

ENVIRONMENTAL ASSESSMENT

of

Darien Solar Energy Center, LLC

Application for a Certificate of Public Convenience and Necessity

Docket 9806-CE-100

Application for a Certificate of Public Convenience and Necessity of Darien Solar Energy Center, LLC to Construct a Solar Electric Generation Facility in the Town of Bradford, Rock County, and the Town of Darien, Walworth County, Wisconsin

February 2021

Prepared by
Aaron Greene
Environmental Analysis and Review Specialist

Table of Contents

Introduction.....	4
Analysis for Wisconsin Environmental Policy Act Compliance	4
Environmental Assessment Scope.....	5
CPCN Hearings and Intervenors.....	5
Persons Contacted, Comments, and Permit Compliance	5
<i>Persons Contacted</i>	6
<i>Public Comments</i>	6
<i>Permit Compliance</i>	7
Project Overview	9
Scope and methodology of impact analysis.....	10
Applicant's Stated Purpose and Need.....	11
Location	11
Brownfields	11
Minor Siting Flexibility	12
Project Components and Design.....	13
<i>Infrastructure Components</i>	13
<i>Proposed project design and layout</i>	14
Environmental Effects.....	15
Site Geology	15
Topography.....	15
Land Cover.....	16
Air Quality and Dust.....	25
Aesthetic and Visual Impacts	25
Property Value	26
Archaeological and Historic Resources.....	27
Conservation Easements	27
Invasive Species	27
Vegetation Management.....	28
Agricultural Land.....	28
Airports.....	29
Communications Towers	30
Electric and Magnetic Fields (EMF).....	31
Noise	32
Solar Panel Glint or Glare.....	33

Coordination with local government.....	36
Heat Island Effect.....	37
Construction Sequence and Workforce.....	37
<i>Construction Traffic and Sequence</i>	38
<i>Decommissioning Plan</i>	38
Erosion Control and Storm Water Management Plans.....	39
Materials Management Plan.....	39
Waterway Permitting Activities	42
Wetland Permitting Activities.....	43
Sensitive Species	45
Evaluation of Reasonable Alternatives.....	46
Wisconsin Environmental Policy Act Determination.....	47
Effects on Geographically Important or Scarce Resources	47
Conflicts with Federal, State, or Local Plans or Policies	48
Significant Controversy Associated with the Proposed Project.....	48
Irreversible Environmental Effects	48
New Environmental Effects.....	48
Unavoidable Environmental Effects.....	48
Precedent-Setting Nature of the Proposed Project.....	49
Cumulative Effects of the Proposed Project.....	49
Foreclosure of Future Options	49
Direct and Indirect Environmental Effects	49
Recommendation	50

Introduction

On July 27, 2020 the Public Service Commission of Wisconsin (Commission) received an application from Darien Solar Energy Center, LLC (“Darien Solar” or “applicant”), a wholly owned subsidiary of Invenergy, LLC, to receive a Certificate of Public Convenience and Necessity (CPCN) for the construction of a new 250 Megawatt (MW) solar electric generating facility ([PSC REF#: 394321](#)). The proposed utility scale solar installation (“Darien Solar Project” or “the project”) would be located in the town of Bradford in Rock County as well as the town of Darien in Walworth County.

The applicant’s requests for CPCN was filed with the Commission pursuant to [Wis. Stat § 196.491](#) and [Wis. Admin. Code § PSC 111](#). The applications were determined to be complete on August 25, 2020 ([PSC REF#: 395871](#)). The applicant sent copies of the complete applications to the clerk of each municipality in which the project might be located and to libraries within the greater project region on August 27, 2020 ([PSC REF#: 396006](#)).

Analysis for Wisconsin Environmental Policy Act Compliance

The solar electric generation facility is a Type III action under [Wis. Admin. Code § PSC 4.10\(3\)](#). Type III actions normally do not require preparation of an EA or an environmental impact statement (EIS) under Wis. Admin. Code § PSC 4.10(3). However, an evaluation of a specific Type III proposal may indicate that the preparation of an EA is warranted for that proposal.

Pursuant to [Wisconsin Admin. Code § PSC 4.20\(1\)](#) the Commission will prepare an EA for this project that will evaluate the location of the project and its potential environmental, community, and private property impacts. In addition to describing potential impacts to natural resources present within the vicinity of a proposed project, an EA typically discusses mitigation measures that may be that could be used minimize or avoid impacts caused by a proposed project. The EA will include a recommendation whether the proposed project is a major action significantly affecting the quality of the human environment, as defined in [Wis. Stat § 1.11\(2\)\(c\)](#),

Upon completion of the EA, a preliminary determination will be made that will determine whether the preparation of an EIS is necessary. At the time of the preliminary determination, the Commission shall make copies of the EA available to those persons that request it. Comments on this preliminary determination will be accepted and considered before a final determination is made.

Commission staff solicited public comments about the proposed project during the EA scoping period from October 2, 2020 through November 30, 2020. All comments or concerns regarding the environmental assessment or review of the project have been taken into consideration during the Commission’s analysis of the project. The comments received are discussed in the following sections and throughout the applicable sections of this EA.

On October 2, 2020, the Commission issued a notice indicating the intent to commence preparation of the EA ([PSC REF#: 397658](#)). The notice was distributed to members of the public who had demonstrated an interest in the proposed project, as well as area legislators and municipal officials in the vicinity of the project area. The announcement was also distributed to (as applicable)

area legislators, the county, town, or municipal clerk for the project area, the county, town, village, or city chief executive officer in the project area, local news media, and the regional planning commission. Clerks were requested to post the announcement publicly. The announcement described the proposed project, including a map, a Commission contact person, and indicated how comments may be submitted. The announcement specified a public comment period lasting at least 10 days, which began on the date that the announcement was distributed.

Environmental Assessment Scope

The Commission's Division of Digital Access, Consumer, and Environmental Affairs prepared this EA in cooperation with the Wisconsin Department of Natural Resources (WDNR) Office of Energy to determine if an EIS is necessary under Wis. Stat. § 1.11. A preliminary determination was made on February 3, 2021, concluding that preparation of an EIS was not necessary. This preliminary determination has a comment period ending February 19, 2021.

This EA will be submitted as an exhibit in the technical hearing on the proposed project. The scope of the EA is to review and describe the expected or potential impacts the construction and operation of the proposed project would have on the environment. This includes impacts to the local residents and community as well as natural resources. The EA also addresses potential ways impacts could be avoided or mitigated. The analysis in the EA is provided to the public, intervenors, and the Commissioners to inform comments and decisions regarding the proposed project.

CPCN Hearings and Intervenors

The Commission issued a Notice of Proceeding for the docket on October 8, 2020 which included information regarding the public and technical hearings, as well as instructions on how to request intervenor status or become a party to the proceedings of this docket. Public and technical hearings are planned for April 22, 2021. Two sessions are scheduled for the day including a public/party session at 1:00 pm, and a public hearing beginning at 6:00 pm. More information regarding the remaining schedule for Commission review process can be found in the February 9, 2021 Scheduling Order ([PSC REF#: 404462](#)). Due to the COVID-19 pandemic, recent hearings have been held over an internet web meeting platform, with the ability for the public to call in via telephone.

The following entities submitted a request to intervene in the docket were granted party status on November 5, 2020 ([PSC REF#: 399527](#)).

- RENEW Wisconsin (Application for full party status [PSC REF#: 398555](#)).
- American Transmission Company (ATC) (Application for full party status [PSC REF#: 398371](#)).

Persons Contacted, Comments, and Permit Compliance

[Wisconsin Admin. Code § PSC 4.20\(2\)\(f\)](#) states that the EA shall include a list of other persons contacted and a summary of comments or other information received from them, including information regarding whether the proposed project complies with the regulations of other governmental units.

Persons Contacted

No other persons besides staff at WDNR and the Commission were contacted or involved in the preparation of this EA.

Public Comments

As previously mentioned, Commission staff solicited public comments about the proposed project during the EA scoping period from October 2, 2020 through November 30, 2020. The nature and substance of the comments received by the Commission during the EA Scoping Period are summarized in the following section.

Approximately 52 comments were received by the commission. Approximately half of the commenters voiced their opposition to the proposed project, while the other half expressed their support. Those opposed to the project generally cited the potential for impacts to property value, aesthetic character of the landscape, and the decrease of land available to agricultural uses. Several commenters also voiced concerns regarding the handling and disposal of hazardous materials that may be contained within the PV panes. Commenters in support of the project generally focused on issues related to carbon emissions and climate change. Many voiced their support for the project in terms of its potential to reduce the overall dependence on fossil fuel sources. Several commenters specifically voiced support for establishing native prairie floral communities beneath the solar panels.

Overall the most common issues or topics (regardless of support or opposition to the proposed project) mentioned by commenters included;

- Glint and glare
- Hazardous material handling and management
- Interference with radio and other communication signals
- Property values
- Land use restrictions on land within the proposed project, especially agricultural lands
- Reduction of dependence on fossil fuels and carbon emissions

Town of Darien Request Concerning Primary Electrical Facilities

The Town of Darien has requested the project consider a different location for the permanent O&M building, and temporary construction laydown yard, to be more consistent with the Town's Comprehensive Plan and to minimize traffic and impacts to local roads ([PSC REF#: 400509](#)). The Town also has requested relocation of the project substation, switchyard, and potential BESS (collectively, the "Primary Electrical Facilities"). For reasons discussed more fully below, Darien Solar is embracing the suggestion of alternate locations for the O&M building and construction laydown yard, but has indicated that it is unable, at this time, to consider the re-location of the Primary Electrical Facilities.

Darien Solar has provided the following list of reasons why they have feel the Town's request to move the Primary Electric Facilities Darien Solar would be unfeasible.

- Relocating the switchyard would require modifying the existing, executed Generator Interconnection Agreement, which is unduly onerous to the parties of that agreement at

this stage and requires intervention from other parties including MISO that could contribute to unacceptable delays, which could harm the project.

- Darien Solar is now presenting an Application with 52% alternate array locations. If final engineering and Commission Approval guide the project to utilizing most of the land in Rock County, the presently-proposed location of the Primary Electrical Facilities would be centrally located. Forcing a relocation of these facilities at the Town's proposed eastern location would result in an overall increase in collection line lengths, increasing impacts to soil due to excavation and trenching. This would have the effect of long term increases in electrical losses, reducing overall project generation and the resultant environmental benefits from clean energy generation in addition to increasing construction costs. Also, the Town's proposed relocation of the collection line route would not as readily accommodate the necessary number of circuits carrying electricity from west to east. In a worst case scenario, this has the potential to constrain the project's output below 250 MW, further reducing the environmental benefits from clean energy generation. To mitigate this result, the project would consider using more of the land to the east which, at this stage, appears to come with additional grading requirements relative to the flatter land to the west. This grading factor would have the effect of increasing project impacts.

Alternative route for the primary collection pathway (Scott and Smiley Routes)

On December 23, 2020 the Commission received from the applicant supplemental information including updates regarding project design. In this document Darien Solar stated that a lack of progress towards an agreement with the landowner hosting the primary collection pathway east of Highway 14 as depicted in the Application (the "Scott Route") has caused the project to consider an alternative route. Darien Solar has executed land agreements with the landowner hosting this route (the "Smiley Route"). Darien Solar is now requesting that the Smiley Route be considered as the "primary" route for the purposes of the application and the originally-proposed route (the Scott Route) be considered alternate as those negotiations continue. Further, Darien Solar is requesting that they are given the flexibility to determine the most efficient route pending final engineering. The locations of the two collection pathways under consideration are depicted below in **Figure 2**.

Permit Compliance

The applicant must obtain necessary permits and approvals before commencing construction activities. Regulatory permits and approvals required for construction of the proposed solar generation facility permits are listed in the table below.

Table 1. Regulatory Permits and Approvals

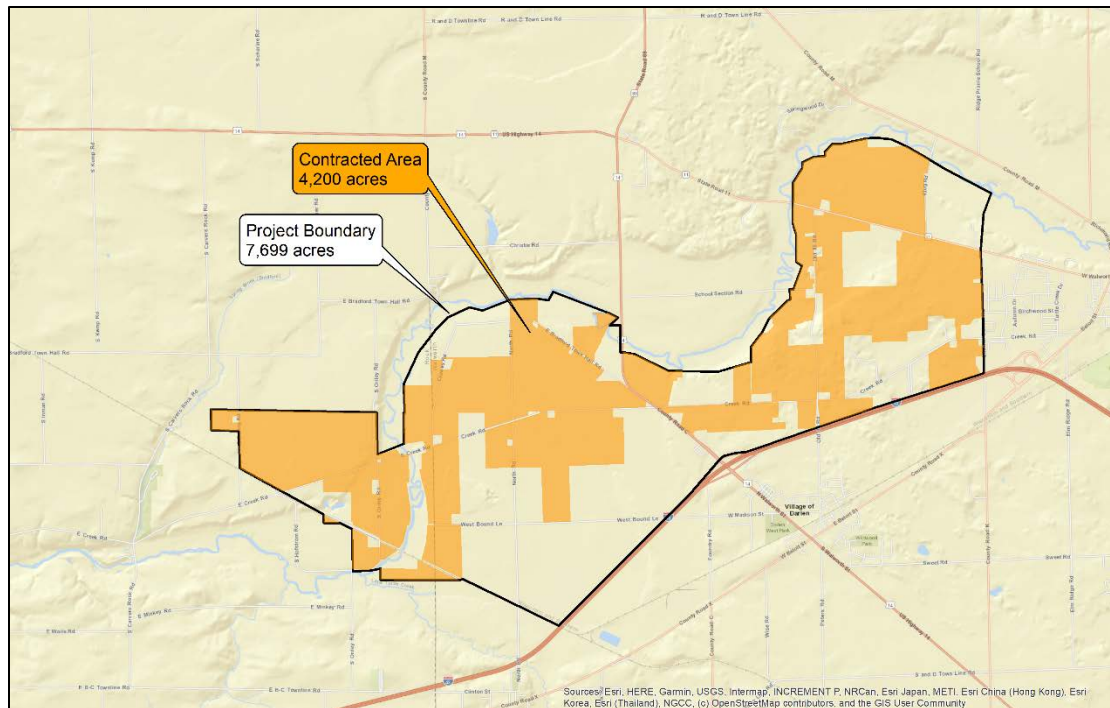
Permit	Regulatory Agency and Contact	Trigger/Notes	Filing Date	Status
<i>Certificate of Public Convenience and Necessity (CPCN)</i>	PSCW Gas and Energy Division of Energy Regulation	New electric generating facility over 100MW	7/24/20	Application Filed

