Application for Certificate of Public Convenience and Necessity
High Noon Solar Energy LLC
Docket Number 9814-CE-100
Solar AFR
Columbia County, WI

High Noon
SOLAR ENERGY CENTER

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APPENDICES

ABBREVIATIONS

AC	Alternating Current
AFR	Application Filing Requirements
APA	Asset Purchase Agreement
ASNRI	Area of Special Natural Resource Interest
ATC	American Transmission Company
AWG	American Wire Gauge
bgs	Below Ground Surface
BMP	Best Management Practice
CA	Certificates of Authority
CGP	Construction General Permit
CL	Lean Clay
CPCN	Certificate of Public Convenience and Necessity
CPR	Clean Power Research
CRP	Conservation Reserve Program
DATCP	Department of Agriculture, Trade and Consumer Protection
dBA	A-weighted decibels
DC	Direct Current
DEM	Digital Elevation Model
DNR	Department of Natural Resources
DOT	Department of Transportation
ECSWMP	Erosion Control and Stormwater Management Plan
EMF	Electromagnetic Field
EMI	Electromagnetic Interference
ER	Endangered Resource
ERR	Endangered Resource Review
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FR	Federal Regulation (Code of Federal Regulations reference)
Gen-Tie	Generator Transmission Line
GIS	Geographic Information System
GSU	Generator Step-up Transformer
HDD	Horizontal Direction Drilling
HSG	Hydrologic Soil Group
Hz	Hertz
IBA	Important Bird Area
IPaC	Information for Planning and Consultation

ISO	International Standards Organization
JDA	Joint Development Agreement
kCMIL	Thousand Circular Mils (Wire Gauge Measurement)
KOP	Key Observation Point
kV	Kilovolt
kW	Kilowatt
kWh	Kilowatt-hour
LID	Low Impact Development
LLC	Limited Liability Corporation
LOC	Local Operating Contract
MFL	Managed Forest Law
MHz	Megahertz
MISO	Midcontinent Independent System Operator
MOU	Memorandum of Understanding
MW	Megawatts
NAIP	National Agriculture Imagery Program
NEC	National Electrical Code
NESC	National Electrical Safety Code
NEXRAD	Next-Generation Radar
NHD	National Hydrography Dataset
[redacted]	[redacted]
NNWR	Necedah National Wildlife Refuge
NPDES	National Pollutant Discharge Elimination System
NRIS	Network Resource Interconnection Service
NWI	National Wetland Inventory Mapping
O&M	Operations and Maintenance
OHWM	Ordinary High Water Mark
OTA TV	Over-The-Air Television
PSC	Public Service Commission
psf	Pounds per square foot
PV	Photovoltaic
REC	Renewable Energy Certificate
ROW	Right of Way
[redacted]	[redacted]
SCADA	Supervisory Control and Data Acquisition
SCS	Site Characterization Study
SHPO	State Historic Preservation Office
SNA	State-Designated or Dedicated Natural Area

SP	Poorly-graded Sand
SPCC	Spill Prevention, Control, and Countermeasures
SPT	Standard Penetration Test
SSURGO	Soil Survey Geographic Database
TMY	Typical Meteorological Year
TMDL	Total Maximum Daily Load
US	United States
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWM CRM	University of Wisconsin-Milwaukee Cultural Resources Management
VMS	Vegetation Management Strategy
VSMP	Vegetation and Soil Management Plan
W	Watts
WDNR	Wisconsin Department of Natural Resources
WGNHS	Wisconsin Geological and Natural History Survey
WHS	Wisconsin Historical Society
WisDOT	Wisconsin Department of Transportation
WPDES	Wisconsin Pollutant Discharge Elimination System
WWI	Wisconsin Wetland Inventory Mapping

1. Project Description and Overview

1.1 General Project Location and Description of Project and Project Area

(The overall size of the project area will have an impact on the amount of data and analyses required in this AFR. It is recommended that the project area be optimized so that the project retains flexibility for siting panels while at the same time reducing the total area for which data will be required.)

1.1.1 Project location – county and towns in the project area.

The High Noon Solar Energy Center (Project) is located in the Towns of Arlington (T10N R9E), Leeds (T10N R10E), Lowville (T11N R10E), and Hampden (T10N R11E), Columbia County, Wisconsin.

1.1.2 Size of project area (in acres), area to be disturbed by construction activities (in acres), and size of solar arrays (in acres).

The Project will be built within a 4,355-acre Project Area. Within the Project Area, High Noon Solar Energy LLC (High Noon Solar) has approximately 3,746 acres under contract. Of the 3,746 acres under contract, 1,928 acres are designated as Proposed Array areas, and represent the approximate acreage anticipated to be required to host 300 megawatts (MW) alternating current (AC) of solar generating facilities. This array area includes the surface area of the solar panels themselves and spacing between the racking systems, fence lines, and access roads. An additional 129 acres are anticipated to be required to host the 165 MW / 660 megawatt hour (MWh) Battery Energy Storage System (BESS), Project Substation, operations and maintenance (O&M) Area, Generator Transmission Tie Line (Gen-Tie) (assuming a 1.9-mile long, 150-ft wide right-of-way (ROW)), Interconnection Switchyard, and ancillary components such as access roads, collection lines, and stormwater facilities. In total, approximately 2,057 acres are anticipated to be disturbed by construction activities to host the Project.

In addition to the Proposed Array areas, High Noon Solar presents 847 acres of Alternative Array areas in the Project Layout for alternative panel siting. The Alternative Array areas comprise enough land to accommodate 44 percent additional capacity, presenting Proposed and Alternative Array areas that are capable of hosting a gross capacity total of 432 MW. The Proposed and Alternative Array areas offer a variety of different characteristics and allow the Public Service Commission (PSC) to consider multiple configurations, with unique benefits, for the final Project Layout. The Project Layout is shown in **Figures 4.1.1** and **4.1.2** (**Appendix A**).

If all areas presented in the Project Layout are deemed acceptable by the PSC for use by the Project, it may be beneficial to design the final Project Layout to use more than the 1,928 acres of array area stated above for the following reasons:

1. Ample availability of constructible surface area allows for the most efficient final Project Layout. For example, adjusting spacing of aisles to avoid shading from one row to the next will ensure the highest performance of the tracking system and a higher capacity factor, which results in more energy production on a per megawatt-installed basis.

2. A higher level of approved area affords the Project the ability to increase setbacks from fences, trees, roads, houses and other features, or to adjust the layout to minimize impacts to wetlands or other areas of environmental concern.
3. As covered in more detail in Section 1.4, the Project Layout includes uniform power blocks wherever possible to reduce cost and other impacts. More acceptable and approved area increases the number of uniform arrays that could be constructed.

1.1.3 *Size (rated capacity), in both DC and alternating current (AC) MWs, of the proposed project. When providing the DC MW size, a range can be provided. (If an actual panel model is not yet under contract, the applicant must provide information on at least two models that are being considered. Those panels must represent the maximum and minimum megawatt size under consideration for purchase for the project).*

The Project will have a nameplate capacity of up to 300 MW_{AC}. Power is generated by the panels as direct current (DC). This direct current is then converted to alternating current by inverters. Total power production by the panels may be up to 387 MW_{DC}.

Photovoltaic (PV) panels (also referred to as solar modules) produced by several manufacturers are under consideration for the Project including Canadian Solar, Hanwha Qcells, JA Solar, Jinko, Longi, Risen, SunPower, and Trina. During the equipment procurement process, the Project will analyze current market offerings to make a final selection on specific solar module, inverter, and racking system equipment. An example configuration that is representative of what could be used consists of 645,000 – 860,000 high-efficiency solar modules with a capacity to generate approximately 450 - 600 watts (W) of DC power each.

Examples of specific panel models in this range are the Longi LR4-72HNBD on the low wattage end and the Jinko Tiger Pro 7RL4-TV on the high wattage end. While these two modules are typical examples of what may be installed, final engineering will utilize the best, most economical technology available, which may include higher wattage modules, potentially leading to fewer total modules. It is also possible that a different manufacturer of a substantially similar product could be selected during final procurement. Examples of different modules and outputs can be found in **Appendix B.**

1.1.4 *Number of panel sites proposed for the project and the number of alternative panel sites that have been identified (See the discussion on page 1 regarding alternatives). Identify any new or modified electric transmission lines or other electric transmission facilities that might be needed.*

The Project Layout has been divided into 25 fence boundary areas for identification and discussion purposes as shown in **Figures 4.1.1** and **4.1.2** (**Appendix A**). The Typical Power Block Configuration in **Appendix C** illustrates how the Project may be divided into approximately 129 power blocks utilizing 4.2 MW inverters where possible for representative purposes. Of the 129 power blocks, 79 comprise Proposed Array areas and 50 comprise Alternative Array areas.

A newly-constructed 345 kV Gen-Tie approximately 1.9 miles in length will connect the Project Substation to the Point of Interconnection at a newly-constructed Interconnection Switchyard within the Project Area. The newly constructed Interconnection Switchyard will be constructed and owned by ATC. The Gen-Tie, Project Substation, and Interconnection Switchyard are related facilities to the High Noon Solar generating facility and are essential to allowing the electricity generated by High Noon Solar to be transmitted on the ATC transmission system. The proposed Gen-Tie Routes and Interconnection Switchyard footprint are shown in **Figures 4.1.1 and 4.1.2** (**Appendix A**). Additional information on the Gen-Tie is included in the Gen-Tie AFR appended to this Solar AFR. Pursuant to Wis. Stat. §196.491(3)(a)1, this Application seeks both a Solar CPCN and Gen-Tie CPCN in PSC Docket Number 9814-CE-100.

Additional information regarding new or modified electric transmission lines or other electric transmission facilities as required by MISO are described in **Appendix D**.

1.1.5 *Provide a general map showing the location of the project area, nearest communities, townships, and major roads. Include an inset map showing where the project is located in the state. Scale should be appropriate for showing communities within at least 10 miles of the project area boundary.*

Please see **Figure 1.1.5** (**Appendix A**) for a map of the Project Area and surrounding area incorporating the requested information.

1.2 Ownership

Identify the corporate entity or entities that would own and/or operate the plant.

High Noon Solar Energy LLC is a wholly owned subsidiary of Invenergy Solar Development North America LLC and an affiliate of Invenergy LLC (Invenergy), and is currently the entity anticipated to own and operate the Project.

Invenergy develops, builds, owns, and operates large-scale energy facilities across four core technologies: wind (110 projects; 17,480 MW), solar (50 projects; 6,132 MW), natural gas (13 projects; 5,964 MW), and battery storage (18 projects; 486 MW / 1,611 MWh). Invenergy projects are mainly located in the United States, but Invenergy has a global presence with other projects located in Japan, Poland, Scotland, Mexico, El Salvador, and Uruguay. Invenergy has a proven development track record of 191 large-scale projects with a capacity of over 30,000 MW.

In Fond du Lac and Dodge Counties, Wisconsin, Invenergy developed the Forward Wind Energy Center (Forward), a 129 MW wind energy generation facility that began operation in 2008 and provides wind energy to Wisconsin Public Service Corporation (WPSC), Wisconsin Power & Light (WPL), and Madison Gas & Electric (MGE). (*See* PSC Docket No. 9300-CE-100). Invenergy constructed and operated Forward for 10 years while providing energy and renewable energy certificates (RECs) to its customers. Invenergy sold Forward to the customers and will continue to operate the project through its remaining service life. (*See* PSC Docket No. 05-BS-226).

In Iowa County, Wisconsin, Invenergy developed the Badger Hollow Solar Farm (Badger Hollow), a 300 MW solar energy generating facility. (*See* PSC Docket Nos. 9697-CE-100 and

9697-CE-101). The first phase of 150 MW is operational and is now owned by WPSC and MGE. The second phase of 150 MW is under construction and now owned by Wisconsin Electric Power Company (WEPCO) and MGE. Invenergy will operate both phases of the facility on behalf of its customers.

In Kenosha County, Wisconsin, Invenergy is constructing the Paris Solar Energy Center (Paris Solar), a 200 MW solar energy generating facility with a 110 MW BESS. The CPCN for Paris Solar was approved in December 2020. (*See* PSC Docket No. 9801-CE-100).

In Walworth and Rock Counties, Wisconsin, Invenergy is developing the Darien Solar Energy Center (Darien Solar), a 250 MW solar energy generating facility with a 75 MW BESS. The CPCN for Darien Solar was approved in August 2021. (*See* PSC Docket No. 9806-CE-100).

In Dane County, Wisconsin, Invenergy is developing the Koshkonong Solar Energy Center (Koshkonong Solar), a 300 MW solar energy generating facility with a 165 MW BESS. The CPCN for Koshkonong Solar was approved in May 2022. (*See* PSC Docket No. 9811-CE-100).

1.3 Project Need/Purpose

Independent Power Producers (IPP) (merchant plants) skip to Subsection 1.3.6. Subsections 1.3.1 thru 1.3.5 apply to utilities only. These subsections focus on compliance with Wis. Stat. § 196.374, the Renewable Portfolio Standard (RPS).

1.3.1 *The utility's renewable baseline percentage and baseline requirement for 2001-2003 and the amount of renewables needed in the future.*

1.3.2 *Amount of renewable energy currently owned and operated by the utility as defined by the RPS requirements for additional renewable energy.*

1.3.2.1 *Total existing renewable generation capacity.*

1.3.2.2 *Total energy produced by renewable assets in previous calendar year separated by generation type (Hydro, biomass, methane, wind etc.).*

1.3.2.3 *Amount of renewable energy acquired through purchase power agreements (separated by type, hydro, biomass, wind, solar, etc.).*

1.3.2.4 *Amount of RPS credits purchased.*

1.3.3 *Expected annual energy output for the project.*

1.3.4 *Other need not covered in Section 1.3.1*

1.3.4.1 *Monthly demand and energy forecast for peak and off peak periods over the next 20-25 years.*

1.3.4.2 *Describe how the availability of purchase power was analyzed.*

1.3.4.3 *Identify plant retirements forecast over the next 20-25 years.*

1.3.4.4 *Describe how the existing and expected applications for generation from IPPs have been factored into your forecast.*

1.3.4.5 *Describe how the proposed project meets the requirements the Energy Priorities Law, Wis. Stat. §§ 1.12 and 196.025(1).*

1.3.4.6 *Briefly describe utility's compliance under Wis. Stat. § 196.374 for energy efficiency.*

1.3.5 *Utilities Only – Generation Capacity Expansion Modeling*

The generation capacity expansion modeling should be performed in a software program like EGEAS or similar and include a 30-year extension period. The generation capacity expansion modeling should be filed on CDs, DVDs, or uploaded to the PSC's SFTP site, based on discussion with the docket coordinator as described in the PSC ERF Policy/Procedure Filing guide.

1.3.5.1 *Describe the 25-year optimal generation expansion plan for all of the entities that are part of the generation plan.*

1.3.5.2 *The solar resource should be modeled as non-dispatchable, using an hourly solar profile if the project does not include a storage component. If the proposed solar project includes a storage component, the project can either be modeled as two units, one non-dispatchable (solar resource) and one dispatchable (storage component) or as a single unit as long as the single unit can accurately reflect the operational characteristics of the project.*

[SECTIONS OMITTED, ONLY APPLY TO UTILITIES]

1.3.6 *IPPs Only – Energy Agreements*

1.3.6.1 *Identify all Wisconsin utilities under contract for delivery of energy from the proposed project.*

High Noon Solar is developing the Project as a wholesale merchant plant pursuant to Wis. Stat. § 196.491(1)(w)1. and 2. At this time, no Wisconsin utilities are under contract for delivery of energy from this Project. High Noon Solar, provided it receives a CPCN from the PSC, would directly or indirectly through its affiliates, construct and operate the Project by selling the power using long term power purchase agreements. Alternatively, High Noon Solar may sell or assign the Project, or a portion thereof, to a public utility or other qualified entity at any time before, during or after the Project is constructed. Any future buyer or assignee will be required to meet all permit conditions and any power purchase agreement obligations associated with the Project or portion thereof. As part of any such sale or assignment, High Noon Solar or an affiliate may function as the EPC contractor to construct the Project and function as the operations and maintenance services provider to operate and maintain the Project.

High Noon Solar agrees to construct the Project facilities to the stricter of the National Electrical Code (NEC)[1] or the National Electrical Safety Code (NESC)[2]. The NEC generally applies to non-supply facilities owned by non-utility entities, and the NESC generally applies to supply

[1] National Fire Protection Association. 2020 Edition. NFPA 70 – National Electrical Code (NEC).
[2] Institute of Electrical and Electronics Engineers. 2017 National Electrical Safety Code (NESC).

facilities owned by utilities. There is little overlap between the NEC and NESC; however, in case of conflict or overlap between code requirements, High Noon Solar will construct, maintain, and operate all applicable Project facilities to comply with the more restrictive code requirement.

1.3.6.2 *For each utility under contract or with which an agreement in principle for delivery of energy is in place provide the following, by utility:*

1.3.6.2.1 *Rated capacity under contract.*

1.3.6.2.2 *Annual energy to be delivered under contract or expected to be delivered.*

Not applicable at this time.

1.4 Alternatives

Invenergy is a private, independent developer with decades of experience identifying and vetting sites for renewable energy projects. The Application Filing Requirement (AFR) Sections below describe the process by which Invenergy identified the Project Site (Site), starting with consideration of other possible sites across Wisconsin.

The Project Area encompasses 4,355 acres. This is a larger footprint than High Noon Solar needs to site the Project. Under the PSC guidelines for renewable energy development, High Noon Solar in this Application presents Proposed and Alternative Array areas that are capable of hosting a gross capacity total of 432 MW, which is 44 percent greater than the desired Project size of 300 MW. By offering the PSC the ability to select locations of solar modules within the Project Area that will comprise an approved project, High Noon Solar is placing before the PSC a variety of feasible alternative locations, limited only by the requirement that High Noon Solar be able to optimize the electrical and structural arrangement as certain areas are removed from consideration. The Proposed and Alternative Array areas offer a variety of different characteristics and allow the PSC to consider multiple configurations, with unique benefits, for the final Project Layout. The potential impacts described in this document are based on the Proposed plus Alternative Array Project Layout which is shown in **Figure 4.1.1** and **4.1.2** (**Appendix A**).

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.

1.4.1 *Utilities (CPCN) – Supply Alternatives. Describe the supply alternatives to this proposal that were considered (including a "no-build" option) and present the justification for the choice of the proposed option(s).*

1.4.1.1 *Describe any alternative renewable fuel options considered and why those options were not selected.*

1.4.1.1.1 *Wind*

1.4.1.1.2 *Biomass*

1.4.1.1.3 *Hydro*

1.4.1.1.4 *Landfill Gas*

1.4.1.1.5 *Fuel Cell*

1.4.1.2 *Describe Purchase Power Agreements (PPAs) considered or explain why a PPA was not considered for this project.*

1.4.1.3 *No-Build Option.*

[SECTIONS OMITTED, ONLY APPLY TO UTILITIES]

1.4.2 *Utilities (CPCN or CA) and IPPs (CPCN) – Project Area Selection*

1.4.2.1 *Alternative Project Areas. Describe the project area screening and selection process used to select the proposed project area. Provide the following:*

1.4.2.1.1 *List individual factors or site characteristics used in project area selection.*

Invenergy began considering development of utility-scale solar energy projects in Wisconsin in late 2016 due to the decline in the cost of solar energy that would provide Wisconsin utilities an opportunity to source clean energy and capacity within the state at an affordable price. The Project Area was selected after analyzing the entire state of Wisconsin for potential utility scale solar generation sites. In evaluating sites, Invenergy considered the solar resource, proximity to transmission infrastructure, topography, ground cover, and community acceptance. Favorable results for all of these categories are found in the Project Area.

1.4.2.1.2 *Explain in detail how brownfields were considered in the selection of sites to develop.*

The potential use of existing brownfield sites within the region was evaluated. A comprehensive list of brownfield sites was accessed from the US EPA website[3] covering southern Wisconsin, particularly Dane, Columbia, Dodge, Green, Jefferson, Rock, Sauk, and Iowa Counties. **Table 1.4.2.1.2** summarizes the number and size range of brownfields sites in those counties. Dane County has the most brownfield sites although all but three are less than five acres; with the largest at 42.6 acres which is insufficient to support a utility scale solar project.

Table 1.4.2.1.2 Brownfield Sites in Southern Wisconsin Counties

County	Number of Sites	Size Range (Acres)
Dane	40	0.6-42.6

[3] U.S. Environmental Protection Agency (US EPA). 2021. Geospatial information for Brownfield Properties with latitude/longitude data.

Table 1.4.2.1.2 Brownfield Sites in Southern Wisconsin Counties		
County	**Number of Sites**	**Size Range (Acres)**
Columbia	1	2.4
Dodge	1	0.1
Green	1	0.4
Jefferson	6	0.19-17.87
Rock	13	0.05-19.44
Sauk	10	0.5-4.99
Iowa	0	N/A

None of the sites reviewed were large enough to host a 300 MW project nor were any deemed suitable for solar development using the tiered evaluation approach outlined in Section 1.4.2.2. Given the land requirements of the Project, it was concluded that no brownfields sites in the region would be suitable.

High Noon Solar relied on EPA data rather than the Wisconsin Remediation and Redevelopment Database (WRRD)[4] to identify brownfields because not all sites listed in the WRRD are brownfields. The Wisconsin Department of Natural Resources (WDNR) website defines brownfield as "abandoned, idle and underused commercial or industrial properties where reuse is hindered by real or perceived contamination." The WRRD lists all sites where the discharge of a hazardous substance has been reported and either the site has been remediated, is being remediated, requires no further action, or has ongoing remediation obligations. Many of those sites are still used and useful to the property owner or may already have been redeveloped, and do not meet the definition of a brownfield. The WRRD does not indicate which of the sites WDNR considers brownfields.

1.4.2.1.3 *Explain how individual factors and project area characteristics were weighted for your analysis and why specific weights were chosen.*

From the individual factors noted in Section 1.4.2.1.1 (solar resource, proximity to transmission infrastructure, topography, ground cover, and community acceptance), all are critical to the successful development of a utility scale solar generation project. Invenergy equally weighted all factors in selecting the Project Area.

1.4.2.1.4 *Provide a list of all project areas reviewed with weighted scores for each siting factor or characteristic used in the analysis.*

As noted in the previous Section, High Noon Solar views the described siting factors equally. A more detailed description of the Project's approach to site selection process is described in Section 1.4.2.2 below.

[4] https://dnr.wisconsin.gov/topic/Brownfields/WRRD.html

1.4.2.2 *Provide a narrative describing why the proposed project area was chosen.*

Tier One Evaluation – State Level

Invenergy reviewed several solar resource datasets to identify areas within the state with adequate solar resource necessary to make the Project economically feasible. Unlike wind energy sites, where the resource is highly site specific, solar resource can be characterized on a more expanded or regional level. Based on data collected, southern Wisconsin was identified as one of the strongest resources in the state due to its solar irradiance and favorable weather patterns. As a result of these findings, Invenergy moved ahead to further evaluate the region.

Tier Two Evaluation – Regional Level

The purpose of the Tier Two Evaluation was to determine if specific criteria could be met within the region that would result in the identification of a viable project area. Specific criteria for the Tier Two Evaluation included the following:

- Availability of land to accommodate this size project and compatibility with existing land uses including consideration of existing ground cover.
- Community and landowner support and acceptance of the project.
- Preliminary review of environmentally sensitive areas, such as parks, wetlands, waterbodies, and habitats.
- Location of transmission infrastructure thought suitable for interconnection and market access.
- Topography and slopes that would require minimal grading to accommodate a project.
- Project engineering and design parameters, including the potential to use uniform power blocks.

As part of the Tier Two Evaluation, the following conclusions were made about the High Noon Solar Project Area:

- Significant tracts of open land are available within the Project Area.
- High Noon Solar perceived the community of Columbia County as generally being supportive of renewable energy development and this perception was confirmed by initial conversations with area residents during land leasing efforts and preliminary discussions with local government officials expressing support for the revenues a proposed project could bring to the benefit of the County and Towns.
- Local landowners recognized the value to their farm operations and land ownership by harvesting the sun's energy instead of traditional agricultural crops and entered into voluntary contracts.
- Initial and ongoing community and landowner outreach indicated community support and acceptance of the Project in the Project Area.
- High Noon Solar performed preliminary environmental reviews to determine sensitive environmental resources in the Project Area in order to avoid or minimize any potential adverse environmental impacts. The preliminary reviews showed adverse impacts to the environment from the Project are avoidable and/or unlikely.
- An existing high-voltage transmission line likely suitable for interconnection is within the Project Area.
- A sufficient portion of the Project Area is suitably flat and dry to enable economical construction and operation of the Project.

Tier Three Evaluation – Project Area Level

Once the Project Area was identified from the Tier Two Evaluation, High Noon Solar continued to collect data, refine placement of the solar arrays based on engineering and design parameters, and conduct community and landowner meetings to solicit public input. High Noon Solar received valuable feedback that was incorporated into the layout presented in this Application. Some examples of changes made from an initial draft layout to this Project Layout include the following:

- The Project Area was considerably reduced to include only the parcels thought to provide optimal opportunity for placement of solar generation facilities while avoiding or minimizing impact to nearby environmental areas.
- Residential properties that shared three or more boundaries with a parcel(s) under contract were provided a 150 ft directional setback from the residential portion of one of their property lines.
- The Project Substation, BESS, and O&M Area were located nearby a retired farm with accessory buildings and no dwelling units.

Within the Project Area, specific criteria for the Tier Three Evaluation included the following:

- Land use and zoning, including setbacks in local ordinances
- Land rights
- Topography and slopes
- Geology
- Soils
- Existing vegetative communities
- Threatened and endangered species
- Cultural resources
- Surface water resources
- Wetlands
- Floodplains
- Noise
- Glare
- Aviation
- Recreation and publicly owned lands
- Existing infrastructure
- Efficiency of construction and conformity to uniform arrays
- Public outreach and feedback from neighbors

1.5 Utilities (CPCN or CA) and IPPs (CPCN) – Site Selection

1.5.1 *List the individual factors or characteristics used to select the proposed and alternative panel sites (arrays).*

Within the Project Area, the proposed sites for placement of solar energy generating equipment were evaluated based on the criteria identified in the Tier Three Evaluation outlined in Section 1.4.2.2, adherence to a “power block” design, and proximity to the Project’s proposed electrical

infrastructure. The array areas avoid impact to environmentally sensitive areas and minimize impacts to adjacent non-participating residents.

