effect. The area of potential effect is a geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of a cultural property. The survey recorded 233 properties of which 12 are recommended as eligible for listing on the NRHP. One property is already listed in the NHRP. Of these 13 properties, six are recommended to have a potential adverse effect from the project. OHPO concurs with these findings.

The OHPO and the Applicant are developing a memorandum of understanding (MOU) to mitigate for and/or avoid cultural resources with potential adverse effects due to the project. Staff recommends that the Applicant finalize and execute the MOU with OPHO. With the implementation of the MOU and avoidance of the suspected location of the Potter Cemetery, Staff has determined that minimal adverse environmental impacts to cultural resources would be achieved.

Economic Impact

The Applicant states that it would own the proposed project but will hire a third party to construct, operate, and maintain it. The Applicant currently owns the development rights for all land within the project area.

The Applicant states that the total capital and intangible costs for the proposed facility are expected to range between approximately \$850/kW to \$950/kW depending on the models of solar panel, racking, and inverters used.

Total cost comparisons between the proposed facility and other comparable facilities are to be provided in the application. The Applicant referenced *Lazard's Levelized Cost of Energy Analysis (2020)* which states that the average capital costs for utility scale solar PV projects range between \$825 to \$975 per kW and notes that its costs are within this range. Also, recent solar PV projects of comparable scale undertaken by the Applicant report capital costs averaging \$925/kW. Staff verified the Applicant's assertion that the reported average cost of similar facilities is not substantially different from Applicant's estimated costs for the proposed facility.

Operation and maintenance expense comparisons between the proposed facility and other comparable facilities are to be provided in the application. The Applicant states that the total operations and maintenance costs for the proposed facility are expected to be \$9/kW for the first two years of operation and increase at a rate of approximately two percent per annum through the life of the proposed project. The Applicant also states that the O&M costs of its similar facilities in the mid-Atlantic region range between \$10/kW-\$13/kW. Staff notes that the National Renewable Energy Laboratory (NREL), in its 2021 update on utility-scale solar costs, reports that O&M costs were \$16/kW/year for fixed-tilt PV facilities and \$17/kW/year for facilities using tracking systems.²⁵

25. Feldman, David, Vignesh Ramasamy, Ran Fu, Ashwin Ramdas, Jal Desai, and Robert Margolis. 2021. U.S. Solar Photovoltaic System Cost Benchmark: Q1 2020. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-77324. <https://www.nrel.gov/docs/fy21osti/77324.pdf>.

The Applicant estimates the cost of delays in permitting and construction of the proposed facility could be \$3 million/month. The Applicant states that delays could prevent the project from meeting federal Investment Tax Credit deadlines which could result in the loss of those benefits to the Applicant. Also, the Applicant states that delays could result in losses associated with the time value of money. The Applicant's characterization of its estimated costs of delays appears reasonable to Staff.

The Applicant retained the services of the Kent State University and University of Akron (the Universities) to report on the economic impact of the Harvey Solar project.²⁶ The universities used the IMPLAN regional economic modeling system, as well as data from the Ohio Department of Taxation, to estimate the economic impact of the construction and operation of the solar facility. Staff verified that the methodology of the IMPLAN model was appropriate for this study and that the estimated impacts reported by the Applicant are reasonable.

In this model, "earnings" are comprised of direct (on-site) wages, indirect (supply-chain labor) wages, and induced (through spending by persons in first two categories). "Output" in this model refers to the value of goods and services produced by direct, indirect, and induced labor. Based on the results of the IMPLAN model analysis conducted by the Universities, the Harvey Solar project is expected to have the following impacts:

Jobs

- 1,372 construction related jobs for the state of Ohio
- 10 long-term operational jobs for the state of Ohio

Earnings

- \$91 million in local earnings during construction for the state of Ohio
- \$879,000 in annual earnings during facility operations for the state of Ohio

Output

- \$282.1 million in output during construction of the facility for the state of Ohio
- \$4.7 million in annual output during facility operations for the state of Ohio

The Harvey Solar project is estimated to generate between \$2.45 million and \$3.15 million annually for Licking County taxing districts. This estimate is based on a proposed Payment in Lieu of Taxes (PILOT) plan in which the Applicant would pay between \$7,000/MW and \$9000/MW annually for a total of 350MW. At this time, the Applicant has not entered into a PILOT agreement with Licking County.

Glare

Glare is the phenomenon where sunlight reflects from a surface to create a duration of bright light. Glare also encompasses glint, which is a momentary flash of bright light. Potential impacts of this reflection from solar panel(s) could be a brief reduction in visibility, afterimage, a safety risk to

²⁶ Faculty in the Department of Economics from Kent State University and the University of Akron performed the analysis.

pilots, or a perceived nuisance to neighbors. The Applicant considered the potential effects of glint and glare in the design of solar array layout and how the panels would be operated.

Solar panels are designed to absorb as much sunlight as possible with minimal reflectivity and include an anti-reflection coating. The Applicant conducted a glint and glare analysis to identify any potential impacts along local roads and at nearby residents.²⁷ To perform the analysis of glare, the Applicant used the ForgeSolar software formerly known as the Solar Glare Hazard Analysis Tool (SGHAT) which was developed by Sandia National Laboratories to analyze potential glare at sensitive receptor locations. This software is commonly used by solar facility developers to determine the effect of solar glare. Glare is classified in three categories in the SGHAT tool: (1) the green type, which is associated with a low potential for temporary after-image when observed prior to a typical blink response time; (2) the yellow type, which is associated with a potential for temporary after-image when observed prior to a typical blink response time; and (3) the red type, which is associated with the permanent retinal damage when observed prior to a typical blink response time. The Applicant found that no glare (i.e., no minutes of either green, yellow, or red type) from the project is predicted to vehicles using the roadways or nearby residences. Staff agrees with the study results. Staff notes that aesthetic impact mitigation measures that include vegetative plantings may also further reduce potential impacts as part of a landscape and lighting plan, which Staff has recommended for this project.

Decommissioning

The Applicant holds land rights to and estimates that the solar facility can operate for 40 years. The Applicant has prepared a decommissioning plan and total decommissioning cost estimate of \$18,480,000. Staff has reviewed that decommissioning plan.²⁸

According to the Applicant's plan, at the end of the useful life of the facility, the solar facility would be decommissioned, and the land be returned to its current use as agricultural land. Prior to the start of any decommissioning activities, the Applicant would apply for and obtain applicable federal, state, and local permits, which may take approximately 1.5 months. At this time, the Applicant has identified that during decommissioning, it may need to obtain, at the least, an Ohio EPA Construction Storm Water General Permit, demolition permits, and special hauling permits. At the time of decommissioning, panels would be reused, recycled, or properly disposed in accord with regulations in effect at that time.

The decommissioning sequence consists of, but is not limited to, de-energizing solar arrays, dismantling panels and racking, removing inverters, removing electrical cables to a depth of at least three feet, removing access and internal roads, grading the site, removing the substation, removing overhead transmission lines and poles, de-compacting subsoils and revegetating disturbed land to pre-construction conditions, to the extent practicable. The Applicant may abandon in place any electrical lines that would not impact the restored use and are at least three feet below-grade unless required by easement or lease agreement. At the request of the landowner, the Applicant may leave access roads in place. The Applicant would also coordinate with the appropriate local agency to coordinate repair of any public roads if damaged or modified during decommissioning. The Applicant would restore the land significantly to its original topography to allow for resumption of the pre-construction agricultural land use. The Applicant stated that it

27. Application at Exhibit M.

28. Application at Exhibit J.

anticipates decommissioning activities and restoration to occur over and be completed in an eight-month period. Based on the weather dependent nature of site restoration, Staff recommends that the updated decommissioning plan include a requirement to monitor the site to ensure successful revegetation and rehabilitation. Also, Staff recommends a timeframe be included in the final decommissioning plan where the equipment is removed.

The Applicant states it would repurpose, salvage, recycle or haul offsite to a licensed solid waste disposal facility all solar components. Some of those solar components are anticipated to have a resale or salvage value and would be sold to offset the decommissioning cost. Those salvageable items typically are solar modules, tracking system, steel piles, inverters, and transformers. If solar modules are to be disposed, the Applicant intends to conduct the disposal in compliance with federal, state, and local laws and regulations. The Applicant is considering panels that have been certified to comply with the US EPA's toxicity characteristics leachate procedure (TCLP) test and meet U.S. EPA definition of non-hazardous waste.

The Applicant would also provide for financial security to ensure that funds are available for decommissioning/land-restoration. Specifically, the Applicant states that it would employ a surety bond active during the life of the project and renewed annually. The Applicant states that it would periodically review the decommissioning plan and costs and provide an updated report to the Board every five years after the commercial operations date. These reports would be prepared by an independent, registered professional engineer, licensed to practice engineering in the state of Ohio to estimate the total cost of decommissioning the facility, salvage value, and appropriateness of any contingency amount or percentage.

The Applicant has considered a scenario where the decommissioning plan may be activated prior to the end of the useful life of the solar facility. In the event the owner of the solar facility becomes insolvent, the Applicant surmised sufficient funds would be in place to remove the facility as a condition of OPSB approval.²⁹

Staff recommends that at least 30 days prior to the preconstruction conference, the Applicant shall submit an updated decommissioning plan and total decommissioning cost estimate without regard to salvage value on the public docket that includes: (a) a provision that the decommissioning financial assurance mechanism include a performance bond where the company is the principal, the insurance company is the surety, and the Ohio Power Siting Board is the obligee; (b) a timeline for removal of the equipment; (c) a provision to monitor the site for at least one additional year to ensure successful revegetation and rehabilitation; (d) a provision where the performance bond is posted prior to the commencement of construction; (e) a provision that the performance bond is for the total decommissioning cost and excludes salvage value; (f) a provision to coordinate repair of public roads damaged or modified during the decommissioning and reclamation process; (g) a provision that the decommissioning plan be prepared by a professional engineer registered with the state board of registration for professional engineers and surveyors; and (h) a provision stating that the bond shall be recalculated every five years by an engineer retained by the Applicant.

Wind Velocity

The Applicant has indicated that the facility would be designed and installed to withstand and minimize potential damage from high-wind occurrences. The support piles for the racking will be

29. Application at Exhibit F (Additional Questions).

made of galvanized steel and will be installed, based on the site-specific soil sampling and after further geotechnical pull testing, at sufficient depths to prevent the movement of the associated equipment from wind. During the final engineering design, the Applicant would also select racking and solar panels with specific wind ratings from the manufacturers to ensure performance during high wind speeds. The tracking systems currently under consideration by the Applicant can withstand wind speeds up to 145 miles per hour.³⁰ The racking system would also include a stowing feature. Stow features also can tilt panels to a certain angle to reduce wind loading on the solar panels during high wind speeds events. The Applicant and Staff have found that components of the proposed facility are generally not susceptible to damage from high winds except for tornado-force winds, because generally panels and racking systems have wind speed design load ratings inherent in their design.