Permit	Regulatory Agency and Contact	Trigger/Notes	Filing Date	Status
<i>Engineering Plan</i>	WDNR Office of Energy Geri Rademacher – Wetland Regulatory/Zoning Specialist 262-574- 2153 Geri.Rademacher@wi sconsin.gov	CPCN	3/30/20	Response Received 4/6/20.
<i>Wisconsin Pollutant Discharge Elimination System (WPDES) Construction Site Permit</i>	WDNR Water Quality Bureau Adrian Stocks Natural Resources Manager 608-266-2666 Adrian.Stocks@wiscon sin.gov	Required due to Project size.	Anticipated Q3 2021	Draft ECSWMP in Appendix L
<i>Private Well Notification Number</i>	WDNR Bureau of Drinking and Groundwater Deborah Lyons-Roehl Operations Program Associate 608- 267-9350 Deborah.LyonsRoehl@ wisconsin.gov	Required if a new well is constructed for the O&M building.	Only required if it is deemed necessary to drill a new well for the O&M facilities.	To be completed if deemed necessary for the O&M building.
<i>Utility Permit</i>	WisDOT –SE Region (Walworth County) Bureau of Highway Maintenance Chue Hang Permit Engineer 262-548-567 chue.hang@dot.wi.gov dotdtsdseutilitypermits @dot.wi.gov	Utility crossing permits to construct or maintain a utility facility in Walworth County (SE Region)	Anticipated Q1 2022	To be completed
<i>Utility Permit</i>	WisDOT –SW Region (Rock County) Bureau of Highway Maintenance Mark Goggin Permit Coordinator 608-789- 5955 mark.goggin@dot.wi.gov dotdtsdswutilitypermits @dot.wi.gov	Utility crossing permits to construct or maintain a utility facility in Rock County (SW Region)	Anticipated Q1 2022	To be completed
<i>Driveway Permit</i>	WisDOT-SE Region (Walworth County) Kevin Koehnke Bureau of Highway Maintenance 262-521-5344 dotdtsdsepermits@dot.wi.gov	For new driveway entrances on state roads in Walworth County (SE Region)	Anticipated Q1 2022	To be completed
<i>Driveway Permit</i>	WisDOT-SW Region (Rock County) Scot Hinkle Bureau of Highway Maintenance 608-246-5334 scot.hinkle@dot.wi.gov	For new driveway entrances on state roads in Rock County (SW Region)	Anticipated Q1 2022	To be completed
<i>Oversize-Overweight Permit</i>	WisDOT Bureau of Highway Maintenance P.O. Box 7980 Madison, WI 53707 7980 608-266-7320 Oversize- permits.dmv@dot.wi.gov	For transportation of oversize-overweight loads, such as the substation.	Anticipated Q2 2022	To be completed

Project Overview

Darien Solar is proposing to develop, design, permit, construct and operate a 250 MW photovoltaic (PV) solar electric generation facility in the towns of Bradford and Darien, in Rock and Walworth Counties respectively. The proposed Project Boundary (representing the final area analyzed by the applicant prior to submitting the application for this project) covers approximately 7,699 acres. Within this boundary, 4,200 acres are under contract by Darien Solar to build the proposed solar project (referred to in this document as the land under contract, or the “Contracted Area”). If the project is approved, the solar farm and its associated infrastructure would be constructed within the footprint of the Contracted Area (**Figure 1**). In terms of project ownership, Darien Solar is currently the anticipated entity to own and operate the plant.

Figure 1. Contracted Area within the Project Boundary

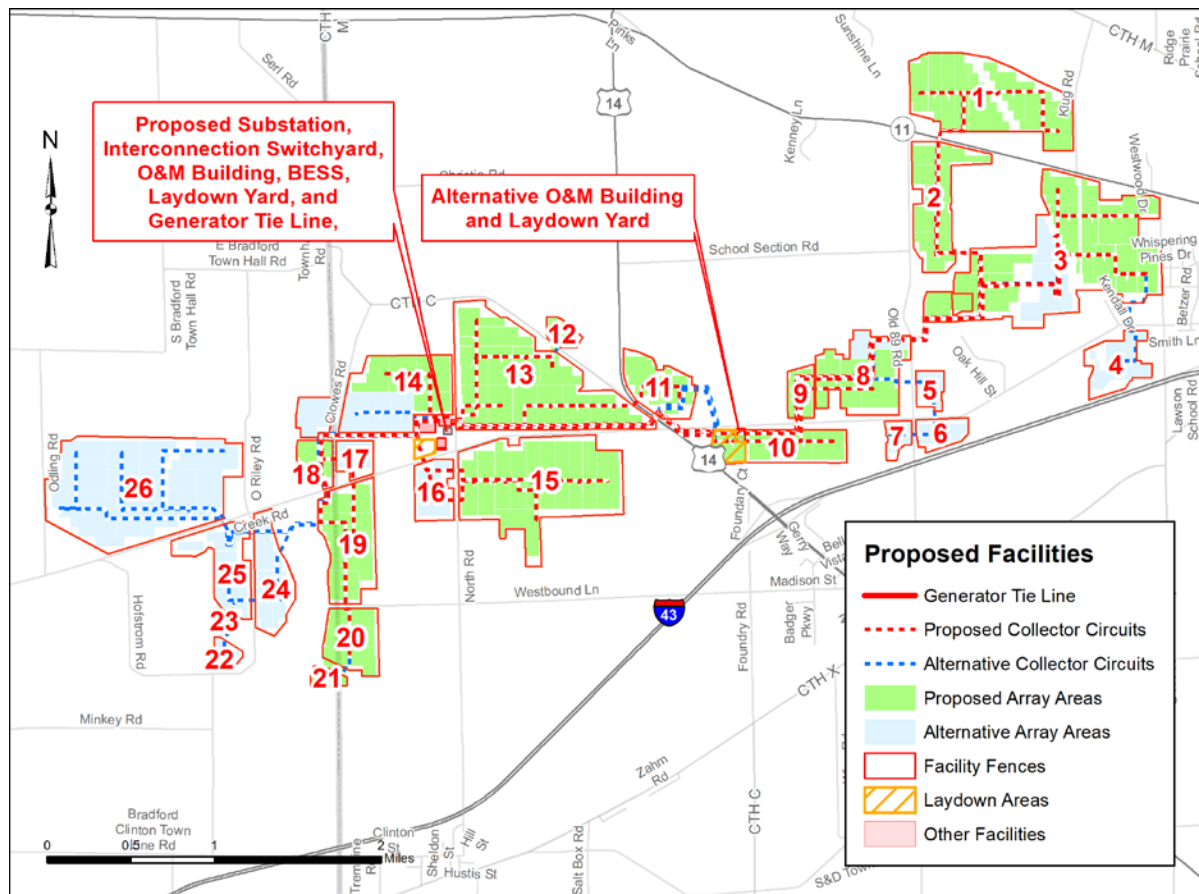


The major components of the proposed project include PV panels, power conversion units, inverters, underground 34.5 kilovolt (kV) collector circuits, a 138kV project substation that would be located near an existing substation, a 138kV overhead Gen-Tie line, a potential battery energy storage system (BESS), and an operation and maintenance building (O&M Building). The proposed project includes 27 fenced array areas that can be identified by their fence boundary identification number. The locations of these components are depicted in **Figure 2**.

Darien Solar has provided two potential solar farm layouts or configurations to reach their stated 250MW nameplate capacity for the project. Either layout would allow Darien Solar to achieve the

250MW goal; the reason for presenting two configurations instead of one is to allow for alternative placement of the project's infrastructure in the event that one or more areas is found to be unacceptable. Siting flexibility and alternative siting areas are discussed further in the **Minor Siting Flexibility** section.

Figure 2. Primary and Alternate Areas



Scope and methodology of impact analysis.

In an effort to support the greatest level of siting flexibility possible, the scope of impact analysis provided in this EA focuses on the entire Contracted Area. Contracted Area. By broadening the scope of impact analysis beyond the confinements of the two proposed layouts, it will be possible to; 1) provide area more accurate representation of all the potential impacts within the Contracted Area, and 2) provide a proactive impact assessment on land that could be used for alternate infrastructure siting.

More specifically, the applicant has provided a layout with a smaller footprint referred to as the 250MW layout, and one with a larger footprint called the 381MW layout (despite its name, the latter would not result in the generation of more than the proposed nameplate capacity of 250MW). This EA will refer to the larger of the two configurations as the Primary Layout or Primary Array Layout while the smaller of the two will be referred to as the Alternate Array Layout. The Primary Array

Layout consists of approximately 2,006 acres, while the Alternate Layout is approximately 1,109 acres (**Figure 2**).

Regardless of the final approved configuration, Darien Solar estimates that approximately 2,045 acres within the Contracted Area would be required to construct and operate the proposed solar farm, including all the associated infrastructure such as solar arrays, collector lines, and laydown areas, etc.

In addition, Darien Solar expects that approximately 40 acres (all of which would be located within the Contracted Area) would need to be purchased to provide space for the project substation, the operations and maintenance building, the potential battery storage facilities, and collection routing.

In summary, the applicant has proposed two layouts for the Commission to analyze, the smaller 250MW layout and the larger 381MW layout. The applicant has also stated that if the Commission has no objections to either layout they would utilize all of the land presented in the larger 381MW layout configuration to construct the project.

Applicant's Stated Purpose and Need

Darien Solar states that the purpose of the proposed solar farm would be to generate utility-scale solar power for sale. [Wisconsin Admin. Code § PSC 4.20\(2\)\(a\)](#) directs the EA to describe the purpose and need for the proposed project. Under [Wis. Stat. § 196.491\(3\)\(d\)2](#), the project is a wholesale merchant plant and is therefore exempt from the needs analysis that would be required of a state public utility. The applicant did not provide an estimated total cost for the new solar generation facility because that requirement is only applicable to public utility sponsored projects.

The Commission's review of CPCN applications for wholesale merchant plants is more limited than the review for projects proposed by public or investor-owned utilities. For example, under Wis. Stat. § 196.491(3)(d)2 and 3, a wholesale merchant plant CPCN need not demonstrate that its facility would meet the reasonable needs of the public for electricity and the Commission may not consider economic factors when evaluating the application. The Energy Priorities Law, [Wis. Stats. § 1.12\(4\)](#), ranks energy conservation and efficiency as its highest priority, with noncombustible renewable resources as the second highest priority.

Location

The proposed project would be located in the towns of Bradford and Darien, in Rock and Walworth Counties respectively. As previously mentioned, the proposed P covers approximately 7,699 acres. Within this boundary, 4,200 acres are under contract by Darien Solar. Finally, approximately 2,045 acres within the Contracted Area would be developed to host the proposed solar generating facility along with any associated facilities (**Figure 2**).

Brownfields

Under [Wis. Stat. § 196.491\(3\)\(d\)8](#), the Commission shall consider whether brownfields are used to the extent practicable when evaluating large electric generation facilities. Brownfields, as defined by [Wis. Stat. § 238.13\(1\)\(a\)](#) are defined as abandoned, idle, or underused industrial or commercial

facilities or sites, the expansion or redevelopment of which is adversely affected by actual or perceived environmental contamination.

Darien Solar identified 12 brownfield sites within Rock county ranging in size from 0.4-acres to 19.44-acres, 20 sites within Walworth county ranging in size from 0.1-acres to 23.64-acres, 55 sites in Racine county ranging in size from 0.04 to 10.7 acres and 27 sites in Kenosha county ranging in size from 0.21 to 106 acres. The sites assessed in these counties were an average of 5.9 acres; and further searching at the state level showed the largest brownfield property as 369 acres in Oneida, Wisconsin. Darien Solar concluded that, given the land requirements of the proposed solar generating facility and associated infrastructure, none of the sites reviewed, including those in Rock, Walworth, Racine or Kenosha counties, were large enough to support the proposed project.

Minor Siting Flexibility

It is the applicant's obligation to minimize the need for minor siting flexibility by rigorously analyzing its proposed project. The Commission recognizes that detailed engineering is not complete prior to authorization of a project and that minor siting flexibility may be needed to accommodate the final design of the project. As was discussed in the project overview, situations may be discovered in the field that were not apparent based on the information available to the applicant in development of the proposed project or to the Commission in making its authorization. Therefore, the Commission typically includes an order condition that allows for minor siting flexibility when authorizing a project.

The minor siting flexibility order condition requires that the applicant consult with Commission staff when proposing a change in siting. If the review determines that the proposed change requires Commission approval, the applicant must request authorization in the form of a letter containing details on the following items:

- Scope of the change
- Reason for the change
- Incremental differences in any environmental impacts
- Communications with potentially affected landowners
- Documentation of discussions with other agencies regarding the change
- Maps of the approved route and the proposed change, including property boundaries and natural features

Minor siting flexibility requests are reviewed by Commission staff. Approval is delegated to the Administrator of the Division of Energy Regulation and Analysis with the advice and consent of the Administrator of the Division of Digital Access, Consumer, and Environmental Affairs.

Proposed changes require reopening of the docket unless the following three criteria are met:

- No new landowners are affected who have not been given notice and hearing opportunity
- Affected landowners have agreed to the change in writing
- No new resources are affected or additional impacts that were not described in the EA

Additional requirements for the applicant following an approved change include:

- Obtaining all necessary permits
- Complying with agreements made with local units of government
- Complying with all landowner agreements
- Avoiding parts of the project area that the Commission finds unacceptable
- Complying with the applicant's environmental siting criteria

Alternative Solar Array Area

As required by Wis. Stat § 196.491 and Wis. Admin. Code § PSC 111, the applicants design for the layout of the proposed project includes additional area to allow for alternative locations of solar arrays. The alternative area is required for two reasons:

- The alternative area may be used to avoid portions of the proposed area that are found undesirable or unusable during the Commission's review of the application.
- The alternative area may possibly be used to resolve problems that arise during the construction process.

Situations that may prompt the use of alternative areas include, but are not limited to: protecting resources, avoiding unanticipated sub-surface conditions, accommodating governmental requests, addressing landowner concerns, minimizing construction costs, or improving electric generation. The reasons for possibly utilizing the alternative area are typically discussed in siting decisions if the Commission authorizes a project and can be addressed as order conditions.

Project Components and Design

The applicant is proposing to develop, design, permit, construct and operate a 250 MW photovoltaic (PV) solar electric generation facility in the towns of Bradford and Darien, in Rock and Walworth Counties respectively. The proposed Project Boundary covers approximately 7,699 acres. Within the Project Boundary, 4,200 acres are under contract by Darien Solar to build the proposed solar farm. Approximately 2,045 acres within the Contracted Area would ultimately be developed to host the proposed project.