High Noon Solar believes that the most efficient construction can be attained by constructing the Project in uniform "power blocks." An ideal configuration from a constructability standpoint for 4.2 MW inverters would be rectangles with an inverter in the center and the surrounding acres being used for solar modules on tracking systems that feed electricity to that inverter. If the inverter ultimately chosen for the Project differs from 4.2 MW, the power block layout would be correspondingly impacted. High Noon Solar requests that the PSC recognize the merits of constructing arrays with a uniform power block design. If certain portions of the designated Proposed Array areas are determined to be unsuitable, High Noon Solar will make every effort to reconfigure the remaining, approved areas to retain complete and uniform power blocks, rather than designing areas for partial and/or non-uniform power blocks.

To the extent any given area is determined by the Commission to be unsuitable for Project infrastructure, High Noon Solar asks the PSC to consider the practical effects of such a decision on the Project design and constructability. If a specific portion of the Proposed Array area is rejected and a power block cannot be shifted, the result would be suboptimal from a construction standpoint as that particular power block would have unique wiring and racking considerations that create additional engineering, logistical, and construction complications. High Noon Solar seeks to utilize uniform power blocks which will result in more efficient design, construction, and operation of the Project, and thus a more economical Project for the ultimate customer.

High Noon Solar respectfully requests that the PSC review all of the Proposed and Alternative Array areas and approve all locations deemed suitable for use by High Noon Solar.

1.5.2 *Provide information on how site characteristics and the type/s of panels chosen factored into the selection of the final panel sites.*

Using high efficiency modules enables the Project to minimize the footprint required to reach the desired capacity. To minimize environmental impact, the Project proposes utilizing relatively flat, open terrain, which should require minimal grading, and minimal clearing of wooded areas. The panel sites throughout the Project were selected to avoid impacts to wetlands, waterways, floodplains, cultural resources, and existing transmission lines, distribution lines, and underground pipelines. In addition, where possible, the layout includes symmetrical 4.2 MW power blocks and sites panels on parcels in proximity to each other to maximize electrical efficiency, simplify design, construction, and operation, and minimize the cost and environmental impact of the underground collection system.

1.5.3 *Setback distances*

1.5.3.1 *Provide the minimum setbacks and reasons for those setback distances for both boundary fences and solar panels from:*

- *residences*
- *property lines*

- *other buildings (e.g., animal barns, storage sheds)*
- *roads*
- *wetlands and waterways*
- *any other features.*

Please see **Table 1.5.3.1** below.

Table 1.5.3.1 Minimum Setback Distances

Type	Distance to Solar Modules	Distance to Fences
Residences	100 ft	18 ft
Non-Participating Property Lines	28 ft	8 ft
Other Buildings	28 ft	8 ft
Federal and State Highways	50 ft from ROW or 110 ft from centerline, whichever is greater.	Fences will not encroach on road ROW.
County Trunk Highways	42 ft from ROW or 75 ft from centerline, whichever is greater.	Fences will not encroach on road ROW.
All Other Roads	30 ft from ROW or 63 ft from centerline, whichever is greater.	Fences will not encroach on road ROW.
Wetlands	35 ft	30 ft
Waterways	75 ft from OHWM of navigable waterways.	75 ft from OHWM of navigable waterways.
State Natural Area	75 ft	35 ft
Pipelines	50 ft	25 ft (based on an assumed 50 ft ROW)
Transmission Lines	50 ft	25 ft (based on an assumed 50 ft ROW)
Distribution Lines	33 ft	8 ft

During final engineering, if ROW distances are determined to be greater than the assumptions listed in **Table 1.5.3.1** for pipelines and transmission lines, High Noon Solar will ensure both solar modules and fences are set outside of these ROWs.

The minimum setback distances were chosen to ensure safe construction, maintenance, and operation of the Project. The minimum setback distances take into consideration landowner rights, local zoning ordinances, avoidance of impacts on sensitive environmental and infrastructure features, and the generally innocuous nature of the Project. Additional setbacks beyond those enumerated in local zoning ordinances were utilized in an attempt to be a good neighbor to non-participating residential property owners. For instance, for residential properties that share three or more boundaries with a parcel(s) under contract, a 150 ft directional setback from the residential portion of one of their property lines was incorporated into the Project Layout. Discussions with adjacent non-participating residential property owners will continue throughout permitting, construction, and operation of the Project. High Noon Solar has begun a Good Neighbor Program, which seeks to address concerns raised by adjacent non-participating residential property owners and increase Project participation.

The minimum setback distances presented in **Table 1.5.3.1** are conducive to continued agricultural use on non-participating agricultural properties and maximize the use value of the land for participating landowners in a manner that prevents the unnecessary creation of uneconomical or otherwise unfarmable strips of land. The minimum setback distances in **Table 1.5.3.1** establish the minimum setbacks for incorporation during final engineering of the final Project Layout.

1.5.3.2 *Identify any sites where non-participating "good neighbor" agreements have been executed.*

High Noon Solar has begun a Good Neighbor Program but no good neighbor agreements have been executed yet. High Noon Solar will make offers of good neighbor agreements to landowners of residential property immediately adjacent to Proposed and Alternative Array areas and will negotiate such agreements in good faith.

1.5.3.3 *Status of easement agreements:*

1.5.3.3.1 *Identify all project sites with easement agreements that have been signed.*

1.5.3.3.2 *Identify all sites where easement agreements have not been signed and provide a short description of the status of negotiations.*

Please see **Table 1.5.3.3** below. The sample Solar Easement Agreement used for the Project is included as **Appendix E**.

Table 1.5.3.3 Landowner Contract Type and Status

Number	Landowner Name	Contract Type	Status	Fence ID
1	Nelson Grain Farms, LLC	Solar Easement Agreement	Signed	K
2	Nelson Grain Farms, LLC	Solar Easement Agreement	Signed	D, H, I, K, T
3	Darwin C. Selle and Annette M. Selle	Solar Easement Agreement	Signed	O
4	Charles D. Selle and Phyllis A. Selle	Solar Easement Agreement	Signed	U, V, W
5	Roger W. Mountford	Solar Easement Agreement	Signed	H, G
6	Ryan Franz	Solar Easement Agreement	Signed	N

Table 1.5.3.3 Landowner Contract Type and Status				
Number	**Landowner Name**	**Contract Type**	**Status**	**Fence ID**
7	S & L Acres II, LLC	Solar Easement Agreement	Signed	E, F
8	Darwin C. Selle and Annette M. Selle	Solar Easement Agreement	Signed	W, X
9	Beverly A. Baerwolf Revocable Trust	Solar Easement Agreement	Signed	E
10	Beverly A. Baerwolf Revocable Trust	Solar Easement Agreement	Signed	N/A
11	Larry D. Saager and Mary K. Saager	Solar Easement Agreement	Signed	M
12	Michael and Vicki Sharpee Family Trust u/a dates September 21, 2018	Solar Easement Agreement	Signed	J, K, R
13	Saager Living Trust dated March 26, 2015	Solar Easement Agreement	Signed	L, M
14	Maass Joint Revocable Trust dated January 21, 2019	Solar Easement Agreement	Signed	E
15	Kathryn Meister	Collection Easement Agreement	Signed	N/A
16	Regina K. Maass-Kane	Solar Easement Agreement	Signed	E
17	Franz Family Farms, Inc.	Solar Easement Agreement	Signed	N/A
18	Franz Family Farms, Inc.	Solar Easement Agreement	Signed	S
19	Harlan Edward Kutz	Solar Easement Agreement	Signed	C
20	Stewart Living Trust dated April 16, 2014	Collection Easement Agreement	Signed	N/A

Table 1.5.3.3 Landowner Contract Type and Status				
Number	**Landowner Name**	**Contract Type**	**Status**	**Fence ID**
21	Alan J. Kaltenberg	Solar Easement Agreement	Signed	A
22	Helen M. Kaltenberg and Alan J. Kaltenberg	Solar Easement Agreement	Signed	B
23	Wade C. Senft Revocable Living Trust dated September 24, 2019	Collection Easement Agreement	Signed	N/A
24	The Stanley W. Hazard and Patricia A. Hazard Revocable Living Trust	Collection Easement Agreement	Signed	N/A
25	James H. Rittmeyer and Sharron K. Rittmeyer	Land Purchase Option	Signed	N/A
26	Helen Summerton	Solar Easement Agreement	Signed	F
27	Mielke Trust dated September 19, 1997	Solar Easement Agreement	Signed	A, Q
28	Joseph R. Ripp and Diane M. Ripp and Jared J. Ripp	Collection Easement Agreement	Signed	N/A
29	Stibb Farms, LLC	Collection Easement Agreement	Signed	N/A
30	Curtis K. Stibb and Stefanie B. Stibb	Collection Easement Agreement	Signed	N/A
31	Norman I. Hermanson	Collection Easement Agreement	Signed	N/A
32	Henry Land LLC	Solar Easement Agreement	Signed	O, P
33	Henry Land LLC	Solar Easement Agreement	Signed	N/A

Table 1.5.3.3 Landowner Contract Type and Status				
Number	**Landowner Name**	**Contract Type**	**Status**	**Fence ID**
34	James H. Rittmeyer and Sharron K. Rittmeyer	Land Purchase Option	Signed	N/A
35	Kelley Trust dated March 12,1998	Transmission Easement Agreement	Signed	N/A
36	Helen M. Kaltenberg and Alan J. Kaltenberg	Transmission Easement Agreement	Signed	N/A
37	James R. Klingbeil and Roberta M. Taylor Klingbeil	Collection Easement Agreement	Signed	N/A
38	Harlan Edward Kutz	Purchase Option	In Negotiations	N/A
39	Stanley W. Rauls	Collection Easement Agreement	In Negotiations	N/A

1.5.4 *Identify whether setbacks are consistent with local zoning (county or municipality) or if there are variations from local zoning setbacks, describe why.*

The setbacks established for solar modules in **Table 1.5.3.1** are consistent with the Columbia County Zoning Ordinances.

The Ordinances allows fences to intrude on minimum required setbacks, though in some instances, such an intrusion would require a permit from the County absent a CPCN.

Notably, the Ordinance explicitly recognizes that projects that receive a CPCN are not subject to local zoning requirements. (*See* Columbia County Ordinances Sec. 12.155.07(3).)

1.6 Utilities Only – Cost

1.6.1 *Provide capital cost of the completed facility organized by Plant Account Codes (PAC) found in the PSC's Uniform System of Accounts for Private Electric Utilities – 1/1/90. Provide a breakdown within each PAC and a subtotal. Include, at least, the following PACs:*

1.6.1.1 *PAC 340 – Land and Land Rights*
1.6.1.2 *PAC 341 – Structures and improvements (operation and maintenance (O&M) buildings, access roads)*

1.6.1.3 *PAC 344 – Generators (foundations, engineering, procurement, construction management, erection)*

1.6.1.4 *PAC 345 – Accessory Electrical Equipment (substation, meteorological towers, collector circuit system, SCADA*

1.6.2 *Provide the complete terms and conditions of all lease arrangements.*

1.6.2.1 *Site lease*

1.6.2.2 *Neighbor or non-participant agreements*

1.6.2.3 *Provide a statement demonstrating how conditions of Wis. Stat. § 196.52(9)(a)3(b) have been met (this pertains to leased generation contracts).*

1.6.2.4 *Affiliated interest approvals required. Include those applied for or received.*

1.6.3 *Discuss and provide the comparative costs of the alternatives identified and evaluated in Section 1.4.*

1.6.4 *Describe the effect of the proposed project on wholesale market competition. Include a description of how, at the time of this filing, the proposed facility would be treated as an intermittent resource in the Midcontinent Independent System Operator, Inc. (MISO) market.*

1.6.5 *Provide an estimate of the expected life span for the power plant.*

1.6.6 *Describe how the facility would be decommissioned at the end of its life span. Describe expected decommissioning actions and timelines.*

1.6.6.1 *Provide an estimate of the cost of and source of funding for decommissioning. State whether financial security would be provided to cover decommissioning costs, including the amount and time it would be provided.*

1.6.6.2 *State how the start of decommissioning would be decided, including a description of what constitutes site abandonment.*

[SECTIONS OMITTED, ONLY APPLY TO UTILITIES]

1.7 IPPs Only – MISO and Project Life Span

1.7.1 *MISO Market. Describe how, at the time of this filing, the proposed facility would be treated as an intermittent resource in the MISO market.*

Intermittent resources in MISO, such as solar and energy storage, may qualify to provide both energy and capacity to the MISO market so long as they are registered with MISO and deliverable to load via Network Resource Interconnection Service (NRIS) or Firm Transmission Service. High Noon Solar has applied to MISO for NRIS for 240 MW of proposed capacity of the solar component of the Project plus an additional 165 MW for the BESS component of the Project.

High Noon Solar has two interconnection positions in the MISO 2019 DPP Study Cycle and one in the MISO 2021 DPP Study Cycle. The 2019 interconnection positions include a 300 MW solar position and a 75 MW BESS position. The 2021 interconnection position is for 90 MW of BESS. High Noon Solar may use all three positions for this Project or may pursue MISO's Surplus Interconnection process to add an additional 90 MW BESS to the current 300 MW solar position, but in either circumstance, the Project will not exceed the proposed size of 300 MW solar and 165 MW BESS.

Per MISO's Business Planning Manual 11[5], Section 4.2.3.4.1, the capacity value of solar PV projects in MISO are determined based on the three-year historical average output of the resource for hours ending 15, 16, and 17 EST for the most recent summer months (June, July, and August). Solar PV resources that are new, upgraded, or returning from extended outages submit all operating data for the prior summer with a minimum of 30 consecutive days, in order to have their capacity registered with MISO. A resource with less than 30 days of metered values receives the class average of 50 percent for its Initial Planning Year.

1.7.2 *Provide an estimate of the expected life span for the power plant.*

The expected life span for the Project is 35 - 50 years. The base operating case for the Project is 35 years, but actual life span could be longer. The land contracts provide for a total operating period of 50 years.

1.7.3 *Describe how the facility would be decommissioned at the end of its life span. Describe expected decommissioning actions and timelines.*

At the end of commercial operations, High Noon Solar will be responsible for removing all of the solar arrays and associated facilities to a depth of 4 ft below grade. High Noon Solar reserves the right to extend commercial operations by applying for an extension of any required permits. Subject to applicable regulatory approval, should High Noon Solar decide to continue operation, it will evaluate whether to continue with the existing equipment or to upgrade the facility with newer technologies.

Decommissioning of the Project at the end of its life would include removing Project facilities, including solar arrays, inverters, transformers, above-ground portions of the electrical collection system, and array fencing, from the Site. Access roads will be removed at the discretion of the landowner. Some Project facilities, such as the O&M building, Project Substation, Gen-Tie, and BESS, may remain in use or be repurposed after the end of the useful life of the solar generating facility. Project facilities that remain in use or can be repurposed will not be removed during decommissioning.

The BESS will be decommissioned in an environmentally safe manner consistent with best practices in the industry, as recommended by the U.S. Energy Storage Association, American Clean Power, or similar successor organization. For other Project components, standard decommissioning practices will be utilized, including dismantling and repurposing,

[5] Midcontinent Independent System Operator (MISO). December 15, 2020. Business Planning Manual 11.

salvaging/recycling, or disposing of the solar energy improvements and equipment, followed by restoration of the Site. Best Management Practices (BMPs) will be utilized to protect sensitive resources and minimize erosion.

Though High Noon Solar is not aware of any solar photovoltaic energy generating systems greater than 100 MW 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. Major equipment to be used for decommissioning is similar to what is needed for Project construction and may include, but is not limited to: vibratory hammers, excavators, bulldozers, trucks, backhoes, front-end loaders, skid-steers, deep rippers, water trucks, mobile cranes, disc plows, and tractors.

High Noon Solar expects to implement the following decommissioning plan, except as otherwise provided in a Joint Development Agreement (JDA) (as defined in Section 6.1.1):

Timeline
Decommissioning is estimated to take approximately 12 months to complete. After the Site has been reclaimed, landowners will continue use of their land in accordance with their land management program.

Removal and Disposal of Project Components
- Solar and battery modules will be inspected for physical damage, tested for functionality, and removed from racking. Functioning modules will be packed and stored for reuse. Non-functioning modules will be sent to the manufacturer or a third-party for recycling or other appropriate disposal method.
- Racking, poles, and fencing will be dismantled/removed and will be sent to a metal recycling facility. Holes will be backfilled.
- Project facilities will be removed to a depth of 4 ft.
- Aboveground wire will be sent to a facility for proper disposal and/or recycling. Belowground wire will be cut back to a depth of 4 ft and abandoned in place.
- Aboveground conduit will be disassembled onsite and sent to a recycling facility.
- Junction boxes, combiner boxes, and external disconnect boxes will be sent to an electronics recycler.
- Inverters will be sent to the manufacturer or an electronics recycler as applicable and functioning parts will be reused.
- Material from concrete pads will be removed and sent to a concrete recycler.
- Computers, monitors, hard drives, and other components will be sent to an electronics recycler and functioning parts will be reused.
- Unless otherwise requested by the landowner, permanent access roads constructed for the Project will be removed.
- After all equipment is removed, the Site will be restored to a condition reasonably similar to its pre-construction state. To facilitate a return to agricultural use following decommissioning, land will be tilled to break vegetative growth, which will have enhanced the topsoil condition as further discussed in Section 5.6.
- Invenergy has experience recycling lithium-ion batteries, working with a highly qualified third-party that provides a cradle-to-grave recycling and transportation program. Invenergy

will continue to develop decommissioning plans to safely reuse, recycle, and/or dispose of end-of-life batteries with industry experts. Based on Invenergy's experience recycling lithium-ion batteries, High Noon Solar anticipates that at the end of the life of the Project, operational batteries will be considered for second-life operations and batteries that cannot be reused will be recycled or safely disposed of. Other BESS components will be disassembled and recycled, and the containers will be removed from the Site.

1.7.3.1 *Provide an estimate of the cost of and source of funding for decommissioning. State whether financial security would be provided to cover decommissioning costs, including the amount and time it would be provided.*

At the 15th anniversary of the commencement of operations, High Noon Solar will post a form of financial security, such as a surety bond, letter of credit, escrow account, reserve fund, parent guarantee or other suitable financial mechanism, if any net cost of decommissioning exists.

Upon receipt of a CPCN and evaluation of all permit conditions, and completion of final engineering, High Noon Solar will prepare a site-specific decommissioning cost estimate. In advance of this, High Noon Solar has conducted further research of third-party projects and expects the total cost of decommissioning of the solar generation portion of High Noon Solar at the end of its useful life would be in the range of $0 to $8 million net of salvage value. Based on Invenergy's experience decommissioning battery energy storage facilities, High Noon Solar estimates the total cost of decommissioning of the battery storage portion of High Noon Solar at the end of its useful life would be in the range of $0 to $7 million net of salvage value. The figure is non-binding and based on the evaluation of salvage value prices of the relevant equipment and facilities.

1.7.3.2 *State how the start of decommissioning would be decided, including a description of what constitutes site abandonment.*

As stated in Section 1.7.3, High Noon Solar reserves the right to extend commercial operations by applying for an extension of any required permits. Subject to applicable regulatory approval, should High Noon Solar decide to continue operation, it will evaluate whether to continue with the existing equipment or to upgrade the facility with newer technologies. If High Noon Solar does not pursue continued operation or repowering of the Project, the decommissioning process will begin within a reasonable time following the termination of commercial operations at the Project. The termination of commercial operations shall coincide with the termination or expiration of all land contracts and the point at which the Project is no longer supplying electricity to the electrical grid. Notice of the termination of commercial operations will be provided to landowners hosting Project facilities and the PSC. In the unlikely event that the decommissioning process is not complete within 12 months following the termination of commercial operations, the Project will be considered abandoned.

1.7.3.3 *State whether a participating landowner could be responsible for decommissioning costs in any situations.*

Participating landowners will not be responsible for decommissioning costs. If High Noon Solar fails to restore the site within 12 months following the termination of commercial operations, the

participating landowners hosting Project facilities may restore their properties and remove, or cause removal of any Project facilities and seek reimbursement, less the salvage value of the Project facilities from High Noon Solar for any actual costs reasonably incurred for removal and restoration of their property with interest as determined per the terms of the land contracts. The financial security mechanism for decommissioning purposes will be made available to participating landowners to offset cost of decommissioning as stated in **Appendix E** in Section 3 of Exhibit C.

1.8 Utilities and IPPs – Required Permits and Approvals

1.8.1 *Approvals and Permits. For each of the regulatory agencies listed below provide the following information:*

- *regulatory agency,*
- *the approvals/permits required,*
- *application filing date,*
- *the status of each application,*
- *agency contact name and telephone number.*

1.8.1.1 *Federal*

1.8.1.1.1 *Federal Aviation Administration (FAA)*

1.8.1.1.2 *U.S. Army Corps of Engineers*

1.8.1.1.3 *U.S. Fish and Wildlife Service*

1.8.1.1.4 *Other federal agencies not listed above*

1.8.1.2 *State*

1.8.1.2.1 *WisDOT*

1.8.1.2.2 *DNR*

1.8.1.2.3 *DATCP*

1.8.1.2.4 *Other state agencies not listed above*

1.8.1.3 *Local Permits – including county, town, city, and village*

Please see **Table 1.8.1** below. The permits listed are required as a general matter for new development based on High Noon Solar's review of applicable law. Permits to be applied for will be determined based on High Noon Solar's final engineering following issuance of a Final Decision.

Table 1.8.1 Regulatory Permits and Approvals				
Permit	Regulatory Agency and Contact	Trigger/Notes	Filing Date	Status
Engineering Plan	WDNR Office of Energy Geri Radermacher – Wetland Regulatory/Zoning Specialist 262-574-2153 Geri.Radermacher@wisconsin.gov	CPCN	9/30/2021	Response Received 1/8/21
Certificate of Public Convenience and Necessity (CPCN)	PSC Gas and Energy Division Jennifer Hamill, PE – Engineering Supervisor Jennifer2.Hamill@wisconsin.gov	New electric generating facility over 100 MW and associated high-voltage transmission line	7/1/2022	Application Filed
Wisconsin Pollutant Discharge Elimination System (WPDES) Construction Site Permit	WDNR Water Quality Bureau Adrian Stocks Natural Resources Manager 608-266-2666 Adrian.Stocks@wisconsin.gov	Required due to Project size	Anticipated Q4 2023	To be completed
Pond/Artificial Waterbody/Stormwater General Permit	WDNR Office of Energy Geri Radermacher – Wetland Regulatory/Zoning Specialist 262-574-2153 Geri.Radermacher@wisconsin.gov	Construction of a stormwater basin within 500’ of a navigable waterway	Anticipated Q4 2023	To be completed
Private Well Notification Number	WDNR Bureau of Drinking and Groundwater Deborah Lyons-Roehl	Required if a new well is constructed for the O&M building	Only required if it is deemed necessary	To be completed if deemed necessary for the

Table 1.8.1 Regulatory Permits and Approvals				
Permit	Regulatory Agency and Contact	Trigger/Notes	Filing Date	Status
	Operations Program Associate 608-267-9350 Deborah.LyonsRoehl@wisconsin.gov		to drill a new well for the O&M building.	O&M building.
Utility Permit	WisDOT –SW Region 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 Columbia County	Anticipated Q4 2023	To be completed
Driveway Permit	WisDOT-SW Region Scot Hinkle Bureau of Highway Maintenance 608-246-5334 scot.hinkle@dot.wi.gov	For new driveway entrances on state roads in Columbia County	Anticipated Q4 2023	To be completed
Oversize-Overweight Permit	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 transformers	Anticipated Q4 2023	To be completed
Stormwater Permit and Erosion Control Permit	Columbia County Land Use & Water Resources Department Kurt Calkins Land & Water Conservation Director	Land disturbance activities	Anticipated Q4 2023	To be completed

Table 1.8.1 Regulatory Permits and Approvals				
Permit	Regulatory Agency and Contact	Trigger/Notes	Filing Date	Status
	Todd Rietmann Land & Water Resource Senior Specialist – Engineering emphasis 608-742-9670			
Access (Driveway) Permit	Columbia County Highway Dept (County) 608-429-2156	Required for new connection to county ROW	Anticipated Q4 2023	To be completed
Permit to Work in County Trunk Highway Right-of-Way	Columbia County Highway Dept 608-429-2156	Required for installation of utilities in county ROW	Anticipated Q4 2023	To be completed
Oversize-Overweight Permit	Columbia County Highway Dept 608-429-2156	Use of non-divisible loads exceeding statutory sizer and/or weight on County Trunk Highways, such as for the Project Substation	Anticipated Q4 2023	To be completed
Sanitary Permit/POWTS Plan Review	Columbia County Health Dept 608-742-9227 Wisconsin Dept of Safety and Professional Services 608-266-2112 dsps@wisconsin.gov	Required for installation of on-site septic system. Columbia County is a POWTS Designated Agent by DSPS for plumbing plan reviews (<5,000 gallons per day).	Anticipated Q4 2023	To be completed
Well Location Permit	Wisconsin Dept of Natural Resources DNRWELLREPORT @wisconsin.gov	Required for construction of a private well. Intended for O&M building.	Only required if it is deemed necessary to drill a new well for the	To be completed if deemed necessary for the O&M building.

Table 1.8.1 Regulatory Permits and Approvals				
Permit	Regulatory Agency and Contact	Trigger/Notes	Filing Date	Status
			O&M building.	
Building Permit	Town of Leeds clerk@townofleeds.wi.gov	Required for construction of any structure; intended for the O&M building	Anticipated Q4 2023	To be completed
Driveway Permit	Town of Arlington (608) 635-4808 Arlingtontownof@gmail.com Town of Hampden (920) 623-9901 Dcg1005@aol.com Town of Leeds clerk@townofleeds.wi.gov Town of Lowville (920) 992-5474 lowvilletownclerk@gmail.com	Required for construction of a new driveway on a town road	Anticipated Q4 2023	To be completed

All direct wetland and waterway impacts will be avoided through adjustment of the Project Layout to avoid field-verified resources, or through construction methods (i.e. directional boring of collector circuits and siting of surface disturbance outside boundaries of wetlands and waterways). As such, USACE Section 404 and DNR Section 401 permits related to wetland or waterway impacts will not be required.