*Roads and Bridges*³¹

The Applicant has yet to finalize its delivery route, although it is expected that deliveries to the project site would be by way of I-71 to US36 to Meredith State Road. The main transportation routes to access the project site would be County Line Road, Meredith State Road, School Lane Road, Croton Road, Lovers Lane Road, Fairgrounds Road, Rhodeback Road, Briar Road, Sinkey Road, Clover Valley Road, Downing Road, Freas Road, Foundation Road, Tagg Road, Roberts Road, Westly Chapel Road, and Bethel Road.

The Applicant conducted a route evaluation study to identify viable means of accessing the project area. Traffic patterns, bridge conditions, culvert conditions, road surface conditions, and potential obstructions were identified and analyzed. According to the Applicant's Transportation Assessment, the rated load capacity of all bridges was found and will be used to determine when reroutes or the use of bridge jumpers would be necessary to move construction traffic.³² Road surface conditions are adequate for construction purposes, but Lovers Lane Road, Clover Valley Road, Croton Road, Foundation Road, and Tagg Road will all likely need repair once the facility is completed. Culverts were identified and their conditions assessed, and no overhead obstructions were identified along the proposed delivery routes. No railway systems exist within the transportation study area.

Conventional heavy equipment which does not require special permitting would make up the majority of construction traffic. The electrical transformer is likely to be overweight and would require special permitting and route coordination for delivery. The Applicant stated that an increase in truck traffic would be anticipated during construction for the purpose of project area equipment access and equipment and material deliveries but does not anticipate significant changes to traffic patterns. Post construction and operation of the solar facility, the Applicant does not anticipate any additional traffic for the project beyond routine maintenance. No road closures are expected. The Applicant expects to enter into a Road Use Maintenance Agreement with Licking County.

30. Application at Exhibit B.

31. The entity responsible for maintaining roads and bridges within Ohio depends on many factors. See, e.g., ODOT, Roadway Infrastructure Maintenance Responsibility Manual, <https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/maintenance-operations/rimr/rimr>.

32. OPSB Case Number 20-0164-EL-BGN, Exhibit I.

Any damaged public roads and bridges would be repaired promptly to their previous or better condition by the Applicant under the guidance of the appropriate regulatory authority. Any temporary improvements would be removed unless the appropriate regulatory authority requests that they remain in place.

Noise

Noise impacts from construction activities would include site clearing, installation of mechanical and electrical equipment, and commissioning and testing of equipment. Many of the construction activities would generate significant noise levels during the construction period. However, the adverse impact of construction noise would be temporary and intermittent, would occur away from most residential structures, and would be limited to daytime working hours. The Applicant would use mitigation practices such as limiting construction activities to daylight hours and establishing a complaint resolution process.

Operational noise impacts for a solar generation facility would be relatively minor and occur only during the day. Operational noise sources include inverters and tracking motors. The step-up transformer at the new substation may operate at day or night but the noise impact would also be relatively minor.

The Applicant conducted an ambient noise level study in order to understand the existing noise levels near the proposed facility. Noise impacts to non-participating receptors were modeled using the proposed inverter model and substation transformer.³³ No non-participating receptors were modeled to receive noise impacts greater than the daytime ambient noise level plus five dBA. Therefore, the project would be expected to have minimal adverse noise impacts on the adjacent community. If an inverter model different than the proposed inverter model is chosen, the Applicant would submit a noise report confirming that no non-participating receptors were modeled to receive noise impacts greater than the daytime ambient noise level plus five dBA.

33. For the sound propagation model, the model used for the inverter was the SMA Solar 4,600 kVA, and the model used for the substation transformer was a 370 MVA transformer with sound power level of the transformer estimated using the procedures outlined in the "Electric Power Plant Environmental Noise Guide" from the Edison Electric Institute.

Geology³⁴

*Surficial/Glacial*³⁵

The project area lies within the glaciated margin of the state and includes several Wisconsinan-age glacial features. The project area is covered by the silty loam of the Centerburg Till. The southwestern portion of the project area is covered by flat to gently undulating ground moraine. The eastern portion of the project area is covered by end moraine ridges, hummocky moraine, and poorly sorted kame deposits. Glacial drift throughout most of the study area is between 19 and 391 feet thick. Drift is relatively thin through much of the project area, but thickness increases greatly in buried valleys in the eastern and southern portions of the project area.³⁶

*Bedrock*³⁷

The uppermost bedrock unit throughout the project area is the Maxville Limestone, Logan Formation, and Cuyahoga Formations Undivided. These formations consist of limestone overlying interbedded shale and sandstone. Due to the glacial drift thickness cited above, and the geotechnical report results discussed below, it is very unlikely bedrock will be encountered during the construction of the proposed solar facility.

34. According, in part, to R.C. 1505.01, the ODNR's division of geological survey "[s]hall advise, consult, or collaborate with representatives of agencies of the state...on problems or issues of a geological nature when requested by such an agency...." One of the missions of the ODNR Division Geological Survey is "to provide geologic information and services needed for responsible management of Ohio's natural resources." (ODNR, Division of Geological Survey, About the Division, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/geologic-survey/division-of-geologic-survey/division-of-geologic-survey>>). This includes studying and investigating, among other things, glacial and surficial geology, bedrock geology, and geological hazards. According to ODNR a "geologic hazard or 'geohazard' is a geologic condition, either manmade or natural, that poses a potential danger to life and property. Ohio is home to a number of potential geohazards, including karst, mine subsidence, earthquakes, landslides, and shore erosion." (ODNR, Geologic Hazards, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/geologic-survey/geologic-hazards>>).

35. "Since its inception in 1837, the ODNR Division of Geological Survey has researched and mapped the state's glacial and surficial geology. Today, highly detailed mapping and meticulous studies continue to inform and broaden our knowledge of Ohio's glacial past." (ODNR, Glacial Geology in Ohio <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/geologic-survey/glacial-geology>>).

"Since collaborating with the U.S. Geological Survey to release the first statewide Glacial Map of Ohio in 1961, the ODNR Division of Geological Survey has mapped the unconsolidated geologic materials found at Ohio's surface with increasing detail." (ODNR, Glacial & Surficial Geologic Maps, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/geologic-survey/glacial-geology/glacial-surficial-geologic-maps>>).

36. ODNR Geological Survey Review – 9/7/2021.

37. "The ODNR Division of Geological Survey has had a long history of generating bedrock geologic maps for the state of Ohio since its inception in 1839. The most recent iteration of the geologic map of Ohio was created by seamlessly piecing together 788 individual 7.5-minute bedrock geologic quadrangles." (ODNR, Bedrock Geology, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-odnr/geologic-survey/bedrock-geology/bedrock-geology>>).

*Karst*³⁸

Conditions typically necessary for the formation of karst geology features do not exist within the project area and therefore are not expected to be a factor in the construction of the proposed solar facility. The nearest documented (ODNR Geologic Survey) karst feature is approximately six miles southwest of the project area.³⁹

*Oil/Gas and Mining*⁴⁰

ODNR records indicate that eighteen oil and gas wells are within one mile of the project area. The Applicant identifies four oil and gas wells are located within 500 feet of the project area and one well within the project area. The well (API # 34089256670000) within the project area was drilled in 1998 and abandoned immediately after drilling was completed per the ODNR well records. ODNR lists this well's status as "final restoration" which means the well has passed ODNR's final restoration inspection. This well will be identified and clearly marked prior to any construction activity to ensure it is not disturbed. No Class II injection well activity occurs within several miles of the project area.⁴¹

ODNR does not have record of any mining operations within several miles of the project area.⁴²

*Seismic Activity*⁴³

Recent geologic history shows the project area and associated region of the state to be at low risk for seismicity caused by earthquakes as ODNR records indicate the nearest earthquake event recorded is approximately 13 miles away from the project area.⁴⁴ The next nearest recorded event is 31 miles away.

Seismic activity in Ohio is typically associated with Precambrian-age faults. Staff noted Exhibit M of the application documents Precambrian basement rock faulting (inferred) below (\approx 5,000 feet) the project area. The Applicant's assessment of seismic risk concluded that: any potential future seismic event poses only a minimal hazard/risk to the constructability and operation of the project. In addition, the project will be designed in conformance with the Ohio Building Code that

38. Karst terrain is formed within carbonate (e.g. limestone or dolomite) or evaporite (e.g. anhydrite or gypsum) rocks through mineral dissolution caused by movement of water. Most common karst features include the formation of underground caves or channels, or the formation of depressions and sinkholes at the surface. Generally, karst features, and the likelihood of karst development are most prevalent in areas where the carbonate bedrock is overlain by 20 feet or less of glacial till material. Limestone and dolomite are the most common carbonate bedrock. Generally, Limestone is more prone to dissolution than dolomite.

39. ODNR Ohio Karst Geology Interactive Map https://gis.ohiodnr.gov/website/dgs/karst_interactivemap/.

40. ODNR Division of Oil & Gas states: "[t]he Division is responsible for regulating Ohio's oil and natural gas industry and for the protection of all Ohioans and our environment while ensuring the state's abundant natural resources are managed properly." (ODNR, Division of Oil & Gas, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/oil-gas/division-of-oil-and-gas/division-of-oil-and-gas>>).

41. ODNR Oil and Gas Viewer Interactive Map <https://gis.ohiodnr.gov/MapView/?config=OilGasWells>.

42. ODNR Mines Viewer Interactive Map <https://gis.ohiodnr.gov/MapView/?config=OhioMines>.

43. The ODNR Division of Geological Survey coordinates a 21-station network of seismograph stations throughout the state in order to continuously record earthquake activity. The Ohio Seismic Network (OhioSeis) went online in January 1999 to ensure Ohio has monitoring and coverage 24 hours a day, seven days a week by seismic stations with automatic detection, location and magnitude determination. (ODNR, The Ohio Seismic Network, <<https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/geologic-survey/division-of-geologic-survey/ohio-seis>>).