It is anticipated that the proposed project would have an installed capacity of up to 250 MWAC. Power would be generated by the panels as direct current which would then be converted to alternating current by inverters. Total power production by the panels may be up to 375 MWDC (direct current).

Infrastructure Components

The major components of the proposed project include PV panels, power conversion units, inverters, underground 34.5 kilovolt (kV) collector circuits, 138kV project substation that would be located near an existing substation, 138kV overhead Gen-Tie line, a potential battery energy storage system (BESS), and an operation and maintenance building. The proposed project includes 27 fenced array areas that can be identified by their fence boundary identification number (**Figure 2**).

A perimeter fence around the solar arrays would be up to 8-feet-high to minimize wildlife intrusion into the facility and comply with applicable electrical codes. No barbed wire would be used on the perimeter fence, and “deer fence” will be used, unless required otherwise by applicable codes, standards, rules, or regulations. Fencing around the project substation and O&M building will likely be a chain link design with barbed wire to satisfy applicable security requirements for those project components.

Darien Solar has stated that several manufacturers are under consideration for project components and infrastructure, and will analyze current market offerings to make a final selection on specific solar module, inverter and racking system equipment. An example solar module configuration representative of those being considered for the proposed project consists of 600,000 to 850,000 high-efficiency solar PV panels with a capacity to generate approximately 350-600 watts (W) of DC power each.

Examples of specific panel models in this range are the Jinko Eagle HC 72M-V on the low wattage end and the Longi LR4-72HBD on the higher wattage end. While these two models are typical examples of what may be installed, final engineering will utilize the best, most economical technology available, which may include higher wattage modules. It is also possible that a different manufacturer of a substantially similar product could be selected in final procurement. Although the description above is representative of a likely choice for equipment, panels could exceed 600 W DC power output each, potentially leading to more or fewer total panels or other selected manufacturers. Darien Solar has stated that if the final selected panel is rated higher than 600 W DC they would notify PSC staff of this selection with updated estimates.

In addition to the components described above, Darien Solar has stated that the construction of the following facilities have been determined necessary by MISO and ATC for interconnection of the proposed project to the existing electric transmission system:

- an interconnection switchyard to transmit electricity generated by the project to the ATC transmission system. ATC would construct and own the switchyard.
- a 138 kV gen-tie transmission line of approximately 75 feet in length to connect the point of interconnection to the project substation within the project boundary. The 75-foot long gen tie line route and 1.24 acre interconnection switchyard footprint are shown in **Figure 2**.

Other upgrades governed under separate Multi Party Facility Construction Agreements (MPFCAs) include the Paris Substation expansion, Arcadian, Berryville, and Elkhorn short circuit upgrades, North Monroe Substation grounding upgrades, and replacement structures on the Elkhorn to Lake Geneva line. ALTW and REC system grounding upgrades on Delavan, LaPrairie and Bradford are assumed as well as affected system upgrades.

Proposed project design and layout

As has been discussed, the applicant is proposing to construct a 250MW PV solar generation facility. The facility would be built within the 4,200 acres of land already contracted by the applicant. Regardless of the final approved layout the actual construction footprint inside the contracted area is estimated to be 2,045 acres. In addition, Darien Solar expects that approximately 40 acres inside of

the Contracted Area would be purchased to provide space for the project substation, the operations and maintenance building, the potential battery storage facilities, and collection routing.

Environmental Effects

Wisconsin Admin. Code § PSC 4.20(2)(c) states that the EA shall include a description of the environmental factors that the proposed project affects most directly. Wisconsin Admin. Code § PSC 4.20(2)(d)(1) directs the EA to describe the proposed project's effects on geographically important or scarce resources, such as historic or cultural resources, scenic or recreational resources, prime farmland, threatened or endangered species, ecologically important areas, as well as the potential impacts to other environmental matters the Commission considers relevant. The following sections discuss the key potential environmental impacts. Some topic areas have been emphasized in response to public comments received by the Commission during the EA Scoping Period.

Site Geology

The Wisconsin Geological and Natural History Survey (WGNHS) Bedrock Geology Map of Walworth County and Wisconsin maps the bedrock of the entire Project Boundary as the Sinnipee Group of Ordovician Dolomite. Based on a WGNHS Depth to Bedrock Map of Walworth County Wisconsin, the depth to bedrock at the Project can generally be expected to range from 0-250 feet below ground surface (bgs). According to the Natural Resources Conservation Service, the major soil units in the Project Boundary are Plano silt loam (gravelly substratum, 4,065 acres), Drummer silt loam (gravelly substratum, 355 acres), Dodge silt loam (302 acres), and McHenry silt loam (265 acres). Shallow carbonate bedrock is present between the ranges of 0- 50 bgs and greater than 50 feet bgs, and covers nearly all of the Project Boundary; thus there is the potential that karst features may be present.

A preliminary geotechnical engineering report was performed on behalf of Darien Solar in October of 2019. The report indicated that the ultimate end bearing capacity across the boring locations was approximately 500 lbs, and total foundation settlements are not anticipated to exceed 1 inch. Two of the shallower borings encountered possible bedrock and/or boulder at depths of 8.5 feet and 10.5 feet below ground surface. Groundwater was encountered in 7 of 14 borings ranging between 8.5 and 30 ft bgs. As a result, Darien Solar expects to experience bedrock, boulders, gravel, or other conditions requiring additional construction methods and techniques that may include pre-drilling. Further geotechnical exploration is scheduled to occur prior to final engineering design and site construction, to further inform soil characteristics across the Project Boundary.

Private wells of adjacent landowners are not anticipated to be impacted by foundation construction.

Topography

The existing topography within the Project Boundary consists primarily of rolling hills, although the areas that are currently developed or in agriculture have a relatively flat grade. Surface elevations range from 840 to 990 feet above mean sea level. The lowest elevations are along the streams and drainages, particularly Turtle Creek through the western part of the Project Boundary. Slopes are generally within the 0 to 6% range, although a few areas contain slopes ranging from 6 to 12%. Darien Solar has stated that the project would be designed to use the existing topography to the maximum extent practicable in an effort to minimize the amount of grading required during

construction. The applicant has also stated that grading changes to the existing topography that would affect land use, water inflow/outflow directions from the site, and flow rates impacting erosion on or off the site, would be minimized during engineering process. The applicant also asserts that although cut and fill would be required in certain areas it is not expected to result in a major change the nature of the topography on the site.

Land Cover

Land cover types within the Project Boundary include agriculture, wetland, forest, grassland, urban/developed, barren land, and open water.

The landscape within the Project Boundary is heavily dominated by row crop agriculture including corn and soybean with lesser quantities of scattered alfalfa hay fields. No organic farms have been identified within the Project Boundary. Some areas of grassland, prairie, and pasture are present and both generally consist of small plots utilized for hay production and lawns associated with homes or businesses. No areas of high quality grassland, prairie or pasture have been observed in the Project Boundary.

Fallow fields are generally dominated by vegetation including mare's tail (*Erigeron canadensis*) giant ragweed (*Ambrosia trifida*), common pigweed (*Amaranthus retroflexus*), witchgrass (*Panicum capillare*), and barnyard grass (*Echinochloa crus-galli*). Fallow fields that were observed were likely a result of a wetter than normal growing season and are normally in crop production. Grassy swales within and separating fields were dominated by smooth brome (*Bromus inermis*), orchard grass (*Dactylis glomerata*), and reed canary grass (*Phalaris arundinacea*).

Upland woodlands are typically a combination of sugar maple (*Acer saccharum*), American basswood (*Tilia americana*), box elder (*Acer negundo*), quaking aspen (*Populus tremuloides*), and red oak (*Quercus rubra*). The woodland communities are defined by the Natural Communities of Wisconsin as Southern Mesic Forests, Southern Dry-Mesic Forests, or Southern Dry Forests. The acreage and percent of land cover types present within the project boundary are listed below in **Table 2**.

Table 2. Land Cover Types within Project Boundary

Land Cover Type	Area (Acres)	Percent of Total
Row/traditional crops	5,810	75.47
Prairie/grasslands/pasture/fallow field	302	3.92
Upland forest	549	7.13
Seasonally flooded basin	193	2.50
Floodplain forest	154	2.00
Wet meadow	128	1.67
Shallow open water	15	0.19
Shallow marsh	15	0.19
Shrub-carr	8	0.11
Hardwood swamp	2	0.03

Land Cover Type (Continued)	Area (Acres)	Percent of Total
Watercourse	4	0.05
Commercial/industrial	305	3.96
Residential	214	2.78
Total	7,699	100

The proposed project would result in some changes to existing land cover within the construction footprint; specifically in the areas immediately adjacent to the planned solar panels. According to the applicant's Vegetation Management Strategy ([PSC REF#: 394258](#)) for the project, native prairie vegetation could be established under some of the panels. Though the land cover could be converted back to its original purpose (e.g., agricultural uses) following the decommissioning of the project, the impact would be considered permanent for the duration of the project. The acreage and percent of existing land cover types within each of the proposed layouts is listed below in **Table 3**.

Table 3. Array Area Land Cover Impacts

Land Cover Type	Fence I.D.	Power Block I.D.	Primary Array Areas		Alternate Array	
			Area (Acres)	Percent of Total Project Area	Area (Acres)	Percent of Total Project Area
Row/traditional crops	All Fence	All Power	1,978	25.69	1,093	14.19
Prairie/grasslands/pasture/fallow field	1, 3, 4, 9, 10, 13, 18, 19	AA, DD, JJ, VVV, WWW, XXX,	7	0.09	<1	<0.01
Upland forest	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 19, 25, 26	L, M, N, O, BB, CC, DD, EE, FF, GG, HH, JJ, VVV, BBBB, FFFF,	16	0.21	10	0.13
Seasonally flooded basin	3	R, V, W	1	0.01	1	0.01
Floodplain forest	N/A	N/A	0	0	0	0
Wet meadow	3	N/A	4	0.05	0	0
Shallow open water	N/A	N/A	0	0	0	0
Shallow marsh	N/A	N/A	0	0	0	0
Shrub-carr	N/A	N/A	0	0	0	0
Hardwood swamp	N/A	N/A	0	0	0	0

Land Cover Type(Cont).	Fence I.D.	Power Block I.D.	Primary Array Areas		Alternate Array Areas	
			Area (Acres)	Percent of Total Project Area	Area (Acres)	Percent of Total Project Area
Waterway	N/A	N/A	0	0	0	0
Commercial/industrial	1, 2, 4, 17	E, BB, DD, WW, BBBB,	<1	<0.01	5	0.06
Residential	8, 11, 13, 16, 19	N/A	<1	<0.01	<1	<0.01
Total			2,006	26.05	1,109	14.39

Land cover impact for collector circuits were calculated for those laying outside of the fence boundaries to avoid listing duplicative impacts. An impact buffer of 15 feet to each side of the collector center line was used to allow for the potential impact of the equipment used to place them. The applicant states that all impacts from the collection system are considered temporary, because after the circuits are placed, the land cover will be allowed to return to its existing condition. The acreage and percent of land cover present within the proposed primary and alternate collection line corridor is are listed below in **Table 4**.

Table 4. Collection System Land Cover Impacts

Land Cover Type	Fence I.D.	Power Block I.D.	Primary Collection Line		Alternative Collection Line	
			Area (Acres)	Percent of Total Project Area	Area (Acres)	Percent of Total Project Area
Row/traditional crops	All Fence I.D.	B, I, L, N, M, Y, AA, CC, DD, EE, GG, JJ, LL, NN, OO, PP, QQ, VV, WW, CCC, QQQ, RRR, SSS, TTT, UUU, VVV, YYY, ZZZ, BBBB, CCCC, FFFF, HHHH, IIII, UUUU, WWWW, XXXX, YYYY	13	0.16	16	0.21

Table 4. Collection System Land Cover Impacts (continued)						
Prairie/grasslands/pasture/fallow field	6, 7, 10, 11, 19, 24	DD, NN, OO, VVV, CCCC	2	0.03	<1	<0.01
Upland forest	3, 4, 5, 8, 9, 10, 11, 19, 20, 21, 23, 24, 25, 26	M, Y, AA, CC, EE, GG, II, JJ, NN, OO, VVV, BBBB, CCCC, FFFF, HHHH, IIII	<1	<0.01	1	0.01
Seasonally flooded basin	N/A	N/A	0	0	0	0
Floodplain forest	19, 24	VVV, CCCC	0	0	1	0.01
Wet meadow	19, 24	VVV, CCCC	0	0	<1	<0.01
Shallow open water	N/A	N/A	0	0	0	0
Shallow marsh	N/A	N/A	0	0	0	0
Shrub-carr	N/A	N/A	0	0	0	0
Hardwood swamp	N/A	N/A	0	0	0	0
Watercourse	N/A	N/A		0	0	0
Commercial/industrial	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27	B, I, M, Y, AA, CC, DD, EE, GG, JJ, LL, NN, OO, PP, QQ, VV, WW, CCC, QQQ, RRR, SSS, TTT, UUU, YYY, ZZZ, BBBB, CCCC, FFFF, HHHH, IIII, YYYYY, ZZZZ	2	0.03	0	0
Residential	3, 8, 11, 13	M, EE, OO, QQ	<1	<0.01	0	0
Total			17	0.22	18	0.23

Land cover impact for access roads were calculated for those laying outside of the fence boundaries. The permanent impacts to land cover due to the access roads is calculated based on the maximum proposed road width of 12 feet with 4 foot shoulders. The temporary impacts to land cover due to the access roads is calculated based on a 15 foot buffer on each side of the access road, for a total construction corridor of 50 feet (15 feet on each side of the 20-foot-wide road/shoulders). The existing land cover present within the proposed and alternate access road corridors, along with the anticipated temporary and permanent impacts are listed below in **Table 5** and **Table 6** respectively.