No endangered species impacts are anticipated that would necessitate permits from the US Fish and Wildlife Service (USFWS) or WDNR. Agency feedback received during the September 2021 meetings and subsequent emails to discuss environmental resources and Project plans indicate the Project design will avoid or reasonably minimize impacts to special-status species and resources.

High Noon Solar plans to file a notice with the FAA but does not anticipate that any changes or alterations to the Project design will be needed based on the language of CFR Title 14, Part 77.9. Section 5.16 provides further discussion regarding FAA and WisDOT permits.

The DATCP Agricultural Impact Statement is not required since High Noon Solar is not a public utility and will not be utilizing eminent domain.

1.8.2 *Correspondence with Permitting Agencies. Provide copies of correspondence to and from state and federal agencies that relate to permit approval, compliance approval, or project planning and siting. Provide copies of any correspondence to or from local governments. This should continue after submittal of the application.*

Copies of official correspondence to and from state and federal agencies that relate to permit approval, compliance approval, or Project planning and siting are listed in **Table 1.8.2** below and included in **Appendix F**, with the exception of the WDNR Endangered Resource Review (ERR) and U.S. Fish and Wildlife Service (USFWS)[6] Information for Planning and Consultation (IPaC) Official Species List, which are included as confidential information in **Appendix G**. A log of meetings with agencies, local governments, and other interested parties is included in Section 7.2.

Correspondence	Regulatory Agency	Trigger	Date	Status
Engineering Plan	DNR	CPCN	09/30/2021	Response Received 1/8/21 (**Appendix F**)
Noise Receptors Location Coordination	PSC	CPCN	Provided 10/26/2021	Completed via email. **(Appendix F)**
Visual Simulation Location Coordination	PSC	CPCN	Provided 10/26/2021	Completed via email. **(Appendix F)**
Endangered Resources Review	DNR	CPCN	ERR #21-616 06/10/2022	Completed (Confidential **Appendix G**)
Federal Threatened and Endangered Species Consultation	USFWS	CPCN	IPaC 05/25/2022	Completed (Confidential **Appendix G**)

[6] United States Fish and Wildlife Service (USFWS). 2021. Information for Planning and Consultation – High Noon Solar.

2. Technical Description – Project Area, Arrays, Panels, and Ancillary Facilities

2.1 Estimated Solar Resource and Projected Energy Production

Provide a complete energy production assessment for the project. This report should include, at a minimum:

2.1.1 Solar resource data used in analysis.

The solar resource data used to estimate energy output was determined internally using a resource assessment, the results of which are included in **Appendix H**. High Noon Solar evaluated several public and private datasets, including satellite modeled datasets such as the National Renewable Energy Laboratory (NREL) National Solar Radiation Database (NSRDB) dataset[7] and Clean Power Research (CPR) Solar Anywhere data[8] as well as publicly available measurements from nearby weather stations.

2.1.2 Gross and net capacity factor (explain the method used to calculate the capacity factors and provide the data used).

High Noon Solar will have an estimated gross capacity factor of between 22 - 35 percent and an estimated net capacity factor of between 20 - 30 percent. These values were determined utilizing the PVSyst modeling software[9] and realistic loss assumptions based on solar generation facility operational experience. The PVSyst report is included in **Appendix H**. These loss assumptions align with those observed throughout the industry.

2.1.3 Estimated energy production of project.

2.1.3.1 Estimated production losses.

Gross to net calculations take into account, among other factors, energy losses in the electrical collection system, mechanical availability, array losses, and system losses. Industry-wide, energy losses typically range from 15 - 20 percent of maximum output for utility-scale solar.

2.1.3.2 Estimated net energy production.

High Noon Solar estimates an average annual output of between 500,000 - 700,000 MWh. Annual energy production output will depend on final engineering, site specific features, and annual variability in the solar resource. The energy production modeling report is included in **Appendix H.**

[7] National Renewable Energy Laboratory. National Solar Radiation Database (NSRDB). Accessed 2022.
[8] Clean Power Research. Solar Anywhere data. Accessed 2022.
[9] PVSyst. PVSyst Modeling Software. Accessed 2022.

2.2 Solar Panel Type and Characteristics

2.2.1 *Identify the manufacturer and model of solar panel to be used. (If no Panel Purchase Agreement has been signed, applicants should identify the panel or panels being considered. It is acceptable to identify a range by providing information on the largest and smallest panel being considered, however, consult with Commission staff prior to preparing the application).*

Solar modules are more of a commodity than wind turbines or other forms of power generating equipment, and the market is more easily impacted by outside forces such as tariffs or global supply chain issues. In addition, new product variants (e.g. higher efficiency or higher wattage per module options) are being introduced to the market at a rapid pace. As such, it is important to maintain as much flexibility in the individual supplier and technology choice as possible until just before procurement to maximize economic viability of the Project.

PV panels produced by a number of manufacturers are under consideration for the Project including Canadian Solar, Hanwha Qcells, JA Solar, Jinko, Longi, Risen, SunPower, and Trina. All modules under consideration are monocrystalline models. The module selected may use bifacial technology, which, unlike a monofacial module, contains a clear backsheet instead of an opaque backsheet, allowing the solar cells to absorb light entering from the back as well as from the front side of the cells.

Bifacial modules have been shown to increase production by as much as 30 percent at a point in time. This results in a higher annual energy yield and thus improved project economics. No material change in the Project footprint is anticipated based on the decision between utilizing bifacial panels and monofacial panels.

High Noon Solar will consider the costs and performance of each technology option as well as environmental and safety standards when making its final selection. This process has been included in the proposed Project timeline and the final selection is not anticipated to alter the Project scope, time frame, or budget.

Modules under consideration range from 450 - 600 W_{DC} per module. Examples of specific solar models in this range are the Longi LR4-72HNBD on the low wattage end and the Jinko Tiger Pro 7RL4-TV on the high 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, potentially leading to fewer total modules. It is also possible that a different manufacturer of a substantially similar product could be selected during final procurement. Examples of different modules and outputs can be found in **Appendix B.**

2.2.2 *Panel delivery date – Indicate whether or not this date is firm.*

The current construction schedule calls for panel delivery to begin in Q4 of 2024. This date is not firm.

2.2.3 Total number of panels required for project.

Based on the current module wattages under consideration the final count could range from 645,000 - 860,000 high efficiency solar modules.

2.2.4 Technical characteristics of panels.

2.2.4.1 Panel physical dimensions.

Dimensions for current module options under consideration are approximately 1052 mm x 2131 mm (41.4 in x 83.9 in, or approximately 3.5 ft x 7.0 ft) for a typical monocrystalline module as shown in the data sheets in **Appendix B**. Total solar module surface area for the Proposed Array area is approximately 500 acres. If solar modules are purchased from a company other than the ones previously mentioned, the module dimensions should be close to the size range provided. As technology changes the form factor may also vary in height or width, but no material changes to the site plan would be expected.

2.2.4.2 Panel material/type.

Each panel is made from crystalline silicon, anti-reflective glass, aluminum frames, copper electrical wires with plastic sheathing, and weather-resistant "quick connect" wire connectors.

2.2.4.3 Any surface treatment of panels.

During the manufacturing process, all solar panel manufacturers listed in the preceding Sections treat the surface of each module with an anti-reflective coating to minimize glare and increase efficiency. Ongoing maintenance of the solar modules is not expected to include periodic washings due to the typical precipitation levels in the area.

2.2.4.4 Panel power curve (provide actual data – solar resource and rated output needed to create the curve).

Appendix B contains power curves for a variety of solar modules under consideration.

2.2.4.5 Panel tolerances for extreme weather events or physical damage.

High Noon Solar has reviewed the closest weather station's climate history (AgACIS WETS Station Arlington, WI), as verified by the Solar America Board for Codes and Standards. High Noon Solar intends to purchase equipment designed to ensure the highest level of operability and reliability across the range of anticipated environmental conditions for the lifetime of the Project such as temperature, precipitation, wind, humidity, mechanical loading, irradiance levels, etc.

Similarly, the final tracking system components and pile sizes and depths will be designed to meet building codes for wind and snow loads. Potential tracking technologies will be assessed in the context of other Project attributes, such as resource forecast and expected operating profile. Standard safety features in modern solar tracking systems include protective settings or modes known as "stowing" that are enabled during various extreme weather events, such as high wind or snow events. During extreme weather events, the trackers can enable these settings and rotate the modules to an angle that best protects the equipment from damage from environmental

factors. In this way, the tracking system works in tandem with the modules to mitigate risks to equipment from extreme weather events.

High Noon Solar intends to utilize trackers that have the ability to rotate as described. Any solar modules selected will meet international standards for hail ratings and operating temperature ranges. All modules being considered for the Project will meet an industry standard of resisting hail damage from a 25 mm hailstone at the speed of 23 m/s.

2.2.5 *Technical characteristics of inverters.*

Typical inverter enclosures are 15 - 20 ft long, by 6 - 7 ft wide, by 7 - 8 ft tall. Typical pad mounted transformers that will be located on the inverter skids are approximately 10 ft wide and long, and approximately 8 - 10 ft tall. Example datasheets for Power Electronics, TMEIC, SMA, GE, and Sungrow Inverter skids are included in **Appendix B**. A typical inverter skid diagram is included in **Appendix C**.

2.2.6 *Technical characteristics of any tracking systems, panel supports, and racking.*

2.2.6.1 *Type of material used for supports and racking.*

Typically, the panel mounting system consists of a steel bracket on top of a steel pile bolted to the racking superstructure.

2.2.6.2 *Tracking system used.*

The solar modules will be mounted to a horizontal single-axis tracking system. In this type of system, the solar arrays are arranged in north-south oriented rows. An electric drive motor rotates the horizontally mounted solar modules from east to west to follow the sun (on a single axis) throughout the day. The tracker rows will follow the sun from approximately 60 degrees east to 60 degrees west through the course of the day. When the sun is directly overhead, the solar modules will be at a zero-degree angle (level to the ground).

Multiple tracking system technologies are currently being evaluated from Tier 1 manufacturers such as Soltec, Array Technologies, and Nextracker; a similar system from a different vendor may also be selected. Example diagrams and datasheets are provided in **Appendix B**. Models from Nextracker contain electric motors on each individual tracker row throughout the Project; Array Technologies uses a linked row system with one motor per multiple racks. Horizontal single-axis tracking systems are typically comprised of aluminum or galvanized or stainless steel.

Tracking systems being considered include a “one-in-portrait” configuration that would consist of north-south rows of single modules in a portrait, or vertical, configuration when viewed at an angle perpendicular to the axis of the tracking system, and a “two-in-portrait” configuration that would consist of north-south rows of two modules. The one-in-portrait system would require foundations with approximately 4 ft of reveal height out of the ground, an overall tip height of approximately 8 ft when the modules are tilted at maximum angles, ground clearance of about 18 inches, and would have aisles with foundations spaced approximately every 20 ft. The two-in-portrait system would require foundations with approximately 8 ft of reveal, an overall tip height

of approximately 15 ft, the same 18 inches of ground clearance, and aisles with foundations spaced approximately every 40 ft. A final decision will be made based on engineering, economic, and reliability considerations.

2.2.6.3 *Dimensions and number of sections required.*

The Project Layout is designed in 4.2 MW_{AC} power blocks where possible, which are typically comprised of approximately 88 tracker rows, with the final number dependent on final engineering.

Based on the information provided in **Appendix B** for the tracker systems under consideration, the tracker widths range from 6.4 - 12.8 ft but may fall outside this range based on final engineering. Additionally, a typical solar tracker may range from 100 - 350 ft long. The number of sections required are dependent upon the manufacturer and type of panels installed, and the location in which they are being constructed. The tracking systems under consideration have different specifications and maximum capacities of solar modules that can be installed.

2.2.6.4 *Typical distances between rows, access roads, and fences.*

Distances between array rows when panels are horizontal may range from 15 - 30 ft. A typical minimum distance from array edges to access roads is 4 ft. Distance from tracker array edges to fences is typically a minimum of 20 ft.

While the information above pertains to a typical solar array, the final distances will depend on the tracker and array technology utilized during final engineering.

2.2.6.5 *Highest and lowest points of panels during daily rotation.*

At 60 degrees (tilted to the highest position), the highest point of the modules will be no more than 15 ft above ground and the lowest point of the modules will be at least 18 inches from the ground. Final determination of solar module heights will be made by High Noon Solar during final engineering and will be based on factors such as system installation cost, capital cost, construction preference, tracker mounting configuration, and site constraints.

2.2.6.6 *Operational actions in case of extreme weather events. Include descriptions of actions in response to high wind events, as well as snow or ice removal.*

Solar modules and related facilities will be designed to withstand any potential weather event that would reasonably be expected to occur in or near the Project Area. The structural, civil, and electrical works will comply with all applicable local and state building codes in addition to codes and standards set by technical society and standards developing organizations. The design safety factor used on snow and wind loads (to de-risk extreme weather events) will be based on recommendations from these standards.

Standard safety features in modern solar tracking systems include protective settings or modes known as “stowing” that are enabled during various extreme weather events, such as high wind or snow events. During extreme weather events, the trackers can enter this setting and rotate the modules to reduce the degree of load experienced on the modules and underlying structures, and

to protect them from high directional winds. Likewise, the modules can be rotated to avoid snow loading or impact from hail if warranted. For example, if the modules are normally stowed flat in the evenings and a snowstorm or hailstorm is predicted, if wind conditions are conducive (that is to say, calm), the modules can be tilted to a maximum angle to reduce snow accumulation or hail impact. Additionally, the use of bifacial modules can help reduce the period during which snow or ice cover the top of the panels and reduce energy production, as the solar irradiance reflected off the high albedo ground surface of fresh snow through the clear backsheet will accelerate snow melt.

High Noon Solar intends to utilize trackers that have the ability to rotate as described. Any solar modules selected will meet international standards for hail ratings and operating temperature ranges. All modules being considered for the Project will meet an industry standard of resisting hail damage from a 25 mm hailstone at the speed of 23 m/s.

2.2.6.7 *Panel tolerance for placement on slopes.*

Based on the information provided in **Appendix B** for the tracker systems under consideration, the tracker tolerance for north to south slopes is generally 15 percent and unlimited in the east to west direction.

2.2.7 *Scale drawings of a typical panel row including inverter pad and transformer box.*

Appendix C includes an exhibit depicting a typical solar array configuration.

2.2.8 *Provide information on any perimeter fencing that would be used around the solar PV arrays. Describe any requirements on the fencing around the PV sites.*

The perimeter fence around the solar arrays will be up to 8 ft high and comply with applicable electrical codes. No barbed wire will be used on the perimeter fence, and "agricultural" or "deer fence" will be used, unless required otherwise by applicable codes, standards, rules, or regulations. Fencing around the Project Substation, O&M storage area, and Interconnection Switchyard will likely be a chain link design with barbed wire to satisfy applicable security requirements for those Project components.

Generally, the NEC addresses the requirements for PV solar arrays in Section 691 for projects greater than 5 MW. Fencing requirements are in Section 110.31. The NESC applies only to the high-voltage portions of solar projects. This includes the Project Substation and Interconnection Switchyard which are addressed in NESC Part 1 and overhead transmission lines which are addressed in NESC Part 2. The NESC does not address PV solar arrays.

2.3 Other Project Facilities

2.3.1 *Site Construction Area. Describe the site construction area. Include the number of, location, and dimensions for:*

2.3.1.1 Solar arrays, proposed and alternative.

The Project Layout has been divided into 25 fence boundary areas for identification and discussion purposes as shown in **Figures 4.1.1** and **4.1.2** (**Appendix A**). A typical solar array area construction layout is provided in **Appendix C**. The Typical Power Block Configuration in **Appendix C** illustrates how the Project may be divided into approximately 129 power blocks utilizing 4.2 MW inverters where possible for representative purposes. Of the 129 power blocks, 79 comprise Proposed Array areas and 50 comprise Alternative Array areas.

2.3.1.2 Lay-down/staging areas.

The temporary 12-acre general construction laydown yard is currently proposed in the west/central portion of the Project Area on land currently used for agriculture and is located inside the Proposed Array area, as shown in **Figures 4.1.1** and **4.1.2** (**Appendix A**). Racking materials, modules, cables, and other materials would initially be stockpiled, and distributed in the field as construction sequencing progressed. This area would also host temporary construction offices and parking for personal and construction vehicles and equipment. An example of a typical laydown yard configuration is included in **Appendix C**.

Any additional temporary laydown yards that may be used during construction would be located within the fenced array areas shown in **Figures 4.1.1** and **4.1.2** (**Appendix A**) or along the Gen-Tie ROW, and are not anticipated to exceed 50 acres, total.

2.3.1.3 Parking area.

Temporary construction parking will be contained within the laydown yards described above.

2.3.1.4 Provide a scale drawing showing the general construction setup for the solar array sites.

A scale drawing of a typical solar array area construction layout with temporary laydown yard is provided in **Appendix C**.

2.3.2 Collector Circuits.

2.3.2.1 Total number of miles of collector circuits required – separated by circuit type (overhead vs. underground).

Approximately 57 miles of underground collector circuits are anticipated to be required for the Project's Proposed Arrays based on the Project Layout. Depending on the final Project Layout, approximately 12 collector circuits are expected to be needed to connect 300 MW of solar arrays to the Project Substation. Approximately 7 collector circuits are expected to be needed to connect the 165 MW BESS to the Project Substation. There are no overhead collector circuits planned for the Project.

2.3.2.2 Specify the collector circuit voltage to be used.

The collection system will operate at a nominal voltage of 34.5 kV.

2.3.2.3 *Transformer type, location, and physical size of transformer pad at each site.*

Pad mounted transformers that will be located on the inverter skids will be 3-phase, up to 4600 kVA, 34.5 kV high side. The transformers are approximately 10 ft wide and long, and 8 - 10 ft tall. Examples of pad-mounted transformers on inverter skids are included in the inverter skid datasheets in **Appendix B**.

2.3.2.4 *Underground collector circuits.*

2.3.2.4.1 *Conductor to be used.*

The 34.5 kV medium voltage underground collector circuits from the Project Substation low side bus will be daisy chained to up to approximately 7 inverter stations (depending on final inverter size) per circuit. Properly sized surge arrestors will be placed at the end of each medium voltage circuit. Conductor sizes up to 1500 KCMIL will be used.

2.3.2.4.2 *Describe installation type and how lines would be laid (open-cut trench, vibratory plow, directional bore, etc.). Provide scale drawing of underground circuit.*

Collector circuits will be installed using open-cut trenches, directional bores, or plows depending on conditions and location. Construction details for these installation methods are provided in **Appendix C**. Examples of collector circuits under consideration are provided in the collector circuit datasheets in **Appendix B**.

2.3.2.4.3 *Depth and width of trench, and minimum depth of soil cover over circuits (if applicable).*

The medium voltage cables will typically be direct buried in native soil arranged in a triangular configuration with 36 – 60 inches of cover in a 12 – 18 inch wide trench pending final engineering. Parallel trenches will be separated to maintain cable ampacity.

Underground AC collector circuit burial depths must comply with the NEC 300.50 or, in certain instances, Part 3 of the NESC if applicable to the Authority Having Jurisdiction (AHJ). The NEC states that cables shall be installed in accordance with 300.50(A)(1), (A)(2), or (A)(3), and the installation shall meet the depth requirements of table 300.50.

2.3.2.5 *Overhead collector circuits.*

2.3.2.5.1 *Size of pole to be used.*

2.3.2.5.2 *Engineering drawing of structure to be used.*

There are no overhead collector circuits planned for the Project.

2.3.3 *Site Foundations. Describe the type of foundation or foundations to be used for each part of the project. If more than one type of foundation may be needed*

describe each and identify under what circumstances each foundation type would be used. Include the following:

2.3.3.1 *Describe how the panel and inverter foundations would be installed (e.g. direct imbed, excavation for pouring of concrete footings, etc.).*

Per the preliminary geotechnical engineering report (**Appendix I**), High Noon Solar expects to use steel, driven piles for both panel foundations and inverter foundations pending final engineering. Piles will vary in size and embedment depth and may be galvanized. If pile refusal is expected or encountered due to shallow bedrock or other subsurface obstructions, alternate foundation installation techniques or designs such as pre-drilled, cast-in-place, or helical piles may be needed. Alternate foundation types for inverters, such as concrete footings, may be considered during final engineering.

2.3.3.2 *Dimensions, surface area and depth required for each foundation.*

The preliminary report recommends typical driven pile foundations be W6x8.5 to W8x24 steel sections with between 10.5 ft and 18 ft embedment depths. Typical construction details for driven, cast-in-place, and helical piles as well as pile refusal plans are provided in **Appendix C**. High Noon Solar will conduct additional geotechnical testing as part of final engineering.

2.3.3.3 *Amount of soil excavated for each foundation type.*

No soil excavation is required for the planned driven piles, nor would it be required if helical piles are used. If a pile location requires pre-drilling or cast in place, then the hole will be augured with a negligible amount of material removed. For shallow concrete inverter pad foundations, a typical excavation method could displace approximately 16 cubic yards of soil pending final engineering.

2.3.3.4 *Describe how excavated soils would be handled including disposal of excess soil.*

High Noon Solar will approach grading with the objective to achieve a balanced site, meaning a target of zero net cut and fill (cut materials are used for fill where required, with no need to import or export off site). Grading depths will vary across the Site. In areas where grading is expected to exceed the depth of topsoil coverage based on geotechnical exploration, topsoil will be stripped off and replaced following subsoil material grading. If grading activities do not exceed the depth of topsoil cover, topsoil may be used as fill material across the Site. In the scenario where excess soils are generated on-site, they will be thin-spread in a nearby location. Spreading subsoil on cropland/pasture will require topsoil BMPs.

2.3.3.5 *Materials to be used for the foundation. Include:*

2.3.3.5.1 *Approximate quantity and type of concrete required for typical foundation.*

No concrete is needed for driven or helical piles. Generally, less than half a cubic yard of concrete or flowable fill is needed for cast-in-place foundations. For shallow concrete inverter

pad foundations, a typical excavation method could displace approximately 16 cubic yards of soil pending final engineering.

2.3.3.5.2 *Materials required for reinforcement.*

Sacrificial steel or galvanization may be needed to reinforce piles against corrosion.

2.3.3.5.3 *Description of the panel mounting system.*

Typically, the panel mounting system consists of a steel bracket on top of a steel pile bolted to the racking superstructure. A torque tube is then fixed to pile foundations via steel brackets or other mechanisms, the solar modules are then fixed to the torque tube via steel mounting brackets or another similar mechanism.

2.3.3.6 *Provide technical drawings of each foundation type to be used showing foundation dimensions.*

Typical drawings of the foundation types under consideration are included in **Appendix C**. Exact dimensions, surface area, depth implications, and final quantity will be determined during final engineering. Approximately 107,000 steel pile foundations are currently estimated for the solar array.

2.3.3.7 *Describe how foundation or support installation would address the risk of frost heave on facilities.*

A preliminary geotechnical investigation performed by Terracon **(Appendix I**) included twelve (12) borings within and nearby the Project Area. Per the preliminary geotechnical report, the soils in the Project Area are frost susceptible, as with most or all sites in Wisconsin. The typical frost depth for this Project location in Wisconsin for foundation design considerations is 5 ft. Terracon recommends an ultimate adfreeze (frost heave) of 1,500 pounds per square foot (psf) acting along the pile perimeter to a depth of 2.9 - 4.7 ft below ground surface (bgs). Helical pile design may be considered as a more economical approach to mitigating the effects of frost heave compared to deep driven or grouted pile foundations, to be determined during final engineering.

A final geotechnical study will be completed prior to construction which will be used to determine final engineering pile requirements. Final engineering will be approved by a structural engineer to ensure compliance with all applicable regulations, the safety and durability of the Project, and with frost heave risk considered and mitigated.

2.3.4 *Access Roads*

2.3.4.1 *Provide the total number and total miles required for access roads. Provide the amounts for both temporary access (used during construction only) and permanent access (for long-term facility operation and maintenance) roads. State if any temporary access roads would be converted into permanent access roads.*

Approximately 26 miles of permanent access roads are anticipated to be required for the Project's Proposed Array areas based on the Project Layout. Approximately 0.29 miles of permanent access roads are anticipated to be required for the O&M Area, Project Substation, BESS, and Interconnection Switchyard.

Access roads are predominantly within the array fence boundaries. All access roads will be subject to final engineering, input from landowners, and input from local road authorities. As such, the exact number and width of temporary, permanent, or temporarily widened access roads will not be known until the time of construction, when final determinations can be made.

Roads will be located primarily to provide access to power conversion equipment at the center of power blocks, provide access to key facilities, and accommodate maintenance of components. Roads will provide access for emergency vehicles under emergency circumstances. Roads will not be constructed within every array aisle. As the final array layout configuration will be determined following PSC approval, the access road design and locations depicted in **Appendix A** are preliminary. High Noon Solar will incorporate input from landowners and local road authorities when feasible in the final design.

Temporary roads may be constructed for strategic laydown areas throughout the Project as needed. If used, any temporary roads will avoid all impacts to wetlands, waterways, sensitive species habitat, and cultural resources. No temporary roads will be converted into permanent access roads.

2.3.4.2 *Describe materials to be used and methods for construction of temporary and permanent access roads, including road bed depth.*

Access roads are constructed with a subgrade base and an aggregate course on top of the subgrade. The subgrade work completed to support the roads will vary depending on soil types, weather conditions, etc., but generally range from simple compaction of the native soils starting at a depth of 6 - 12 inches bgs for cement stabilization or other treatments to the subgrade soils to create a suitable base. Subgrade treatment can be as deep as 2 - 3 ft bgs in some scenarios. The aggregate depth of the road will also vary but is typically 6 - 12 inches and may be in excess of 18 inches, in specific scenarios. Shoulders are compacted and seeded, and not expected to require subgrade treatment or aggregate.

2.3.4.3 *Specify the required width of temporary and permanent access roads. Fully describe any differences between final road size and that required during construction.*

Suitable permanent access roads for the solar arrays are typically 12 ft wide with 4 ft shoulders. Suitable permanent access roads for the O&M Area, Project Substation, BESS, and Interconnection Switchyard are typically 20 ft wide with 2 ft shoulders. During construction, permanent access roads may be temporarily widened to approximately 24 ft if necessary. Temporary road improvements may consist of temporarily widening a permanent access road to support additional traffic or off-loading activities, increased turn radius areas to support turning or larger equipment, and placement of temporary aggregate roads in places that may not have a permanent road if conditions require further stabilization to support construction activities.