44. ODNR Earthquake Epicenters <https://gis.ohiodnr.gov/MapView/?config=Earthquakes>.

requires the structural design to account for seismic activity and will carry commercial casualty insurance to cover risks should any seismic hazard affect it.⁴⁵ Pursuant to ASCE/SEI 7-10 and the International Building Code (IBC), Site Class D (for stiff soil) is recommended for seismic design at the site. All structures should be designed in accordance with the most current Ohio Building Code as well as local building codes, as appropriate.⁴⁶ The Applicant has indicated that no blasting activities are anticipated for the construction or operation of the proposed solar facility, and therefore no blasting-induced seismic activity is anticipated.⁴⁷

*Soils*⁴⁸

According to the USDA Web Soil Survey, the project area consists primarily of soils derived from glacial till and alluvium. Bennington, Pewamo, and Centerburg are the most common soil series found within the boundaries of the project area. Together these soils make up over 96 percent of the project area. There is a moderate risk of shrink-swell potential in these soils. The Pewamo soil also meets hydric criteria. Slope is variable, with slope exceeding a 12 percent grade along margins of kame deposits and along stream valleys.⁴⁹ The Applicant's geotechnical review indicates: "Based on the information reviewed and the field reconnaissance, it appears that there are favorable subsurface conditions for design and construction of the solar arrays, access roads, and site development. Based on a review of the soil survey information and our experience with earthwork in the region in which the Project Area is located, the soils are expected to be suitable for grading, compaction, and drainage for the solar arrays."

Geotechnical Report

The Geology and Hydrogeology Report summarizes the geotechnical work performed to date. To further evaluate soil properties and subsurface conditions, 30 borings were advanced from a range of 15 feet (28 borings) to a maximum depth of 50 feet below ground level. Soil samples from the borings were evaluated for moisture content, grain size and distribution, plasticity characteristics, and corrosivity. The geotechnical report indicates the near surface clayey subgrade soils are softer and poorly drained. Construction in these areas will likely include over-excavation and replacement of suitable fill material. Additional stabilization measures such as installation of a geotextile fabric and/or chemical stabilization (e.g., lime, quick lime, Portland cement) may be necessary at the gravel access roads and equipment pads.

No pile load testing has been performed to date. However, pile load testing and additional geotechnical explorations is a recommendation of the geology and hydrogeology report for the

45. February 3, 2022 Applicant's response to Staff's Sixth data request.

46.. Page 9 of Appendix B of Exhibit M (Geology and Hydrogeology Report by Hull & Associates).

47. Application at page 50.

48. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) conducts soil surveys and provides technical assistance to private landowners. (USDA NCRS, Ohio NRCS Soils, <<https://www.nrcs.usda.gov/wps/portal/nrcs/oh/soils/>>).

"Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95 percent of the nation's counties and anticipates having 100 percent in the near future. The site is updated and maintained online as the single authoritative source of soil survey information. Soil surveys can be used for general farm, local, and wider area planning." (USDA NCRS, USDA Web Soil Survey, <<https://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>>).

49. September 7, 2021 ODNR Geological Survey Review Letter.

purpose of determining the final design for foundation systems and access road design and construction.

Conclusion

Staff recommends that the final detailed engineering drawings of the final project design shall account for geological features and include the identity of the registered professional engineer(s), structural engineer(s), or engineering firm(s), licensed to practice engineering in the state of Ohio who reviewed and approved the designs. Staff recommends that the Applicant provide a final geotechnical engineering report to Staff at least 30 days prior to the preconstruction conference. Staff recommends at least 30 days prior to the preconstruction conference, that the Applicant provided a final Unanticipated Discovery Plan that would address the processes that would be followed in the event undocumented or unanticipated contaminated material or other potential hazards were encountered during construction. Staff also recommends a 25-foot setback from one plugged oil and gas well identified within the project area.

Based on the data and considerations provided within the application submittal to date, and based on Staff assessment (with consideration and input from ODNR), and implementation of the recommended conditions, there appears to be no particular geological features within the project area that are incompatible with construction and operation of the proposed solar facility. Additional geotechnical testing as further discussed in the proposed conditions is necessary to confirm this.

Ecological Impacts

Public and Private Water Supplies

Groundwater resources are plentiful throughout the project area. ODNR has record of 692 water wells drilled within one mile of the project area. These wells range in depth from 25 to 400 feet deep, with an average depth of 116 feet. These wells indicate a sustainable yield range of one to 150 gallons per minute based on well log records. The average sustainable yield from these records was 22 gallons per minute. This is based on records from 232 wells within one mile of the project area that contain sustainable yield data.⁵⁰

Ohio EPA defines source water protection areas (SWPAs) as the area that supplies water to a public water supply (PWS) well within a five-year time-of-travel.⁵¹ No public drinking water SWPAs occur within the project area.⁵² One SWPA assigned to Trillium Farms Layer 3 does occur .22 miles east of the project area. This PWS (OH4555812) is a non-transient non-community PWS that produces water from the bedrock aquifer at 179 feet below ground level. In order to protect PWSs, Ohio EPA has established regulations that restrict certain activities which may impact groundwater quality. Construction and operation of solar power facilities is not among those restricted activities.

The Applicant has indicated the ODNR records show several private water wells exist within a 500-foot buffer of the project area. One well (Well ID 98002) is located within the southwestern

50. September 7, 2021 ODNR Geologic Survey Review.

51. Ohio EPA Drinking Water Area Source Delineation Manual,
https://www.epa.state.oh.us/portals/28/documents/swap/swap_delin_guidance.pdf.

52. Application at page 53 and Ohio EPA Source Water Protection Areas Interactive
Map, <https://oepa.maps.arcgis.com/apps/webappviewer/index.html?id=3b39e11ba7fc43c3b41801e3580e6d2.1>

portion of the project area. The Applicant has committed to decommissioning this well in addition to any piping or power associated with the well in accordance with applicable law. The well's former surface location will be clearly marked to ensure subsurface work is avoided in that area.⁵³

Citing its Geologic and Hydrogeology Report provided to supplement the application, the Applicant concludes: "Given the depth of water wells located in the vicinity of the Project Area, the amount of relatively impermeable clay encountered between the ground surface and the water bearing units, the apparent absence of groundwater above the zones in which the wells were completed, and the shallow nature of the planned construction activities, it is highly unlikely that the construction and operation of the solar project will impact local public and private water supplies."⁵⁴

Based on the data and considerations provided within the application submittal to date, Staff concurs there appears to be no unreasonable risk posed to public or private drinking water supplies by construction or operation of the proposed solar facility.

*Surface Waters*⁵⁵

Harvey Solar's consultant Cardno delineated twenty-seven streams within the project area, including eleven perennial streams, twelve intermittent streams, and four ephemeral streams. Harvey Solar anticipates thirty-five crossings in total for the installation of collection lines and the installation of access roads totaling approximately 836 square feet of temporary impacts, and 83 square feet of permanent impacts to streams. To minimize impacts to higher quality perennial streams, Harvey Solar has committed to adhere to the ODNR and USFWS recommendation of no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species unless further coordination with ODNR and USFWS occurs. Harvey Solar has prepared a Frac Out Contingency Plan as part of the application that would be implemented at any stream or wetland crossing utilizing Horizontal Directional Drilling (HDD) for the installation of collection lines.

Harvey Solar's consultant, Cardno, delineated forty-two wetlands within the project area.⁵⁶ Harvey Solar anticipates 0.464 acres of temporary impacts and 0.01 acres of permanent impacts to

53. February 3, 2022, Applicant response to Staff's sixth data request.

54. Page 13 of Exhibit M (Geology and Hydrogeology Report by Hull & Associates).

55. The Ohio EPA website states: "The Division of Surface Water ensures compliance with the federal Clean Water Act and works to increase the number of water bodies that can be safely used for swimming and fishing. The division issues permits to regulate wastewater treatment plants, factories and storm water runoff; develops comprehensive watershed plans aimed at improving polluted streams; and samples streams, lakes and wetlands — including fish, aquatic insects and plants — to determine the health of Ohio's water bodies." (Ohio EPA, About Us: Surface Water, <https://www.epa.ohio.gov/About#127147228-surface-water>); The U.S. Army Corps of Engineers website states: "The U.S. Army Corps of Engineers (USACE) Regulatory Program involves the regulating of discharges of dredged or fill material into waters of the United States and structures or work in navigable waters of the United States, under section 404 of the Clean Water Act and section 10 of the Rivers and Harbors Act of 1899." (USACE, Obtain a Permit, <https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/Obtain-a-Permit/>); The Ohio Department of Natural Resources (ODNR) website states: "The Division of Water Resources manages statewide oversight of dams & levees, floodplains, and the collection and management of data related to the state's water resources." (ODNR, Division of Water Resources, <https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-odnr/water-resources/water-resources>).

56. Wetlands falling within the purview of the Clean Water Act are regulated within Ohio by R.C. 6111, et seq. and Ohio Adm.Code 3745-1-50, et seq. Ohio Adm.Code 3745-1-54 establishes wetland categories.

wetlands from the installation of collection lines and access roads within the project area. All wetland impacts would occur within Category 1 wetlands.

Direct impacts to streams and wetlands would be covered under the U.S. Army Corps of Engineers Clean Water Act Section 404 Nationwide permit. The Applicant would obtain an Ohio National Pollutant Discharge Elimination System (NPDES) construction stormwater general permit through the Ohio EPA prior to the start of construction. Staff does not anticipate issues with the Applicant's procurement of this permit. Further specifics about how surface waters would be protected from indirect construction stormwater impacts would be outlined in the Applicant's Stormwater Pollution Prevention Plan (SWPPP) which would be required as part of the NPDES General Permitting to be approved and docketed prior to project construction. Staff recommends the Applicant apply Ohio EPA published Guidance on Post-Construction Storm Water Control for Solar Panel Arrays to project construction and operation.

Based on review of Federal Emergency Management Agency 100-year floodplain mapping, the project overlaps with approximately 41.5 acres of the FEMA 100-year floodplain. The Applicant has contacted the Licking County Floodplain Administrator regarding any floodplain permitting required for the project.

*Threatened and Endangered Species*⁵⁷

Harvey Solar requested information from the ODNR and the USFWS regarding state and federal listed threatened or endangered plant and animal species. Staff gathered additional information through field assessments and review of published ecological information. The following table provides the results of the information requests, field assessments, and document review.

57. Based on agency coordination with the USFWS and ODNR, identified species of concern are, in general, defined as those species that are protected under the federal Endangered Species Act of 1973, as amended (16 U.S.C. §§ 1531-1544) and/or according to the Conservation of Natural Resources within R.C. 1518.01-1518.99; 1531.25; and 1531.99. See also e.g., R.C. 1531.08 states, in part: "In conformity with Section 36 of Article II, Ohio Constitution, providing for the passage of laws for the conservation of the natural resources of the state, including streams, lakes, submerged lands, and swamplands, and in conformity with this chapter and Chapter 1533. of the Revised Code, the chief of the division of wildlife has authority and control in all matters pertaining to the protection, preservation, propagation, possession, and management of wild animals and may adopt rules under section 1531.10 of the Revised Code for the management of wild animals."