Table 5. Access Road Land Cover Temporary Impacts

Land Cover Type	Fence I.D.	Power Block I.D.	Primary Access Road		Alternative Access Road	
			Area (Acres)	Percent of Total Project Area	Area (Acres)	Percent of Total Project Area
Row/traditional crops	All Fence I.D.	A, H, I, L, N, W, AA, CC, DD, GG, JJ, NN, PP, VV, WW, CCC, QQQ, RRR, SSS, TTT, YYY, ZZZ, BBBB, EEEE, FFFF, IIII, VVVV	3	0.03	2	0.02
Prairie/grasslands/pasture/fallow field	6, 7, 10	DD, NN	<1	<0.01	<1	<0.01
Upland forest	3, 4, 8, 9, 20, 21, 26	M, P, AA, GG, II, JJ, BBBB, IIII	<1	<0.01	<1	<0.01
Seasonally flooded basin	N/A	N/A	0	0	0	0
Floodplain forest	N/A	N/A	0	0	0	0
Wet meadow	N/A	N/A	0	0	0	0
Shallow open water	N/A	N/A	0	0	0	0
Shallow marsh	N/A	N/A	0	0	0	0
Shrub-carr	N/A	N/A	0	0	0	0
Hardwood swamp	N/A	N/A	0	0	0	0
Watercourse	N/A	N/A	0	0	0	0
Commercial/industrial	1, 2, 4, 5, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26	H, I, AA, CC, GG, JJ, NN, VV, WW, CCC, RRR, SSS, TTT, YYY, ZZZ, BBBB, EEEE, FFFF, VVVV	<1	<0.01	<1	<0.01
Residential	N/A	N/A	0	0	0	0
Total			3	0.03	2	0.02

Table 6. Access Road Land Cover Permanent Impacts

Land Cover Type	Fence I.D.	Power Block I.D.	Primary Access Road		Alternative Access Road	
			Area (Acres)	Percent of Total Project Area	Area (Acres)	Percent of Total Project Area
Row/traditional crops	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26	H, I, L, N, W, AA, CC, DD, GG, JJ, PP, WW, VV, CCC, QQQ, RRR, SSS, TTT, YYY, ZZZ, BBBB, EEEE, FFFF, VVVV	2	0.02	1	0.01
Prairie/grasslands/pasture/fallow field	6, 7, 10	DD, NN	<1	<0.01	<1	<0.01
Upland forest	4, 8, 20, 21	AA, GG, BBBB	<1	<0.01	<1	<0.01
Seasonally flooded basin	N/A	N/A	0	0	0	0
Floodplain forest	N/A	N/A	0	0	0	0
Wet meadow	N/A	N/A	0	0	0	0
Shallow open water	N/A	N/A	0	0	0	0
Shallow marsh	N/A	N/A	0	0	0	0
Shrub-carr	N/A	N/A	0	0	0	0
Hardwood swamp	N/A	N/A	0	0	0	0
Watercourse	N/A	N/A	0	0	0	0
Commercial/industrial	8, 14, 17, 18, 20, 21	GG, CCC, SSS, TTT, BBBB	<1	<0.01	<1	<0.01
Residential	N/A	N/A	0	0	0	0
Total			2	0.02	1	0.01

The land purchased for the combined use of the O&M Building, Project substation and BESS is approximately 40 acres. The preliminary substation design assumes the footprint will be approximately 300 x 400 feet. The BESS footprint is estimated at 4.4 acres. Land cover impacts for these two features are summarized in **Table 7** and **Table 8**. Both substation and BESS land cover impacts are considered permanent.

Table 7. Substation and BESS Land cover Impacts

Land Cover Type	Substation		BESS	
	Area (Acres)	Percent of Total	Area (Acres)	Percent of Total
Row/traditional crops	3	0.03	4	0.06
Prairie/grasslands/pasture/fallow field	0	0	0	0
Upland forest	0	0	0	0
Seasonally flooded basin	0	0	0	0
Floodplain forest	0	0	0	0
Wet meadow	0	0	0	0
Shallow open water	0	0	0	0
Shallow marsh	0	0	0	0
Shrub-carr	0	0	0	0
Hardwood swamp	0	0	0	0
Watercourse	0	0	0	0
Commercial/industrial	0	0	0	0
Residential	0	0	0	0
Total	3	0.03	4	0.06

The land purchased for the combined use of the O&M Building, Project substation and BESS is approximately 40 acres. The preliminary O&M Building design is expected to require 4,000 to 5,000 square feet. The land cover impacts in **Table 8** include the O&M building, associated parking and a gravel storage area and are considered permanent.

Table 8. O&M Building Land cover Impacts

Land Cover Type	Primary O&M Building		Alternate O&M Building	
	Area (Acres)	Percent of Total Project Area	Area (Acres)	Percent of Total Project Area
Row/traditional crops	2	0.03	2	0.03
Prairie/grasslands/pasture/fallow field	0	0	0	0
Upland forest	0	0	0	0
Seasonally flooded basin	0	0	0	0
Floodplain forest	0	0	0	0
Wet meadow	0	0	0	0
Shallow open water	0	0	0	0
Shallow marsh	0	0	0	0
Shrub-carr	0	0	0	0
Hardwood swamp	0	0	0	0
Watercourse	0	0	0	0
Commercial/industrial	0	0	0	0
Residential	0	0	0	0
Total	2	0.03	2	0.03

Land cover impacts resulting from the 100-foot wide ROW for the 75-foot long gen- tie line are summarized in **Table 9** below. The 75' x 100' wide gen-tie corridor was used for calculating permanent impacts. Because the distance of the gen tie line is anticipated to be 75 feet, no impacts associated with poles were included in this calculation.

Table 9. Anticipated Land Cover Impacts from Construction of the Gen-Tie Line

Land Cover Type	Temporary Impacts	
	Area (Acres)	Percent of Total Project Area
Row/traditional crops	<1	<0.01
Prairie/grasslands/pasture/fallow field	0	0
Upland forest	0	0
Seasonally flooded basin	0	0
Floodplain forest	0	0
Wet meadow	0	0
Shallow open water	0	0
Shallow marsh	0	0
Shrub-carr	0	0
Hardwood swamp	0	0
Watercourse	0	0
Commercial/industrial	0	0
Residential	0	0
Total	<1	<0.01

Anticipated land cover impacts for the point of interconnect switchyard (to be located next to the project substation) are presented in **Table 10**.

Table 10. Point of Interconnect Land Cover Impacts

Land Cover Type	Area (Acres)	Percent of Total
Row/traditional crops	1	0.01
Prairie/grasslands/pasture/fallow field	0	0
Upland forest	0	0
Seasonally flooded basin	0	0
Floodplain forest	0	0
Wet meadow	0	0
Shallow open water	0	0
Shallow marsh	0	0
Shrub-carr	0	0
Hardwood swamp	0	0
Watercourse	0	0
Commercial/industrial	0	0
Residential	0	0
Total	1	0.01

Below, **Table 11** lists the anticipated impacts to land cover from the general construction laydown yard (to be located west of the O&M building). The alternative location for the laydown yard was selected based on a request from the Town of Darien. The applicant states that the alternate location would be compatible with the Town's comprehensive planning for commercial type buildings and use. Darien Solar states that impacts to land cover resulting from construction of the laydown yard are expected to be temporary.

Table 11. Laydown Yard Land Cover Impacts

Land Cover Type	Primary Laydown Yard		Alternate Laydown Yard	
	Area (Acres)	Percent of Total Project Area	Area (Acres)	Percent of Total Project Area
Row/traditional crops	8	0.10	20	0.25
Prairie/grasslands/pasture/fallow field	0	0	0	0
Upland forest	0	0	0	0
Seasonally flooded basin	0	0	0	0
Floodplain forest	0	0	0	0
Wet meadow	0	0	0	0
Shallow open water	0	0	0	0
Shallow marsh	0	0	0	0
Shrub-carr	0	0	0	0
Hardwood swamp	0	0	0	0
Watercourse	0	0	0	0
Commercial/industrial	0	0	0	0
Residential	0	0	0	0
Total	8	0.10	20	0.25

Air Quality and Dust

Dust may be generated from excavation or grading work, exposed soils, or materials transport depending on the level of construction activity, weather conditions such as high winds, and the moisture content and texture of soils being disturbed. Darien Solar has prepared an Erosion Control and Storm Water Management Program (ECSWMP) which incorporates measures for reducing and managing the amount of dust generated during the construction phase. Such measures may include the use of a water truck to spray areas of exposed soil, minimizing traffic along haul routes in close proximity to local roads and residences, and dust containment fencing/screening. More information regarding the applicant's proposed dust reduction measures can be found in the ECSWMP, which was included as Appendix L to the application for this project ([PSC REF#: 394233](#)).

Aesthetic and Visual Impacts

The area around the proposed solar generation facility would be comprised of mostly agricultural lands. Construction of the proposed project would reduce the amount of agricultural lands within

the Project Boundary and introduce some industrial visual elements including the solar arrays, fencing, the project substation, and the generation tie-line. This would create a stark difference in the view of the local landscape where the arrays and project infrastructure would be located. As discussed in the **Infrastructure Components Section** above, a perimeter fence around the solar arrays would be up to 8-feet-high to minimize wildlife intrusion into the facility and comply with applicable electrical codes. No barbed wire would be used on the perimeter fence, and “deer fence” would be used, unless required otherwise by applicable codes, standards, rules, or regulations. Fencing around the project substation and O&M building would likely be a chain link design with barbed wire to satisfy applicable security requirements for those project components.

Photo simulations were performed on behalf of the applicant to estimate the visual impacts of the solar generation facility. Existing views at several locations within the Project Boundary were photographed and a computer based rendering program was used to simulate an overlay of the proposed project. For additional details including results of the simulation, refer to the Photo Simulation Report included as Appendix E to the application for this project ([PSC REF#: 394227](#)).

Property Value

Residents in the project area have expressed concerns that construction of the proposed solar project would reduce their property values due to changes in views, rural character, and land use in the townships. Property values can be influenced by a complex interaction of factors specific to individual parcels. These factors can include, but are not limited to, condition, improvements, acreage, or neighborhood characteristics, as well as proximity to schools, parks, and other amenities. In addition, local and national market conditions often influence property values. The presence of a utility-scale solar PV facility would become one of many interacting factors that could affect a property’s value.

Solar generating facilities have the potential to impact property values. Negative effects from these facilities could be the result of impacts that extend beyond the immediate footprint of the arrays. Examples could include noise and visual impacts. However, unlike fossil-fueled electric generating facilities, a PV facility would have no emissions and essentially no noise impacts to adjacent land uses during operation of the facility. The installation of PV facilities would create a visual impact, but lacking the height of smokestacks or wind turbines, the visual impact at ground level, or within a neighboring building, would be more limited. Some landowners may not like the change in the area from agricultural land use, however other landowners may prefer the solar project to other land uses, such as row crop agriculture, housing developments, or industrial buildings.

A review of peer-reviewed literature found no research specifically aimed at quantifying impacts to property values based solely on proximity to utility-scale PV facilities. As the industry continues to develop, comparable data should become available. For these reasons, the impact to the value of one particular property based solely on its proximity to a utility-scale PV facility is difficult to determine. Widespread negative impacts to property values are not anticipated. In certain situations it is possible that individual property values could be negatively impacted.

Archaeological and Historic Resources

A review of the Wisconsin Historic Preservation Database was performed by the applicant, in compliance with Wisc. Stats. § 44.40 and § 157.70, to identify any impacts on previously recorded historic structures, archaeological sites, and human burials.

A historic resources survey was also conducted on behalf of the applicant to identify previously unrecorded resources, archaeological survey methods of high potential areas included pedestrian survey at 15 m intervals. The survey was performed in agricultural fields with sufficient ground surface visibility. No archaeological resources were identified during the current survey. All previously recorded archaeological sites within the Project Boundary would be avoided by project design. No National Register of Historic Places (NRHP) significant archaeological sites are expected to be impacted by the project. The completed Cultural Resources Report, included as Appendix L to the application for this project provides additional details regarding the historic resources survey ([PSC REF#: 394273](#)).

Background research revealed that houses and agricultural buildings on several farmsteads and other historic resources in the vicinity of the Project Boundary have been previously inventoried. Nineteen properties were identified in the Wisconsin Architectural History Inventory (AHI) database. The project will have no adverse impacts to those recorded historic properties listed or eligible for listing in the NRHP.

If the applicant encounters grave markers or human skeletal remains during construction, all activities in the area would cease and the State of Wisconsin Burial Sites Preservation Office would be contacted for further instructions.

Conservation Easements

A desktop evaluation was conducted using the U.S. Geological Survey (2019) Protected Areas Database of U.S. (PADUS), to document special biological resource management areas, such as conservation easements and state or federal land managed for biodiversity within the Project Boundary or the two-mile buffer. Results of this effort indicated that approximately 144 acres of the state-managed Turtle Creek Wildlife Area are within the Project Boundary, and an additional 899 acres are within a two-mile buffer. All other surface land within the Project Boundary is privately owned. No other public lands were mapped within the two-mile buffer. Less than 0.1 acres of the WDNR-managed Scattered Wildlife conservation easement and 1.1 acres of another conservation easement were mapped just outside of the two-mile buffer.

Additionally, no state fisheries areas, state parks, state forests, county parks, recreational trails, or federally managed properties occur within the Project Boundary or within 2 miles of the boundary. The Pelishek-Tiffany Nature Trail is approximately 0.5 miles southwest of the Project Boundary.

Invasive Species

During a spring 2020 survey conducted on behalf of the applicants, 34 non-native or invasive species were observed. Invasive and non-native species were mainly concentrated around field edges and roadside ditches in small localized populations and in wetlands. Commonly encountered non-native and invasive species included smooth brome (*Bromus inermis*), dandelion (*Taraxacum officinale*), garlic mustard (*Alliaria petiolata*) Kentucky bluegrass (*Poa pratensis*), white campion (*Silene latifolia*),

white mulberry (*Morus alba*), Canada thistle (*Cirsium arvense*), common burdock (*Arctium minus*), common buckthorn (*Rhamnus cathartica*), Tatarian honeysuckle (*Lonicera tatarica*), Siberian elm (*Ulmus pumila*), hybrid cattail (*Typha X glauca*), reed canary grass, common reed grass (*Phragmites australis*), and narrow-leaved cattail (*Typha angustifolia*). Emerald ash borer (*Agrilus planipennis*), gypsy moth (*Lymantria dispar dispar*), and oak wilt (*Ceratocystis fagacearum*), although not encountered in the Project Boundary, have the potential to occur in Rock and Walworth Counties.

The applicant states that in order to prevent the introduction or spread of invasive species, forest pests, or disease, topsoil and fill material from within the Project Boundary or a local source would be used. If excavation and other construction equipment is used in an area containing documented invasive species, then the equipment would be inspected and cleaned of debris and soil prior to removal of equipment from the area. Darien Solar also states that ROWs and tree lines would be a top priority for monitoring the potential spread of invasive species.