Temporary roads will be designed to meet the construction needs and will generally be the same width as permanent roads.

2.3.4.4 *Describe any site access control (e.g. fences or gates).*

The perimeter fence around the solar arrays will be up to 8 ft high to minimize intrusion into the facility and comply with applicable electrical codes. No barbed wire will be used on the perimeter fence, and "agricultural" or "deer fence" will be used. Fencing around the O&M storage area, Project Substation, and Interconnection Switchyard will likely be a chain link design with barbed wire to satisfy applicable security requirements for those Project components. Fencing around the BESS facility will likely be a solid wall or chain link design. Access to the Project is only for Project personnel, approved contractors, and emergency personnel, and gates will be installed at access road entrances at public roads. Landowners will not have access to or use of access roads within the secured areas. Security cameras will be installed at the Project Substation, O&M building, BESS, Interconnection Switchyard, and entrance gates of the solar arrays.

2.3.4.5 *Describe any setbacks from sensitive resources or storm water management considerations in road locations*

Access roads have been located to avoid sensitive resources. Final access road locations will be in compliance with the construction performance standards in Wis. Admin. Code § NR 151.11. BMPs such as vegetative buffers and/or managed turf strips will be incorporated into final engineering as needed to comply with WDNR Standards.

2.3.5 *General Construction Areas*

2.3.5.1 *Identify size, number, and location of laydown/staging areas outside of those found at the array sites and any other areas used for material storage.*

An approximately 12-acre general construction laydown yard is described in Section 2.3.1.2 and shown in **Figures 4.1.1** and **4.1.2** (**Appendix A**). Racking materials, modules, cables, and other materials would initially be stockpiled, and distributed in the field as construction sequencing progressed. An example of a general construction laydown yard configuration is included in **Appendix C**. Additional laydown yards/staging areas may be located inside the fenced array areas and the Gen-Tie ROW. No additional laydown yards/staging areas or materials storage are planned for the Project.

2.3.5.2 *Identify size and location of construction parking areas.*

Construction parking will be contained within the laydown yards described above.

2.3.5.3 *Describe the expected use of these areas after project completion.*

Areas that are used for laydown yards and/or parking during construction that are not incorporated in the final Project Layout will be reclaimed and restored for agricultural use and utilized by landowners in accordance with their land management program. Aggregate surfaces will be removed to a depth where clean aggregate without soil mixing can be retrieved. This

aggregate will be applied throughout the site on access roads as a final top layer. Once the aggregate is removed, the subgrade will be de-compacted and topsoil will be evenly spread over the area.

Areas that are used for laydown yards and/or parking during construction that are incorporated in the final Project Layout will be reclaimed and seeded consistent with the designated ground cover for that area.

2.3.5.4 *Provide a list of all hazardous chemicals to be used on site during construction and operation (including liquid fuel).*

The primary hazardous chemicals that will be present on-site are fuel for vehicles and construction equipment, oil in the transformers at the Project Substation and inverter pads, and heating fuel for the O&M building. Smaller quantities of additional chemicals will also be used onsite, including paints, lubricants, and cleaning products.

The fire suppressant used for the BESS will be an environmentally friendly agent, such as FM200, Stat-X, or F-500, that extinguishes fire by interrupting the chemical reaction pathway. The fire suppressant will not contain any per- and polyfluoroalkyl substances (PFAS) that are currently regulated or proposed for regulation by WDNR or EPA. The fire suppression agents proposed by High Noon Solar are common to many industrial, military, and healthcare applications. Safety data sheets for FM200, Stat-X, and F-500 are provided in **Appendix B**.

The following are hazardous materials found in common Lithium-Ion batteries. Final materials will be dependent on final battery selection, but the list below is representative of similar batteries High Noon Solar will use.

- Graphite (used in pencils)
- Lithium Iron Phosphate
- Acetylene (used for welding and cutting)
- Fluoride Polymers (used in high purity plastics applications such as wiring insulation and piping)
- Lithium Hexafluorophosphate
- Various Organic Solvents

2.3.5.5 *Discuss spill containment and cleanup measures including the Spill Prevention, Control, and Countermeasures (SPCC) and Risk Management planning for the chemicals proposed.*

A Spill Prevention, Control, and Countermeasures (SPCC) Plan complying with all EPA and state law requirements will be developed for both construction and operation of the facility. Spill kits will be available on-site, and training, inspection protocols, and response procedures will be established in the SPCC Plan. The SPCC Plan will be developed prior to storage of materials at the Site that would require it. All approved contractors will be responsible for their own SPCC Plans that will be tailored to the specific work items being conducted, such as secondary containment measures for fuel tanks and the Project Substation transformers. Details pertaining to these specific work items will be contained in each contractor's plan. Each plan will be continually updated through the course of construction and adjusted accordingly.

2.3.6 *Construction Site Lighting.*

2.3.6.1 *Describe the site lighting plan during project construction.*

The Project does not anticipate using any permanent lighting on-site during construction. During potential extended working hours, temporary lighting may be used in the construction and laydown areas. If construction work extends into the evening, High Noon Solar intends to utilize portable light plants, if necessary. Lights will be turned to focus on work activities, so as not to shine on neighboring property or on-coming traffic. The O&M Area will include down-shielded lighting for security purposes. These lights will be turned on either by a local switch, as needed, or by motion sensors that will be triggered by movement to ensure that the nearby residences will not experience disturbance from constant, 24-hour lighting. The only lights that would remain on outside of construction periods would be office lights for administrative tasks, vehicle lights for transport, or possible security lights for the general construction laydown yard.

2.3.6.2 *Provide copies of any local ordinances relating to lighting that could apply.*

Columbia County does not administer any lighting ordinances applicable to Agricultural Districts. No lighting ordinances are administered by the Townships.

2.4 Substation

If the project includes the construction of a substation or modifications to an existing substation, provide the following information:

2.4.1 *A complete electrical description of required substation facilities including a list of transformers, busses, and any interconnection facilities required.*

The preliminary Project Substation design includes three transformers, which may not be identical, ranging in size from 111/148/185 MVA to 120/160/200 MVA that will transform voltage from the 34.5 kV collection system to the 345 kV interconnection system voltage. Final engineering will dictate the number and size of the final transformer combination. A drawing of a typical substation is included in **Appendix C**. Each transformer will have its own 345 kV circuit breaker tied to a common 345 kV bus before exiting the Project Substation via an overhead 345 kV Gen-Tie. There will be two independent 34.5 kV collection system buses with individual 34.5 kV feeder breakers for each collection feeder. All breakers will be supplemented with disconnect switches according to industry practices. A control enclosure will be installed on-site that will house the protection, communication, and SCADA equipment necessary to safely operate the Project Substation. The facility will be fenced-in and protected according to the NESC.

A newly-constructed 345 kV Gen-Tie approximately 1.9 miles in length will connect the Project Substation to the Point of Interconnection at a newly-constructed Interconnection Switchyard within the Project Area. The Gen-Tie Routes and Interconnection Switchyard footprint are shown in **Figures 4.1.1 and 4.1.2** (**Appendix A**). Additional information on the Gen-Tie is included in the Gen-Tie AFR appended to this Solar AFR.

The Interconnection Switchyard will be designed, constructed, and owned by ATC and will be composed of high voltage breakers and high voltage isolation switches, and designed to interconnect the Project to the electrical grid. A separate control enclosure will be installed on-site that will house ATC's protection, communication, and SCADA equipment necessary to safely operate the Interconnection Switchyard. The facility will be fenced-in and protected according to the NESC and ATC's physical security standards.

The current MISO 2019 DPP Study Cycle report is provided in **Appendix D**. High Noon Solar will provide DPP study reports for the MISO 2019 and 2021 Study Cycles as they become available.

2.4.2 *Indicate the size (in acres) of the land purchase required for the new substation or substation expansion.*

High Noon Solar anticipates purchasing approximately 40 acres to accommodate the Project Substation, BESS, O&M Area, stormwater infrastructure, and a portion of the collector circuits and Gen-Tie. The Project Substation is anticipated to occupy approximately 4 acres, as depicted in **Figure 4.1.4/4.1.5/4.1.6 (Appendix C)**. The final location of the Project Substation may be adjusted based on final engineering, layout considerations, and design inputs.

2.4.3 *Indicate the actual size of the substation or substation addition in square feet, the dimensions of the proposed substation facilities, and the orientation of the substation within the purchase parcel. This should include the size of any new driveways associated with the substation.*

The preliminary Project Substation design estimates the footprint will be approximately 325 ft wide by 500 ft long, or 162,500 sq ft, or just under 4 acres. An approximately 1,010 ft long access road 20 ft wide with 2 ft shoulders is anticipated to connect the Project Substation to a public road. The proposed layout on the parcel is depicted in **Figure 4.1.4/4.1.5/4.1.6 (Appendix C)**. The Project Substation will likely be located in the west/central portion of the Project Area, as depicted in **Figure 4.1.1 (Appendix A)**.

2.4.4 *Identify current land ownership and whether applicant has control of property or whether or not an option to buy has been signed.*

The land is currently privately owned and subject to a solar easement agreement. High Noon Solar anticipates executing a purchase option for up to 40 acres to accommodate the Project Substation, BESS, O&M Area, stormwater infrastructure, and a portion of the collector circuits and Gen-Tie.

2.4.5 *Describe substation construction procedures (in sequence as they would occur) including erosion control practices (see Section 3.1).*

The construction sequence for the Project Substation will likely involve, in the following order:
1. Mobilize equipment and personnel to the site
2. Installation of sensitive resource/impact avoidance signage/flagging, survey staking, and wildlife exclusion measures

3. Installation of perimeter erosion control measures (silt fences, silt fence rock outlets, rock check dams, filter socks, temporary sediment basins, etc.)
4. Installation of permanent stormwater BMPs
5. Access road construction and grading of the Substation area, including delivery of aggregate
6. Grounding and conduit installation
7. Rock surfacing
8. Above grade physical construction of bus work and installation of major electrical equipment
9. Wiring and completion of all terminations
10. Testing
11. Commissioning
12. Energization
13. Site area reclamation

A site-specific construction specification and schedule will be developed during final engineering but is not yet available. All contractors will be required to follow the Erosion Control and Stormwater Management Plan (ECSWMP) as well as adhere to any site specific environmental requirements, including erosion and dust control.

2.4.6 *Describe associated permanent storm water management facilities that will be constructed, or expansion/modification of existing storm water treatment facilities to comply with applicable post-construction performance standards in Wis. Admin. Code §§ NR 151.121 through 151.128. Identify the locations of the point(s) of collection and discharge.*

Permanent stormwater BMPs in accordance with the WDNR Storm Water Post-Construction Technical Standards will be implemented to comply with Wis. Admin. Code NR 151.121 through 151.128. One detention pond is expected to be constructed to detain stormwater runoff from the Project Substation, O&M building, and BESS. The detention pond is anticipated to be constructed north of the facilities and the proposed grading constructed to ensure that runoff from the facilities will be routed to the detention pond via overland sheet flow and/or vegetated swales, if necessary. The detention pond will have an emergency overflow weir designed to pass the 100-year storm event.

An outlet control structure will be installed to maintain or reduce the peak runoff discharge rate. The outlet control structure will be located on the north side of the detention pond and will discharge into the Thiele Road ROW consistent with the existing site conditions. The final location of the outlet control structure will be determined during final engineering.

Final BMP design/selection will be completed during final engineering. An ECSWMP will be completed and provided, documenting compliance with Wis. Admin. Code §§ NR 151.121 through 151.128. The ECSWMP will be included with the Notice of Intent when submitted to obtain Construction Site Storm Water General Permit Coverage from WDNR. Please refer to **Figure 4.1.4/4.1.5/4.1.6 (Appendix C)** for preliminary locations of BMP's and discharge points.

2.4.7 *Describe any security requirements for the substation site and provide information on how these would be met.*

A control enclosure will be installed on-site that will house the protection, communication, and SCADA equipment necessary to safely operate the Project Substation. Access to the control enclosure is typically operated via key control or badge reader systems. The facility will be fenced-in and protected according to the NESC. Project Substation fencing will likely be a chain link design with barbed wire to satisfy applicable security requirements. Security cameras will be installed at the Project Substation.

2.5 Transmission and Distribution Interconnection

If the project includes the construction of a generator tie line, that is not the subject of a separate application before the Commission, provide the following information:

2.5.1 *Describe any transmission or distribution grid interconnection requirement.*

2.5.2 *Identify the length of the generator tie line.*

2.5.3 *Provide details on the types of structures (underground/overhead, single-pole/H-frame, direct embed/concrete caisson, typical span length, etc.) and lines that would be constructed as part of any necessary generator tie line, including the height of the structures. If the installation will be underground, identify the installation method(s), such as directional bore, open-cut trench, plow, etc.*

2.5.4 *Describe the transmission configuration (single-circuit, double-circuit, etc.)*

2.5.5 *Describe the right-of-way (ROW) area needed for the generator tie line and the status of any easements or other land agreements with property owners.*

2.5.6 *Describe all communications and agreements, official or otherwise, with the transmission or distribution owner. These can include definitive phase planning (DPP) studies and any signed generator interconnection agreements, or more informal meeting notes or letters.*

2.5.7 *For transmission interconnections, indicate where the project is in the MISO Queue and provide copies of the latest draft or final MISO report for the project interconnect. During the PSC review process applicant must continue to supply the latest reports from MISO.*

2.5.8 *Indicate how equipment access will occur, and if off-ROW access roads will be utilized. If off-ROW access roads will be utilized, provide the following:*

2.5.8.1 *Provide the number of off-ROW access roads proposed, and an identifying name or number for each off-ROW access road.*

2.5.8.2 *For each proposed route, provide the dimensions (length, width, area) and construction method, including any modifications that would be needed to utilize the off-ROW access roads, such as road widening, road fill placement, tree clearing, etc.*

2.5.8.3 *Discuss the reasons for the necessity for off-ROW access roads (e.g. topography, rivers/wetlands, etc.). If protection of a natural resource is a*

reason, discuss how the resource would be protected during construction and operation of the proposed project.

2.5.8.4 *Provide quantitative land cover information for off-ROW access roads similar to the information provided in PSC Impact Table.*

2.5.8.5 *If the off-ROW access roads would be modified post-construction, provide details.*

2.5.9 *Describe the type of construction machinery that would be used.*

2.5.10 *Describe the construction disturbance zone, if different from the ROW.*

2.5.11 *Describe how spoil materials would be managed on and off-site.*

2.5.12 *Describe the dewatering method(s) that may be utilized during excavation activities, such as pit/trench dewatering or high capacity wells. Identify treatment methods that would be utilized to treat the discharge, and the discharge location.*

2.5.13 *Describe if the construction of a new substation or switchyard, or modifications to existing facilities would be needed for the transmission interconnection. If so, describe which company would own and operate the facilities, and which company would conduct any ground disturbing construction for the facilities.*

High Noon Solar is submitting a joint Application for the solar generation CPCN and the Gen-Tie CPCN. Transmission AFR responses are included with this Application in compliance with Wisc. Stat. §196.491(3)(a)1. Responses to Section 2.5 are included in the Transmission AFR.

2.6 Operations and Maintenance Building

2.6.1 *Describe the purpose and use of the proposed O&M building.*

The O&M Area would accommodate a permanent O&M building, parking area, storage area, and other associated facilities such as drinking water well (if necessary), aboveground water storage tanks, septic system, security gate, security camera, lighting, and signage. The O&M building would house administrative and maintenance equipment and personnel. The O&M building will be the main working base for the Project's technicians and house the Project's control system hardware that provides real time data to technicians and the Invenergy Control Center. The O&M building will have workstations for the technicians to use to organize their days in the field, and a garage with tools and an inventory of parts and maintenance supplies.

The Project's O&M building is expected to be approximately 4,000 - 5,000 sq ft to accommodate the following:

- 2700 sq ft warehouse space
- Three offices, including one shared workspace for up to 7 technicians
- Control center/library
- Bathroom with shower
- Breakroom/kitchen

2.6.2 *Number of full-time employees that would be working at the facility.*

The Project expects the facility will employ up to 5 permanent employees and have additional office space for traveling workers.

2.6.3 *Provide the size (in acres) of the land purchase required for the facility.*

High Noon Solar expects that the up to 40-acre land purchase described in Section 2.4.2 will be adequate for the Project Substation, BESS, O&M Area, stormwater infrastructure, and a portion of the collector circuits and Gen-Tie.

2.6.4 *Building and Building Footprint.*

2.6.4.1 *Provide a drawing or diagram of the O&M building with dimensions including square feet.*

A preliminary diagram of the O&M building is shown in **Appendix C**.

2.6.4.2 *Indicate the actual size of the building in square feet, and the size of any permanent driveways for the building to be constructed.*

The O&M building is anticipated to be approximately 4,000 - 5,000 sq ft and is proposed to have an approximately 300 ft long, 20 ft wide driveway with 2 ft shoulders to connect the O&M building to public road.

2.6.4.3 *Describe the type of building to be constructed (metal, frame, etc.).*

A preliminary diagram of the O&M building is show in **Appendix C**. During final engineering, the design of the O&M building will be refined. The major material components would consist of metal, brick, wood, concrete, or other structural materials. The final design and construction of this building would be consistent with applicable Wisconsin State Building Code[10] and may include materials not identified in this list.

2.6.5 *Lighting and Security Plan for O&M Property*

2.6.5.1 *Describe how the building property would be lit and how the lighting plan minimizes disturbance to nearby residences.*

The O&M Area will include down-shielded lighting for security purposes. These lights will be turned on either by a local switch, as needed, or by motion sensors that will be triggered by movement. This will ensure that the nearby residence will not experience disturbance from constant, 24-hour lighting.

2.6.5.2 *Describe any security plans for the property (fences etc.).*

The fence around the O&M storage area will likely be a chain link design with barbed wire. Security cameras will be installed at the O&M building. Doors to the O&M building and gates to the O&M storage area will be secured using a key control or badge reader system.

2.6.6 *Describe any other facilities needed, including:*

[10] Wisconsin Administrative Code. April 2018. Department of Safety and Professional Services (SPS). Chs. SPS 301-399; Safety, Buildings, and Environment. Chs. SPS 361-366; Commercial Building Code.

2.6.6.1 *Parking lots.*

The O&M building would have an adjacent parking area of approximately ten parking spots to anticipate a maximum load of five permanent employees' vehicles and five visitors' vehicles as shown in **Figure 4.1.4/4.1.5/4.1.6 (Appendix C)**.

2.6.6.2 *Sheds or storage buildings.*

The approximate 2,700 sq ft of warehouse space inside the O&M building is the only permanent storage building expected. The O&M Area will include an outdoor gravel storage area approximately 2 acres in size as shown in **Figure 4.1.4/4.1.5/4.1.6 (Appendix C)**.

2.6.6.3 *Supplies of water.*

High Noon Solar will work with the WDNR and the applicable local regulatory authorities, as appropriate, to either drill a new water well or connect with the municipal water service to supply the facility's needs.

2.6.6.4 *Sewer requirements.*

High Noon Solar will work with the WDNR and the applicable local regulatory authorities, as appropriate, to either install a new septic system or connect with municipal wastewater systems to service the facility's needs.

2.6.7 *Describe construction procedures (in the sequence as they would occur), including erosion control practices (see Section 3.1).*

Below is a typical staging and construction sequence:

1. Mobilize equipment and personnel to the site
2. Installation of sensitive resource/impact avoidance signage/flagging, survey staking, and wildlife exclusion measures
3. Installation of perimeter erosion control measures (silt fences, silt fence rock outlets, rock check dams, filter socks, temporary sediment basins, etc.)
4. Installation of permanent stormwater BMPs
5. Access road construction and grading of the O&M Area, including delivery of aggregate for roads and storage area
6. Installation of O&M Area facilities including building, parking area, storage area, and utilities.
7. Finalize grading, permanent stabilization, and final placement of aggregate
8. Site area reclamation

2.6.8 *Describe associated permanent storm water management facilities that will be constructed, or expansion/modification of existing storm water treatment facilities, to comply with applicable post-construction performance standards in Wis. Admin. Code §§ NR 151.121 through 128. Identify the locations of the point(s) of collection and discharge.*

Permanent storm water BMPs in accordance with the WDNR Storm Water Post-Construction Technical Standards will be implemented to comply with Wis. Admin. Code NR 151.121 through 151.128. One detention pond is expected to be constructed to detain stormwater runoff

from the Project Substation, O&M building, and BESS. The detention pond is anticipated to be constructed north of the facilities and the proposed grading constructed to ensure that runoff from the facilities will be routed to the detention pond via overland sheet flow and/or vegetated swales, if necessary. The detention pond will have an emergency overflow weir designed to pass the 100-year storm event.

An outlet control structure will be installed to maintain or reduce the peak runoff discharge rate. The outlet control structure will be located on the north side of the detention pond and will discharge into the Thiele Road ROW consistent with the existing site conditions. The final location of the outlet control structure will be determined during final engineering.

Final BMP design/selection will be completed during final engineering. An ECSWMP will be completed and provided, documenting compliance with Wis. Admin. Code §§ NR 151.121 through 151.128. The ECSWMP will be included with the Notice of Intent when submitted to obtain Construction Site Storm Water General Permit Coverage from WDNR. Please refer to **Figure 4.1.4/4.1.5/4.1.6 (Appendix C)** for preliminary locations of BMP's and discharge points.

2.7 Battery Storage

If the proposed project would include a large-scale Battery Energy Storage System (BESS) or plans to include one in the future, provide the following information. State clearly if the project is seeking authorization to construct a BESS in the current solar electric generation facility docket. Provide all of the environmental impact information for the BESS if one is being proposed, identical to the environmental impact information provided with all other project facilities.

2.7.1 *Describe the location of the proposed BESS, including a map that shows its placement within the other project facilities.*

The Project is seeking authorization to construct a 165 MW / 165 – 660 MWh BESS in this docket. The BESS will either be located throughout the solar arrays to utilize the same inverters as the solar arrays (called DC-coupled) or centralized nearby the Project Substation and O&M Area (called AC-coupled). In either scenario, the BESS will likely be housed in standard ISO shipping containers or smaller outdoor-rated modular enclosures. These enclosures would be fully outfitted with auxiliary systems (such as HVAC, controls, and fire suppression).

For a DC-coupled system, one or more enclosures will be installed at each solar inverter skid. Utilizing smaller, additional transforming equipment, the BESS enclosures will connect to the solar inverters and utilize the same collection system as the solar facility to connect to the Project Substation.

For an AC-coupled system, the BESS enclosures would be centralized with a footprint of approximately 10 acres. Adjacent to the enclosures would be rows of pad-mount transformers and inverters. The inverters will be connected to the pad-mount transformers, which will then connect to a common bus which will connect directly to the Project Substation. **Figure 4.1.4/4.1.5/4.1.6 (Appendix C)** depicts an AC-coupled BESS for the Project.

2.7.2 *Explain what criteria was used to decide whether to use a BESS and provide information on how its inclusion would affect the electrical design of the project and MISO interconnection process.*

The criteria to decide whether to include a BESS will incorporate an analysis of the following criteria: the capital and operating costs of the system; regulatory and permitting considerations; the wholesale electricity market conditions; prices for energy, capacity, ancillary services; and MISO tariff provisions for the utilization of the BESS.

The effects of inclusion of a BESS on the electrical design of the Project are described above in Section 2.7.1. A DC-coupled system would include battery enclosures near the solar array inverters with additional equipment as needed. An AC-coupled system will include the aforementioned centralized BESS Area. In either scenario, the appropriate considerations will be made within the Project Substation for accepting power from the BESS and transforming it to 345 kV. The Gen-Tie will be sized appropriately to handle 300 MW of solar generation and 165 MW of BESS output.

The impact to the MISO grid from the integration of a BESS will be positive, as the BESS can act to shift the output of the solar generation from the likely peak at solar noon to a potential peak of electrical demand in the early evening. Depending upon final design, the system can furnish other grid services such as frequency response and voltage support and could act as an electrical "suspension" to smooth the output of the Project on partly cloudy days.

2.7.3 *Identify the manufacturer and model of battery systems to be used. (It is acceptable to identify several potential units). Include technical specifications.*

Battery systems produced by several manufacturers are under consideration for the Project, including General Electric and Powin. High Noon Solar will analyze current market offerings during final engineering to make a selection on the specific battery system model. Examples of battery systems under consideration and their technical specifications can be found in **Appendix B**.

2.7.4 *Provide information on how the BESS would be installed, any changes to project impacts through its inclusion, and ongoing operations and maintenance actions it would require.*

If a BESS is included in the Project, the batteries will likely be housed in standard ISO-style steel shipping containers, outdoor-rated modular enclosures, or similar. Enclosures will be populated with battery racks that are bolted to the floor and strung together electrically. As identified in the typical staging and construction sequence described in Section 2.7.6 below, the enclosures will be installed by crane onto steel reinforced concrete foundations in the BESS Area. Racks are typically loaded by forklifts.

The power delivered at the Point of Interconnection resulting from solar generation and battery storage will not increase beyond limits allowed pursuant to MISO agreements, as the batteries will serve to compliment the solar facility by smoothing, shifting, or firming the solar generation.

In either an AC-coupled or DC-coupled system, there would be an increase in impervious surface added by the Project, which would be addressed in the ECSWMP. Deployment of the latest energy storage technology helps to minimize the footprint of this impervious surface. The visual impact would increase in both scenarios, but would not be entirely out of character with the Project. The visual impact in the DC-coupled scenario would slightly increase by the addition of one or more steel shipping containers or outdoor rated modular enclosures adjacent to solar inverters throughout the Site. These are relatively low height, and this would be a very minor change relative to the base case of the proposed solar facility installation as the inverter locations are generally several hundred feet into the interior of the solar arrays and will be minimally visible to people viewing them from public roads or neighboring properties.