One of the missions of the ODNR is to "conserve and improve the fish and wildlife resources and their habitats and promote their use and appreciation by the public so that these resources continue to enhance the quality of life for all Ohioans." In carrying out this mission, the ODNR considers the "status of native wildlife species [to be] very important" and therefore lists wildlife species needing protection. (ODNR, State Listed Species, <https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/wildlife/state-listed-species>).

In addition to endangered species, those species classified as "threatened" are considered during OPSB project planning and approval because these species are those "whose survival in Ohio is not in immediate jeopardy, but to which a threat exists. Continued or increased stress will result in it becoming endangered." *Id.*

Birds				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Upland Sandpiper	<i>Bartramia longicauda</i>	N/A	Endangered	Potentially suitable habitat was observed within the project area. No individuals observed.
Northern Harrier	<i>Circus hudsonius</i>	N/A	Endangered	Potentially suitable habitat was observed within the project area. No individuals observed.
Sandhill Crane	<i>Grus canadensis</i>	N/A	Threatened	Potentially suitable habitat was observed within the project area. No individuals observed.
Least Bittern	<i>Ixobrychus exilis</i>	N/A	Threatened	Potentially suitable habitat was observed within the project area. No individuals observed.

Mammals				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Indiana Bat	<i>Myotis sodalis</i>	Endangered	Endangered	Potential to occur due to possible roosting trees existing within the area. No individuals observed.
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Threatened	Endangered	Potential to occur due to possible roosting trees existing within the area. No individuals observed.
Little Brown Bat	<i>Myotis lucifugus</i>	N/A	Endangered	Potential to occur due to possible roosting trees existing within the area. No individuals observed.
Tricolored Bat	<i>Perimyotis subflavus</i>	N/A	Endangered	Potential to occur due to possible roosting trees existing within the area. No individuals observed.

Mussels				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Fawnsfoot	<i>Truncilla donaciformis</i>	N/A	Threatened	No suitable habitat was observed within the project area. No individuals observed

The ODNR and the USFWS did not identify any concerns regarding impacts to listed plant species. In the event that Harvey Solar encounters listed plant or animal species during construction, Staff recommends that the Applicant contact Staff, the ODNR, and the USFWS, as applicable. Staff also recommends that if the Applicant encounters any listed plant or animal species prior to construction, the Applicant include the location and how impacts would be avoided in a final access plan to be provided to Staff prior to the preconstruction conference

The project area is within range of several listed bird species including the state endangered Upland Sandpiper (*Bartramia longicauda*), the state endangered Northern Harrier (*Circus hudsonius*), the state threatened Sandhill Crane (*Grus canadensis*), and the state threatened Least Bittern (*Ixobrychus exilis*). These listed species were identified as having potentially suitable wintering habitat within the project area. These species are sometimes known to utilize agricultural fields as winter foraging areas. However, due to the highly mobile nature of these species and the availability of wintering habitat in the area, it is not anticipated that the project would result in adverse impacts to this species.

The project area is within the range of state and federally endangered Indiana bat (*Myotis sodalis*), the state endangered and federally threatened Northern Long-eared bat (*Myotis septentrionalis*), the federally endangered Little Brown Bat (*Myotis lucifugus*), and the federally endangered Tricolored bat (*Perimyotis subflavus*). As tree roosting species in the summer months, the habitat of these species may be impacted by the project as the Applicant anticipates approximately 28.71 acres of tree clearing for construction of the project. In order to avoid impacts to these listed bat species, the Applicant has committed to adhere to ODNR and USFWS recommended seasonal tree clearing dates of October 1 through March 31 for all trees three inches or greater in diameter, unless further coordination efforts with the ODNR and the USFWS reflects a different course of action. During the winter months, bats hibernate in caves and abandoned mines, also known as hibernacula. The proposed project is not expected to impact any bat hibernacula.

The project area is within range of the state threatened Fawnsfoot (*Truncilla donaciformis*). Preliminary visual reconnaissance surveys were conducted to determine the presence or absence of Fawnsfoot mussels or any other listed mussel species within the project area. No live or dead mussels were observed within the project area. The Applicant has also committed to adhere to the ODNR and USFWS recommendation of no in-water work occurring in perennial streams from April 15 through June 30 to minimize impacts to any indigenous aquatic species. No further significant impacts to mussel habitat would be anticipated by the proposed project.

Vegetation

The following table reflects the different vegetative communities present in the project area and associated impact for the facility.

Vegetation Community Type	Total (acres)
Cultivated Crops	2,582.08
Pasture/Hay	20.54
Deciduous Forest	13.36
Developed, open space	6.96
Developed, Low Intensity	5.27
Mixed Forest	0.92
Developed, Medium Intensity	0.77
Shrub/Scrub	0.04
Grassland/Herbaceous	0.03
Total	2,629.97

The estimated vegetative impact includes the entire project area presented within the application. However, the entire project area would not be developed as part of this project. As a result, permanent impacts associated with this project would be less than the amount shown. Permanent vegetative impacts would occur primarily within agricultural lands.

Harvey Solar LLC has developed a vegetation management plan in which it proposes to incorporate pollinator plantings around the perimeter of the project (approximately 55 acres of pollinator habitat). This habitat would enhance the visual appeal of the project, enrich local wildlife habitat, benefit the local farming community, increase plant diversity, and discourage invasive species. Harvey Solar LLC’s vegetation management plan details low-growing grasses to be planted around, between, and under solar panel arrays promptly following construction of the project. In addition to this, the Applicant also commits a portion of the project specifically located on the northeast intersection of Foundation Road and Clover Valley Road to be established in

pollinator plantings and beneficial vegetation. To assure that the project results in beneficial vegetation management, Staff recommends that the Applicant prepare an updated vegetation management plan in consultation with ODNR. The goals of the plan should include planting species listed in Attachment A of Ohio Department of Natural Resources Recommended Requirements for Proposed Solar Energy Facilities in Ohio; and shall follow the Ohio Solar Site Pollinator Habitat Planning and Assessment Form with a minimum score of 80 points. The plan shall include a narrative on how the project proposes to establish and maintain beneficial vegetation and pollinator habitat in accordance with the guidelines provided above. The plan shall include mapping of the areas where pollinator habitat would be established and maintained. The plan shall include that routine mowing would be limited to fall/spring seasons, as needed, to allow for natural reseeding of plantings and reduce impacts to ground-nesting birds.

To further assure that these benefits would be realized, Staff recommends that Harvey Solar LLC take steps to prevent establishment and/or further propagation of noxious weeds identified in Ohio Adm. Code Chapter 901:5-37 during implementation of any pollinator-friendly plantings.

Recommended Findings

Staff recommends that the Board find that the Applicant has determined the nature of the probable environmental impact for the proposed facility, and therefore complies with the requirements specified in R.C. 4906.10(A)(2), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

Considerations for R.C. 4906.10(A)(3)

MINIMUM ADVERSE ENVIRONMENTAL IMPACT

Pursuant to R.C. 4906.10(A)(3), the proposed facility must represent the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, along with other pertinent considerations.

Site Selection

The Applicant's initial site selection process considered the availability and quality of solar resource, proximity to the bulk power transmission system, topography, and identification of willing contiguous land participants. Other factors considered in the site selection process included site accessibility, geologic suitability, limited residential development, limited ecological resources, and lack of impact to cultural resources.

During site selection efforts, the Applicant engaged with both the public and local government officials to explain the proposed project and answer questions and concerns within the community. The Applicant states the proposed site possesses adequate solar resources, manageable access to the bulk power transmission system, sufficiently low population density, positive feedback from landowners and local officials, highly compatible land-use characteristics, and few environmentally sensitive areas.⁵⁸

Minimizing Impacts

A Phase I cultural archaeological reconnaissance survey was completed and submitted to the OHPO for review in November 2020 and May through July 2021. In the archaeology survey report, it was determined that there were nine previously discovered archaeological sites in the project area and a total of 323 archaeological sites were newly identified within the project area. Fifteen sites were recommended as potentially eligible for listing in the NRHP. The OHPO also recommended the project avoid the suspected location of the Potter Cemetery and either avoid or conduct Phase II studies for the fifteen sites identified as potentially eligible for listing in the NRHP.

A historic architecture survey of the project area of potential effect was also conducted by the Applicant's consultant. The survey recorded 233 properties of which 12 are recommended as eligible for listing on the NRHP. One property is listed in the NRHP already. Of these 13 properties, the OHPO agrees that six are recommended to have a potential adverse effect from the project.

The OHPO and the Applicant are developing an MOU to mitigate for and/or avoid cultural resources with potential adverse effects due to the project. Staff recommends that the Applicant finalize and execute the MOU with OHPO. With the implementation of the MOU and avoidance of the suspected location of the Potter Cemetery, Staff has determined that minimal adverse environmental impacts to cultural resources would be achieved.

The geology of the project site in Licking County does not appear to present conditions that would limit or negatively impact the construction and future operation of the proposed facility. Staff

⁵⁸. Application at pages 18-21.

recommends that the final detailed engineering drawings of the final project design shall account for geological features.

No significant impacts are proposed to stream or wetlands. Impacts to any state or federal listed species can be avoided by following seasonal restrictions for construction in certain habitat types, as detailed by the USFWS and the ODNR. The Applicant did not identify any listed plant species during field surveys. While the project is within the range of several endangered species, impacts would be avoided to suitable habitats.

Noise impacts are expected to be limited to construction activities. The adverse impact of construction noise would be temporary and intermittent and would occur away from most residential structures. Staff recommends that the Applicant limit the hours of construction to address potential construction-related concerns from any nearby residents. No non-participating receptors were modeled to receive noise impacts greater than the daytime ambient noise level. If the Applicant changes inverter or transformer models in a manner that significantly differ from the representative component models listed in Exhibit B of the application, Staff recommends that the Applicant submit an updated noise study. The updated noise study would confirm that sound levels would not exceed the daytime ambient level plus five dBA at any non-participating sensitive receptor to assure that operational noise impacts are minimal. Further, the Applicant has developed a complaint resolution plan which would be implemented throughout construction and operation.

During the construction period, local, state, and county roads would experience a temporary increase in truck traffic due to deliveries of equipment and materials. Due to the location of the project, the Applicant anticipates that most components for the entire project would be delivered by using flatbed or tractor-trailer vehicles and multi-axle dump trucks. The transportation management plan would be finalized once the final engineering layout is determined. The transportation management plan will include delivery route plan which would be developed through discussions with local officials. The Applicant is expected to enter into a road use agreement with the county engineer.