The invasive species monitoring protocol would be implemented by a qualified contractor. Periodic visual inspections of the establishing and established vegetation would be made to detect new invasive plant species occurrences and expansion of pre-existing ones. The timing and frequency of these inspections would be adapted in response to needs identified during and immediately following construction. The outcome of these inspections would be contractor-developed control recommendations based on the species and circumstances observed. Additional details regarding Darien Solar's plan to manage vegetation and control the spread of invasive species are described in the applicant's Vegetation Management Strategy, which was submitted as Appendix W to the application for this project ([PSC REF#: 394258](#)).

Vegetation Management

The applicant's Vegetation Management Strategy's phased approach begins with site soil preparation and cover crop seeding (Phase 1), followed by the establishment of a native sedge & grass ground cover only (Phase 2). This strategy is intended to reduce the risk that plantings will be overtaken by weedy plants, potentially leading to lower maintenance efforts in the long term. Phase 1 and Phase 2 would occur prior to solar facility construction. The third Phase; Zone Establishment, would occur after solar facilities are constructed. The applicant has stated that this phased approach is intended to result in plantings that contain a greater diversity of species while minimizing disturbance and maximizing weed control. The ecological communities that have been proposed for the Zone Establishment section were selected based on their capability of adapting over time to environmental change with minimal impact to solar arrays. The proposed vegetation zones include the Grass Sedge Cover for Upland, Moist Soil, and Pollinator Habitat for Upland, Moist Soil, Monarch Habitat, View Screening, and Familiar Crop Screening zones. For further details regarding the applicant's proposed plans for establishing and managing vegetation (including the proposed locations and seed mix compositions for the Zone Establishment areas mentioned above) please refer the Applicant's Vegetation Management Plan ([PSC REF#: 394258](#)).

Agricultural Land

As previously indicated, the Project Boundary is heavily dominated by row crop agriculture, primarily composed of corn and soybeans. Some areas of alfalfa and hay fields used for grazing or

for harvesting are also within the project boundary. No organic farms have been identified within the project boundary.

The applicant has stated that drainage tiles are not present in significant quantities in the Project Boundary and therefore are not being considered for any special mitigation planning during construction or operations. In the event drain tile is unexpectedly encountered and damaged, Darien Solar will repair and restore tiled areas to a condition reasonably similar to its pre-construction state.

A survey conducted by the applicant indicated that none of the project's participating landowners have property enrolled in farmland preservation agreements.

The applicant has identified three participating landowners with property currently enrolled in the conservation reserve program (CRP).

Restoration process for returning land to agricultural use after decommissioning

The applicant has developed detailed decommissioning steps which describe the proposed process for returning the land within the project boundary to productive agricultural use. Decommissioning steps would include the removal of impervious surfaces, below- and above-ground infrastructure, and soil decompaction in all areas. For additional details regarding the decommissioning and restoration process that would occur at the end of the project's lifespan, see Section 1.7.3 of the application for this project ([PSC REF#: 394201](#)).

Two center pivot irrigation systems have been identified in signed parcels being considered for solar arrays. Individual agreements with those landowners have been arranged to allow for their removal.

Darien Solar is seeking a merchant CPCN and not a Utility CPCN and has affirmatively stated that the project will not be seeking condemnation powers. Thus, any landowners who own land that is presently agricultural would host solar generating facilities voluntarily.

As described in its Vegetation Management Strategy, Darien Solar is seeking to utilize some areas of the array for native seed production. Additionally, Darien Solar will employ commercially reasonable efforts to implement more agricultural co-use at the site, including possible activities such as grazing with sheep and honey production.

[Wisconsin Stat. § 32.035](#) states that an agricultural impact statement (AIS) with the Department of Agriculture, Trade, and Consumer Protection (DATCP) is required if the project is exercising the powers of eminent domain affecting farming operations. The proposed project would not exercise powers of eminent domain.

Airports

The applicant conducted background research with the Federal Aviation Administration (FAA) website, the Wisconsin Department of Transportation (WisDOT), and several private sources for airport and airstrip information to identify registered listings near the proposed solar generation facility. The approximate maximum height of solar panels is 15 feet aboveground and, thus, is not expected to interfere with airspace uses by any airport or airstrip. Given the low height of the solar panels and distance from existing airports, no impacts to private or public airports, airstrips, heliports, or other facilities are anticipated as a result of project development. Therefore, no mitigation measures have been proposed.

Communications Towers

Comsearch has developed and maintains comprehensive technical databases containing information on licensed mobile phone carriers across the US. Mobile phone carriers operate in multiple frequency bands and are often referred to as Advanced Wireless Service, Personal Communication Service, 700 MHz Band, Wireless Communications Service, and Cellular. They hold licenses on an area-wide basis which are typically comprised of several counties. For the cellular towers located within the Project Boundary, no setback distance is required from an interference standpoint due to the higher frequencies in which they operate within the UHF band. Electromagnetic interference (EMI) from a solar farm could be caused by an induction field, which is created by the AC electrical power and harmonics at the inverter of the Power Conversion Stations located throughout the facility. The propagation of the interference occurs over very short distances which are generally around 500 feet or less, and due to the low frequency (60 Hz) operation of the PV inverter, EMI from solar farms does not normally extend above 1 MHz.

Radio signals and broadcasting

Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the Project. No recommendation for mitigation was recommended for the applicant, as the location of the solar arrays meets or exceeds the required distance separation from all licensed AM and FM broadcast stations near the Project Boundary.

Microwaves

Comsearch has developed and maintains comprehensive technical databases containing information on licensed microwave networks throughout the United States. These systems are the telecommunication backbone of the country, providing long-distance and local telephone service, backhaul for cellular and personal communication service, data interconnects for mainframe computers and the Internet, network controls for utilities and railroads, and various video services. This report focuses on the potential impact of a proposed solar farm on licensed, proposed, and applied non-federal government microwave systems.

This study identified four microwave paths intersecting the Project Boundary. The Fresnel Zones and Consultation Zones for these microwave paths were calculated and mapped. The lower edge of the zones for all paths were found to be at least 34 feet above ground throughout the Project Boundary. The solar panels have a maximum height of 15 feet. Therefore, all proposed solar array structures within the defined Project Boundary are anticipated to have sufficient vertical clearance and avoid the risk of obstructing or causing harmful interference to the microwave paths in and around the Project Boundary.

Television signal and reception

Comsearch performed an Over-the-Air (OTA) TV Analysis and concluded that television reception interference was unlikely. Specifically, the inverters of a power conversion station would be installed away from residential areas to reduce the likelihood of EMI to households that may rely on OTA television service. At minimum, a setback distance of 500 feet from any household is recommended. In the unlikely event that EMI is observed at a certain household following the construction of the solar farm, a high-gain directional antenna may be employed, preferably outdoors, and oriented towards the signal origin to mitigate the potential impact on OTA TV signal reception.

Although television signal and reception is not likely to be impacted by the proposed project, the applicant has stated that both cable service and direct broadcast satellite service may be offered to

those residents who can show that their OTA TV reception has been disrupted by the presence of the solar farm after it is installed.

Doppler radar

Doppler radar works through the interpretation of data received from radar signals that have returned to the sending station after being reflected by an object in the path of the beam. Some of the things that can interfere with this beam to create a false positive interpretation include dense bird populations, adverse atmospheric conditions, and smoke plumes. Tall structures such as trees or buildings within the sight line of the sending position are also described as a growing problem by the National Oceanic and Atmospheric Administration. The development of a solar farm would have a maximum topographic impact of fifteen feet. Because the radar towers are elevated to avoid interference from topography (minimum height of the NEXRAD towers is 10 meters in height), Darien Solar believes there will be no impact from the development of a solar facility.

Other frequencies used for communications

In addition to the items analyzed in sections above, Darien Solar has commissioned an assessment of the emergency services in the Project Boundary by Comsearch to identify potential impact from the proposed solar farm. Comsearch evaluated the registered frequencies for the following types of first responder entities: police, fire, emergency medical services, emergency management, hospitals, public works, transportation and other state, county, and municipal agencies. Comsearch also identified all industrial and business land mobile radio systems and commercial E911 operators in proximity of the project.

No recommendation with regard to coverage impact mitigation is necessary for any of the items referenced in this section, or herein, as the proposed project is not expected to cause any significant degradation in signal strength after construction. Further, appropriate military personnel identified in have been contacted to verify the project has no impacts to military airspace.

Electric and Magnetic Fields (EMF)

Magnetic fields, measured in milliGauss (mG), are generated when electricity flows on a conductor such as an underground collector circuit in this case. The intensity of the magnetic field is dependent on the voltage and load on the line and rapidly decreases with the distance from the conductors. The magnetic field generated from the conductors of an electrical circuit extends from the energized conductors to other nearby objects. The load on a circuit varies throughout the day and therefore the magnetic field level will also vary from hour to hour. Considerable research has been conducted to determine whether exposure to 60 Hz (the electrical grid frequency in the United States) magnetic fields cause negative health effects. These studies have shown no statistically significant association.

Predicted electric fields studies conducted by Darien Solar for the proposed project determined that electric fields associated with the proposed collector lines would be negligible due to the design of the underground collection system. For the purposes of this study, maximum loading was assumed for the unique line segments associated with this project. It was likewise determined that electric fields associated with the proposed transmission line would also be negligible. Results of the study indicate that the predicted magnetic fields associated with these components of the proposed project are below levels associated with typical household electric appliances and tools. Refer to Appendix N of the application for this project for the complete EMF study ([PSC REF#: 394236](#)).

Noise

A pre-construction noise analysis was conducted on behalf of the applicant. The analysis consisted of determining the location of all noise-sensitive receptors located near the project (primarily houses), measuring existing noise levels within the Project Boundary, and predicting both construction and operational noise levels. The analysis was carried out in accordance with the PSC's Measurement Protocol for Sound and Vibration Assessment of Proposed and Existing Electrical Power Plants. Darien Solar's application includes additional data regarding potential noise levels including recent operational noise measurements performed at other Invenenergy-operated solar projects which have served to calibrate and validate the model used here.

Noise-producing elements of the operation of the project include inverters, transformers and the BESS. The two main power transformers are located at the project's substation near the middle of the project. Operational monitoring has shown that tracking motors contribute negligible quantities of noise. CPCN applications require the inclusion of Alternate sites, so the project layout version studied for this analysis includes all land that could be constructed upon within the project boundary.

Noise-producing equipment to be employed during construction typically includes bulldozers, graders, excavators, trucks, vibratory post setters, and cranes. The Pre-Construction Noise Analysis shows that all residences and other noise-sensitive receptors within the Project Boundary are predicted to experience less than 40 dBA at night and less than 45 dBA during the day from the project. Refer to Appendix P of the application for this project for the complete noise analysis ([PSC REF#: 394284](#)).

Darien Solar has provided an updated analysis of noise, as of November 2020 to reflect the most current design and engineering project plans ([PSC REF#: 402155](#)). The layout changes affecting noise include the movement of some solar inverter locations, the addition of solar inverters in areas where previously there were none, and the removal of solar inverters from some areas.

All other aspects of the design of the project remain unchanged (as described below) for the purpose of this analysis, including the location and design of the battery storage facility and substation. Similarly, all noise level prediction methodology, sources of noise, and locations of the residences remain as described in the June 2020 Report. The following summarizes the changes to the design and to the predicted noise levels between the April and the November 2020 designs:

- None of the predicted noise levels exceed 50 dBA during the day or 45 dBA at night,
- The total number of inverters has been reduced from 114 to 105 and some inverter locations were shifted,
- The predicted noise levels at one non-participating residence increased by 2 dBA and increased by 1 dBA at 21 others,
- Noise levels are predicted to decrease by 1 to 4 dBA at the other 71 non-participating residences,
- The predicted noise levels increased by 3 dBA at two participating residences and decreased by 1 dBA at four others.

The 2 dBA increase at one of the non-participating residences is the result of one solar inverter being added in the area. This increase could be mitigated by one or more of the following measures: shifting one or more inverters away from the residence; orientating the louder side of the inverters away from this receptor; or constructing a small barrier (wall) in the direction of the receptor.

Lastly, the highest predicted daytime noise level at any non-participating residence remains 44 dBA, which is below 50 dBA. The layout changes modeled do not affect the nighttime predicted noise levels (produced by the substation and battery energy storage system which did not change) and thus predicted nighttime noise levels remain as reported in June 2020 and are not anticipated to exceed 45 dBA. Darien Solar anticipates another update to the noise analysis prior to construction to reflect a final, approved layout and equipment selections.

Handling of noise complaints

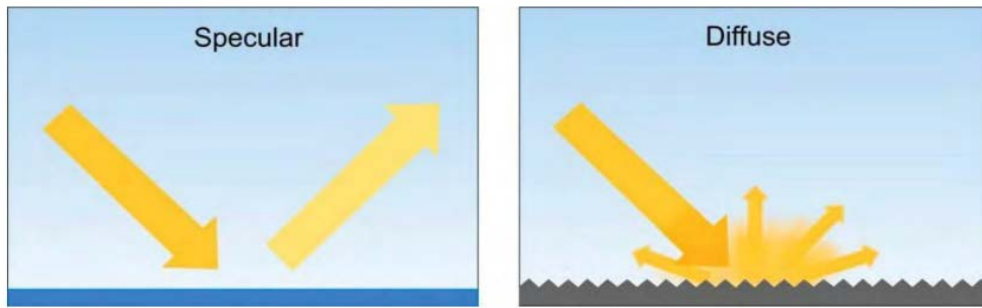
Darien Solar has stated that they would meet with any local resident submitting a noise complaint to fully understand the complaint. Observations of excess noise can sometimes indicate the need to repair or maintain equipment, and Darien Solar would determine if the noise is the result of a mechanical issue that can be repaired. If not, Darien Solar would attempt to negotiate a mutually agreeable solution.

Solar Panel Glint or Glare

With growing numbers of solar energy facilities being proposed and installed throughout the United States, the potential impact of glint and glare from PV modules and other types of solar collection systems is receiving increased attention as a potential nuisance to neighboring residential properties or potential hazard or distraction for vehicle drivers, pilots and air-traffic control personnel at nearby airports. In certain situations the glass surfaces of solar PV systems can produce glint (a momentary flash of bright light) and glare (a reflection of bright light for a longer duration). The amount of glint or glare seen by an observer depends on several factors including the angle of the sun rays hitting the panel, distance between the observer and the panel, and the actual angle (or the tilt) of the panel's surface.