The BESS components will contribute additional noise, but High Noon Solar believes that overall noise levels from the Project will remain relatively low. As documented in the High Noon Solar Pre-Construction Noise Analysis (**Appendix J**), during typical operations noise emissions from the Project are predicted to be less than 38 dBA at night and less than 41 dBA during the day at all non-participating residences. Potential mitigation measures included in **Appendix J** involve the construction of a noise wall at the centralized BESS location. A final determination on noise mitigation actions will be made once High Noon Solar has completed final engineering and has selected final equipment. Based on final engineering and final equipment selection, an updated model of noise emissions from the Project will be created and used to determine if noise mitigation measures need to be included in the Project as designed. If mitigation measures are deemed necessary, High Noon Solar would consider implementing a variety of feasible mitigation option such as constructing a noise wall, adjusting the location of the Project Substation and BESS further from receptors, procuring lower noise equipment, or enclosing equipment. High Noon Solar will update the noise analysis as part of final engineering to ensure that Project-related noise levels at all non-participating, noise-sensitive receptors continue to be predicted to be less than 50 dBA during the daytime and 45 dBA during the nighttime. High Noon Solar has attempted to mitigate potential visual and noise impacts by locating the centralized BESS one quarter mile away from the nearest occupied residence.

The storage enclosures or containers will have a fire protection system that will contain and extinguish fires. The fire suppressant will be an environmentally friendly agent, such as FM200, Stat-X, or F-500, that extinguishes fire by interrupting the chemical reaction pathway. As part of regular maintenance, High Noon Solar will monitor and refill/replace the suppression agent and other parts of the fire suppression system. With this fire suppression system and design to the National Fire Protection Association (NFPA) 855 Standard for the Installation of Stationary Energy Storage Systems, the fire risk for the Project will not appreciably change due to the addition of the BESS.

Operations and maintenance activities for the BESS will be performed in coordination with the solar facility. The largest maintenance items for the BESS will be the annual capacity test and transformer and inverter inspections (if the BESS has its own inverters), a general semiannual inspection in accordance with a preventative maintenance program, and continuous data monitoring from the Invenergy Control Center. Through remote monitoring, High Noon Solar will ensure the batteries stay within optimal operating bands to ensure both safety and long-term performance. Critical information such as battery temperature, state of charge, and any system

warnings are monitored on a 24/7 basis. Any anomaly is identified immediately and can be addressed by action from the Invenergy Control Center or by dispatching local technicians to the Site. In addition to real time monitoring and support, analysts can analyze trends in operating data to predict anomalies or failures before they arise.

The energy capacity of lithium-ion battery systems degrades over time at a fairly predictable rate. It is likely High Noon Solar will wish to maintain a relatively constant energy storage capacity during the operating life of the Project. Therefore, High Noon Solar will likely augment the system periodically. "Augmentation" is a process where additional battery racks are added within existing containers or enclosures, or new containers or enclosures are added to the system at pre-prepared locations to maintain the initial energy capacity of the system. The proposed 10 acre footprint of the BESS is adequate to enable augmentation throughout the Project's life.

2.7.5 *Discuss any safety requirements specific to the BESS both on site and for local first responders.*

Battery energy storage systems represent a set of thermal, fire, and deflagration hazards which are individually familiar to first responders and similar to other substation and solar PV equipment in terms of high voltage AC and DC hazards. The batteries are certified to relevant UL standards such as UL 1973 for safer battery modules and UL 9540 for the safe construction of an energy storage system. Batteries are required to undergo large-scale fire testing to limit the probability of thermal runaway in battery and rack design and anti-deflagration protection in battery enclosures. NFPA 855 governs documentation and design of safe BESS projects and includes a comprehensive Hazard Mitigation Analysis (HMA) process. The results of this HMA process will inform a site-specific Emergency Response Plan (ERP) and safe approach distances for first responders. These emergency protocols and clear delineation of responsibilities will incorporated into the ERP prepared by High Noon Solar, and be reinforced via training with first responders.

2.7.6 *Describe construction procedures (in the sequence as they would occur), including erosion control practices (see Section 3.1).*

Below is a typical staging and construction sequence:

1. Mobilize equipment and personnel to the site
2. Installation of sensitive resource/impact avoidance signage/flagging, survey staking, and wildlife exclusion measures
3. Installation of perimeter erosion control measures (silt fences, silt fence rock outlets, rock check dams, filter socks, temporary sediment basins, etc.)
4. Installation of permanent stormwater BMPs
5. Access road construction and grading of the BESS Area, including delivery of aggregate
6. Install underground conduit (AC cable, DC cable, communications cable)
7. Installation of base aggregate and foundations
8. Install battery enclosures and power conversion stations
9. Pull cables and perform terminations
10. Install and ground battery racks
11. Terminate battery racks to DC combiner cabinet
12. Lock-Out Tag-Out enclosures
13. Energize auxiliary power

14. Complete commissioning
15. Site area reclamation

2.7.7 *Describe associated permanent storm water management facilities that will be constructed, or expansion/modification of existing storm water treatment facilities, to comply with applicable post-construction performance standards in Wis. Admin. Code §§ NR 151.121 through 128. Identify the locations of the point(s) of collection and discharge.*

Permanent stormwater BMPs in accordance with the WDNR Storm Water Post-Construction Technical Standards will be implemented to comply with Wis. Admin. Code NR 151.121 through 151.128. One detention pond is expected to be constructed to detain stormwater runoff from the Project Substation, O&M building, and BESS. The detention pond is anticipated to be constructed north of the facilities and the proposed grading constructed to ensure that runoff from the facilities will be routed to the detention pond via overland sheet flow and/or vegetated swales, if necessary. The detention pond will have an emergency overflow weir designed to pass the 100-year storm event.

An outlet control structure will be installed to maintain or reduce the peak runoff discharge rate. The outlet control structure will be located on the north side of the detention pond and will discharge into the Thiele Road ROW consistent with the existing site conditions. The final location of the outlet control structure will be determined during final engineering.

Final BMP design/selection will be completed during final engineering. An ECSWMP will be completed and provided, documenting compliance with Wis. Admin. Code §§ NR 151.121 through 151.128. The ECSWMP will be included with the Notice of Intent when submitted to obtain Construction Site Storm Water General Permit Coverage from WDNR. Please refer to **Figure 4.1.4/4.1.5/4.1.6 (Appendix C)** for preliminary locations of BMP's and discharge points.

3. Construction Sequence and Workforce

3.1 Construction Sequence and Schedule

3.1.1 *Provide the construction schedule for the proposed project, identifying any potential seasonal or regulatory constraints. Include a timeline showing construction activities from beginning of construction to in-service. Identify all critical path items.*

Table 3.1.1 below includes a preliminary schedule for the construction process including an approximate timeline of construction items. High Noon Solar considers all items as critical path items. If the Project is authorized, construction is anticipated to commence in Spring 2024 or earlier. If construction is delayed, High Noon Solar still expects to commence construction within twelve 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 December 31, 2025. Seasonal standdowns may occur during the construction period but should not interfere with the overall construction schedule. Based on the issued ERR (#21-616) (**Appendix G**), time of year restrictions will be considered for three avian species if suitable habitat is present within

the Project Array areas. High Noon Solar will conduct a WDNR-approved pre-construction survey to determine if there is presence of these bird species. This pre-construction survey will be conducted by a qualified biologist if initial ground disturbing activities are planned during the above species migratory windows, as described in the ERR (**Appendix G**).

Table 3.1.1 Preliminary Project Construction Schedule		
Activity	**Start**	**End**
Start of Construction	May 2024	
Site Preparation	May 2024	September 2024
BESS Construction	June 2024	January 2025
Access Roads	June 2024	January 2025
Racking Foundation Install	July 2024	January 2025
Substation Construction	September 2024	April 2025
Racking Install	September 2024	April 2025
Module Deliveries	October 2024	June 2025
Gen-Tie Construction	November 2024	January 2025
Module Install	November 2024	July 2025
BESS Commissioning	January 2025	April 2025
Inverter Install	January 2025	May 2025
BESS Testing	April 2025	June 2025
Backfeed	April 2025	April 2025
Mechanical Completion	May 2025	September 2025
Inverter, Racking, SCADA Commissioning	June 2025	September 2025
Placed In Service	October 2025	October 2025
Capacity Testing	October 2025	November 2025
Substantial Completion	November 2025	November 2025
Commercial Operations Date		December 2025

3.1.2 *Provide a description of the staging and construction sequence required for building a typical solar array. Include the delivery of materials.*

Below is a typical staging and construction sequence:

1. Mobilize equipment and personnel to site
2. Installation of sensitive resource/impact avoidance signage/flagging, survey staking, and stormwater protection/wildlife exclusion measures
3. Construct laydown yard(s) and office trailers
4. Access road construction and grading of the array areas, including delivery of aggregate
5. Racking pile deliveries behind the grading crews as they progress through the 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

Perimeter fencing may be installed at any point between items 3 and 14.

3.1.3 *Provide an estimate of time required to complete construction at a typical solar array.*

The solar array power blocks will be constructed on a rolling basis with simultaneous activities occurring in multiple power blocks. If a single power block was constructed independently, in its entirety, it would require an estimated construction duration of 12 - 16 weeks.

3.1.4 *Provide a description of the staging and construction sequence for any other facilities to be constructed*

In addition to solar arrays, the Project will include Project Substation, O&M Area, BESS, and Gen-Tie facilities. Sections 2.4.5, 2.6.7, 2.7.6 of the Solar AFR and Section 5.5.2 of the Gen-Tie AFR provide a typical staging and construction sequence for these respective facilities. Large deliveries will be required for the Generator Step-up Transformers (GSU), the control enclosure, off-load cranes, and Gen-Tie structures.

General site improvements will be made such as access improvements and preparation of the staging/laydown areas. In addition to the general construction laydown yard, additional temporary laydown yards may be used during construction and would be located in areas within the fenced array areas shown in **Figures 4.1.1** and **4.1.2** (**Appendix A**) or along the Gen-Tie ROW, and are not anticipated to exceed 50 acres, total. The staging/laydown areas will be used for storage of construction materials and shipped equipment containers, receiving construction deliveries, and temporary parking for Project-related vehicles.

3.1.5 *If grading, land leveling, or any other activity that would result in a change in topography or vegetative or non-vegetative soil cover will occur provide the following information as fully as possible. If technical details are not available, discuss the goals and practices generally:*

3.1.5.1 *Indicate the maximum area (sq. ft. or acres) of disturbance that would occur at a given time.*

Minimal grading/ground disturbance is anticipated due to the relatively flat ground surface contours within the Project Area. The intent of the Project design will be to maintain existing drainage patterns and topography throughout the Site both during and after construction as often as possible. Minor grading will occur for access roads, the Project Substation, O&M Area, BESS, and array areas in the final Project Layout that are outside the equipment tolerance for the solar tracking systems. Grading may occur simultaneously in multiple areas of the Site. The current generation of racking equipment has a higher tolerance for terrain undulations and slopes than previous generations. For example, the Nextracker NH Horizon-XTR tracking system in **Appendix B** has been shown to reduce earthwork significantly. Equipment procurement during

final engineering will consider current market offerings to maximize value and reduce overall grading volume. Final disturbance numbers will not be known until final engineering and construction sequencing are complete, however, High Noon Solar will consider pre-seeding the Site prior to construction to minimize disturbed soils and will endeavor to maintain under 10 contiguous acres or 4-5 power blocks of active disturbance at any given time.

3.1.5.2 *Describe erosion and sediment control practices (e.g. sedimentation basins) that by design will be employed to result in a discharge of no more than 5 tons per acre per year of the sediment load carried in runoff from initial construction to final grading.*

An ECSWMP will be developed to comply with the WDNR Construction Site Storm Water Discharge Permit requirements during final engineering. The ECSWMP is anticipated to consist of a combination of silt fences, filter socks, silt fence rock outlets, temporary diversion swales, rock checks, sediment traps, and temporary sediment basins. Preliminary review of the existing topography and soils show relatively low to moderate slopes; thus, severe soil erosion is not anticipated. Silt fences and filter socks will be implemented in smaller drainage areas with low-velocity flow. Larger drainage areas with higher velocity sheet flow will use a combination of silt fence rock outlets, temporary diversion swales, sediment traps, and sediment basins. Vegetative buffers and additional silt fences will be implemented near sensitive areas (i.e. wetlands, etc.). Final BMPs will be determined during final engineering. The ECSWMP will provide calculations via the WDNR Soil Loss & Sediment Discharge Calculation Tool (USLE Workbook) documenting compliance with the sediment load requirements of the WDNR.

3.1.5.3 *Describe any structural practices that will be used to divert flow away from exposed soils, store runoff or otherwise limit runoff and the discharge of sediment.*

The ECSWMP is anticipated to consist of a combination of silt fences, filter socks, silt fence rock outlets, temporary diversion swales, rock checks, sediment traps, and temporary sediment basins to limit runoff and discharge of sediment. Silt fences and filter socks will be implemented in smaller drainage areas with low-velocity flow. Larger drainage areas with higher velocity sheet flow will use a combination of silt fence rock outlets, temporary diversion swales, sediment traps, and sediment basins. Vegetative buffers and additional silt fences will be implemented near sensitive areas (i.e. wetlands, etc.). All erosion control measures will be designed and implemented in accordance with the current WDNR Technical Standards at the time of final engineering.

3.1.5.4 *Describe to what extent final grade will affect predevelopment drainage patterns.*

Minimal grading/ground disturbance is anticipated due to the relatively flat ground surface contours within the Project Area. The intent of the design will be to maintain existing drainage patterns and topography throughout the Site both during and after construction as often as possible. The current generation of racking equipment has a higher tolerance for terrain undulations and slopes than previous generations. Equipment procurement during final engineering will consider current market offerings during final engineering to maximize value and reduce overall grading volume.

3.1.5.5 *Describe how these preventative measures will be incorporated into the project:*

- *Maintenance of existing vegetation, especially adjacent to surface waters whenever possible.*

Existing vegetation will be protected to the maximum extent practical. Wetlands, waterways, and other sensitive features have been identified, and setbacks have been incorporated into the Project Layout to avoid direct and indirect impacts to these resources. Prior to construction, contractors will be required to participate in an environmental presentation where wetlands, waterways, and other sensitive areas will be discussed and specifics around BMPs in these areas will be explained. Prior to constructing around wetlands and waterways, these features will be marked off using colored flagging or tape to signify avoidance areas.

- *Minimization of soil compaction and preservation of top-soil.*

Heavy construction equipment, trucks, and other vehicles used for deliveries will utilize the proposed access roads to the maximum extent practicable. Equipment will be delivered to the general construction laydown yard or temporary laydown areas and distributed throughout the Site utilizing the proposed access roads. Vehicular access within the arrays away from access roads will primarily be done by construction workers driving side-by-side utility vehicles that are significantly lighter and have lower ground pressures than pickup trucks or larger vehicles. Equipment used to construct the facility will also use the proposed access roads to traverse the site as often as possible. Some compaction from construction will be unavoidable; however, it will be remedied by natural processes throughout the operating life of the Project. Those natural processes include freeze/thaw cycles and the work of the deep-rooted perennial vegetation proposed as part of the Vegetation Management Strategy (VMS) (**Appendix K**). At the conclusion of construction, if areas require re-seeding to establish vegetation, local de-compaction activities with equipment such as agricultural plows will be performed to allow for the establishment of vegetation.

In areas where grading is expected to exceed the depth of topsoil coverage based on geotechnical exploration, topsoil will be stripped and replaced following subsoil material grading. If grading activities do not exceed the depth of topsoil cover, topsoil may be used as fill material across the Site. In the scenario where excess soils are generated on-site, they will be thin-spread in a nearby location. Topsoil will be preserved to the maximum extent practicable.

- *Minimization of land-disturbing construction activity on slopes of 20 percent or more.*

There are no slopes of 20 percent or more in the Project Area.

3.2 Workforce

3.2.1 *Provide information on the workforce size and skills required for project construction and operation.*

The Project's construction workforce will consist of delivery drivers, craftworkers, equipment operators, laborers, and onsite management personnel. During peak construction periods

approximately 600 workers are anticipated to be on-site. However, this is for an ideal construction schedule and peak workforce may vary based on the final schedule.

During the Project's operational period, High Noon Solar will likely be staffed with up to five full time, certified maintenance technicians for the life of the Project. These technicians have a wide variety of skill sets such as: electrical proficiency, software knowledge, general maintenance skills, safety, and solar and battery storage-specific problem-solving abilities.

3.2.2 *Estimate how much of the expected workforce would come from local sources.*

The estimated new local, meaning Columbia County, jobs created by the Project during construction is an estimated 194 jobs. An estimated 716 jobs are anticipated to be created within the State of Wisconsin during construction. During the Project's operational life, up to five full-time employees are anticipated to reside locally in Columbia or nearby Dane County. Please refer to the Economic Impact Study (**Appendix X**) for more details.

3.3 Construction Equipment and Delivery Vehicles

Provide a description of the types of construction equipment needed to build the project and the types of delivery vehicles that would be used. For large equipment and vehicles include:

3.3.1 *Types of construction equipment and delivery vehicles.*

High Noon Solar estimates that there will be between 25 and 35 trucks used daily for equipment delivery during construction. Light duty trucks will also be used on a daily basis for transportation of construction workers to and from the Site. Most panels and other equipment and materials will be delivered by standard, legal load weight semitrucks. Typical construction equipment such as scrapers, bulldozers, rollers, telehandlers, dump trucks, concrete and boom trucks, high reach bucket trucks, watering trucks, motor graders, vibratory compactors, skid steer loaders, small and medium duty cranes, backhoes, vibratory pile drivers, all-terrain forklifts, and wheeled or truck-mounted auger or drill rigs will be used during construction.

3.3.2 *Gross vehicle weight (loaded and unloaded) for all vehicles using local roads.*

Other than delivery vehicles for the main transformers in the Project Substation, cranes used for offloading activities, and trucks delivering grading machines to the Site such as bulldozers and excavators, High Noon Solar believes all of the vehicles using local roads will be legal loads in terms of size and weight. If there becomes a need for a larger vehicle, High Noon Solar's construction contractor will work with state and local authorities to obtain the applicable oversize-overweight permits and provide more vehicle details closer to delivery dates. The anticipated delivery vehicle for the main step-up transformers at the Project Substation is estimated to have a gross vehicle weight of approximately 300,000 pounds.

3.3.3 *For vehicles used for delivery, include:*

As mentioned in Section 3.3.2 above, the delivery vehicles will primarily use standard size and weight semitrucks and trailers. The delivery vehicle for the main Project Substation transformers can vary and drawings will be provided during the overweight/oversize permit approval process.

The information provided in Sections 3.3.3.1 through 3.3.3 below is for a typical main Project Substation transformer delivery vehicle. Final delivery vehicle information will be provided to the correct authorities once finalized closer to delivery dates. In the event the delivery vehicle for the main Project Substation transformers varies greatly from the information provided, High Noon Solar will coordinate with the local affected parties to relay updated information regarding the vehicle and plan for transport off the highway.

3.3.3.1 *Overall vehicle length.*

The expected maximum length of the vehicle is 75 ft.

3.3.3.2 *Minimum ground clearance.*

Minimum ground clearance is 6 inches, though if no overhead obstructions are present the deck can be raised and lowered to accommodate bumps and dips in the road surface.

3.3.3.3 *Maximum slope tolerance.*

The maximum allowable slope is 7 percent.

3.3.4 *Roads and Infrastructure. Estimate the potential impacts of construction and delivery vehicles on the local roads. Provide the following:*

3.3.4.1 *Describe methods to be used to handle heavy or large loads on local roads.*

Typical construction and delivery vehicles such as dump trucks (e.g., for aggregate delivery), flat bed, and enclosed tractor-trailer trucks for equipment and material deliveries will constitute the majority of Project traffic. The Project will also use light-duty pickup trucks or cars for personnel access to the Site. A small number of oversized/overweight deliveries will be required for the main Project Substation transformers.

3.3.4.2 *Probable routes for delivery of heavy and oversized equipment and materials.*

The main haul route for construction materials into the Project Area will likely be on U.S. Highway 51/State Highway 60 and County Road 22 as shown in **Figure 3.3.4.2** (**Appendix A)**. County and Township roads within the Project Area will be used to deliver equipment and materials to the general construction laydown area and directly to construction sites. The heavy equipment for the Project Substation would likely be delivered directly to the Project Substation location via U.S. Highway 51/State Highway 60 onto County Road 22, then Thiele Road. Applicable State/County oversize/overweight permits will be obtained for the final route prior to delivery.

Final road use and haul routes will be determined after consultation with local governments.

3.3.4.3 *Potential for road damage and any compensation for such damage.*

High Noon Solar will coordinate in good faith with the local governments to reach appropriate arrangements regarding road use. High Noon Solar anticipates negotiating a JDA with local

governments, which is anticipated to obligate the Project to repair any road damage caused by construction.

3.3.4.4 *Probable locations where local roads would need to be modified, expanded, or reinforced in order to accommodate delivery of equipment.*

High Noon Solar is not currently aware of any locations where road improvements will be necessary to accommodate construction.

3.3.4.5 *Include an estimate of whether or not trees near or in road ROW might need to be removed.*

It is not expected that trees in the road ROW would need to be removed to accommodate Project deliveries or construction.

3.3.4.6 *Provide an estimate of likely locations where local electric distribution lines would need to be disconnected in order to allow passage of equipment and materials.*

3.3.4.6.1 *Describe how residents would be notified before local power would be cut.*

3.3.4.6.2 *Estimate the typical duration of a power outage resulting from equipment or materials delivery.*

No disruption of existing distribution lines is anticipated to allow for passage of Project equipment or materials.

3.3.5 *Construction Traffic. Describe any anticipated traffic congestion and how congestion would be managed, minimized or mitigated. Include:*

3.3.5.1 *List of roads most likely to be affected by construction and materials delivery.*

Please refer to **Figure 3.3.4.2** (**Appendix A**) for preliminary Project haul routes which depict the roads most likely to be affected by construction equipment and materials delivery. A majority of local roads in the Project Area will be used. Every town or county road that is planned for a solar array access road entrance during final engineering will be affected by construction. In addition to the County and State Highways noted under Section 3.3.4.2, local roads including King Road, County Road Cs, Hall Road, Kroncke Road, Goose Pond Road, Thiele Road, Mountford Road, Maas Road, Harvey Road, Bradley Road, Melby Road, Stewart Road, Krier Road, Richards Road, Mielke Road, Ray Road, and others will also likely be used for the Project.

3.3.5.2 *Duration of typical traffic disturbance and the time of day disturbances are most likely to occur.*

Traffic congestion will be minimal, and any traffic congestion will be managed, minimized, or mitigated to the extent practicable. To the extent site conditions allow, delivery trucks will be off loaded near the point of use to minimize double handling and the amount of trucking. Prior to

any deliveries, a traffic control plan will be developed and reviewed with the town, county, and/or WISDOT officials as appropriate. Signage will be installed to guide trucks to the appropriate roads, after conferring with local officials. Trucks will not be allowed to stage or block public roads. If trucks cannot exit a road in a timely fashion, they will be directed to a designated staging area. Major component deliveries will be required to stagger delivery times and dates, so the on-site teams are not overwhelmed with a surge of trucks at one time.

Construction delivery traffic will mostly occur daily during daylight hours. Deliveries will begin in the early morning and continue to mid - late afternoon. Smaller vehicles for personnel arriving on-site may occur prior to or after daylight hours. Trucks will be directed off major roads, onto secondary roads or the Site to minimize the potential for traffic congestion. Traffic delays should be limited to the time it takes for delivery trucks to turn on or off public roads. The delivery and construction timing may be adjusted as needed to maintain the Project's construction schedule.

4. Project Maps, Aerial Imagery, Photo Simulations, and GIS Shapefiles

Aerial Imagery: Recent aerial imagery is required for every project. Aerial imagery submitted with an application should be no older than three years – more recent in rapidly developing areas. Aerial images are typically used as a base for most maps and should be provided at a scale of at least 1:4800. Physical aerial photographs are not acceptable. Orthorectified imagery created using GIS is required – reduced size photos are not adequate. All spatial data submitted must be compatible with the most current version of ESRI ArcGIS.

In addition to providing the maps listed below, all GIS data used to create those maps must also be submitted with the application (see Section 4.2 for a list of GIS shapefiles required and pages vi-vii for instructions on GIS map projections). The extent of the aerial imagery must be inclusive enough to show the landscape context within which the proposed facilities would be placed. Typically, this requires extending the map extent to at least two miles beyond any project boundary.

Provide the maps in both hard copy and digital versions.

Refer to Application Formats in the Introduction.

4.1 Project Area Maps

Basic (background) features for both the general and the detailed project area maps must include: recent aerial imagery (no older than three years), county boundaries, major roads, waterbodies and waterways, and municipality boundaries. All features should be labeled appropriately. In addition the maps should contain the following features:

4.1.1 *General Project Area Map. (The extent of this map should show the entire project area and reach at least 1 mile beyond the project area boundary. Approximate scale 1:4800.) Clearly show:*

- *The boundaries of the project area,*

- *All proposed and alternative solar array sites (symbolized differently and identified by number),*
- *Any new substation facilities or required expansion of an existing substation,*
- *O&M Building and facilities,*
- *Battery Storage Facilities,*
- *Distribution and transmission interconnection,*
- *All access roads, distinguishing between temporary and permanent (if applicable).*

Figure 4.1.1 is provided in **Appendix A**.

4.1.2 *Detailed Project Area Map. (The scale for this map should be larger than that of the general project map so that the added detail is clearly visible. This usually necessitates a series of maps.) Clearly show:*

- *All the features listed for the General Project Area Map,*
- *All collector circuits both underground and overhead, symbolized by the installation method,*
- *Existing utility facilities within and up to one mile of the project area boundary (electric transmission and distribution, pipelines, etc.),*
- *Industrial/commercial facilities within and up to one mile of project area boundary,*
- *All residences (identified as either participating or non-participating) within and up to one mile of project area boundary,*
- *Daycare centers within and up to one mile of project area boundary,*
- *Hospitals or other health care facilities within and up to one mile of project area boundary.*

(If new residences, day-care centers, hospitals, or commercial or industrial facilities have been built since the date of the aerial image base map, note those features accurately on the detailed project area map.)

Figure 4.1.2 is provided in **Appendix A**.

4.1.3 *Topographic Maps*

Provide topographic maps at 1:24,000 or larger scale showing: project boundary, all solar array sites (proposed and alternative), substation facilities, collector circuits, access roads, and O&M building.