Due to the low profile of the project, combined with existing vegetation in the area, the visual impacts would be most prominent to landowners in the immediate vicinity of the infrastructure itself. In order to reduce impacts in areas where an adjacent, non-participating parcel contains a residence with a direct line of sight to the project, Staff has recommended a condition requiring a final landscape and lighting plan that addresses the potential impacts of the facility. Staff also recommends that the Applicant adjust its landscape and lighting plan to address potential impacts to the traveling public, nearby communities, and recreationalists. In addition, Staff recommends a perimeter fencing condition to further minimize overall aesthetic concerns and to provide more wildlife friendly access for small animals.

The Applicant has committed to take steps in order to address potential impacts to farmland, including repairing all drainage tiles damaged during construction and restoring temporarily impacted land to its original use. The Applicant has consulted landowners and county records to determine the locations of drain tile mains. In order to avoid impacts to drain tiles, the Applicant stated that it would locate drain tiles as accurately as possible prior to construction. The Applicant has committed to promptly repair any drain tile found to be damaged by the project during the operational life of the project. Following decommissioning of the facility, land can be restored for agricultural use.

The Applicant has prepared a decommissioning plan to decommission the solar facility. The Applicant would provide for financial security to ensure that funds are available for decommissioning and land-restoration. The Applicant would restore the land significantly to its original topography to allow for resumption of agricultural use. Staff has recommended a condition requiring that the draft decommissioning plan be updated to include improved financial assurance and a decommissioning cost estimate, among other things.

The Applicant has committed to use panels that have been certified to comply with the U.S. EPA's TCLP test and meet the U.S. EPA definition of nonhazardous waste.

Conclusion

Staff concludes that the proposed project would result in both temporary and permanent impacts to the project and surrounding areas. The project is unlikely to pose a significant adverse impact to existing land use, cultural resources, recreational resources, or wildlife. With Staff's recommended conditions to further mitigate potential impacts, Staff concludes that the project represents the minimum adverse environmental impact.

Recommended Findings

Staff recommends that the Board find that the proposed facility represents the minimum adverse environmental impact, and therefore complies with the requirements specified in R.C. 4906.10(A)(3), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

CONSIDERATIONS FOR R.C. 4906.10(A)(4)

ELECTRIC GRID

Pursuant to R.C. 4906.10(A)(4), the Board must determine that the proposed electric facilities are consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems, and that the facilities will serve the interests of electric system economy and reliability. The purpose of this section of the report is to evaluate the impact of integrating the proposed facility into the existing regional transmission grid and the bulk power system (BPS).

The Applicant proposes to construct a solar-powered electric generation facility, capable of producing up to 350 MW. The proposed facility would interconnect from the project substation to a newly proposed gen-tie connection to the existing AEP Centerburg 138 kV Substation. AEP's Centerburg Substation would be expanded to create a three-breaker ring bus to accommodate the new solar-powered electric generation facility.

NERC Planning Criteria

The North American Electric Reliability Corporation (NERC) is responsible for the development and enforcement of the federal government's approved reliability standards, which are applicable to all owners, operators, and users of the BPS. As an owner, operator, and/or user of the BPS, the Applicant is subject to compliance with various NERC reliability standards. NERC reliability standards are included as part of the system evaluations conducted by PJM Interconnection, LLC (PJM).⁵⁹

PJM Interconnection

The Applicant submitted four generation interconnection requests for the proposed facility to PJM. PJM assigned the project queue positions AD2-067, AE2-073, AG1-024, and AG1-034. The Applicant requested an energy injection of 412.5 MW, of which 167.3 MW could be available in the PJM capacity market.⁶⁰ PJM has completed the feasibility and system impact studies (SIS) and

59. PJM Interconnection, LLC is the regional transmission organization charged with planning for upgrades and administrating the generation queue for the regional transmission system in Ohio. Generators wanting to interconnect to the bulk electric transmission system located in the PJM control area are required to submit an interconnection application for review of system impacts. The interconnection process provides for the construction of expansions and upgrades of the PJM transmission system, as needed to maintain compliance with reliability criteria with the addition of generation in its footprint.

60. The capacity market ensures the adequate availability of necessary generation resources can be called upon to meet current and future demand.

is processing the facilities study for all four queue positions.^{61, 62, 63, 64, 65, 66, 67, 68} In terms of energy total, the facility shall be operated to not exceed an injection of 350 MW to the BPS, which is the facility output requested in the Applicant’s application to the Board. The table below displays the queue positions assigned to the Applicant’s project by PJM.

PJM Queues: Harvey Solar I			
Queue ID	Queue Date	Energy Output (MW)	Capacity (MW)
AD2-067	2/28/2018	150	57
AE2-073	2/15/2019	50	21
AG1-024	6/1/2020	85	35.7
AG1-034	6/12/2020	127.5	53.6
Totals		412.5	167.3

PJM Network Impacts

PJM analyzed the proposed facility interconnected to the BPS. Summer peak power flow models were used to evaluate the regional reliability impacts. The studies revealed no reliability criteria violations. The below chart displays the results of the PJM SIS for the PJM regional footprint.

PJM REGIONAL SYSTEM IMPACTS - (Summer Peak)	
Generator Deliverability - System Normal & Single Contingency Outage	
<i>Plant Output: Capacity Level – 167.3 MW</i>	No problems identified
Category C and D - Multiple Contingency Outages	
<i>Plant Output: 412.5 MW</i>	No problems identified

61. PJM Interconnection, “New Services Queue,” Feasibility Study for Queue ID: AD2-067, accessed January 24, 2022, https://pjm.com/pub/planning/project-queues/feas_docs/ad2067_fea.pdf.

62. PJM Interconnection, “New Services Queue,” System Impact Study for Queue ID: AD2-067, accessed January 24, 2022, https://pjm.com/pub/planning/project-queues/impact_studies/ad2067_imp.pdf

63. PJM Interconnection, “New Services Queue,” Feasibility Study for Queue ID: AE2-073, accessed January 24, 2022, https://pjm.com/pub/planning/project-queues/feas_docs/ae2073_fea.pdf.

64. PJM Interconnection, “New Services Queue,” System Impact Study for Queue ID: AE2-073, accessed January 24, 2022, https://pjm.com/pub/planning/project-queues/impact_studies/ae2073_imp.pdf.

65. PJM Interconnection, “New Services Queue,” Feasibility Study for Queue ID: AG1-024, accessed January 24, 2022, https://pjm.com/pub/planning/project-queues/feas_docs/ag1024_fea.pdf.

66. PJM Interconnection, “New Services Queue,” System Impact Study for Queue ID: AG1-024, accessed January 24, 2022, https://pjm.com/pub/planning/project-queues/impact_studies/ag1024_imp.pdf

67. PJM Interconnection, “New Services Queue,” Feasibility Study for Queue ID: AG1-034, accessed January 24, 2022, https://pjm.com/pub/planning/project-queues/feas_docs/ag1034_fea.pdf.

68. PJM Interconnection, “New Services Queue,” System Impact Study for Queue ID: AG1-034, accessed January 24, 2022, https://pjm.com/pub/planning/project-queues/impact_studies/ag1034_imp.pdf.

New System Reinforcements

PJM requires mitigation of contingencies that cause reliability criteria violations which are initially caused by the addition of an applicant's project. The results identified no new system reinforcements needed.

Contribution to Previously Identified Overloads - Network Impacts

PJM studied overloading where the proposed facility may affect earlier projects in the PJM Queue. The results identified no network impacts.

Potential Congestion due to Local Energy Deliverability - Energy Delivery Impacts

PJM studied the delivery of the energy portion. Network upgrades under this section would allow for the delivery of energy with operational restrictions. The upgrades to mitigate any future operational restrictions are not required for the facility to be operational and are at the discretion of the Applicant. If the Applicant wishes to proceed with upgrades, PJM requires a merchant transmission interconnection request. The results identified several contingencies which may impact energy deliverability.

Short Circuit Analysis

The short circuit analysis study, which is part of the System Impact Study, evaluates the interrupting capabilities of circuit breakers that would be impacted by the proposed generation addition. The results identified no circuit breaker problems.

Recommended Findings

Staff recommends that the Board find that the proposed facility is consistent with regional plans for expansion of the electrical power grid of the electric systems serving this state and interconnected utility systems, and that the facility would serve the interests of electric system economy and reliability. Therefore, Staff recommends that the Board find that the facility complies with the requirements specified in R.C. 4906.10(A)(4), provided that any certificate issued by the Board for the proposed facilities include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

Considerations for R.C. 4906.10(A)(5)

AIR, WATER, SOLID WASTE AND AVIATION

Pursuant to R.C. 4906.10(A)(5), the facility must comply with Ohio law regarding air and water pollution control, withdrawal of waters of the state, solid and hazardous wastes, and air navigation.

Air⁶⁹

Air quality permits are not required for construction or operation of the proposed facility, because the project will not use fuel and will not emit any air pollution.⁷⁰ However, fugitive dust rules adopted under R.C. Chapter 3704 may be applicable to the construction of the proposed facility. The Applicant also indicated that it expects the amount of dust to be low, because little topsoil will be moved and there will be minimal grading and earth work activities. The Applicant would control temporary and localized fugitive dust by using best management practices (BMP) such as using water to wet soil and/or dust suppressants on unpaved roads as needed to minimize dust. This method of dust control is typically used to comply with fugitive dust rules.

This project would not include any stationary sources of air emissions and, therefore, would not require air pollution control equipment.

Water⁷¹

The Applicant anticipates obtaining environmental permits if and where necessary. The Applicant would mitigate potential water quality impacts associated with aquatic discharges by obtaining an NPDES construction storm water general permit (OHC00005) from the Ohio EPA with submittal of a notice of intent for coverage under that permit. The construction storm water general permit also requires development of an SWPPP to direct the implementation of construction related storm water BMPs for soil erosion control. Staff notes that the Ohio EPA has developed guidance on post-construction storm water controls for solar panel arrays. Staff recommends that the Applicant construct the facility in a manner that incorporates post construction stormwater management

69. The Revised Code provides for the Ohio EPA to administer and enforce the provisions of R.C. Ch. 3704 with regards to air pollution control. See e.g., RC 3704.03, 3704.161. The Ohio EPA Division of Air Pollution Control ensures compliance with the federal Clean Air Act and the Emergency Planning and Community Right-to-Know Act as part of its mission to attain and maintain air quality at a level that protects the environment and public health. (Ohio EPA, *Division of Air Pollution Control*, <https://www.epa.ohio.gov/dapc/#188913097-featured-topics>>). The Division of Air Pollution Control develops and enforces rules in the Ohio Administrative Code, which assist the state of Ohio to: attain and maintain the National Ambient Air Quality Standards (NAAQS) contained in the Clean Air Act; fulfill the requirements set forth by the Ohio General Assembly in R.C. 3704; and protect and maintain healthy air quality for the citizens of the state of Ohio. (See, Ohio EPA, *Division of Air Pollution Control Rules and Laws*, <<https://www.epa.ohio.gov/dapc/DAPCRules>>).