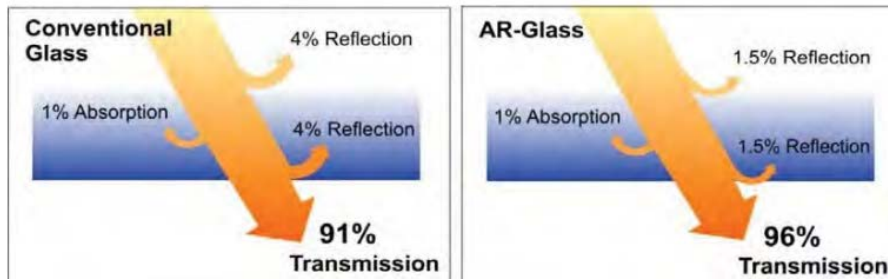
Smooth surfaces such as glass and still water exhibit specular reflection. Specular reflection is when light hits the surface at one angle and is reflected in another direction, similar to a mirror. Specular reflection can be contrasted with diffuse reflection, which occurs when light reflects off microscopically rough surfaces and scatters. Diffuse reflection happens when light hits objects within our field of vision. The difference between the two types of reflections are illustrated in **Figure 3** below. Since solar modules are flat and have a relatively smooth surface, most of the light reflected is specular, meaning that incident light from a specific direction is reradiated in a different direction. When the sun is reflected on a smooth surface, it can result in glint or glare for those who are on the receiving angle. In both cases, the light reflected is diminished by having first hit the substrate that reflected it—unless that surface is a perfect mirror. When the sun is the original source of the light reflected off a reflective surface, the time and position at which glare or glint might occur depends on the original position of the sun in the sky in relation to the location of the viewer.

Figure 3. Specular and Diffuse Reflections



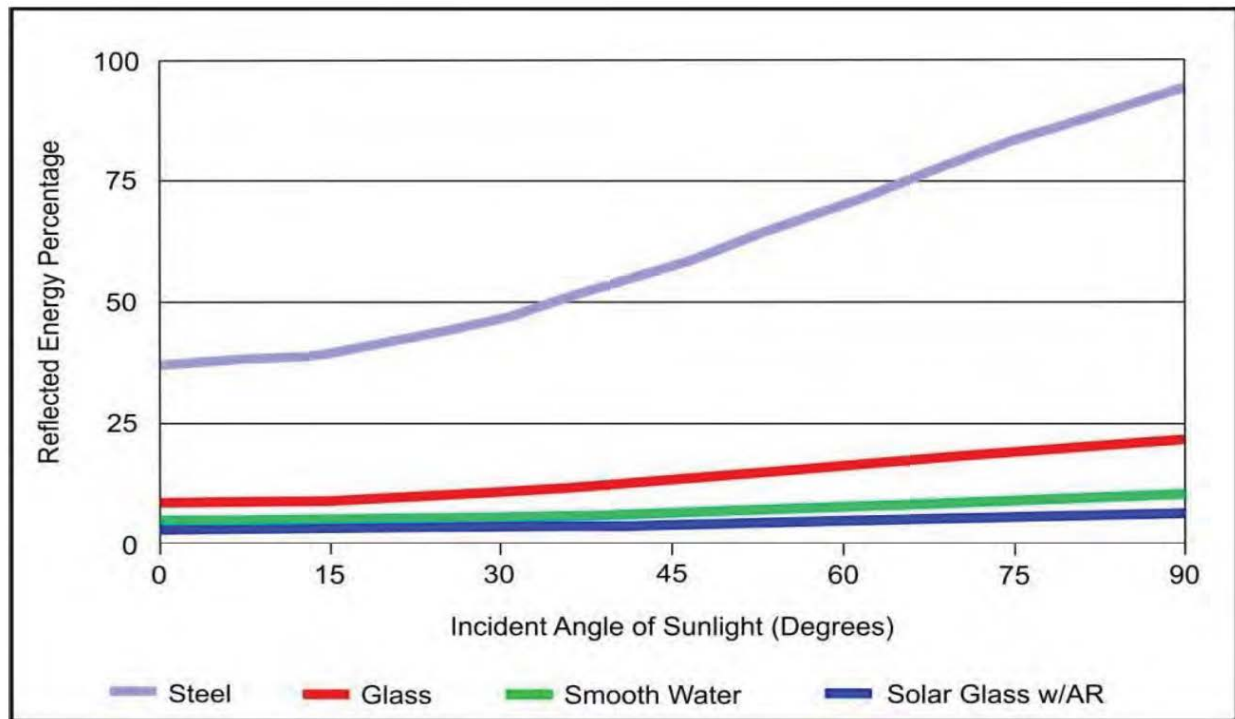
Solar PV modules are constructed from high transmission, low iron glass and are covered with anti-reflective coatings. Anti-reflective coating is most effective when the sun is higher in the sky (at a higher angle to the surface of the panel), and becomes less effective with the sun's decreasing altitude (at less of an angle to the surface of the panel). Modern PV modules with anti-reflective coatings typically reflect between 2-4% of the incoming sunlight. **Figure 4** depicts a comparison between the amounts of light reflected from a conventional glass surface versus a glass surface that has been treated with an anti-reflective coating.

Figure 4. Conventional and AR-Glass Transmission



A number of studies have been conducted which have measured the intensity of reflections from PV solar modules with respect to other naturally occurring and manmade surfaces. The results of the studies show that reflections of the sun from solar modules are possible; however, the reflections produced will be of intensity similar to, or less than, those produced from still water and significantly less than reflections from glass and steel. **Figure 5** depicts the percent of light reflected from common surfaces as the angle of sunlight (height of the sun above the horizon) increases.

Figure 5. Comparison of light reflected from common surfaces as a function of the angle of incidence.



Another method of measuring the reflectivity of light on a surface is albedo. Albedo describes the ratio of solar radiation across the visible and invisible light spectrum reflected by a surface. Albedo varies between 0, a surface that reflects no light, and 1, a mirror-like surface that reflects all incoming light. Solar PV modules with a single AR coating have a reflectivity of between 0.03 and 0.18. Common sand has an albedo between 0.15 and 0.45 and agricultural vegetation has an albedo between 0.18 and 0.25. This diffuse reflectivity measure is consistent with the intent of solar PV modules to absorb the majority of solar energy for conversion to electricity.

A glare analysis for the proposed project was conducted by Darien Solar. The analysis looked at the potential of glare from PV panels at 108 locations within the study area. The locations, or observation points included residences and segments of nearby roads frequently used by commuters. The report classified the impact of glare on an observer into three color-coded levels: low potential for producing an after-image (green), potential for producing an after- image (yellow), and potential for permanent eye damage (red). The model did not identify any potential for permanent eye damage instances (red), but did identify instances of low potential for producing an after-image (green) at eight locations and along one road segment; and instances of potential for producing an after-image (yellow) glare at 35 locations and glare from three arrays on one route for arrays having a resting angle of 5 degrees. The remaining modeled locations and road segments are not expected to experience glint or glare effects. The sampling of arrays modeled at 9 feet essentially produced the same glare as arrays modeled at 6 feet; however, the sampling of arrays modeled at a 0 degree resting angle produced significantly more glare. Appendix Q of the application for this project contains the completed glint and glare report ([PSC REF#: 394245](#)).

In December of 2020, Darien Solar provided an update to the original Glare Study ([PSC REF#: 402155](#)). The update was largely due to the applicant's proposal to include an additional alternate array location. Darien Solar's newly proposed additional array areas are located north and south of

proximal landowners, so those homes should not be impacted by the glare from new solar array areas due to the predictable angles of the sun and the north-south orientation of the project's single axis tracker system (i.e., glare is experienced east and west of the arrays, but not to the north or south). An uninhabited structure not identified in the study is the condemned living space of the participating landowner leasing the new solar array areas to Darien Solar. This landowner lives offsite and will not be impacted by glare from solar arrays.

Handling complaints and potential mitigation

In the event of a complaint about glare by a resident within or outside of the project boundary, modelling would likely be used to assess the extent and time of day of glare at the point of concern and to determine potential mitigation options.

As the PV panels would be mounted to single-axis tracking systems, the surface of the PVs would be in-line with the position of the sun; thereby, reducing the potential for steep, glancing angles (i.e., chance for glare) compared to fixed-tilt systems. If glint or glare prove to be problematic for an observer, the applicant may then use fencing, vegetation, or other objects of obstructive nature to mitigate glint or glare effects, or possibly slightly adjust the resting angle.

Darien Solar expects nighttime resting angles to be consistent across the Project Boundary and would seek to minimize any potential impacts from glint or glare during final engineering of the site. The planned overnight resting angle for the proposed solar arrays varies across tracker manufacturers and the planned resting angle would be determined during final design engineering. The resting angle is likely to be approximately 0 degrees to 30 degrees.

Coordination with local government

Darien Solar engaged with Walworth and Rock Counties and the Towns of Darien and Bradford in negotiations on a possible Joint Development Agreement (JDA), and anticipates these discussions to yield an agreement for subjects such as:

- Materials delivery haul routes
- Driveway permits
- Road maintenance and repair
- Stormwater management
- Reimbursement of town or county costs
- Replacement of lost tax receipts for taxing bodies which do not receive Utility Aid Shared Revenue funds.
- State Utility Aid Shared Revenue payments to hold harmless for county and municipal governments
- Decommissioning
- Construction period public safety and EMS service
- Site lighting
- Insurance issues
- Dispute resolution process
- Snowmobile paths

Darien Solar expects that the Joint Darien Fire/EMS Department will provide fire and emergency services to the Project during construction. If needed, the Rock and Walworth County Sheriff's Offices are expected to provide traffic control and security services. Darien Solar has proposed in

draft agreements to meet with local government officials and emergency responders at least 60 days prior to construction to present final plans for use of public roads, location of equipment laydown yards, finalize construction scheduling and discuss safety practices and coordinate local emergency response capabilities. Darien Solar would also develop a BESS Emergency Response Plan with local authorities; further, it is anticipated that any proposed response plan would include quarterly safety drills and annual safety training with local first responders.

Heat Island Effect

The heat island effect refers to ambient temperatures increasing due to land use changes. This effect is often experienced in urban environments as a result of increased development where heat builds up and becomes stored in rooftops or pavement. There are few studies currently available that investigate whether a similar heat island effect is created due to the operation of solar generation facilities. No known studies have been conducted in the environment and climate of the Upper Midwest.

Construction Sequence and Workforce

If the project is authorized, construction would commence in spring 2022 after frost leaves the ground. If this is delayed, Darien Solar still expects to commence construction within twenty-four months of a CPCN Order. Onsite construction activities are expected to continue for 18 – 24 months and conclude with a commercial operations date on or before 12/31/2023. Appendix H includes a preliminary project schedule for the construction process including an approximate timeline of construction items ([PSC REF#: 394229](#)).

Darien Solar has provided the following as an example of the typical sequence of staging and construction events for the installation of a solar array.

1. Mobilize equipment and personnel to site
2. Installation of sensitive resource/impact avoidance signage/flagging, survey staking, and stormwater protection/wildlife exclusion measures (e.g., silt fence)
3. Construct laydown yard(s) and office trailers.
4. Access road construction and grading of the array areas, including delivery of aggregate for roads
5. Racking pile deliveries behind the grading crews as they progress through site
6. Delivery and installation of inverters
7. Delivery of medium voltage cable
8. Installation of medium voltage cable underground
9. Installation of the racking piles
10. Delivery of the racking system components
11. Installation of the racking system
12. Delivery of the solar panels
13. Installation of the solar panels

14. Installation of miscellaneous equipment such as DC collection
15. Commissioning the plant
16. Commercial operation

Fencing surrounding array areas may be installed at any point between items 3 and 14.

It is anticipated that the solar array blocks would be constructed on a rolling basis with simultaneous activities occurring in multiple blocks.

Ancillary facility construction including the interconnection, transmission line, and substation could be constructed at any point between the staging items listed 3 and 13 above. Minimal large deliveries would be required for the Generator Step-up Transformer, the control enclosure, and transmission structures.

General site improvements would be made such as access improvements and preparation of the staging/laydown areas. The temporary staging/laydown areas would be approximately 50 acres in total and located at various locations within the Project boundary. The staging/laydown areas would be used for storage of construction materials and shipped equipment containers, receiving construction deliveries, and temporary parking for project related vehicles.

Construction Traffic and Sequence

Darien Solar estimates that there would be between 25 and 35 trucks used daily for equipment delivery during construction. Light duty trucks would also be used on a daily basis for transportation of construction workers to and from the site. Most panels and other site equipment and materials would be delivered by standard, legal load weight semi-trucks. Typical construction equipment such as scrapers, bulldozers, dump trucks, watering trucks, motor graders, vibratory compactors, and backhoes would be used during construction. Specialty construction equipment that may be used during construction would include:

- Skid steer loader;
- Vibratory pile driver;
- Medium duty crane;
- All-terrain forklift;
- Concrete truck and boom truck;
- High reach bucket truck; and
- Truck-mounted auger or drill rig.

Decommissioning Plan

At the end of commercial operation, Darien Solar would be responsible for removing all of the solar arrays and associated facilities to a depth of four feet below grade. Darien Solar has stated that it intends to reserve the right to extend commercial operations by applying for an extension of any required permits. Should Darien Solar decide to continue operation, a decision would be made as to whether to continue with the existing equipment or to upgrade the facility with newer technologies.

Decommissioning of the project at the end of its anticipated 35 - 50 year life would include removing the solar arrays, inverters, transformers, above-ground portions of the electrical collection system, fencing, lighting, substation, access roads and the O&M facility from the Project Boundary. Standard decommissioning practices would be utilized, including dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements and equipment, followed by restoration of the site.

Though Darien Solar is not aware of any photovoltaic solar energy generating systems greater than 100MW that have been decommissioned, the construction methods and materials have been used in other projects for decades, and as an industry, decommissioning methods are common. For additional details regarding the applicant's proposed decommissioning plan see Section 1.7.3 of the application for this project ([PSC REF#: 394201](#)).

Erosion Control and Storm Water Management Plans

Darien Solar has prepared a draft Erosion Control and Storm Water Management Plan describing the best management practices that would be used on-site for erosion control and post-construction storm water management ([PSC REF#: 394233](#)). Once a Contractor is selected and prior to construction, the ECSWMP would be finalized, and coverage would be obtained under the Construction Site Storm Water Runoff Permit from the DNR under Wis. Admin. Code § NR 216. The applicant would be required to submit a Construction Project Consolidated Permit Application which would meet the Technical Standards used by the DNR.