Figure 4.1.3 is provided in **Appendix A**.

4.1.4 *Substation*

4.1.4.1 *Provide a map showing the following features:*

- *The location, dimensions (in feet and acres), and layout of any new substation or proposed additions to an existing substation.*
- *Recent aerial images of the substation site.*
- *The location of all power lines entering and leaving the substation, including any turning structures. Show details in a separate diagram of any turning structures that might impact adjacent land owners (size, type of structure, guying, etc.).*
- *For new substations, show the location of the access road, other permanent impervious ground surfaces (e.g. gravel, asphalt, concrete, etc.) and the location of permanent storm water management features (i.e. pond, swale, etc.). For expansion of existing substations, show details on changes to access roads that may be required (width, length, location, etc.), as well as any other ground disturbing construction activities.*
- *Show parcel data including the name of landowners for the substation site or substation addition. Include adjacent landowners.*
- *Show topographic contours of the property.*

4.1.4.2 *Provide an engineering diagram/s of the substation and substation equipment including any turning structures and interconnection facilities.*

Figure 4.1.4/4.1.5/4.1.6 is provided in **Appendix C** and includes the information requested in Section 4.1.4.

4.1.5 *O&M Building*

4.1.5.1 *Provide a map showing the O&M building, parking area, roads, other impervious ground surfaces (e.g. gravel, aggregate, asphalt, concrete, etc.), permanent storm water management areas, and any other facilities. Include, as a background, a recent aerial image of the property.*

4.1.5.2 *Provide an engineering drawing of the O&M building.*

Figure 4.1.4/4.1.5/4.1.6 is provided in **Appendix C** and includes the information requested in Section 4.1.5.

4.1.6 *Battery Storage*

4.1.6.1 *Provide an engineered drawing of the battery storage area, fencing, impervious ground surfaces, access roads, and permanent storm water management areas.*

Figure 4.1.4/4.1.5/4.1.6 is provided in **Appendix** C and includes the information requested in Section 4.1.6.

4.1.7 *Natural Resources and Land Use/Ownership Maps*

4.1.7.1 *Wetland and waterway maps. See section 8.3 for the map sets to provide.*

Figure 4.1.7.1 is provided in **Appendix A** and depicts desktop- and field-delineated wetlands, and waterways in the Project Area.

4.1.7.2 *Land ownership maps, minimum scale 1:10,000 (map extent to one mile from the project boundary). Show the following features:*

- *Current parcel boundaries and landowners*
- *Roads*
- *Municipal boundaries*
- *Project boundary*
- *Solar arrays (proposed and alternative); (symbolized differently and identified by number),*
- *Access roads*
- *Collector circuits*
- *Substation*
- *O&M building*
- *Battery storage*
- *Generator tie line*
- *Topographic contours*
- *Residences, including identification of participating and non-participating*

Figure 4.1.7.2 is provided in **Appendix A**.

4.1.7.3 *Public lands. Show the following features:*

- *All publicly owned lands inside the project boundary and within two miles of the project area (parks, trails national/county/state forests, etc.). Public lands should be clearly labeled.*
- *Project boundary*
- *Solar arrays (proposed and alternative); (symbolized differently and identified by number),*
- *Access roads*
- *Collector circuits*
- *Substation*
- *O&M building*
- *Battery storage*
- *Generator tie line*

Figure 4.1.7.3 is provided in **Appendix A**.

4.1.7.4 *Land cover. Show the following features:*

- *The distribution of vegetative communities within the project area using the land cover categories in Section 5.3*

- *Project area boundary*
- *Solar arrays (proposed and alternative); (symbolized differently and identified by number),*
- *Access roads*
- *Collector circuits*
- *Substation*
- *O&M building*
- *Battery storage*
- *Generator tie line*

Figure 4.1.7.4 is provided in **Appendix A**.

4.1.7.5 *Flood Insurance Rate maps (FIRM) (within the project boundary). Provide flood insurance maps if the site is within one-half mile of a floodplain.*

Figure 4.1.7.5 is provided in **Appendix A**.

4.1.7.6 *Soil survey maps (within the project boundary)*

Figure 4.1.7.6 is provided in **Appendix A**.

4.1.7.7 *Bedrock maps (within the project boundary). Map showing depth to bedrock for the entire project area.*

Figure 4.1.7.7a, Depth to Bedrock Map and **Figure 4.1.7.7b**, Bedrock Geology Map are provided in **Appendix A.**

4.1.8 *Community Maps*

4.1.8.1 *Zoning maps. Provide a map or maps of the project area showing existing zoning (e.g. agriculture, recreation, forest, residential, commercial etc.). Map should show existing zoning within and up to 0.5 miles of the project area boundary.*

Figure 4.1.8.1 is provided in **Appendix A**.

4.1.8.2 *Sensitive sites. Additional map (if necessary) showing proximity to schools, day care centers, hospitals, and nursing homes up to 0.5 miles of the project area boundary.*

Figure 4.1.2 is provided in **Appendix A** and includes sensitive sites requested in Section 4.1.8.2.

4.1.8.3 *Airports. Include the following features:*

- *All runways for public airports within and up to 10 miles of the project area boundary.*
- *All runways for private airports within and up to 10 miles of the project area boundary.*

- *All landing strips within and up to two miles of the project area boundary.*
- *Project area boundary.*
- *Both proposed and alternative solar array sites.*

Figure 4.1.8.3 is provided in **Appendix A**.

4.1.9 *Communication Infrastructure*

4.1.9.1 *Identify radio, television, microwave towers, and any NEXRAD or Doppler weather radar installations on a map and show the results of the line of site analysis. Include communications and NEXRAD/Doppler installations within a one-mile radius of the project area.*

Figure 4.1.9.1 is provided in **Appendix A** and includes the information requested in Section 4.1.9.1. Line of Sight and Broadcast Communication Studies conducted for the Project Area are included in **Appendix L** and contain the relevant maps within the studies.

4.2 GIS data – Provide GIS data with attributes as listed and described below. GIS attribute table information should be clearly labeled to identify fields and feature names.

A list of provided GIS shapefiles is included in **Appendix M**. All digital files are provided via SFTP delivery to the PSC.

4.2.1 *Project area boundary.*
4.2.2 *Proposed solar array site components including:*

4.2.2.1 *Perimeters of fenced areas identified by number (polygon). Include area in acres.*
4.2.2.2 *Solar arrays identified by number (polygon). Include area in acres.*
4.2.2.3 *All inverters (point).*

4.2.3 *Alternative solar array site components including:*

4.2.3.1 *Perimeters of fenced areas identified by number (polygon, include area in acres.*
4.2.3.2 *Solar arrays identified by number (polygon, include area in acres).*
4.2.3.3 *All inverters (point).*

4.2.4 *Access roads, differentiate between permanent and temporary, for proposed solar array sites (polygon).*

4.2.5 *Access roads, differentiate between permanent and temporary, for alternative solar arrays (polygon).*

4.2.6 *Underground collector circuits (line). Include number of conductors, voltage, and the installation method.*

4.2.6.1 *Bore pits for trenchless installation (point).*

4.2.7 *Overhead collector circuits (line). Include voltage.*
4.2.8 *Generator tie line (line). Include voltage.*
4.2.9 *Generator tie line structures (point).*
4.2.10 *Laydown areas (polygon).*
4.2.11 *Temporary matting (polygon).*
4.2.12 *Electric distribution lines within an up to one mile of the project area boundary (line). Include voltage of each line and phases present (e.g. A, B, and/or C).*

Voltage and phase of most existing distribution is currently unknown. Two local distribution line voltage and phase presence have been identified where they are adjacent to the Proposed Gen-Tie route on Thiele Road, crossing Goose Pond Road, and U.S. Highway 51 through coordination with the local, non-participant distribution line owner. Those phases and voltages are 1-PH 7.2kV and 3-PH 12.4kV, respectively. They are described in greater detail in **Appendix U.** All existing distribution line locations have been provided based on aerial photos and are depicted in **Figure 4.1.2** (**Appendix A**).

Typical distribution lines in Wisconsin range from 4 - 35 kV and can be either one or three-phase lines. Because the Applicant is an IPP, not the local distribution owner, specific phase and voltage information is not readily available.

4.2.13 *Electric transmission lines within and up to one mile of the project area boundary identified by voltage (line). Include voltage.*
4.2.14 *Natural gas high-pressure pipelines within and up to one mile of the project area boundary (line).*
4.2.15 *New substation components including:*

4.2.15.1 *Perimeter of entire parcel acquired or to be acquired (polygon).*
4.2.15.2 *Perimeter of substation (polygon).*
4.2.15.3 *All interior line work, including collector circuits, buswork, and high voltage connections (line).*
4.2.15.4 *All interior facilities, including transformer, switchgear, buildings, etc. (polygon).*
4.2.15.5 *Access road (polygon).*
4.2.15.6 *Other facilities such as a retention pond or storm water management (polygon).*

4.2.16 *Expansion of an existing substation components including:*

4.2.16.1 *Perimeter of original substation and of expanded area (polygon).*
4.2.16.2 *Boundary showing any new land acquisition (polygon).*
4.2.16.3 *All new power lines and reconfigured line work (line).*

4.2.16.4 *All collector circuits entering the substation (line).*
4.2.16.5 *Any modified interior facilities (polygon).*
4.2.16.6 *Other facilities such as permanent storm water management features (polygon).*

No expansion of an existing substation is planned for the Project.

4.2.17 *O&M Building components including:*

4.2.17.1 *Perimeter of property acquired (polygon).*
4.2.17.2 *Perimeter of building (polygon).*
4.2.17.3 *Perimeter of other buildings (polygon).*
4.2.17.4 *Perimeter of parking lot (polygon).*
4.2.17.5 *Access road (polygon).*
4.2.17.6 *Other facilities such as permanent storm water management features (polygon).*

4.2.18 *Battery Energy Storage System components including:*

4.2.18.1 *Perimeter of entire parcel acquired or to be acquired (polygon).*
4.2.18.2 *Perimeter of Battery Energy Storage System (polygon).*
4.2.18.3 *Access Road (polygon).*
4.2.18.4 *Other facilities such as permanent storm water management features (polygon).*

4.2.19 *Wetlands and waterways in the project area:*

4.2.19.1 *Delineated wetlands (polygon). See Section 8.*
4.2.19.2 *Field identified waterways (polygon). See Section 8.*

4.2.20 *Land owners/buildings:*

4.2.20.1 *All residences within and up to one mile of the project area boundary (point). Include land owner name, address, and status as either participating or non-participating.*
4.2.20.2 *All parcels within and up to one mile of the project area boundary (polygon). Include land owner name, address, and status as either participating or non-participating.*
4.2.20.3 *All industrial/commercial facilities within and up to one mile of the project area boundary (point). Include facility name, ownership name, and address.*
4.2.20.4 *All sensitive sites, including schools, daycares, hospitals, nursing homes, places of worship, and cemeteries within and up to one mile of the project area boundary (point). Include facility name, ownership name, and address.*

4.2.20.5 *Confined animal operations (point):*

- **All confined animal operations within 0.5 miles of the project area boundary.**
- **For each confined animal operation provide attribute data that identifies the type of animal(s), the number of confined animals, and the name of the land owner.**

4.2.20.6 *All other buildings within and up to 300 feet of the project area boundary (point). Include type of building.*

4.2.21 *All known/mapped culverts within the project area boundary (line).*

4.2.22 *All known/mapped drainage system features (e.g. field drains and ditches, main district drain, drain laterals) within the project area boundary (line).*

4.2.23 *All public lands within and up to two miles of the project area boundary (polygon).*

4.2.24 *All participating properties enrolled in the Conservation Reserve Program within the project area (polygon). Information would be dependent on authorization from landowners to release CRP information. Work with PSC staff if any information is considered sensitive and/or confidential.*

4.2.25 *All properties known to be enrolled in a conservation easement within the project area boundary (polygon). Include entity that holds rights to conservation easement (e.g. state/federal government, private land trust, etc.).*

No participating parcels are enrolled in the Conservation Reserve Program within the Project Area.

4.2.26 *All communication infrastructure in and near the project area boundary (point). Include radio, television, microwave towers, and any NEXRAD or Doppler weather radar installations located within and up to one mile of the project area.*

4.2.27 *All public and private airport runways and landing strips within and up to 10 miles of the project area boundary (line). Include facility name and public status.*

4.2.28 *Land cover/Vegetative communities (polygon). Do not use obsolete DNR Land Cover data. See section 5.3.*

4.2.29 *Land cover within each fenced area (polygon). Include acreages of each dissolved land type identified by fence area number.*

4.2.30 *Local zoning designations within and up to one mile of the project.*

4.3 Photo Simulations

Photo simulations are required. Simulations should seek to provide an accurate representation of what the project area would most likely look like after the project is completed. In order to be certain that any photo simulations provided in an application will be useful, please consult with PSC staff before preparing and submitting photos.

Photo simulations for nine locations near the Project are included in **Appendix N**. PSC staff consultations were conducted electronically to determine the suitability for the Key Observation Points (KOPs) for the photo simulations. KOPs were selected to represent areas frequented by the public and provide a representative view of the Project from different perspectives.

Existing site condition photos were taken in November 2021 and May 2022. Photos were taken at each location using a digital camera set at a 28 mm focal length with crop factor equivalent to a 50 mm full-frame to best reflect the experience of a person standing at the KOP. A 3-dimensional model of the existing topography was then construction incorporating the Project Layout, proposed infrastructure, equipment specifications, and anticipated restoration or vegetative methods. Using a photo-matching software, the model was inserted into the photographs with high confidence of placement and scale in order to generate renderings simulating the view after construction of the Project. A map of the photo locations, and both the raw images (existing conditions) and renderings of the proposed conditions are included in **Appendix N**. High-resolution raster image files have been provided to the PSC via SFTP file transfer.

5. Natural and Community Resources, Description and Potential Impacts

5.1 Site Geology

5.1.1 Describe the geology of the project area.

The Wisconsin Geological and Natural History Survey (WGNHS) Bedrock Geology of Wisconsin map[11] identifies the bedrock of the Project Area as approximately 36% Cambrian, undivided sandstone and 64% as the Prairie du Chien Group of Ordovician Dolomite (**Figure 4.1.7.7b Appendix A**). Based on a WGNHS Depth to Bedrock Map of Columbia County Wisconsin[12], the depth to bedrock in the Project Area can generally be expected to range from 5-100 ft bgs (**Figure 4.1.7.7a Appendix A**). Furthermore, according to the WGNHS Karst and Shallow Carbonate Bedrock in Wisconsin map[13], shallow carbonate bedrock, as categorized between the ranges of 0 - 50 ft bgs and greater than 50 ft bgs, covers the majority of the Project Area; this suggests the potential presence of karst features and shallow bedrock features.

The preliminary geotechnical engineering report (**Appendix I**) indicated that bedrock depths are highly variable across the Project Area. Refusal materials consisting of cobbles, boulders, or possible bedrock were observed at multiple borings at depths ranging from 8 – 17.5 ft bgs. No Karst features were identified during the preliminary geotechnical analysis.

No fault lines are mapped within the Project Area, and southern-central Wisconsin is generally considered an area without notable risk of seismic activity[14].

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[11] WGNHS. 2005. Bedrock Geology of Wisconsin. Accessed on: February 3, 2022.
[12] Trotta, L. C. and R. D. Cotter. 1973. Depth to Bedrock in Wisconsin. Accessed on: February 3, 2022.
[13] Bradbury, K. R. 2009. Karst and Shallow Carbonate Bedrock in Wisconsin.
[14] Mudrey, Jr., M. G., B. A. Brown, and J. K. Greenberg. 1982. Bedrock Geologic Map of Wisconsin. Accessed on: February 3, 2022.

According to the Natural Resources Conservation Service (NRCS)[15], the major soil units in the Project Area are Plano silt loam (gravelly and till substratum, 1,639 acres) and Griswold silt loam (sandy loam till, 625 acres).

5.1.2 *Geotechnical report on soil conditions.*

5.1.2.1 *Provide a summary of conclusions from any geotechnical report or evaluation of soils in the project area including:*

- *Results of soil borings including a review of soil bearing capacity and soil settlement potential.*

A preliminary geotechnical investigation performed by Terracon **(Appendix I**) included twelve (12) borings within and nearby the Project Area. The borings were advanced via hollow stem augers to depths ranging from 9 - 20 ft bgs. In general, the borings encountered stiff to very stiff lean clays and sandy lean clays underlain by silty sand, sandy silt, or sand with varying gravel contents. At about half of the borings, surficial clay soils were not observed, and the sand and silty sand were observed to the depth of boring termination.

- *Results of soil borings and test pits for Site Evaluation for Storm Water Infiltration (Wisconsin Technical Standard 1002).*
- *Results of any infiltration rate measurements, such as for permanent storm water infiltration basins or other practices.*

Based on the model soil types encountered within the geotechnical borings as described in **Appendix I**, the soils in the Project Area are thought to be highly permeable and will provide excellent stormwater infiltration. A final geotechnical study will be completed prior to construction which will be used to determine final engineering requirements. The ECSWMP will account for the soil properties of the final Site.

- *Depths to seasonal high groundwater.*

Groundwater was only observed in two borings at depths of about 3 ft and 17 ft bgs. The boring with shallow groundwater was located nearby Schoenberg Marsh. Due to the granular nature of the soils, it is likely that the groundwater levels observed while drilling are indicative of the long-term groundwater levels.

- *Identify any soil conditions related to site geology that might create circumstances requiring special methods or management during construction.*

Per the preliminary geotechnical report, the soils on this site are frost-susceptible, as with most or all sites in Wisconsin. The typical frost depth for this Project location in Wisconsin for

[15] National Resources Conservation Service. Web Soil Survey. Accessed 2022.

foundation design considerations is 5 ft. Terracon recommends an ultimate adfreeze (frost heave) of 1,500 pounds per square foot (psf) acting along the pile perimeter to a depth of 2.9 - 4.7 ft bgs. Helical pile design may be considered as a more economical approach to mitigating the effects of frost heave compared to deep driven or grouted pile foundations, to be determined during final engineering.

A final geotechnical study will be completed prior to construction which will be used to determine final engineering requirements. Final engineering will be approved by a structural engineer to ensure compliance with all applicable regulations, the safety and durability of the Project, and that frost heave risk is considered and mitigated.

High Noon Solar expects to experience refusal conditions in some areas requiring additional construction methods and techniques, such as but not limited to pre-drilling. Further geotechnical exploration will be conducted prior to final engineering design and site construction to identify areas that require pre-drilling.

5.1.2.2 *Depth to bedrock*

- Identify any sites where panel supports or foundation construction must be modified because of the presence of bedrock.
- Describe construction methods and foundation issues associated with situations where bedrock formations are near the surface.
- Discuss the likelihood or potential that construction on bedrock formations may negatively impact private wells within two miles of solar array sites.

Depth to bedrock in the Project Area ranges from 5 to 100 ft bgs. High Noon Solar expects to experience bedrock, boulders, gravel, or other refusal conditions requiring additional construction methods and techniques, such as but not limited to pre-drilling. No other foundation issues are anticipated. Further geotechnical exploration will be conducted prior to final engineering design and site construction to identify areas that require pre-drilling.

There is a low likelihood that construction on bedrock formations may negatively impact private wells within two miles of the solar arrays. Measures will be implemented to guard against the introduction of contaminants into groundwater due to accidental release of construction-related chemicals, fuels, or hydraulic fluid during construction. Spill-related impacts from construction are primarily associated with equipment refueling and maintenance. To avoid spill-related impacts, all approved contractors will be required to follow the SPCC plan tailored to the specific work items being conducted as well as the Stormwater Pollution Prevention Plan (SWPPP). By implementing the protective measures set forth in these plans, long-term contamination due to construction and operation activities is not anticipated.

5.2 Topography

5.2.1 *Describe the general topography of the project area.*

The existing topography within the Project Area can be described as flat to gently rolling hills with some streams and drainages present. Surface elevations range from 940 – 1,138 ft above mean sea level (amsl) (**Figure 4.1.3 Appendix A**). The lowest elevations are along the few streams and drainages present. Slopes within the Project Area are generally within the 0 – 6 percent range with minor areas of 6 – 12 percent slopes. The Project Layout is designed to use the existing topography to the maximum extent practicable to minimize grading.

5.2.2 *Describe expected changes to site topography due to grading activities.*

Grading changes to the existing topography that would affect land use, water inflow/outflow directions from the Project, and flow rates impacting erosion on or off the Site will be avoided to the maximum extent practicable or minimized during final engineering. Cut/fill and associated blending of the Project will be required in areas, pending final engineering, but will not change the overall nature of the topography on the Site. The Project will comply with WDNR requirements regarding erosion control on the Site as incorporated into the ECSWMP and the WPDES permits for the Project.

5.3 General Project Area Land Cover

5.3.1 *Identify and describe the landscape within the general project area, including a list of dominant plants in the land cover categories listed in this section. Land cover may be based on GIS data, recent aerial imagery, and/or on-site evaluation not greater than two years old.*

Land cover within the Project Area was originally mapped and described using data and descriptions from the Wiscland 2.0 Land Cover Data (WLCD)[16], which combines ground-level mapping, satellite imagery, and USDA data in a product produced jointly by the WDNR, UW-Madison, and the State Cartographer's Office. The updated view of Wisconsin's land cover was accomplished by using data from the U.S. Government's Landsat series of satellites followed up with a coordinated field collection effort combining WDNR staff assistance and a WDNR summer field collection crew that visited field locations in 2015 to collect and verify land cover type information.

Within the Project Area, WLCD data was reviewed during a site visit by a biologist in October 2021 and May 2022 in order to conduct a high-level evaluation of the accuracy of the WLCD land cover types. The WLCD was also compared to 2020 NAIP photography to further evaluate current land cover conditions within the Project Area. Based on these reviews it was found the WLCD was generally accurate with the conditions found for the Project Area. Using the WLCD shapefile, Kimley-Horn and Associates, Inc. (Kimley-Horn) digitized land cover using GIS software to make a more accurate representation of current land cover within the Project Area

[16] Wisconsin Department of Natural Resource, Univ. of Wisconsin-Madison. 2016. Land Cover Data (Wiscland 2.0).

and those numbers have been summarized in **Table 5.3.1** below. Detailed wetland types and quantities and impact amounts based on field wetland delineation efforts are provided in Section 8, **Appendix O,** and depicted in **Figures 4.1.7.1, 8.3.1,** and **8.3.2** (**Appendix A**).

Five dominant land cover types were mapped within the Project Area based on the land cover digitizing effort described above. Row crop agriculture comprise approximately 95% of land cover with developed land as the next largest cover type, with 2.5%. Other land cover types under 3% in aggregate are summarized in **Table 5.3.1** below.

Table 5.3.1 Estimated Land Cover Types Within Project Area

Land Cover Type *	**Area (Acres)**	**Percent of Total**
Agriculture	4,134.8	94.9
Developed	110.2	2.5
Upland Forest	62.6	1.4
Wetland	44.4	1.0
Grassland	3.1	<0.1
Total	**4,355**	**100**

*Land cover based on field modified Wiscland 2.0 Land Cover Data; See Section 5.4 for methods of calculation.

5.3.1.1 *Agricultural*

- *Row/traditional crops*
- *Specialty crops/other*
- *Prime farmland*

The Project Area is heavily dominated by row crop agriculture, primarily composed of corn (*Zea mays*) and soybeans (*Glycine max*). Annual weedy vegetation, including amaranth (*Amaranthus retroflexus*), curly dock (*Rumex crispus*), and ground-ivy (*Glechoma hederacea*) were identified within the Project Area. No, specialty crops were identified within the Project Area; however, some seed corn and red heirloom corn, wheat and rye are grown within the Project Area for a commercial whiskey business. These areas have been identified in the PSC Solar Impact Table. According to the NRCS, approximately 80% of the Project Area is identified as prime farmland[17].

5.3.1.2 *Non-Agricultural upland*

- *Prairie/grasslands/pasture/fallow field*
- *Upland forests*

Minor areas of grassland/pastureland and upland forests were observed within the Project Area during the site reconnaissance in September 2021 and March 2022, and field wetland delineation

[17] National Resources Conservation Service. Web Soil Survey. Accessed 2022.

conducted in October 2021 and May 2022. Grassland areas generally consist of small plots not utilized for crop production. Grassy swales within and adjacent to agricultural fields were dominated by smooth brome (*Bromus inermis*), orchard grass (*Dactylis glomerata*), and yellow foxtail (*Setaria pumila*). The grassland areas are also depicted in **Figure 4.1.7.4** (**Appendix A**).

Upland forests in this region are typically composed of a combination of red oak (*Quercus rubra*), white oak (*Quercus alba*), bur oak (*Quercus macrocarpa*), sugar maple (*Acer saccharum*), shagbark hickory (*Carya ovata*), black cherry (*Prunus serotina*) and elms (*Ulmus* spp.). Other successional forest species may be found within the forested areas in the Project Area.

5.3.1.3 *Wetlands (Eggers and Reed classification type)*

Wetlands were delineated within the Project Area during a field wetland delineation between October 12 and 14, 2021, and May 9 and 10, 2022.

The field investigation and delineation was completed for participating properties within the Project Area. The field wetland delineation documented 16 wetland complexes which primarily consisted of seasonally flooded basins and deep marshes[18]. Two (2) additional wetlands were desktop delineated for a total of 18 wetlands identified within the Project Area. Within the Project Area, herbaceous wetlands were typically disturbed and contained non-native plant species. Additionally, no bog or fen features were observed. Full results of the field wetland delineation can be found in the Wetland Delineation Report in **Appendix O**.