70. Application at page 12.

71. The Revised Code provides for the Ohio EPA to be the lead agency in administering the provisions of Ch. 6111 with regards to water quality. See e.g., RC 6111.041. For example, the Ohio EPA, among other things, “ensures compliance with the federal Clean Water Act and works to restore and enhance the integrity of Ohio’s waters.” (Ohio EPA Website, *Division of Surface Water*, <https://www.epa.ohio.gov/dsw/Surface-Water/LiveTabId/113292#:~:text=Ensures%20compliance%20with%20the%20federal,the%20integrity%20of%20Ohio's%20waters.&text=We%20issue%20permits%20to%20regulate,aimed%20at%20improving%20polluted%20streams>). The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. (US EPA, *Summary of Clean Water Act*, <https://www.epa.gov/laws-regulations/summary-clean-water-act>).

under OHC00005 (Part III.G.2.e, pp. 19-27) in accordance with the Ohio Environmental Protection Agency's Guidance on Post-Construction Storm Water Controls for Solar Panel Arrays.

The Applicant would obtain, if required, the following permits:

- The U.S. Army Corps of Engineers Section 404 or nationwide permit for stream crossings and wetland impacts;
- Ohio EPA Water Quality Certification under Section 401 of the Clean Water Act; and
- Ohio Isolated Wetland Permit in accordance with R.C. 6111.03(J) and R.C. 6111.021, if necessary.

With these measures, construction and operation of this facility would comply with requirements of R.C. Chapter 6111, and the rules and laws adopted under that chapter.

Solid Waste⁷²

Debris generated from construction activities would include items such as damaged/unusable parts or materials, crates, nails, boxes, containers, packing/packaging materials, construction scrap, and general refuse. The Applicant stated that all construction-related debris that was not reused or recycled would be disposed of at an authorized solid waste disposal facility.

During operation of the project, the Applicant anticipates only very small amounts of solid waste, which would be reused, recycled, or properly disposed in accordance with applicable solid waste regulations at a local landfill. The nature of the solid waste would be comparable to that during the construction phase.

The Applicant's solid waste disposal plans would comply with solid waste disposal requirements set forth in R.C. Chapter 3734.

Aviation⁷³

The height of the tallest above ground structures would be the overhead-underground riser pole structures at the collector substation at approximately 80 feet tall.⁷⁴ Those heights are under the height requirement from the Federal Aviation Administration (FAA), pursuant to 14 CFR Part 77.9(a), for filing a Form 7460-1.

According to the Applicant, there is one public use airport within five miles of the project area and no heliports within that distance.⁷⁵ Staff confirmed through the FAA that the closest public-use

72. The Revised Code generally provides for Ohio EPA to administer and enforce the provisions of Chapters 3714. and 3734., in particular with regard to solid waste facilities, infectious waste treatment facilities and construction and demolition debris facilities.

73. The FAA is the authority in the U.S. government responsible for regulating all aspects of civil aviation, including issuing determinations on petitions for objects that penetrate the nation's airspace. The FAA conducts aeronautical studies for new structures that will exceed 200 feet in height under the provisions of 49 U.S.C. 44718, and applicable 14 CFR Part 77. Pursuant to R.C. 4561.32, ODOT regulates the height and location of structures and objects within any airport's clear zone surface, horizontal surface, conical surface, primary surface, approach surface, or transitional surface.

74. Harvey Solar I, LLC's Supplemental Response to Second Data Request from Staff of the OPSB, Data Request #18 (September 24, 2021).

75. Application at page 45.

airport is the Chapman Memorial Field (6CM) airport which is approximately 1.6 miles north of the proposed solar facility project collector substation. The Applicant indicated that it has written to and reached out to the owner of the airport to inform them about the project.

In accordance with R.C. 4906.10(A)(5), Staff contacted the ODOT Office of Aviation during the review of this application in order to coordinate review of potential impacts of the facility on local airports.⁷⁶ As of the date of this filing, no such concerns have been identified.

Recommended Findings

Staff recommends that the Board find that the proposed facility complies with the requirements specified in R.C. 4906.10(A)(5), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

76. R.C. 4906.10(A)(5) states: “[i]n determining whether the facility will comply with all rules and standards adopted under section 4561.32 of the Revised Code, the board shall consult with the office of aviation of the division of multi-modal planning and programs of the department of transportation under section 4561.341 of the Revised Code.” R.C. 4561.341 states: “[p]ursuant to any consultation with the power siting board regarding an application for certification under section 4906.03 or 4906.10 of the Revised Code, the office of aviation of the division of multi-modal planning and programs of the department of transportation shall review the application to determine whether the facility constitutes or will constitute an obstruction to air navigation based upon the rules adopted under section 4561.32 of the Revised Code. Upon review of the application, if the office determines that the facility constitutes or will constitute an obstruction to air navigation, it shall provide, in writing, this determination and either the terms, conditions, and modifications that are necessary for the applicant to eliminate the obstruction or a statement that compliance with the obstruction standards may be waived, to the power siting board under section 4906.03 or 4906.10 of the Revised Code, as appropriate.”

Considerations for R.C. 4906.10(A)(6)

PUBLIC INTEREST, CONVENIENCE, AND NECESSITY

Pursuant to R.C. 4906.10(A)(6), the Board must determine that the facility will serve the public interest, convenience, and necessity.

Safety

The Applicant stated that it would use reliable equipment. The current equipment under consideration is compliant with applicable Underwriters Laboratories and Institute of Electrical and Electronics Engineers standards. The Applicant intends to select leading suppliers, particularly a Tier 1 solar panel manufacturer and that all of the primary components of the solar facility will have standard industry warranties. The Applicant has also planned for the expenses of O&M for the solar facility. Specifically, the Applicant identified the O&M would consist of monitoring and supervision, grid regulation, corrective maintenance, preventative maintenance, and site maintenance.⁷⁷

The Applicant intends to use warning signs, fencing, and gates to restrict access to the potential hazards within the solar project area. Additionally, the Applicant intends to design its facility with setbacks to non-participating sensitive receptors, non-participating properties, and public roads. Specifically, the Applicant would implement the following setbacks: 25 feet to the public road right-of-way edge, 25 feet from the property line of any non-participating parcel, 25 feet to any waterbody or wetland, 300 feet to a non-participating home, and 500 feet between a central inverter and a non-participating home. The Applicant has indicated that these are minimum setbacks, and that the actual setbacks would be much greater. The Applicant would also incorporate any manufacturer recommended setbacks into its final site plan.

Staff has consulted with ODOT personnel who indicated that in roadway design a roadway requires a clear zone width beyond the edge line. Ideally, there should be no obstructions within that road's clear zone. Frangible objects that breakaway when or if an errant vehicle crashes into them, and that would not cause significant damage, can be placed in the clear zone. A clear zone is a safety precaution area for vehicles to lessen the severity of crashes. Staff recommends that the Applicant implement a setback of at least 30 feet from the solar facility fence line to the public roads edge line or demonstrate that its solar fence is outside the clear zone of the nearest public road.

The Applicant stated that it intends to restrict public access to the facility by enclosing the project area with an agricultural-style metal fence that is seven-feet tall and would comply with NESC requirements. The Applicant intends that fencing around the substation would be a six-foot tall chain link fence topped with a one foot tall barbed wire strand.⁷⁸ Staff has recommended that, except for the substation fencing, the solar panel perimeter fence type be both wildlife permeable and aesthetically fitting for a rural location. Prior to construction, the Applicant also intends to develop and implement an emergency response plan in further consultation with potentially

77. Application at page 27.

78. Site inspection discussion with Applicant on February 8, 2022.

affected emergency response personnel. The Applicant has provided an example emergency response plan, which Staff has reviewed.⁷⁹

Electromagnetic Fields

Electric transmission lines, when energized, generate electromagnetic fields (EMF). Laboratory studies have failed to establish a strong correlation between exposure to EMF and effects on human health. There have been concerns, however, that EMF may have impacts on human health. The gen-tie transmission line is not within 100 feet of an occupied structure, therefore calculation of the production of EMF during operation of the proposed gen-tie transmission line is not warranted per Ohio Adm.Code 4906-5-07(A)(2).⁸⁰ The Applicant states that the transmission facilities would be designed and installed according to the requirements of the NESC.

Public Interaction and Participation

The Applicant hosted a virtual and an in-person public informational meeting for the project. Attendees were provided the opportunity to review information about the project, ask questions, and provide comments. According to the Applicant, the most common comments received from individuals not formally participating in the project are that solar is not viable or cost-effective for large-scale electric generation, that the project should be developed in another location, and that additional setbacks, especially from homes, and perimeter landscaping should be incorporated into its design.⁸¹

The Applicant has drafted a complaint resolution plan to handle complaints during the construction and operation of the facility.⁸² Staff recommends that a final version of the complaint resolution plan for construction and operation be filed on the docket no later than 30 days prior to the start of construction. The Applicant has committed to notify, by mail, affected property owners and tenants as well as residences located within 1/4 mile of the perimeter of the project prior to the start of construction and prior to the start of commercial operations. Staff recommends that these notices be mailed to all residences, airports, schools, and libraries located within one mile of the project area; parties to this case; county commissioners, township trustees, and emergency responders; and any other person who requests updates regarding the project. The Applicant has committed to provide a quarterly complaint summary report about the nature and resolution of all complaints received in that quarter, and submit the report to OPSB Staff during construction and for the first five years of operation. Staff recommends that these reports be filed on the public docket.

The Administrative Law Judge scheduled a public hearing and an adjudicatory hearing for this proceeding. The local public hearing will be held on March 14, 2022, at 5:00 p.m., at Northridge High School, 6066 Johnstown-Utica Road, Johnstown, Ohio 43031. The adjudicatory hearing is scheduled to commence on April 6, 2022, at 10:00 a.m., and will be conducted via virtual hearing technology. The Licking County Engineer, Hartford Township Board of Trustees, the Village of Hartford, Licking County Soil & Water Conservation District, Save Hartford Township, LLC and a group of area residents have filed to intervene in this proceeding.

79. Harvey Solar I, LLC's Response to the Second Data Request from Staff of the OPSB, Attachment 2 (September 20, 2021).

80. Harvey Solar I, LLC's Supplemental Response to the Second Data Request from Staff of the OPSB, Data Request #17 (September 24, 2021).