To meet the Wisconsin Administrative Code NR 151.121-151.128 post-construction performance standards for stormwater management for new development and redevelopment projects, Darien Solar has proposed a low impact development (LID) approach. This approach would include using a vegetated filter under the proposed panel arrays and throughout the Project Boundary. All-season equipment access would also necessitate aggregate roads leading to inverter skids.

Materials Management Plan

Material management plans general include a description of the proposed worksite access points (including their location) as well as an overview of the haul routes the applicant proposed to use. Haul routes are used to move materials such as clean and contaminated fill to and from the project site. It is anticipated that the traffic along haul routes would increase and reach peak volume during the construction phase of the project.

The primary haul routes proposed by the applicant for bringing construction materials to the project would be on US Interstate 43, US Highway 14, State Highway 89 and State Highway 11. Local roads planned for use in and adjacent to the project include Clowe's Road, County Highway C, North Road, South Odling Road, East Creek Road and Old 89 Road. Inbound and outbound materials, clean fill materials (if required), contaminated materials (if or as required), and any other materials would be transported on these same routes.

Construction material stockpiles would be located at the general construction laydown area (just to the northeast of the intersection of Creek and North Roads) and materials would be staged for use throughout the project as is consistent with normal construction practices. Soils stripped or removed during access road construction, grading, and excavation, would be stockpiled near the removal location and used as fill on site, or thin spread on the site. Topsoil stripped from the general

construction laydown area would be stockpiled adjacent to the laydown area and replaced upon reclamation. Sediment control measures would be installed prior to any topsoil removal or grading and will be inspected and maintained in accordance with the ECSWMP.

Construction equipment would be staged in the construction laydown area and in solar array areas where construction activities are imminent or ongoing, or as allowed by agreements with landowners.

Spill control kits would be stored at the project laydown area and within construction vehicles.

Darien Solar has stated that they do not expect any contaminated materials would be encountered on-site. If suspected contaminated soils or other materials are identified, a qualified firm would be contacted to test suspected materials. If contamination is confirmed, the contaminated materials would be treated and/or disposed of according to the appropriate protocol for the situation encountered and the relevant regulations. The DNR would be contacted as required under state law. If contamination is encountered, work would be suspended as appropriate in the immediate area of contamination until the appropriate remediation measures have been completed.

No excavation materials are expected to be removed from site. In the case that it is deemed necessary to remove excavated materials from the site, the materials would be transported via ground transportation on the haul routes to an appropriate location for disposal in accordance with all codes, standards, rules, and regulations that apply.

Due to the shallow excavation depths on site, significant dewatering is not expected during construction. If dewatering is required due to intrusion of rainwater, surface runoff, or groundwater into trenches or other excavations, dewatering would use small pumps and discharge locally applying sediment control as described in the draft ECSWMP. It is expected that these dewatering activities would be covered under the project's General Construction Stormwater Permit.

Preliminary engineering analysis indicates that approximately 600 acres of the proposed Primary Array areas would require some degree of grading to accommodate the single axis trackers. For the Alternate Array areas, 200 acres of grading is estimated. The grading consists of localized cut and fill to provide a consistent slope under each tracker. A consistent slope is required to maintain adequate ground clearance at all points without requiring excessive post heights in other locations along the tracker. Approximately 130,000 cubic yards of material are expected to be excavated as a result of grading activities to install the Primary Arrays and an estimated 85,000 cubic yards for Alternate Arrays. The excavation numbers above are preliminary pending final engineering. The final grading plan would be designed to both minimize and balance the required cut and fill quantities to the extent practical, and excess soils would be spread evenly over participating parcels in accordance with the procedures outlined in previous sections.

Topsoil would be stripped prior to construction of the estimated fourteen miles of project access roads associated with the Primary Arrays, pending final engineering. Road cross sections typically range, pending final engineering, from 12 to 24 inches thick with an average depth of 16 inches. This would result in approximately 74,780 cubic yards of excavation for project access road construction, dependent on final engineering.

Installation of the project's estimated 51 miles of underground AC collection system (anticipated to be 3.5 feet deep and 1.5 foot wide) would involve approximately 50,000 cubic yards of excavation,

all pending final engineering. The collection system installation method would likely involve trenching, cable installation and backfill all in one pass.

DC cables would connect the strings of panels. These cables may be affixed or hung in line with the racking system to the end of each row, then sent to combiner boxes where larger gauge cables would exit and run to an inverter. To create a conservative, worst-case estimate, this analysis assumes all DC cables would be trenched at a depth of 2.5 feet in a trench 10 feet wide. For the 250 MW Project, this DC cabling excavation sums to just over 100,000 cubic yards, pending final engineering.

No materials are expected to be dredged from beds and banks of waterways and wetlands throughout the Project Boundary. No channel dredging is proposed for the project.

All excavated material is expected to be reused on site, either as fill within the array or trench backfill. Topsoil stripped within the Project Boundary would be reused as topsoil within the Project Boundary. The project plan set would include topsoil stripping specifications to ensure proper topsoil management.

No off-site disposal of material is expected for the project. All non-contaminated materials are expected to be re-used within the Project Boundary. If suspected contaminated soils or other materials are identified they would be tested and disposed of as described in the *Field Screening Protocol for Contaminant Testing*. More information regarding this protocol can be found in Section 8.5 of the application for this project as well as the ECSWMP which is Appendix L of the application ([PSC REF#: 394233](#)).

Dewatering of turbid water (water that is visibly cloudy or brown in color) would be discharged via pump and hose or overland flow (via temporary ditch or grade cuts) to a temporary sediment basin for pretreatment. Riprap aprons (structures used to slow down the discharged water) should be used for discharge locations. If riprap is not used, an alternative form of energy dissipation should be used to prevent scour and re-suspension of soil at the discharge point of the hose. If discharge to a temporary sediment basin is not feasible, the use of dewatering dumpsters, dewatering bags, or other prefabricated product should be used. The use of rock checks, erosion control blanket, and sumps or traps shall be considered for overland flow dewatering. After the use of BMPs, the water could be discharged through a vegetated buffer and energy dissipation (riprap aprons). The discharge of water from the site should be visibly clear in appearance. The discharge of accumulated water should not: contain oil, grease, a sheen, odor, or concrete washout (use an oil-water separator or suitable filtration device if material is found); adversely impact adjacent properties with water or sediment; adversely impact waters of the state; cause erosion of slopes and channels; cause nuisance conditions; or contribute to inundation of wetlands.

Due to the proposed low impact design, no major changes to the existing grades or flow direction are expected to occur during construction. The water would leave the Project Boundary in the same manner as existing conditions, although flows would be reduced within the proposed meadow areas.

Due to the shallow depth and short-term nature of the proposed excavations on site, no site-specific dewatering plan is proposed. Collector system trenches would be backfilled within approximately a day of when they are opened, so any dewatering would require a temporary setup. If dewatering is required due to intrusion of rainwater, surface runoff, or groundwater into trenches or other excavations, dewatering would use small pumps and discharge locally applying sediment

control as described in the draft ECSWMP. It is expected that these dewatering activities would be covered under the Project's General Construction Stormwater Permit.

Waterway Permitting Activities

Waterways in the form of creeks, streams, rivers, and lakes are abundant throughout Wisconsin, and provide for many recreational activities, as well as habitat for aquatic species. Wisconsin has more than 12,600 rivers and streams that meander their way through 84,000 miles of varying terrain. About 32,000 miles of these streams perennially or continuously run throughout the year, while the remainder flow intermittently during spring and other high-water times.

Waterways within the overall Project Boundary were identified using available public desktop resources. Field identification of waterways within the proposed project occurred during the 2019 and 2020 growing seasons. All desktop and field identified waterways are considered navigable waters of the state. Eleven waterways were identified within the Project Boundary. Of the eleven waterways that occur within the Project Boundary, one waterway, Turtle Creek, is associated with the Alternate Arrays, no waterways are associated with the Primary Arrays and the other ten waterways are located in the greater Project Boundary, outside of the Contracted area.

A portion of Turtle Creek located in the western portion of the Project Boundary is classified as an Exceptional Resource Water starting at stream mile 0.95. There are no waterways identified as Outstanding Resource Waters, Trout Streams, or Wild or Scenic Rivers identified in the Project Boundary.

DNR is responsible for regulating activities in and adjacent to navigable waterways under Wisconsin State Statute Chapter 30. Chapter 30.025 Wisconsin Statutes describes the DNR process for reviewing and permitting utility projects that require authorization from the Commission and DNR. DNR participates in the joint review process with the Commission with respect to wetlands and navigable waterways. As currently proposed, the project would not require Chapter 30 waterway permit coverage from the DNR.

Waterway impact avoidance and mitigation strategies

None of the waterways identified within the project area are proposed to be impacted by the project construction. Waterway avoidance would be achieved by siting all project components outside of waterways, by avoiding crossing waterways with vehicles or equipment, and by utilizing Horizontal Directional Drill (HDD) installation method to install collection lines under Turtle Creek, which would avoid direct impact to waterway bed and banks.

To minimize potential impact to Turtle Creek during the HDD installation of the collector lines, the applicant reviewed available geotechnical data in the vicinity of the project and collected field geotechnical data within the project area to confirm the area proposed for the HDD installation is conducive to HDD installation. The applicant would collect additional field geotechnical data concerning the appropriate methods for HDD beneath Turtle Creek as part of final engineering. The applicant would develop a site specific frac-out plan after the precise location of the HDD installation is determined. The HDD activities would be limited to outside the fish spawning season and other time periods for sensitive species if there is site information and geotechnical information that shows there is a higher probability of frac-out to occur under Turtle Creek.

Wetland Permitting Activities

Wetlands provide vital functions that benefit society. Wetlands detain storm water runoff, enabling the slow recharge of groundwater resources and lowering downstream peak flood levels; filter sediments and pollutants from the air, precipitation, and upstream sources which results in higher water quality downstream; provide food, cover, and nesting habitat for many species of fish and wildlife; provide a recreational opportunity for bird watching and other wildlife viewing, hiking, and enjoying the aesthetics of the surrounding landscape. It is estimated that between one-quarter and one-third of all rare species in Wisconsin are found in wetlands.

Wetlands are a dynamic ecosystem and provide different functions depending on the type of wetland. The same wetland may even provide different functions from year to year and season to season. There are many different types of wetlands, typically characterized by the size, type of vegetation and amount of soil saturation or surface water found within them.

A desktop delineation of wetlands within the overall Project Boundary was completed using available public resources. A field delineation of wetlands occurred during the 2019 and 2020 growing seasons. The 4,480 acre wetland “Delineation Area” included the Contracted Area footprint within the Project Boundary. No construction activities would occur outside of the Delineation Area with the exception of one 10-acre collection route within the proposed construction footprint. The desktop delineation did not identify wetlands within this 10-acre area.

A total of 97 wetlands or wetland complexes (field and desktop delineated, combined) are present within the Project Boundary. Of the 97 wetlands identified, 48 were field delineated and 49 were desktop identified wetlands which have not been confirmed by a field delineation because these wetlands are outside the leased area proposed for development. The majority of field delineated wetlands are classified (based on their predominant wetland type) as seasonally flooded basins (17) and wet meadows (19). Other wetland types that were field delineated include shallow marsh (1), shrub-carr (3), shallow open water (4), floodplain forest (2), and hardwood swamp (2). Desktop delineated wetlands within the Project Boundary are mostly comprised of seasonally flooded basins located in farmed fields, wet meadows, and floodplain forest systems. A total of five wetlands (four field-delineated and one desktop-delineated) occur adjacent to Turtle Creek where it is deemed an Exceptional Resource Water. None of these wetlands are anticipated to be impacted by project construction. No open bog, bog relict, muskegs, ephemeral ponds in wooded settings, interdunal or ridge swale complex, wild rice dominated emergent aquatic wet or wet-mesic prairies, deep marsh, or sedge meadow communities were identified in the field delineation.

The Project Boundary includes five wetlands which would be located inside of the perimeter fences. Two of these wetlands are associated with the Alternate Arrays and the other three wetlands are associated with the Primary Arrays. Both of the wetlands associated with the Alternate Arrays are classified as seasonally flooded basins. Wetlands within the Primary Arrays consist of two wetlands classified as wet meadows and one wetland classified as a seasonally flooded basin. The other 43 field delineated wetlands and 49 desktop-delineated wetlands are outside of the Contracted Area.

Wetlands identified within the Contracted Area are not expected to be directly impacted by project construction. All project infrastructure would be located outside of wetland and construction in wetland is anticipated. All proposed collection lines are expected to avoid wetlands except for two wetlands in the Alternate Arrays that would be crossed by the directional bore construction methods. No grading or leveling of wetlands would occur as solar arrays have

been sited outside wetlands. Vehicles and equipment would not operate in wetland and construction matting would not be placed in wetland because construction in wetland would be avoided.

While direct wetland fill from construction activities is not proposed, five wetlands would be located inside of perimeter fences of the proposed layout. To ensure these wetlands are not unintentionally directly or indirectly, impacted during construction, the following measures should be implemented:

- Install signage at wetland boundaries to alert construction crews to not work within or access through these wetland areas.
- Install site-specific sediment and erosion control measures and devices should be installed prior to construction activities and inspected and maintained daily throughout all construction and restoration phases.
- Provide copies of all plans and environmental site maps to construction crews. These documents should clearly label all wetland locations and include language stating vehicle access, storage of materials, grading, and all other construction activities are not allowed within wetlands. These documents should also clearly label where sediment and erosion control devices need to be installed when working adjacent to wetlands.
- Implementing a construction sequencing plan that minimizes the amount of land disturbed or exposed (susceptible to erosion) at one given time across the project.
- Revegetating disturbed areas and areas of exposed soil as soon as possible, and seed with a cover crop and/or native seed mix to help prevent the establishment of invasive species.
- Preparing and implementing an invasive species management plan that identifies known areas of invasive species populations, addresses site restoration activities, and includes specific protocols to minimize the spread of invasive species. Best management practices (BMP's) should be used, including cleaning construction vehicles and using construction matting. To minimize the introduction of new invasive species populations, equipment and matting should be cleaned before entering this site or moved between sites.
- Preparing and implementing dewatering practices that prevent sedimentation into wetlands.

If the above measures are not implemented during construction, wetland impact could occur. Potential wetland impacts could include, but not be limited to, rutting and soil mixing from vehicles and equipment driving over wetlands when the ground is not frozen, sedimentation into wetlands if proper sediment and erosion control devices are not installed or not maintained correctly, and the introduction and/or spread of invasive species into wetlands.