Seasonally flooded basins are wetlands that have alternating periods of saturation and inundation. In an agricultural setting, farmed wetlands are depressional areas with stunted crops. Lack of vegetation, or a predominance of wet, weedy vegetation are indications of a seasonally flooded basin. Common herbaceous species includes barnyard grass (*Echinochloa crus-galli*), bog yellowcress (*Rorippa palustris*), broad-leaved cattail (*Typha latifolia*), common duckweed (*Lemna minor*), common purslane, Devil's beggartick (*Bidens fondosa*), fall panic grass, field bindweed, lamb's quarters, pinkweed, water smartweed (*Persicaria amphibia*), and sandbar willow (*Salix interior*). Farmed wetlands are considered degraded due to historic agricultural practices. Fresh (wet) meadow wetlands typically remain wetter for longer periods of time than seasonally flooded basins and are dominated by sedges or other graminoids such as reed canary grass. Shallow marsh wetlands possess standing water throughout the majority of the growing season, but rarely exceeds a depth of 1 meter. It is common for wetlands within this classification to be dominated by cattail (*Typha spp*.) and green bulrush (*Scirpus atrovirens*). Shrub-carr wetlands are regularly inundated and dominated by a shrub layer. Common plants found within this wetland type include red osier dogwood (*Cornus alba*), speckled alder (*Alnus incana*), and sandbar willow (*Salix interior*). Shallow open water wetlands include shallow and deep ponds that are usually 3 - 6 ft deep. Plant species include duckweed (*Lemnoideae* spp.), pondweed (*Potamogeton* spp.), and watermilfoil (*Myriophyllum* spp.). Floodplain forest wetlands are typically located in riparian areas and dominated by cottonwood (*Populus deltoides*), black

[18] Eggers, S. D. and D. M. Reed. 1997. Wetland Plants and Plant Communities of Minnesota and Wisconsin, second edition. U. S. Army Corps of Engineers, St. Paul, MN, USA.

willow (*Salix nigra*), box elder (*Acer negundo*), silver maple (*Acer saccharinum*), and green ash (*Fraxinus pennsylvanica*).

5.3.1.4 *Developed land*

- *Residential*
- *Commercial/Industrial*

Developed land within the Project Area includes residential, commercial/industrial, and roadways. Maintained gravel, paved, or lawn areas surrounding buildings were considered developed and are included in the total acreage of developed land in **Table 5.3.1**.

5.4 Land Cover Impacted by Proposed Project Facilities

Complete the PSC Solar Impact Table (comprised of 2 tabs) provided with these AFRs. Provide the tables in Microsoft Excel format and PDF. The PSC Solar Impact Table (comprised of 2 tabs) has instructions on completion and the type of information needed located in footnotes. Generally, the applicant should provide information on impacts by facility type on Tab 1 and by proposed and alternative fenced array areas with unique identifiers (e.g. number) for each fenced array area in Tab 2. Provide the estimated power capacity (MW) for each fenced array area. Provide land cover impacts for each solar panel fenced array area.

Wetlands, waterways, and other sensitive features have been identified, and setbacks have been incorporated into the Project Layout to avoid direct and indirect impacts to these resources. The wetland and waterway inventory and impacts are summarized in **WDNR Tables 1** and **2** provided in **Appendix O**. General land cover and fenced area impacts are summarized in **PSC Solar Impact Tables 1** and **2** in **Appendix O**.

Potential land cover impacts have been calculated using GIS software. The land cover within the fenced boundaries may be temporarily impacted during construction; however, impacted areas (excluding the access roads) will be revegetated as described in the VMS included in **Appendix K**.

All field delineated wetlands have been avoided in the Project Layout. No temporary or permanent wetland impacts are proposed for the Project, and no indirect wetland impacts are anticipated from the Project. Collector circuits will be installed utilizing a combination of trenching and directional-boring methods. The horizontal directional drill (HDD) method will be used in locations where collection circuits cross delineated wetlands or waterways. Bore pits for the directional-boring will be placed in previously disturbed upland areas and no temporary or permanent wetland or waterway impacts are anticipated for the installation of the collection circuits.

5.5 Invasive Species

5.5.1 *Describe locations where invasive species, forest pests, or diseases have been observed in the project area (e.g., invasive plants, oak wilt, etc.). State if invasive species surveys have occurred or would be conducted. If invasive species surveys*

have been conducted, provide documentation showing where surveys occurred and locations of invasive species found, indicating which species.

During the field reconnaissance conducted by Resource Environmental Solutions, LLC (RES) in 2022, non-native or invasive species were observed. (*See* **Appendix K**). Invasive and non-native species were mainly concentrated around field edges, roadside ditches, and in farmed wetland areas. Commonly encountered non-native and invasive species included smooth brome (*Bromus inermis*), dandelion (*Taraxacum officinale*), Kentucky bluegrass (*Poa pratensis*), Canada thistle (*Cirsium arvense*), poison parsnip (*Pastinaca sativa*), common burdock (*Arctium minus*), common teasels *(Dipsacus* spp.), sweet clovers (*Melilotus* spp.), common buckthorn (Rhamus cathartica), bush honey suckles (*Lonicera* spp.), sandbar willow (*Salix interior*), and reed canary grass (*Phalaris arundinacea*).

5.5.2 *Describe mitigation actions during construction that would be used to prevent the introduction or spread of invasive species, forest pests, or diseases.*

In order to prevent the introduction or spread of invasive species, forest pests, or disease, topsoil and fill material from within the Project Area or from a local source will be used. If excavation and other construction equipment is used in an area containing documented invasive species, then the equipment will be inspected and cleaned of debris and soil prior to removal of equipment from the area. ROWs and tree lines will be a top priority for monitoring the potential of invasive species. High Noon Solar will also consider pre-seeding the Site prior to construction to minimize disturbed soils and prevent establishment of invasive species. Please see Section 5.6 below and **Appendix K** for more information.

5.5.3 *Describe planned ongoing invasive species monitoring and management for the project during operations.*

High Noon Solar will monitor and manage invasive species in accordance with the VMS (**Appendix K**) and the Vegetation and Soil Management Plan (VSMP). The invasive species monitoring and management protocol would be implemented by a qualified contractor. Periodic visual inspections of the establishing and established vegetation will be made to detect new invasive plant species occurrences and expansion of pre-existing ones. The timing and frequency of these inspections will be adapted in response to needs identified during and immediately following construction. The outcome of these inspections will be contractor-developed control recommendations based on the species and circumstances observed. These control recommendations will be reviewed and implemented as appropriate by High Noon Solar. Please see Section 5.6 below and **Appendix K** for more information.

5.6 Vegetation Management and Site Restoration

5.6.1 *Provide a vegetation removal plan that discusses the types and locations where vegetation would be removed (e.g. herbaceous, agricultural crop clearing, shrub/forest clearing, etc.), the timing of vegetation removal, and the equipment to be used.*

As agricultural fields make up the majority of the current land use in the Project Area, all crops will need to be harvested or removed before the conversion of the Site to permanent vegetation

can begin. If large areas of heavy crop residue, such as corn stubble, remain after harvest is completed, seedbed preparation via a light disking or similar means may be necessary to break up the vegetation residue. Project land contracts have been negotiated to address potential interference with farming operations on participating properties, such as compensation for crop damage if construction begins when crops are still in the fields, though High Noon Solar will endeavor to avoid this to the extent practicable. High Noon Solar has discussed with landowners the concept of advanced notice of construction to minimize interference with procurement of agricultural inputs such as fuel, fertilizer, and seed well in advance of actual planting.

5.6.2 *Provide a detailed revegetation and site restoration plan that discusses the following items. If site specific details are not finalized at the time of application, describe the concepts to be used and a methodology for discussing impacts with PSC and DNR staff:*

5.6.2.1 *Types of revegetation proposed for impacted areas.*

The VMS's (**Appendix K**) phased approach begins with Site soil preparation and cover crop seeding (Phase 1), followed by zone establishment of native and naturalized grass and sedge ground cover and pollinator mixes (Phase 2). This strategy will reduce the risk that plantings will be overtaken by weedy plants, leading to lower maintenance efforts in the long-term. Phase 1 and Phase 2 can occur before or after solar array construction but will ideally occur prior to solar module installation. Phase 3, site management, will occur after solar arrays are constructed. This phased approach results in plantings that contain a greater diversity of species while minimizing disturbance and maximizing weed control. The ecological communities proposed in the Zone Establishment Section of the VMS will be capable of adapting over time to environmental change with minimal impact to solar arrays. The proposed vegetation zones include the short-stature Grass Sedge Zone, Pollinator Habitat Zone, Buffer Zone, and View Screening Zone. Where these zones will be applied and the typical seed mixes proposed for these zones are further detailed in **Appendix K**.

5.6.2.2 *Provide seed mixes, or example seed mixes if not known at time of application, and if seed mixes would be pollinator friendly.*

Proposed seed mixes described in Section 5.6.2.1 are presented in Appendix B of **Appendix K**. A pollinator-friendly, Pollinator Habitat Zone seed mix is included in the VMS.

5.6.2.3 *Vegetation monitoring and management protocols for subsequent years after construction. Include expected timing of actions such as mowing.*

The conceptual approach of the VMS will be applied across the entire Project by an ecological consulting firm/landscape professionals, High Noon Solar staff, and construction contractors. The implementation of the VMS will result in a Vegetation and Soil Management Plan (VSMP) executed by a similar group of experienced professionals. The VSMP will be materially similar to the VMS but will take into account the conditions within the final limits of Project disturbance, seed mix availability, and timing of the construction sequence. The same vegetation management practices will be implemented during the construction, operation, and reclamation of the Gen-Tie ROW. Vegetation impacts in the Gen-Tie ROW are expected to be minimal given the existing land use and landscape features. High Noon Solar is also considering grazing sheep

at the Site. The final VSMP will be available and provided to the PSC prior to commencement of construction activities.

5.6.2.4 *Invasive species management.*

One of the primary goals of the VMS, which will inform the VSMP, is to maintain a high degree of weed control and invasive species management across the Site. As further detailed in **Appendix K**, mowing and spot-herbicide application will be the primary methods of invasive species management. The VSMP will take a granular approach to monitoring invasive species in the area, specifically detailing road ROWs and tree lines near the Site. The findings will be used to inform site-specific seed mix and invasive species management strategies across the Site. To assess the success of native and non-native species, a monitoring program will be established to address a set of performance standards to be developed in concert with the final VSMP and construction sequence. Periodic visual inspections of the establishing and established vegetation will be made to detect native and non-native invasive species and their expansion across the Project. The results of the inspections will provide information on the achievement of performance standards and will provide recommendations on management methods and additional seeding. The invasive species monitoring protocol will be implemented by a qualified contractor. The timing and frequency of these inspections will be adapted in response to needs identified during and immediately following construction. The outcome of these inspections will be contractor-developed control recommendations based on the species and circumstances observed. These control recommendations will be reviewed and implemented as appropriate by High Noon Solar.

5.7 Wildlife

5.7.1 *Describe existing wildlife resources and estimate expected impacts to plant and animal habitats and populations.*

Below is a summary of the High Noon Solar Site Characterization Study (SCS) (**Appendix G**), a detailed report that describes the existing animal and plant resources and the potential for federal and/or state special status (e.g., threatened, endangered, special concern) species or their habitats to occur within the Project Area.

As detailed in Section 5.4 (*see also* **Table 5.3.1** and **Figure 4.1.7.4**, **Appendix A**), the land cover within the Project Area is dominated by row crop agriculture including corn and soybean fields (96.4 percent). Corn and soybeans are annual cover types that are typically used by a few common wildlife species on a limited seasonal basis. Species that may use agricultural land include white-tailed deer (*Odocoileus virginianus*), small mammals such as mouse [Family Muridae] and vole [Family Cricetidae] species, raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*) and woodchuck (*Marmota monax*). Bird species that may use the agricultural land for foraging include ring-necked pheasant (*Phasianus colchicus*), blackbird [Family Icteridae] species, other small perching birds, and common raptors such as the red-tailed hawk (*Buteo jamaicensis*). After crops are harvested, the fields may offer short term foraging areas for common waterfowl including the Canada goose (*Branta canadensis*) and mallard (*Anas platyrhynchos*). Reptile and amphibian species known to use agriculture habitat include the common garter snake (*Thamnophis sirtalis*), eastern hognose snake (*Heterodon platirhinos*), western fox snake *(Pantherophis vulpinus*), northern leopard frog (*Lithobates pipiens*), and

American toad (*Anaxyrus americanus*). However, due to the relative lack of plant diversity and habitat structure, and the temporary seasonal nature of the crop cover, the use of cropped field habitat by the aforementioned species is likely limited. The conversion of agricultural to naturalized herbaceous cover (*see* **Appendix K**) should improve habitat quality and benefit the populations for many of the species that use the areas currently. Some larger mammalian species may not be able to access the array areas following construction due to fencing, but it is unlikely that it will negatively impact their populations given the abundance of cultivated crop adjacent to the Project Area.

The wetland habitat within the Project Area (approximately 1 percent of the total Project Area) may be used by species such as the red-winged blackbird (*Agelaius phoeniceus*), mallard, blue-winged teal (*Anas discors*), and great blue heron (*Ardea herodias*). Also, mammal species such as mink (*Neovison vison*) and muskrat (*Ondatra zibethicus*) may be present in wetland areas. Many reptile and amphibian species may occur in the wetland areas, including the aforementioned species and others, such as the boreal chorus frog (*Pseudacris maculate*), green frog (*Lithobates clamitans*), painted turtle (*Chrysemys picta*), and common snapping turtle (*Chelydra serpentina*). Project-related impacts to wetland/waterway habitats will be avoided and are not anticipated to negatively impact the populations of species that use these habitats. Also, erosion control BMPs will be employed to avoid indirect impacts to wetlands.

Upland forested habitat, which comprises approximately 2 percent of the Project Area is located along waterways and wetland complexes and is also associated with farmsteads. Species that may use these forested areas include white-tailed deer, gray squirrel (*Sciurus carolinensis*), woodchuck, and mouse and vole species. Birds that may use these woodlots include American robin (*Turdus migratorius*), blue jay (*Cyanocitta cristata*), downy woodpecker (*Picoides pubescens*) and other common bird species. Reptile and amphibian species that use woodlot habitats include common garter snake, wood frog (*Lithobates sylvaticus*), spring peeper (*Pseudacris crucifer*), gray treefrog (*Hyla versicolor*), American toad, and tiger salamander (*Ambystoma tigrinum*). Project-related impacts to forested areas are minimal within the Project Area: therefore, disturbance within any forested areas should have minimal impact on the populations of these forest-dwelling species.

Grasslands comprise approximately 1 percent of the Project Area. Typical vegetation in grasslands include brome (genus *Bromus*), goldenrod (genus *Solidago*), Kentucky bluegrass (*Poa pratensis*), and big blue stem (*Andropogon gerardii*). Species that may use grasslands include white-tailed deer, cottontail rabbit (*Sylvilagus floridanus*), mouse and vole species, raccoon, and striped skunk. Bird, amphibian, and reptile species that may use grassland will be similar to those listed in the agricultural Section. As with the large mammalian species that use agricultural lands, the large mammalian species that use grassland may not be able to access the areas due to fencing, but it likely will not negatively impact their populations.

Developed areas (i.e., commercial/industrial/residential uses, manicured lawns, landscaping), which comprise approximately 2.5% percent of the Project Area, are typically used by species accustomed to human disturbance, including mammal species such as the gray squirrel and thirteen-lined ground squirrel (*Ictidomys tridecemlineatus*) and bird species, such as the house

sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*). No impacts to these types of species in developed areas are anticipated; species that use developed areas are typically common and tolerant of human activity[19, 20, 21]. Because these species have robust and secure populations, are adaptable/tolerant to anthropogenic disturbance of land covers, and developed areas are already altered by human activity, no impacts to these species are expected.

Direct and Indirect Effects of Utility-Scale Solar Facilities on Birds

Based on the current relevant literature and available information, the direct impacts to birds, including waterbirds, are limited in absolute numbers and in relative number as compared to other anthropogenic sources. The operational wildlife response and reporting system to be implemented at High Noon Solar will gather data helpful in determining if bird mortality is occurring (*see* Section 5.7.2.3). The potential for indirect effects to birds will be minimized at the Project by prioritizing the use of land in agricultural areas for the final Project Layout, implementing a ground cover strategy with a diverse plant community, and employing BMPs for lighting and noise reduction.

Direct effects to birds at PV solar facilities have been described as apparent collisions with the fixed structures of the facilities[22]. However, there is evidence that many of the recorded bird fatalities were indicative of predation or even preening (i.e., feather-spots), and were not collision related[23]. The published literature on avian collisions with fixed PV solar infrastructure is limited to a few studies in regions of the world substantially more arid than Wisconsin[24, 25, 26, 27]. These studies suggest direct impacts to birds were limited and mostly (about 85 percent) comprised of passerine (perching bird) species[28]. Although passerines appear to account for most solar-related bird fatalities, waterbirds often receive a disproportionate amount of attention due to the idea that posits waterbirds are at a greater risk of collision due to their misinterpretation of PV solar arrays as a waterbody, and that panels create a visual "lake effect" from a distance.

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[19] Scalice, S., M. Benson, and A. Howard. 2018. Increased tolerance of human presence observed in urban compared to rural eastern gray squirrels. Journal of Ecology (2):2-9.
[20] Lowther, P.E. and C.L. Link. 2006. House sparrow (*Passer domesticus*), version 2.0. In the Birds of North America (A.F. Poole, Ed.). Cornell Lab of Ornithology. Ithaca, NY.
[21] Cabe. P.R. 1993. European starling (*Sturnus vulgaris*), version 2.0. In the Birds of North America (P.G. Rodewald, Ed.). Cornell Lab of Ornithology, Ithaca, NY.
[22] Walston Jr., L.J., K.E. Rollins, K.E. LaGory, K.P. Smith, and S.A. Meyers. 2016. A preliminary assessment of avian mortality at utility-scale solar energy facilities in the United States. Renewable Energy, 92:405-414.
[23] Kosciuch, K., D. Riser-Espinoza, W. Erickson. 2017. Understanding potential risk, and patterns of avian fatalities from utility-scale photovoltaic solar facilities. Technical memorandum to EDF Renewable Energy in support of the Palen Solar Bird and Bat Conservation Strategy. 10pp.
[24] Visser, E., V. Perold, S. Ralston-Paton, A. C. Cardenal, and P. G. Ryan. 2019. Assessing the impacts of a utility-scale photovoltaic solar energy facility on birds in the Northern Cape, South Africa. Renewable Energy, 133: 1285-1294.
[25] H.T. Harvey & Associates. 2015. California Valley Solar Ranch Project Avian and Bat Protection Plan, Final Postconstruction Fatality Report. Project #3326-03. Prepared for HPR II, LLC.
[26] Western Ecosystems Technology, Inc. 2014. Sources of avian mortality and risk factors based on empirical data from three photovoltaic solar facilities. Pp. 1-77.
[27] American Bird Conservancy. 2020. Habitat Loss. www.abcbirds.org. Accessed February 4, 2020.
[28] Wilcoxen, C.A., J.W. Walk, and M.P. Ward. 2018. Use of cover crop fields by migratory and resident birds. Agriculture, Ecosystems, and Environment. 252: 42-50.

However, to date, research does not indicate a consistent pattern of waterbird fatalities to support this notion[27, 28].

Even with conservative inclusion of the bird fatalities attributed to background influences such as predation events, adjusted bird fatality estimates from the studies were low compared to other anthropogenic sources of avian mortality (i.e., vehicle-and building-collisions) with reported annual average bird fatality rates ranging from 1 - 3 birds/MW/year for solar facilities. The total statistical variability around these reported bird fatality estimates ranged from 0.5 - 10.0 birds/MW/year[29, 30, 31]. A study by Walston et al.[22] estimated total annual bird mortality for solar energy facilities (included PV and concentrated solar power tower facilities) in the United States to be 37,800 – 138,600 per year for projects operating or under construction through 2015. None of the studies suggest that PV solar facilities present a population-level risk to any species. For context, various studies summarized by Walston et al.[22] estimated that, annually, between 97 and 988 million birds die from building and window strikes, and 80 to 340 million die from vehicle collisions.

The primary indirect effect by PV solar facilities to birds, as with other development, is loss or fragmentation of suitable habitat[22]. It is generally considered a BMP to site development in a way that minimizes loss of undisturbed or high-quality habitats, as has been done for this Project. Agricultural row crop areas are generally considered of lower ecological value compared to undisturbed, native habitats, semi-natural habitats (e.g., cover crops[23]), or Conservation Reserve Program (CRP) lands[29]. Best et al.[30] assessed habitat use by breeding birds in Iowa agricultural landscapes and found the lowest bird species abundances in agricultural habitats, and greater bird species abundances in natural and strip-cover habitats.

The replacement of monocultural row crops with a higher diversity plant community under and around PV-array fields as proposed by High Noon Solar will, for some bird species, increase the attractiveness of the land. For example, though different habitat types were evaluated in studies by Visser et al.[24] and Devault et al.[31], they found that some bird species used PV-facilities to the same degree or more than the surrounding, undeveloped lands. By prioritizing Project disturbance to lands in active agriculture and minimizing disturbance in existing non-agricultural or natural habitats, and by implementing the proposed VMS, High Noon Solar will mitigate indirect impacts to birds due to loss of the pre-construction land cover.

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[29] Johnson, D.H. 2000. Grassland bird use of Conservation Reserve Program fields in the Great Plains. Pages 19–34 in W. L. Hohman and D. J. Halloum, editors. A comprehensive review of Farm Bill contributions to wildlife conservation, 1985–2000. U.S. Department of Agriculture, Natural Resources Conservation Service, Wildlife Habitat Management Institute, Technical Report USDA/NRCS/WHMI-2000.
[30] Best, L. B., K. E. Freemark, J. J. Dinsmore, and M. Camp. 1995. A review and synthesis of habitat use by breeding birds in agricultural landscapes of Iowa. The American Midland Naturalist, 134:1-29.
[31] DeVault, T.L., T. W. Seamans, J. A. Schmidt, J. L. Belant, B. F. Blackwell, N. Mooers, L.A. Tyson, and L. VanPelt. 2014. Bird use of solar photovoltaic installations at U.S. airports: Implications for aviation safety. Landscape and Urban Planning, 122:122-128.

Other indirect effects to birds would be related to periodic human disturbance through artificial light and noise associated with equipment and human presence during construction and operations. BMPs used to minimize impacts to birds by artificial light sources include: 1) limiting the use of artificial lights to that which is necessary for human safety and security, 2) using hooded lights that are directed downward, and 3) ensuring lights are illuminated only when needed through use of switches or motion-sensors[32]. These BMPs have been incorporated into the design and plans for High Noon Solar. In terms of noise disturbance, noise during the operations phase will be comparable to that of the surrounding agricultural, commercial, and residential communities. Noise during construction is anticipated to occur within an 18 – 24 month period and will be spatially and temporally variable in response to the construction sequence.

High Noon Solar will limit impacts to non-agricultural lands and use BMPs to avoid and minimize impacts to suitable wildlife habitat and populations. BMPs to be used to avoid or minimize impacts to plant and animal populations and their habitats include avoiding unnecessary disturbance to habitats by driving on existing roads and already disturbed areas (i.e., agricultural land) when feasible, installing silt fencing and other erosion control measures around construction areas, and avoiding impacts to wetlands and waterways.

Federally Protected Species

A USFWS IPaC request (**Appendix G**) identified three federally threatened species, one federally endangered species, one non-essential experimental population, and one candidate species as potentially occurring within the Project Area. Non-essential experimental population designations are assigned to populations deemed unnecessary for the continued existence of the species[33]. Regulatory restrictions are reduced for non-essential experimental populations. Candidate species have sufficient information to be proposed as endangered or threatened under the ESA, but development of a listing regulation is precluded by other higher priority listing activities[34]. The federally threatened species identified are described below.

Although not included in the IPaC, an additional federally protected species may occur within the Project Area or two-mile buffer. The bald eagle, which is a federally protected species, is known to breed in Columbia County and has been observed on a nearby BBS route (Fall River Route) and four nearby Christmas Bird Counts (**Appendix G**).

The [redacted]) is listed as federally threatened. Suitable summer habitat for the [redacted]) includes [redacted] where they [redacted], and occasionally includes adjacent [redacted]

[32] National Park Service. 2019. Night Skies: Best Practices. Accessed February 4, 2022.
[33] USFWS. 2016. Endangered Species Act: Experimental Populations Pacific Region Fact Sheet. Pp. 1-2.
[34] USFWS. 2017. Endangered Species Act: Section 4 - Candidate Species

[redacted][35, 36]. No known [redacted] trees are located within the Project Area. Species records indicate reported sightings of the species in Columbia County; however, no recorded sightings are located near the Project Area. Project-related impacts to [redacted] are minimized and any tree clearing will be conducted outside the period of June 1 to July 31. Impacts to [redacted] are not anticipated to adversely impact the species; therefore, [redacted] habitat and populations are not anticipated to be adversely affected.

The [redacted] is identified as an experimental population for Wisconsin. [redacted] typically use [redacted]. The species occasionally use [redacted] during migration, as [redacted] sites. The nearest [redacted] population breeds in the [redacted], approximately 80 miles northwest of the Project Area. However, no impacts to [redacted] are expected from Project construction or operation and row crop areas are considered marginally suitable for [redacted] Therefore, [redacted] populations are not expected to be adversely affected.

Bald eagles select sites near lakes and rivers in forested areas where tall, large diameter trees are available for nesting and roosting[37]. Wintering grounds typically contain open water, food resources, and roosting sites; and [redacted] habitat is similar to wintering habitat. According to the ERR (**Appendix G**), there is a lack of suitable habitat within the Project Area; however, there is potentially suitable foraging, roosting, and nesting habitat within five miles of the Project Area. Twelve active nests were identified in Columbia County in 2019. Impacts to bald eagle populations are not expected to occur as a result of Project construction or operation.

[redacted] is listed as federally threatened. [redacted] typically occurs in [redacted], but is occasionally found in [redacted]. As [redacted] is believed to be extirpated in Wisconsin, no impacts to [redacted] populations are anticipated.

[redacted] is listed as federally threatened. [redacted] typically occurs in [redacted]. Suitable [redacted] habitat is not present within the Project Area; therefore, no impacts are anticipated.

[redacted] is listed as federally endangered. Suitable habitat for the [redacted] includes [redacted]

[35] [redacted]

[36] [redacted]

[37] Grier, J.W. and J.E. Guinn. 2003. Bald eagle habitats and responses to human disturbance in Minnesota. Final report to the Minnesota Department of Natural Resources Natural Heritage and Nongame Wildlife Program – Division of Ecological Sciences. 44 pp.

[redacted], and [redacted]
Approximately 8 acres of the Project Area is within a High Potential Zone (HPZ) for the [redacted] and approximately 3,543 acres of the Project Area are within a Low Potential Zone (LPZ) for the [redacted] The portion of the Project Area within the HPZ is primarily agricultural land. Potential suitable [redacted] is available within the Project Area. Due to the Project Area within the HPZ consisting of agricultural land and a portion of the Project Area being within the Low Potential Zone for the [redacted] no adverse impacts are anticipated.