81. Application at page 21.

82. Application at Exhibit H.

Public Comments

As of the filing date of this report, the OPSB has received 248 documents in the public comments of the case record. These comments include a letter from the Hartford Township Board of Trustees expressing its interest in ensuring that the proposed project is held to commitments made during the OPSB review process. Specifically, the trustees provided comments regarding the maintenance of roads and bridges, impacts to agricultural drain tile and ditches, and the overall height of solar panels.

Commenters expressing concerns with or opposition to the proposed project shared concerns about issues including disruptions to the local economy, impacts to roadways, agricultural land use, wildlife, surface water, drinking water, drainage, property values, public health, aesthetics and viewshed. Those supportive of the project have emphasized benefits to the local economy, clean energy and the environment, tax revenue, and job creation. All public comments are available for Board members and the public to view online in the case record at <http://dis.puc.state.oh.us>.

Recommended Findings

Staff recommends that the Board find that the proposed facility would serve the public interest, convenience, and necessity, and therefore complies with the requirements specified in R.C. 4906.10(A)(6), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

Considerations for R.C. 4906.10(A)(7)

AGRICULTURAL DISTRICTS AND AGRICULTURAL LAND

Pursuant to R.C. 4906.10(A)(7), the Board must determine the facility's impact on the agricultural viability of any land in an existing agricultural district within the project area of the proposed facility. The agricultural district program was established under R.C. Chapter 929. Agricultural district land is exempt from sewer, water, or electrical service tax assessments.

Agricultural land can be classified as an agricultural district through an application and approval process that is administered through local county auditors' offices. Eligible land must be devoted exclusively to agricultural production or be qualified for compensation under a land conservation program for the preceding three calendar years. Furthermore, eligible land must be at least 10 acres in size or produce a minimum average gross annual income of \$2,500.

Approximately 2,610 acres of agricultural land will be disturbed by the proposed project. 316 of those acres are currently enrolled in the Agricultural District program. No Agricultural structures will be removed because of the project. The Applicant States the repurposed land could be restored for agricultural use when the project is decommissioned.

The construction and operation of the proposed facility will disturb the existing soil and could lead to broken drainage tiles. A drain tile system consists of laterals, which are branches off a main, and main lines. Main lines can allow water to flow into or out of one parcel to another. The locating and avoiding of damaging drain tile mains can help prevent the pooling of water on project parcels and adjacent parcels.

The Applicant utilized aerial imagery, the records of landowners and Licking County Soil and Water Conservation District, and the Licking County Engineer to identify the locations existing drain tiles within the project area. The Applicant has supplied a Drainage Tile Mitigation Plan with its OPSB application (Exhibit Y). This report discusses avoidance, repair, and mitigation details of all known drain tile locations as well as a detailed map showing the location of all identified drain tiles. The Applicant has committed to repair any drain tile found to be damaged by the project during the operational life of the project.

The Applicant has committed to take steps to address potential impacts to farmland, including repairing drainage tiles damaged during construction and restoring temporarily impacted land to its original use. Excavated topsoil will be used to establish vegetative cover for the project. Disturbed areas upon decommissioning will be restored for agricultural use.

Recommended Findings

Staff recommends that the Board find that the impact of the proposed facility on the viability of existing agricultural land in an agricultural district has been determined, and therefore complies with the requirements specified in R.C. 4906.10(A)(7), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

Considerations for R.C. 4906.10(A)(8)

WATER CONSERVATION PRACTICE

Pursuant to R.C. 4906.10(A)(8), the proposed facility must incorporate maximum feasible water conservation practices, considering available technology and the nature and economics of the various alternatives.

Construction of the proposed facility would not require the use of significant amounts of water. Water may be utilized for dust suppression and control on open soil surfaces such as construction access roads as needed.

Operation of the proposed facility would not require the use of significant amounts of water. No sanitary water discharge would occur. The Applicant has stated that no appreciable amounts of water would be utilized in project operations. The Applicant responded to data requests regarding the cleaning of panels, stating it does not anticipate annual cleaning of panels and that area rainfall should sufficiently clean the panels.⁸³ In the rare event that cleaning that is needed, the Applicant estimates that a single instance of 5,000,000 gallons of water would be used. The Applicant intends to obtain that water from local subsurface resources, truck in water, or both.

Recommended Findings

The Staff recommends that the Board find that the proposed facility would incorporate maximum feasible water conservation practices, and therefore complies with the requirements specified in R.C. 4906.10(A)(8), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this *Staff Report of Investigation* entitled Recommended Conditions of Certificate.

⁸³ Harvey Solar I, LLC's Fifth Supplemental Response to Second Data Request from Staff of the OPSB, Data Request #26 (February 7, 2022).

V. RECOMMENDED CONDITIONS OF CERTIFICATE

Following a review of the application filed by the Applicant and the record compiled to date in this proceeding, Staff recommends that a certificate be issued for the proposed facility. Staff recommends that a number of conditions become part of such certificate. These recommended conditions may be modified as a result of public or other input received subsequent to the issuance of this report. At this time, Staff recommends the following conditions:

- (1) The Applicant shall install the facility, utilize equipment and construction practices, and implement mitigation measures as described in the application and as modified and/or clarified in supplemental filings, replies to data requests, and recommendations in this *Staff Report of Investigation*.
- (2) The Applicant shall conduct a preconstruction conference prior to the commencement of any construction activities. Staff, the Applicant, and representatives of the primary contractor and all subcontractors for the project shall attend the preconstruction conference. The conference shall include a presentation of the measures to be taken by the Applicant and contractors to ensure compliance with all conditions of the certificate, and discussion of the procedures for on-site investigations by Staff during construction. Prior to the conference, the Applicant shall provide a proposed conference agenda for Staff review and shall file a copy of the agenda on the case docket. The Applicant may conduct separate preconstruction conferences for each stage of construction.
- (3) Within 60 days after the commencement of commercial operation, the Applicant shall submit to Staff a copy of the as-built specifications for the entire facility. If the Applicant demonstrates that good cause prevents it from submitting a copy of the as-built specifications for the entire facility within 60 days after commencement of commercial operation, it may request an extension of time for the filing of such as-built specifications. The Applicant shall use reasonable efforts to provide as-built drawings in both hard copy and as geographically referenced electronic data.
- (4) Separate preconstruction conferences may be held for the different phases of civil construction and equipment installation. At least 30 days prior to each preconstruction conference, the Applicant shall submit to Staff, for review and acceptance, one set of detailed engineering drawings of the final project design for that phase of construction and mapping in the form of PDF, which the Applicant shall also file on the docket of this case, and geographically referenced data (such as shapefiles or KMZ files) based on final engineering drawings to confirm that the final design is in conformance with the certificate. Mapping shall include the limits of disturbance, permanent and temporary infrastructure locations, areas of vegetation removal and vegetative restoration as applicable, and specifically denote any adjustments made from the siting detailed in the application. The detailed engineering drawings of the final project design for each phase of construction shall account for geological features and include the identity of the registered professional engineer(s), structural engineer(s), or engineering firm(s), licensed to practice engineering in the state of Ohio who reviewed and approved the designs. All applicable geotechnical study results shall be included in the submission of the final project design to Staff.

- (5) At least 30 days prior to the preconstruction conference, the Applicant shall provide Staff, for review and acceptance, the final geotechnical engineering report. This shall include a summary statement addressing the geologic and soil suitability, and recommendations for the final foundation systems and access road design and construction.
- (6) At least 30 days prior to the preconstruction conference, the Applicant shall provide Staff, for review and acceptance, the final Unanticipated Discovery Plan.
- (7) At least 30 days prior to the preconstruction conference, the Applicant shall provide Staff, for review and acceptance, the results of the pile-load testing, and the final engineering recommendations based on those results. This testing shall be conducted as outlined in the recommendations of the Geology and Hydrogeology Report included with the application.
- (8) The Applicant shall take all reasonable measures necessary to determine the exact location of API # 34089256670000. The Applicant shall ensure this well location is clearly marked prior to the initiation of construction activities so as to ensure this area is avoided by construction equipment.
- (9) The Applicant shall observe a minimum solar equipment setback of 25 feet from plugged and abandoned oil and gas wells within the project footprint.
- (10) If any changes are made to the facility layout after the submission of final engineering drawings, the Applicant shall provide all such changes to Staff in hard copy and as geographically-referenced electronic data. All changes are subject to Staff review for compliance with all conditions of the certificate, prior to construction in those areas.
- (11) The certificate shall become invalid if the Applicant has not commenced a continuous course of construction of the proposed facility within five years of the date of journalization of the certificate unless the Board grants a waiver or extension of time.
- (12) As the information becomes known, the Applicant shall file on the public docket the date on which construction will begin, the date on which construction was completed, and the date on which the facility begins commercial operation.
- (13) The Applicant shall obtain transportation permits prior to the commencement of construction activities that require them. The Applicant shall coordinate with the appropriate authority regarding any temporary road closures, road use agreements, driveway permits, lane closures, road access restrictions, and traffic control necessary for construction and operation of the proposed facility. Applicant shall detail this coordination as part of a final transportation management plan submitted to Staff prior to the preconstruction conference for review and confirmation by Staff that it complies with this condition.
- (14) Prior to the commencement of construction activities in areas that require permits or authorizations by federal or state laws and regulations, the Applicant shall obtain and comply with such permits or authorizations. The Applicant shall provide copies of permits and authorizations, including all supporting documentation, to Staff within seven days of issuance or receipt by the Applicant and shall file such permits or authorizations on the

public docket. The Applicant shall provide a schedule of construction activities and acquisition of corresponding permits for each activity at the preconstruction conference(s).