DNR is responsible for regulating the discharge of dredge and fill material into wetlands under [Chapter 281.36](#), Wisconsin Statutes, and Wisconsin Administrative Code. [Wisconsin Stat. § 30.025](#) describes DNR process for reviewing and permitting utility projects that require authorization from the Commission and DNR. DNR participates in the joint review process with the Commission, as detailed in Wis. Stat. § 30.025, with respect to wetlands and navigable waterways. As currently proposed, the project would not require wetland permit coverage from the DNR.

Sensitive Species

A certified Endangered Resources (ER) review was completed for the project area. The review was checked, modified (as needed), and approved by DNR staff in the ER Review Program. The review is based off information from the Natural Heritage Inventory (NHI) database, maintained by the DNR Bureau of Natural Heritage Conservation, to identify any endangered, threatened, or special concern species or natural communities in the project area.

The NHI database contains known records for endangered resources. However, most areas of the state have not been surveyed extensively or recently, so the NHI data should not be solely relied upon, particularly in areas dominated by private lands. In areas where suitable habitat exists for protected species but occurrences have not been recorded in the NHI database, there may be recommended activities that could mitigate or avoid potential impacts to protected species.

If approved, this project would begin construction over a year from the certified ER review date. DNR regularly updates the NHI database as new species records are discovered and when previous records are checked to determine if the species is still present. If the project is approved, the applicants would be required to conduct an updated review closer to the construction start date to determine if any change to the ER review would create the need for additional actions to avoid impacts to protected species.

The ER review for the proposed project determined there are several species located within the search buffer of the proposed project. While many of these endangered resources will not be impacted, a total of 19 species or natural communities may be impacted if actions are not put into place to prevent or minimize these impacts. They include:

- Two state listed and one special concern fish species
- One state and federally listed herptile species
- One state listed and two special concern herptile species
- Two wetland natural communities
- One special concern mussel species
- One state listed and eight special concern plant species

The DNR provided recommended actions to protect the special concern species as well as the state listed plant species and natural communities. Impacts to these resources can be minimized or even avoided by following these recommended actions:

- implementing invasive species BMPs, and/or conducting work under frozen or very dry ground conditions when working within or adjacent to the wetland natural communities
- implementing strict erosion and sedimentation control measures for the fish and mussel species
- avoiding areas of suitable habitat for the plant species or if suitable habitat will be impacted, then conducting presence/absence surveys and avoiding individual plants if they are found
- implementing time of year restrictions for the herptiles when working within upland habitat and/or installing herp fencing during appropriate times of the year to ensure these species are kept out of the project area

There are four state listed species (one of which is federally listed) that DNR provided required actions to ensure take of these species does not occur. Should these measures not be followed, an Incidental Take Authorization will be required from the DNR prior to activities taking place. Required actions for these species to avoid take include:

- Implementing strict erosion and sedimentation control measures for the two fish species. Any work taking place below the OHWM must consult with DNR prior to initiating.
- Complete habitat avoidance is expected to take place for the state-listed herptile species. If this is not possible, consultation with DNR is required.
- Complete habitat avoidance is also expected to take place for the state and federally listed herptile species. As habitat for this species is immediately adjacent to the proposed work spaces, project applicants have agreed to the following to further ensure impacts are avoided:
 - Report any observation to the DNR and FWS.
 - Reduce speed limits at facilities and access roads during the active season.
 - Crews must read a factsheet and watch a video on what the species looks like and what to do if one is encountered.
 - A Biological Monitor will be present during the species' active season.
 - Wildlife-safe erosion control materials will be used.
 - A Wildlife Barrier will be installed during the inactive season to further ensure the species does not enter the active project area.
 - Signage will be installed to indicate where suitable habitat is located and to keep out.
 - Low growing vegetation will be used near adjacent habitat to reduce mowings.

Based on the information available from the DNR and USFWS, the project layout, and planned activities as described in the application, this project is not expected to have a significant impact on endangered or threatened species. DNR recommended actions should be done as practicable to further decrease the risk of impacts to rare species.

Evaluation of Reasonable Alternatives

[Wisconsin Admin. Code § PSC 4.20\(2\)\(c\)](#) directs the EA to evaluate the reasonable alternatives to the proposed project and significant environmental consequences of the alternatives, including those alternatives that could avoid some or all of the proposed project's adverse environmental effects and the alternative of taking no action.

The no action alternative, which would be a denial of the CPCN, is a potential outcome of the Commission's consideration of the application. The potential environmental consequences of the proposed project described in this EA would not occur if the Commission denies the application. The applicant not filing the CPCN application with the Commission at all would also have the same effect.

An alternative to the solar generation facility could take the form of other energy generation technologies, such as wind energy systems or natural gas electric generation facilities. Any alternative generation facility would also create impacts on the environment, some of which could be similar to those discussed in this EA. Other impacts, such as air quality, could be significantly different if an alternative that utilized fossil fuels were considered.

[Wisconsin Stat. § 196.491\(3\)\(d\)3](#) requires the Commission to consider alternative locations when determining whether a proposed generating plant is in the public interest. [Wisconsin Admin. Code § PSC 111.53\(1\)\(e\)](#) and (f), which implement this statutory provision, require a CPCN application to describe the siting process, to identify the factors considered in choosing the alternative sites, and to include specific site-related information for each site.

Based on previous Commission CPCN processes with utility-scale solar generation facilities, applicants have provided a minimum of 25% additional siting areas with the proposed project as an alternative. These provide options that the Commission could select as allowable areas for the installation of arrays at the solar generation facility.

The Darien Solar Project Boundary encompasses approximately 7,699 acres, and 4,200 acres of this are under contract on which to build the project. This is a larger footprint than Darien Solar needs to complete the project. The Project Boundary can encompass a full-scale solar facility and alternatives which offer a variety of different characteristics and allow the Commission to consider multiple configurations for the project with unique benefits and choices. As previously indicated, the applicant has provided a 250MWac layout as well as a 381MWac layout. Either of these two layouts would be built within the 2,045 acre Project Area.

Further, the proposed sites for placement of solar generating equipment were evaluated for their topography, land rights, compliance with a uniform array construction, minimal impacts to adjacent residents, minimal impacts to environmentally sensitive areas and proximity to the project's electrical infrastructure.

Darien Solar also considered alternative locations for the project. The applicant has stated that the Project Boundary was selected after analyzing the entire state of Wisconsin for potential utility scale solar farm sites. During the evaluation of the alternative sites several factors were considered including the existing solar resource at a given location, proximity to transmission infrastructure, topography, ground cover and community acceptance. After considering the above factors, Darien Solar selected the proposed project location. Additional discussion regarding alternative locations analyzed by the applicant can be found in Section 1.4 of the Application for this project ([PSC REF#: 394201](#)).

Wisconsin Environmental Policy Act Determination

Wisconsin Admin. Code § 4.20(2)(d) identifies ten broad factors that are useful to consider when evaluating whether an EIS is warranted for a given Commission action. The following subsections consider and discuss each of the ten factors with respect to the proposed project.

Effects on Geographically Important or Scarce Resources

No geographically important or scarce resources were identified within the area to be affected by construction of the proposed project. If proposed mitigation actions are followed, the proposed project is not expected to significantly affect historic resources, scenic or recreational resources, threatened or endangered species, or ecologically important areas.

Conflicts with Federal, State, or Local Plans or Policies

The project is not in conflict with any known federal, state, or local plans or policies.

Significant Controversy Associated with the Proposed Project

Notice of the proposed project was sent to city and county government offices and local media, in addition to all potentially affected landowners. There are some landowners in the project area that have questions and concerns about the project. The Commission is not aware of any controversies regarding the type, magnitude, or significance of the expected environmental impacts related to the proposed project.

Irreversible Environmental Effects

Few aspects of the proposed project would be truly irreversible, although reversing project actions would incur significant costs and create additional disturbance and environmental effects. Short-term impacts such as noise, air quality, disturbance to local residents, erosion, and removal of vegetation would occur as a result of construction activities, and would not be irreversible. Fuels and some construction materials would be irreversibly committed and unavailable for other uses.

New Environmental Effects

The installation of all the solar generation facility infrastructure would create new environmental effects in the project area. The physical presence of these facilities on the landscape would create environmental effects, or changes, relating to land use, aesthetics, wildlife impacts, changes to vegetation, and storm water runoff and infiltration.

Although the Commission has approved several large solar projects in the state so far, those projects have not been fully constructed and placed in operation at the time of this review, and there are still uncertainties regarding some of the potential impacts that might occur as a result of this project. The installation of smaller solar PV facilities has occurred elsewhere in the state, although nowhere near the scale of this project. The large increase in fenced acreage along roadsides no longer accessible to certain wildlife could have effects on how animals move through the wider project area.

Unavoidable Environmental Effects

Construction of the proposed project would result in some unavoidable environmental effects in the project area that could not be avoided by array location, route selection, or construction methods. Some of these could be reduced or minimized, but would not be entirely eliminated as a result of project activities. Some of the unavoidable environmental effects would occur during construction, such as:

- Disturbance to nearby residents due to noise, dust, and vibration
- Soil Compaction and erosion
- Storm water ponding and runoff

- Air quality impacts as a result of diesel fumes and dust
- Disturbance of wildlife
- Increased traffic in the project area
- Cutting or alteration of vegetation

There would be some unavoidable impacts caused by the proposed project that would be longer term, likely lasting the entire time the project is in operation. These long-term unavoidable environmental effects include:

- Aesthetic impacts due to the change from a typical rural/agricultural landscape to a more industrial appearance
- Displacement of wildlife that previously was able to access the fenced array sites
- Removal of Agricultural land from production

Precedent-Setting Nature of the Proposed Project

The proposed project would not set any precedents. Several utility-scale solar generation facilities have been previously approved by the Commission.

Cumulative Effects of the Proposed Project

The construction of more solar generation facilities in the project area, or possibly elsewhere in the state, would exacerbate some of the impacts that may be caused by this proposed project. Another solar generation facility would remove additional lands from agriculture and other uses, or may cause increased impacts to more natural areas such as wetlands, forests, or natural grasslands.

Additionally, similar fencing would likely be used, further restricting the movement of wildlife through the area and access to habitat. Additional facilities in the area would increase the impact to aesthetics and the local rural character. Further solar generation facility construction could displace fossil-fueled generation, benefitting air quality in areas near those types of generation sites.

Foreclosure of Future Options

The construction of the proposed solar generation facility would remove the land from any other use or environmental benefit it provides in its current state during the operational life of the project.

Direct and Indirect Environmental Effects

There would be both direct and indirect environmental effects as a result of this project. The analysis of the proposed project by Commission staff assumes that the multiple construction methods and BMPs described in the applications and responses to data requests would be implemented. The proper use of mitigation techniques can greatly reduce impacts.

The direct impacts include disturbance to vegetation in areas of more natural habitat, where the fields are not already cleared of vegetation. There is an increased risk of soil erosion during excavation activities or if grading is done prior to vegetation establishment. In areas near wetlands and waterways, soil erosion can cause sedimentation. Topsoil loss or deposition can occur on

cropland. Storm water and erosion control methods can decrease this risk. Site restoration actions, including prompt vegetation establishment on disturbed soils, can allow soil and vegetation disturbance to be temporary. Disturbed soils can be high-risk areas for invasion by non-native invasive plants. This would be an indirect and potentially long-term negative effect on the environment, particularly if difficult to control plants such as non-native phragmites were able to establish. Therefore, loose soils should be stabilized with non-invasive cover crops as soon as possible. Machinery or equipment should be cleaned in accordance with invasive species BMPs as applicable.

Construction in and through agricultural fields would result in both temporary and long-term impacts. Some areas, such as laydown yards and temporary access roads would only be taken out of production during the construction phase of the project. The solar PV arrays, new collector substation, and O&M building would be out of agricultural production for the operational life of the project--potentially 50 years or more. Soil compaction and topsoil loss in agricultural fields are serious concerns and can impact future productivity. If drainage tiles are broken or damaged, the drainage of the array and surrounding fields could be affected, although some impacts might not be immediately known. The use of BMPs and post-construction soil restoration can reduce many direct impacts to agricultural operations. The eventual impacts of decommissioning the project site are not well known, but it is likely that thorough decommissioning, including decompacting soils and repairing any damaged drainage tiles, would allow for a return to agricultural use.

During construction activities, there would be increased noise, dust, and vibration in the construction areas. There would be increased traffic in the project area as employees and deliveries arrive and leave the project work areas. A visual change in the project area from open agricultural fields to a more industrial landscape would affect likely viewers differently. Some landowners that do not receive direct benefits from the project may react more negatively to the proposed project. Site-specific landscaping plans or larger set back distances might limit the impacts to adjacent landowners.

Areas through which wildlife currently freely pass would be fenced, restricting movement and use by certain species. Direct displacement of species could occur during construction activities. Indirect effects of the proposed project could include increased pressure on or use of adjacent, non-fenced areas. There could be negative effects, including mortality or injury, on birds due to the generator tie line and, potentially, the solar arrays. The environment could benefit from the use of a diverse native seed mix, particularly one that contains a range of flowering plants known to benefit pollinator species. The level of that effect would depend on the amount of, and location of, any land planted with a more 'pollinator-friendly' seed mix. The reduced amount of herbicides and pesticides would be a benefit to biodiversity and local water quality.

Air quality would be improved by the displacement of fossil-fueled power generation by non-emitting solar-generated electricity.

Recommendation

This EA informs the Commissioners, the affected public, and other interested people about the proposed project and its potential environmental and social impacts. Through data requests, additional analyses, and a review of public comments, Commission staff has attempted to provide

very thorough, factual and up-to-date information about the project, potential impacts of the proposed project, and the mitigation measures that could address some of those potential impacts.

The EA concludes that construction and operation of the proposed project would be likely to have a range of environmental effects. Commission staff has not identified any potential environmental effects of the proposed project that could be considered significant. This evaluation is arrived at assuming that some, if not all, of the mitigation measures proposed by the applicant and Commission or WDNR staff are used.

This assessment finds that approval and construction of this project is unlikely to have a significant impact on the human environment as defined by Wis. Stat. § 1.11, therefore the preparation of an EIS is not required.

 X Environmental review complete. Preparation of an environmental impact statement is not necessary.

 Prepare an environmental impact statement.

Submitted by: Aaron Greene
Environmental Analysis and Review Specialist
Date: February 3, 2021

This environmental assessment complies with Wis. Stat. § 1.11, and Wis. Admin. Code § PSC 4.20.



Adam Ingwell – Environmental Affairs Coordinator – Supervisor

Date: February 25, 2021