- (15) The certificate authority provided in this case shall not exempt the facility from any other applicable and lawful local, state, or federal rules or regulations nor be used to affect the exercise of discretion of any other local, state, or federal permitting or licensing authority with regard to areas subject to their supervision or control.
- (16) The Applicant shall not commence any construction of the facility until it has as executed an Interconnection Service Agreement and Interconnection Construction Service Agreement with PJM Interconnection, LLC, which includes construction, operation, and maintenance of system upgrades necessary to integrate the proposed generating facility into the regional transmission system reliably and safely. The Applicant shall docket in the case record a letter stating that the Agreement has been signed or a copy of the executed Interconnection Service Agreement and Interconnection Construction Service Agreement.
- (17) The facility shall be operated in such a way as to assure that no more than 350 megawatts would at any time be injected into the Bulk Power System.
- (18) Prior to commencement of construction, the Applicant shall prepare a landscape and lighting plan in consultation with a landscape architect licensed by the Ohio Landscape Architects Board that addresses the aesthetic and lighting impacts of the facility with an emphasis on any locations where an adjacent non-participating parcel contains a residence with a direct line of sight to the project area. The plan shall include measures such as fencing, vegetative screening or good neighbor agreements. Unless alternative mitigation is agreed upon with the owner of any such adjacent, non-participating parcel containing a residence with a direct line of sight to the fence of the facility, the plan shall provide for the planting of vegetative screening designed by the landscape architect to enhance the view from the residence and be in harmony with the existing vegetation and viewshed in the area. The plan shall incorporate planting design features or measures to address aesthetic impacts to the traveling public, nearby communities, and recreationalists. The Applicant shall maintain vegetative screening for the life of the facility and the Applicant shall substitute or replace any failed plantings so that, after five years, at least 90 percent of the vegetation has survived. The Applicant shall maintain all fencing along the perimeter of the project in good repair for the term of the project and shall promptly repair any significant damage as needed. Lights shall be motion-activated and designed to narrowly focus light inward toward the facility, such as being downward-facing and/or fitted with side shields. The Applicant shall provide the plan to Staff for review and confirmation that it complies with this condition.
- (19) Prior to commencement of construction, the Applicant shall submit to Staff for approval a solar panel perimeter fence type that is both small-wildlife permeable and aesthetically fitting for a rural location. This condition shall not apply to substation fencing.
- (20) The Applicant shall contact Staff, the ODNR, and the USFWS within 24 hours if state or federal listed species are encountered during construction activities. Construction activities that could adversely impact the identified plants or animals shall be immediately halted

until an appropriate course of action has been agreed upon by the Applicant, Staff and the appropriate agencies.

- (21) If the Applicant encounters any new listed plant or animal species or suitable habitat of these species prior to construction, the Applicant shall include the location in the final engineering drawings and associated mapping. The Applicant shall avoid impacts to these species and explain how impacts would be avoided during construction.
- (22) The Applicant shall construct the facility in a manner that incorporates post construction stormwater management under OHC00005 (Part III.G.2.e, pp. 19-27) in accordance with the Ohio Environmental Protection Agency's Guidance on Post-Construction Storm Water Controls for Solar Panel Arrays.
- (23) The Applicant shall have a Staff-approved environmental specialist on site during construction activities that may affect sensitive areas. Sensitive areas may include, but are not limited to, wetlands and streams, and locations of threatened or endangered species. The environmental specialist shall be familiar with water quality protection issues and potential threatened or endangered species of plants and animals that may be encountered during project construction. The environmental specialist shall have authority to stop construction to assure that unforeseen environmental impacts do not progress and recommend procedures to resolve the impact. A map shall be provided to Staff showing sensitive areas which would be impacted during construction with information on when the environmental specialist would be present.
- (24) The Applicant shall adhere to seasonal cutting dates of October 1 through March 31 for the removal of trees three inches or greater in diameter to avoid impacts to listed bat species, unless coordination with the Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS) allows a different course of action. If coordination with these agencies allows clearing between April 1 and September 30, the Applicant shall docket proof of completed coordination on the case docket prior to clearing trees.
- (25) The Applicant shall conduct no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat, unless coordination efforts with the ODNR allows a different course of action. If coordination with ODNR allows in-water work in perennial streams between April 15 and June 30, the Applicant shall docket proof of completed coordination with ODNR on the case docket prior to conducting such work.
- (26) Prior to commencement of any construction, the Applicant shall prepare an updated vegetation management plan in consultation with ODNR. The goals of the plan shall include planting a minimum of 70 percent of the project area in beneficial vegetation, utilizing plant species listed in Attachment A of ODNR Recommended Requirements for Proposed Solar Energy Facilities in Ohio, and shall follow the Ohio Solar Site Pollinator Habitat Planning and Assessment Form with a minimum score of 80 points. The plan shall include a narrative on how the project proposes to establish and maintain beneficial vegetation and pollinator habitat in accordance with the guidelines provided above. The plan shall include mapping of the areas where pollinator habitat would be established and

maintained. The plan shall include that routine mowing would be limited to fall/spring seasons, as needed, to allow for natural reseeding of plantings and reduce impacts to ground-nesting birds.

- (27) The Applicant take steps to prevent establishment and/or further propagation of noxious weeds identified in Ohio Adm.Code Chapter 901:5-37 during implementation of any pollinator-friendly plantings. This would be achieved through appropriate seed selection, and annual vegetative surveys. If noxious weeds are found to be present, the Applicant shall remove and treat them with herbicide as necessary.
- (28) Any construction within the FEMA delineated 100-year floodplain shall be coordinated with the local floodplain program administrator. All permitting or other documents authorizing construction in the floodplain shall be filed on the case docket.
- (29) General construction activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m. Impact pile driving shall be limited to the hours between 9:00 a.m. and 6:00 p.m. Impact pile driving may occur between 7:00 a.m. and 9:00 a.m., and after 6:00 p.m. or until dusk when sunset occurs after 6:00 p.m., if the noise impact at non-participating receptors is not greater than daytime ambient Leq plus 10 dBA. If impact pile driving is required between 7:00 a.m. and 9:00 a.m., and after 6:00 p.m. or until dusk when sunset occurs after 6:00 p.m., the Applicant shall install a noise monitor in a representative location to catalog that this threshold is not being exceeded. Hoe ram operations, if required, shall be limited to the hours between 10:00 a.m. and 4:00 p.m., Monday through Friday. Construction activities that do not involve noise increases above ambient levels at sensitive receptors are permitted outside of daylight hours when necessary. The Applicant shall notify property owners or affected tenants within the meaning of Ohio Adm.Code 4906-3-03(B)(2) of upcoming construction activities including potential for nighttime construction.
- (30) At least 30 days prior to the preconstruction conference, the Applicant shall submit an updated decommissioning plan and total decommissioning cost estimate without regard to salvage value on the public docket that includes: (a) a provision that the decommissioning financial assurance mechanism include a performance bond where the company is the principal, the insurance company is the surety, and the Ohio Power Siting Board is the obligee; (b) a timeline for removal of the equipment; (c) a provision to monitor the site for at least one additional year to ensure successful revegetation and rehabilitation; (d) a provision where the performance bond is posted prior to the commencement of construction; (e) a provision that the performance bond is for the total decommissioning cost and excludes salvage value; (f) a provision to coordinate repair of public roads damaged or modified during the decommissioning and reclamation process; (g) a provision that the decommissioning plan be prepared by a professional engineer registered with the state board of registration for professional engineers and surveyors; and (h) a provision stating that the bond shall be recalculated every five years by an engineer retained by the Applicant.
- (31) At the time of solar panel end of life disposal, any retired panel material that is not recycled and that is marked for disposal, shall be sent to an engineered landfill with various barriers

and methods designed to prevent leaching of materials into soils and groundwater, or another appropriate disposal location at the time of decommissioning approved by Staff.

- (32) At least 30 days prior to the preconstruction conference, the Applicant shall demonstrate that it has implemented a setback of at least 30 feet from the solar facility fence line to the public roads' edge line. Alternatively, the Applicant may demonstrate that its solar fence is outside the clear zone width of the nearest public road; this demonstration should include the roads' design speed, design average daily traffic, applicable slopes, and accident history.
- (33) The Applicant, with landowner consent, shall decommission water well (ID 98002) and any associated equipment prior to initiation of construction. These activities shall conform with the requirements of the Ohio Adm.Code 3701-28-17. The well's former location will be clearly marked to ensure work is avoided in that location.
- (34) Should any previously unidentified water wells be discovered prior to or during construction, the well(s) shall be either be decommissioned per the condition above, or a minimum of fifty (50) foot setback shall be observed.
- (35) If the inverters or substation transformer chosen for the project have a higher sound power output than the models used in the noise model, the Applicant shall show that sound levels will not exceed the daytime ambient level plus five dBA at any non-participating sensitive receptor and will be submitted at least 30 days prior to construction. If noise data is not available from the inverter or transformer manufacturer, an operational noise test may be performed to comply with this condition. The test must be performed on a sunny day between 10 a.m. and 2 p.m. in the months of May-August, at a distance equal to the minimum distance from an inverter to a non-participating residence. If the test shows the operational noise level is greater than project area ambient Leq level plus five dBA additional noise mitigation will be required. This condition is complied with if the test shows the operational noise level is equal or less than project area ambient Leq level plus five dBA. The Applicant shall file a report on the public docket that shows either 1) for the chosen inverter and substation transformer that sound levels will not exceed the daytime ambient level plus five dBA at any non-participating sensitive receptor or 2) results of the operational noise test showing that sound levels will not exceed the daytime ambient level plus five dBA at any non-participating sensitive receptor.
- (36) The Applicant shall avoid, where possible, or minimize to the extent practicable, any damage to functioning field tile drainage systems and soils resulting from the construction, operation, and/or maintenance of the facility in agricultural areas. Damaged field tile systems shall be promptly repaired or rerouted to at least original conditions or modern equivalent at the Applicant's expense to ensure proper drainage. However, if the affected landowner agrees to not having the damaged field tile system repaired, they may do so only if the field tile systems of adjacent landowners remain unaffected by the nonrepair of the landowner's field tile system.
- (37) Prior to the commencement of construction, the Applicant shall finalize a memorandum of understanding (MOU) with the Ohio Historic Preservation Office (OHPO) to mitigate for

and/or avoid cultural resources with potential adverse effects due to the project. The Applicant shall submit the MOU to Staff and file the MOU on the docket of this case.

- (38) At least 30 days prior to the start of construction, the Applicant shall file a copy of the final complaint resolution plan for construction and operation of the project on the public docket. At least seven days prior to the start of construction and at least seven days prior to the start of facility operations, the Applicant shall notify via mail affected property owners and tenants; all residents, airports, schools, and libraries located within one mile of the project area; parties to this case; county commissioners, township trustees, and emergency responders; and any other person who requests updates regarding the project. These notices shall provide information about the project, including contact information and a copy of the complaint resolution program. The start of construction notice shall include written confirmation that the Applicant has complied with all preconstruction-related conditions of the certificate, as well as a timeline for construction and restoration activities. The start of facility operations notice shall include written confirmation that the Applicant has complied with all construction-related conditions of the certificate, as well as a timeline for the start of operations. The Applicant shall file a copy of these notices on the public docket. During the construction and operation of the facility, the Applicant shall submit to Staff a complaint summary report by the fifteenth day of April, July, October, and January of each year during construction and through the first five years of operation. The report shall include a list of all complaints received through the Applicant's complaint resolution program, a description of the actions taken toward the resolution of each complaint, and a status update if the complaint has yet to be resolved. The Applicant shall file a copy of these complaint summaries on the public docket.



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Case No(s). 21-0164-EL-BGN

Summary: Staff Report of Investigation electronically filed by Mr. Matt Butler on
behalf of Staff of OPSB