Suitable habitat for the [redacted] a candidate for federal listing, includes anywhere [redacted], such as [redacted] feed on the [redacted] range spans the United States, and they annually migrate [redacted]. This species will not be adversely affected by the Project due to availability of nearby suitable [redacted] habitat.

State-listed threatened or endangered species and species of concern
Two of the federally listed species discussed above also have state-level conservation statuses. The [redacted] is state-threatened, and the [redacted] is considered a species of concern. Four other species with state-level statuses were analyzed within the SCS (**Appendix G**) as having potential to occur within the Project Area. These include the [redacted], [redacted] and [redacted] The ERR (**Appendix G**) indicated the [redacted], [redacted], [redacted], and [redacted] as having occurrences within or directly adjacent to the Project Area. Section 5.8.2 contains a discussion of the ERR results and Project plans in response to ERR Required or Recommended actions.

The [redacted] is a state-endangered species that prefers [redacted][38]. According to the ERR, suitable [redacted] habitat is present [redacted].

The [redacted] is a state-endangered species that prefers [redacted]. According to the ERR, suitable [redacted] habitat is present [redacted]

The [redacted] is a state-endangered species that prefers [redacted] According to the ERR, suitable habitat may be present [redacted].

The [redacted] is a state-endangered species that prefers [redacted] According

[38] [redacted]

to the ERR, suitable habitat may be present [redacted]

As described below, actions required or recommended in the ERR will be incorporated into Project construction and operation as appropriate.

In summary, as the Project will primarily be constructed on agricultural land, it is not expected that Project construction or operation will adversely impact wildlife, including special status species populations or any of their habitats that may occur within or near the Project Area. It is unlikely that Project construction or operation will adversely affect these species as there is abundant similar habitat in the surrounding region. Disturbance to these species, if any, will likely be limited to the duration of Project construction and is not anticipated to continue into the operational stage. During Project construction, wildlife within the construction areas may be temporarily displaced due to construction noise and human activity. The temporary displacement will primarily occur in areas that are currently used for row-crop agriculture. Also, the surrounding region provides similar habitat to that available within the Project Area and is likely to accommodate the temporary displacement of wildlife during Project construction. Species using the woodland and wetland areas are unlikely to be adversely affected by Project construction, as the planned siting of facility infrastructure is mostly outside of these habitat types. The operational stage of the Project is expected to have a predominately positive impact on area wildlife. For example, once construction is complete, the majority of the Project Area will be disturbed less frequently than it was during row-crop production. Also, the herbaceous habitat available throughout the arrays and in the Project Area will improve habitat stability and diversity compared to row-crop habitat. It should be noted that the perimeter fence may exclude some large mammals from entering the Project Area; however, most small mammals, birds, reptiles and amphibians will still be able to access this area, whether through, under, or over the fence.

5.7.2 Wildlife pre-construction surveys. (See Habitat Surveys and Biological Assessments in the Introduction.)

Kimley-Horn conducted a field reconnaissance for High Noon Solar in September 2021, October 2021, and May 2022, along with RES completing a review in March 2022, in order to conduct a coarse-scale ground-truthing of the WDNR WLCD land cover types from the Project Area to verify that the land cover types identified were generally accurate and to identify any discrepancies between WLCD[26] classifications and field observations; document areas where land cover types may provide habitat for special status species; coarse-scale ground-truth NWI[39] and WWI[40] mapped wetlands; document ecological features that may attract wildlife; take photographs of representative habitats in the Project Area and; record incidental wildlife observations while on-site. The field reconnaissance followed a desktop assessment of the biological resources within the Project Area, and results of both of these assessments are presented in the Site Characterization Study (**Appendix G**).

[39] USFWS. 2018, National Wetland Inventory dataset.
[40] WDNR. 2015. Wisconsin Wetland Inventory dataset.

5.7.2.1 *Provide a summary of pre-application consultation meetings held with DNR and/or USFWS for the purposes of determining whether or not any pre-construction wildlife studies would be required for the project.*

A consultation with WDNR, USFWS, Kimley-Horn, and High Noon Solar staff was held on September 14, 2021. On September 21, 2021, a pre-application consultation meeting for the Project was held with PSC, WDNR, Kimley-Horn, and High Noon Solar staff. During these meetings, Project plans, surveys, vegetation management planning, siting, overall best management practices, and special status species were discussed.

5.7.2.2 *If, after consultation with DNR or USFWS, wildlife pre-construction studies are required, provide the following:*

- *A copy of the approved survey methodologies for any studies including the species of interest, dates of surveys, and a schedule for releasing data and reports to the PSC and DNR.*
- *Copies of all data collected for all pre-construction studies (data should be provided using a format acceptable to DNR and PSC staff).*

No additional pre-construction wildlife surveys are anticipated to be required following consultation and coordination with WDNR and USFWS staff if construction activities can be completed outside of the windows identified in the ERR. However, if construction activities cannot avoid windows identified in the ERR, pre-construction nest clearance surveys will be conducted for the [redacted], [redacted], and [redacted] in areas identified from the ERR as containing potentially suitable habitat.

- *Final report/s or analyses prepared using the data collected.*

The Site Characterization Study (**Appendix G**) includes an analysis of potential special-status species and general wildlife habitats in and around the Project Area.

5.7.2.3 *Provide any monitoring and response protocol for wildlife accessing the solar arrays.*

High Noon Solar will implement a wildlife response and reporting system during Project operations which will allow the Project to assess wildlife impacts. The wildlife response and reporting system incorporates an electronic communication pathway that uses a software program to expedite the transfer of wildlife data from the field staff to environmental managers. This system includes operations staff training, monitoring for wildlife incidents (e.g., injured animals or carcasses) by operations staff, and active reporting of and potential response to wildlife incidents.

The operations staff training will occur during staff onboarding and on an annual basis. The training will provide instruction to operations staff on reportable wildlife incidents, data documentation when an incident is identified, and the incident report process. The training also includes BMPs (e.g., only drive on designated access roads). The operations staff are expected to view their surroundings while performing regular maintenance visits and incorporate scans for wildlife into their work habits. Should an incident be observed, the technicians are required to

collect data (e.g., date, time, location, etc.) and photographs of the wildlife and surroundings. This data is reported to the site manager, who submits it to an electronic database and notifies the designated environmental manager for the Project.

The site environmental manager will then coordinate to take the appropriate actions. The actions include working with a qualified biologist (e.g., consultant) to confirm species identification. For injured animals, the site manager will contact a wildlife rehabilitator or local wildlife agent to capture, treat, and if able, release the animal. If the species is identified as a state or federally listed species, the appropriate agency will also be notified. The site environmental manager also reviews the circumstances around each incident and the combined incidents on an annual basis, to determine if any trends such as a common location or circumstance are evident. Identification of such a trend would trigger an analysis to identify appropriate mitigation actions.

If a member of the public observes a potential wildlife incident within the Site, they should bring that observation to the Project's site manager. From this point, the reporting process and coordination around the incident will be similar to those found and documented by the Operations Staff during routine Project visits, as described above.

5.8 Endangered Resources

Endangered resources include any state or federally listed species (e.g. threatened, endangered), special concern species, and/or natural communities. Location specific information for endangered resources is considered sensitive and should be filed confidentially on ERF with a public redacted version also provided. As the location is defined by the project area, all species names should be redacted or generalized to taxa group wherever referenced throughout all application materials. In addition, any required/recommended actions or no impact justification should also be redacted wherever referenced throughout all application materials.

5.8.1 *Provide a copy of the completed DNR endangered resources screening (i.e. ER Review or ER Verification Form) and all supporting materials (see DNR Application Needs in the Introduction).*

An ERR was completed on March 25, 2022 (ERR #21-616) and is included in **Appendix G**. Correspondence with the DNR is included in **Appendix F**. The ERR identified four species with required actions, four with recommended actions, and eight species with no follow-up actions. The ERR identified "actions that need to be taken to comply with state and/or federal endangered species laws" for the [redacted] It was noted in the ERR that suitable habitat may be present within portions of the Project Area.

5.8.2 *Discuss how any DNR-required actions to comply with endangered species law would be incorporated into the project construction or operation. Include discussion of how any USFWS permits or required actions would be incorporated into the project.*

As noted above and documented in ERR #21-616, four required actions were identified. The ERR identified suitable habitat may be present within portions of the Project Area. Implementing

avoidance and minimization efforts which may include pre-construction surveys, timing restrictions, and observation notifications will be completed to minimize and avoid impacts to identified species.

On May 25, 2022, a USFWS IPaC database search was completed to identify any federally listed species with the potential to occur within the Project Area (**Appendix G**). The IPaC database results identified six species including th [redacted]

High Noon Solar will work with WDNR and/or USFWS to determine the need and timing of surveys prior to construction. Timing restrictions on tree and shrub removal may be needed to avoid potential impacts to listed species.

5.8.3 *Discuss how any DNR-recommended actions to comply with endangered species law would be incorporated into the project construction or operation. Include discussion of how any USFWS recommended actions would be incorporated into the project.*

High Noon Solar anticipates incorporating construction timing restrictions or pre-construction nest clearance surveys as outlined in the ERR to avoid and minimize impacts to the listed species. More information for the listed species can be found in **Appendix G**.

5.9 Public Lands and Recreation

List all public properties within the project area and in a separate list all public properties within two miles of the project area boundary.

5.9.1 *State properties, including but not limited to:*

A desktop evaluation was conducted using the U.S. Geological Survey Protected Areas Database of U.S. (PADUS), 2020 NAIP aerial imagery, USGS Topographical Maps and consultations with USFWS and DNR for natural resources areas to document special biological resource management areas, such as conservation easements and state or federal land managed for biodiversity within the Project Area or a two-mile buffer. The results of this effort indicated that there are no state, federal, county-owned, or other special management areas within the Project Area. There are 4,650 acres of public lands (i.e., conservation easements, county, state, federal, or tribal lands) within the two-mile buffer (*see* **Figure 4.1.7.3 Appendix A).**

5.9.1.1 *Wildlife Areas*

There is one WDNR wildlife area, the Mud Lake Wildlife Area, located directly north of the Project Area.

5.9.1.2 *Fisheries Areas*

There is one WDNR fishery, the Rowan Creek Fishery Area, located approximately two miles northwest of the Project Area.

5.9.1.3 State Parks and Forests

There is one state park, the Mackenzie Environmental Education Center, located approximately two miles northwest of the Project Area.

5.9.2 Federal properties, including but not limited to:

5.9.2.1 Wildlife Refuges

The USFWS owns the Columbia County Waterfowl Production Area, of which the Rowe (Ward) and Schoenberg Marsh Waterfowl Production Areas are located within two miles, north and south respectively, of the Project Area[41].

5.9.2.2 Parks

There are no federal parks located within two miles of the Project Area.

5.9.2.3 Scenic Riverways

There are no federal scenic riverways located within two miles of the Project Area.

5.9.3 County Parks

There are no county parks located within the Project Area or within two miles of the Project Area.

5.9.4 Recreation Trails

There are no recreational trails on public land located within the Project Area; however, several of the nearby publicly managed lands have trails. These include the Mud Lake Wildlife Area, Mackenzie Environmental Education Center, Rowan Creek Fishery Area, and Madison Audubon's Erstad Prairie, Goose Pond Sanctuary, Sue Ames Prairie, and Otsego Marsh.

Six segments of snowmobile trails traverse through the Project Area. Depending on the final Project Layout, the trails may no longer be allowed to cross the Project at their current locations once the Project begins construction.

5.9.5 Identify the owner/manager of each recreation resource.

WDNR manages the Mud Lake Wildlife Area, Mackenzie Environmental Education Center, and Rowan Creek Fishery Area. USFWS manages the Rowe (Ward) and Schoenberg Marsh Waterfowl Production Areas. Madison Audubon manages the Erstad Prairie, Goose Pond Sanctuary, Sue Ames Prairie, and Otsego Marsh.

The snowmobile trails are maintained by the Arlington Prairie Drifters, Camper Country Snowriders, and Columbus/Fall River Snow-Blazers. High Noon Solar plans to coordinate with

[41] WiDNR Public Access Lands interactive map, available at https://dnrmaps.wi.gov/H5/?Viewer=Public_Access_Lands&layerTheme=Public+Land&run=Search&param=MGD,PROP_NAME,ROELKE+CREEK+FISHERY+AREA

the snowmobile clubs during final engineering to determine the best course of action for re-routing the snowmobile trails (if necessary) during construction and operations.

5.9.6 *Provide any communications with these owners/managers.*

High Noon Solar has had extensive coordination with WDNR, USFWS, and Madison Audubon Society. Outreach efforts with USFWS and Madison Audubon began in early 2022 and included multiple conference calls, in-person meetings, and tours of Audubon's managed lands as well as Schoenberg Marsh, managed by the USFWS. Beyond describing High Noon Solar's proposed development at a high level, discussions centered on Audubon's vegetation management plan, local plant and wildlife species, seed banking operation, discussing fire risk, and historic weather events. These meetings are listed under Section 7.2 and further characterized in **Appendix P**. Madison Audubon's feedback has been carefully considered in High Noon Solar's Project Layout. Aspects of Audubon's vegetation management plan are included in High Noon Solar's VMS. Dominant plant species identified in proximity of the Goose Pond Sanctuary have been highlighted as potential species for inclusion in the permanent seed mixes in the VMS.

High Noon Solar has also conducted initial outreach to the snowmobile clubs with trails traversing through the Project Area. The written communications with the snowmobile clubs are included in **Appendix P**.

Please refer to Section 1.8.2 and **Appendix F** for details on coordination with WDNR.

5.9.7 *Discuss how short and long-term impacts to these resources would be avoided and/or minimized.*

No federal, state, county-owned, or other special use areas are located within the Project Area. No impacts to the resources listed above within two miles of the Project Area are anticipated.

As stated in Section 5.9.5 above, High Noon Solar plans to coordinate with the snowmobile clubs during final engineering to determine the best course of action for re-routing the snowmobile trails (if necessary) during construction and operations.

5.9.8 *Describe any measures that would be taken to mitigate or minimize impacts to aesthetics and tourism in the areas surrounding the project.*

The Project Area is located within a rural agricultural setting. High Noon Solar does not anticipate any impact to local tourism as a result of the Project. Aesthetics will be mitigated through the use of minimally invasive "agricultural" or "deer fence", unless required otherwise by applicable codes, standards, rules, or regulations. Additionally, High Noon Solar will work with interested non-participating landowners that are adjacent to solar arrays on one or more sides of their property to create visual buffers and screening in order to mitigate visual impacts, to the extent reasonable and economically feasible, and not otherwise impeding solar operations or access to sunlight.

5.10 Contaminated Sites

List all contaminated sites and solid waste sites within the project area, and in a separate list, all contaminated sites and solid waste sites within two miles of the project area boundary.

5.10.1 *Using the Wisconsin Remediation and Redevelopment Database (WRRD), http://dnr.wi.gov/topic/Brownfields/WRRD.html, identify any contaminated sites (open and closed) within the project area and within two miles of the project area.*

Tables 5.10.1a and **5.10.1b** list the open and closed contaminated sites in and within 2 miles of the Project Area as identified from the WRRD.

Table 5.10.1a BRRTS Listings Within the Project Area

Site Name	BRRTS #	Facility ID	Site Status
FRANZ PROPERTY	0211001409	111074920	Closed

Table 5.10.1b BRRTS Listings Within 2-miles of the Project Area

Site Name	BRRTS #	Facility ID	Site Status
DEL MONTE FOODS PLT #113	0311231623	111036090	Closed
CGC ARLINGTON BULK PLT	0311273160		Closed
CALDWELL PROPERTY	0311002141		Closed
BENDERS SERVICE	0311002103		Closed
DEL MONTE FOODS - ARLINGTON	0211547065	111036090	Closed
DANCO PRAIRIE FS COOP-ARLINGTON	0211547595		Closed
FRANZ PROPERTY	0211001409	111074920	Closed
U W ARLINGTON FARMS HORTICULTURE	0311001369		Closed
BELL MOTORS	0311002115	111076570	Closed
U W ARLINGTON FARMS ENTOMOLOGY	0311001368		Closed
COOP COUNTRY BULK PLT	0211261421		Closed
U W ARLINGTON FARMS HORTICULTURE #2	0311002532		Closed
ARLINGTON ELEMENTARY SCHOOL	0311001099	111070630	Closed
FRANK PROPERTY	0311461439		Closed
ARLINGTON FIRE BOARD	0311002114	111041150	Closed

Table 5.10.1b BRRTS Listings Within 2-miles of the Project Area			
Site Name	**BRRTS #**	**Facility ID**	**Site Status**
ELSING OIL CO	0311002129	111017720	Closed
JACOB ESTATE PROPERTY	0311001373		Closed
KVALE PROPERTY	0311002392		Closed

5.10.2 *Using the Historic Registry of Waste Disposal Sites, http://dnr.wi.gov/topic/Landfills/registry.html, identify any Environmental Repair and Solid Waste disposal sites within the project area and within two miles of the project area.*

Table 5.10.2 lists the Environmental Repair and Solid Waste disposal sites within 2 miles of the Project Area as identified from the WNDR Historic Registry of Waste Disposal Sites. According to the WDNR Historic Registry of Waste Disposal Sites; there are no sites located within the Project Area.

Table 5.10.2 Environmental Repair and Solid Waste Listings Within 2-miles of the Project Area			
Site Name	**Object ID**	**Site ID**	**Site Status**
DEL MONTE CORP	111042690	1694600	Closed
WI DNR MACKENZIE ENV CTR	111041920	1653700	Closed

5.10.3 *If contaminated materials are known to exist on-site, list and describe:*

- *The types of contaminant(s) known to exist on-site.*
- *The location of the contaminant(s).*
- *The media in which the contaminant is located within (i.e., soil, water, etc.).*
- *The estimated concentration of the contaminant(s).*
- *The estimated volumes of the contaminants(s).*

Contaminated materials are not anticipated to exist on site. A Construction Contingency Plan will be developed prior to construction of the Project to document removal procedures if found.

5.10.4 *If the contaminated materials are newly discovered on-site, specify:*

- *The procedure for screening materials.*
- *The location where materials would be tested.*
- *The protocols that would be followed.*
- *Whether construction work would be impacted.*

Contaminated materials are not anticipated to exist on-site; however, if they are encountered during construction, steps outlined in the Construction Contingency Plan would be implemented.

5.11 Floodplain

5.11.1 *Identify any work occurring in floodplains or known flood-prone areas (e.g. agricultural field ponding).*

There are no FEMA mapped floodplains within the Project Area. Based on a preliminary analysis of previously-collected hydrology data for the general area, it appears some agricultural fields may include low-lying areas with the potential for flooding during a 100-year flooding event. High Noon Solar intends to avoid areas at risk for potential flooding, based on hydrological analysis performed during final engineering, to the extent practicable to minimize civil work and construction costs.

5.11.2 *Discuss if impacts to the floodplain have been evaluated, and how impacts to the floodplain will be avoided or minimized.*

5.11.3 *Provide information on any discussions that have occurred with the application floodplain zoning authority, and how the project will comply with local floodplain ordinance(s).*

There are no FEMA mapped floodplains within or adjacent to the Project Area, therefore no impacts are anticipated and no discussions with floodplain zoning authorities has occurred.

5.12 Local Zoning and Safety

Utilities (CA)

5.12.1 *Provide copies of any zoning ordinances affecting the project area and within two miles of the project boundary. Provide only the page(s) directly citing ordinance language.*

5.12.2 *Describe any zoning changes needed for the project.*

5.12.3 *Describe zoning changes that the applicant has requested of local government for the proposed project. Include:*

5.12.3.1 *The name of the entity responsible for zoning changes.*

5.12.3.2 *Description of the process required to make the zoning change.*

5.12.3.3 *The outcome or expected outcome for requested zoning changes.*

5.12.4 *Township road safety and use plans.*

5.12.4.1 *Provide details on any plan or permit requirement pertaining to local road safety, use, or repair.*

5.12.5 *Other conditional use permits*

5.12.5.1 *Provide details on any other conditional use permit required by local government.*

[SECTIONS OMITTED, ONLY APPLY TO UTILITIES]

Utilities and IPPs (CPCN)

5.12.6 *Provide a list of potential local issues normally associated with zoning, road use and safety, or other condition uses.*

High Noon Solar has stated a desire to work cooperatively with County, Town, and Village authorities to identify and address issues and concerns. Communication is ongoing with County, Town, and Village officials/staff.

Local officials and members of the public have inquired about the following issues:

- Land use and zoning
- Responsibility for maintenance and repair of roads used during construction
- Type and size of vehicles used in construction
- Construction materials and employee traffic routes
- Site vegetation management strategies
- Stormwater management impacts during and after construction
- Emergency response needs of the proposed facility
- Source of construction and operations staff
- Facility lighting
- Local government and school tax impacts
- Wildlife impacts and recreational paths
- Decommissioning
- Construction noise impacts
- Project site selection process
- Vegetative screening and buffer opportunities
- Economic impact of land use change
- Vegetation management plans

5.12.6.1 *Provide copies of all correspondence to and from local government pertaining to issues of zoning, safety, or local road use safety plans.*

Copies of local government correspondence are included in **Appendix P**.

Beginning in the Summer of 2021, High Noon Solar met with respective board chairs and presented at respective board meetings to characterize the Project generally, discuss zoning and other local issues, and answer board member's as well as the general public's questions about the proposed development with the Village of Arlington, Town of Arlington, Town of Leeds, Town of Lowville, and Town of Hampden. High Noon Solar has also met with Columbia County Planning and Zoning Staff, Columbia County Board Members, Columbia County Administration staff, and the Columbia County Economic Development Corporation. High Noon Solar has communicated with local Fire and EMS in the Town of Arlington and outreach is ongoing with respect to other local government first responders in all affected Townships.

The Project Area is sited entirely outside of any city or village. Land in the Project Area is subject to Columbia County zoning, and is primarily zoned "Agriculture" (A-1), "General Agriculture" (A-2), and "Agricultural Overlay" (A-4). Solar generation infrastructure is proposed within the A-1, A-2, and A-4 zones. The proposed Gen-Tie will extend from the Project Substation (A-1), to the Interconnection Switchyard (A-1), crossing lands zoned as A-1.

The Project Area is within a Farmland Preservation Zone pursuant to Wisconsin State Statutes Chapter 91[42] and Wisconsin Administrative Code Chapter ATCP 49[43]. High Noon Solar believes the Project is an allowable/permitted use of the land, consistent with the Columbia County Farmland Preservation Plan, the Columbia County Ordinances, and applicable state statutes and rules. Based on countless conversations with participating landowners, the Project is understood to be distinct from traditional commercial or industrial development as it enhances the prospect of preserving open spaces and farming in the future following decommissioning. High Noon Solar therefore believes the Project is compatible with the intent of the Farmland Preservation zoning.

5.12.6.2 Provide a discussion of how local concerns would be accommodated.

High Noon Solar has proposed that a local agreement such as a JDA, Memorandum of Understanding (MOU), or Local Operating Contract (LOC) be used to memorialize agreements regarding management and responsibility for local concerns on the County and Town levels. These communications are in process and will continue throughout the CPCN review process. The template draft agreement for negotiation with the local governments is included in **Appendix W**.

High Noon Solar has established a thorough and multi-faceted outreach plan to receive and address local concerns as further discussed in Sections 6.1 and 7.2. Upon receipt of a local concern, High Noon Solar will work in good faith to reach a mutually agreeable resolution.

Appendix Q includes a study of Health and Safety Impacts of Solar Photovoltaics performed by North Carolina State University[44], which also addresses concerns that the public may have regarding the Project. The study addresses concerns of public health and safety in the following categories: (1) Toxicity, (2) Electromagnetic Fields, (3) Electric Shock and Arc Flash, and (4) Fire. In each of these sections, the negative health and safety impacts of utility-scale PV projects were shown to be negligible, while the public health and safety benefits of installing these facilities are significant and far outweigh any negative impacts. In particular, the study identifies that due to the reduction in the pollution from fossil-fuel-fired electric generators, the overall impact of solar development on human health is overwhelmingly positive. This pollution reduction results from a partial replacement of fossil-fuel fired generation by emission-free PV-generated electricity, which reduces harmful sulfur dioxide (SO_2), nitrogen oxides (NO_x), and fine particulate matter ($PM_{2.5}$). A detailed emissions analysis for the Project is included in **Appendix R.**

[42] Wisconsin State Statutes Chapter 91 – Farmland Preservation.
[43] Wisconsin Administrative Code Chapter ATCP 49 – Farmland Preservation.
[44] North Carolina State University. May 2017. Health and Safety Impacts of Solar Photovoltaics.

5.12.7 *Describe any impacts the proposed project would have on existing infrastructure including electric distribution lines and gas pipelines.*

Prior to initiating construction, all crossings of Project infrastructure with existing infrastructure will be field-located by a licensed land surveyor. High Noon Solar will seek to negotiate crossing agreements with the owners of the infrastructure and in accordance with those agreements, the Project will not impact existing infrastructure. Crossing agreements will determine, among other things, the appropriate cover required to provide adequate protection to existing infrastructure. Underground collector circuits will cross existing infrastructure underground, as close to perpendicular as practicable. Solar arrays will be located outside of the ROW of existing electric transmission lines and pipelines in accordance with Section 1.5.3.1 and **Table 1.5.3.1**.

Four existing transmission lines ranging from 69 - 345 kV and multiple lower voltage electrical distribution lines were identified within the Project Area. Solar infrastructure has been sited to avoid impacts to the identified electric transmission and distribution lines; however, collector circuits, access roads, and the Gen-Tie will require crossing existing electric transmission and distribution infrastructure in multiple locations pending final engineering.

Two natural gas pipelines were identified within the Project Area[45]. During desktop review, questions arose regarding the accurate location of one of the pipeline locations identified in the National Pipeline Mapping System (NPMS). The location of the pipeline was field verified by High Noon Solar consultants in a location different than indicated in the NPMS and confirmed by Northern Natural Gas. Solar infrastructure has been sited to avoid impacts to the identified natural gas pipelines; however, collector circuits and the Gen-Tie will require crossing the natural gas pipelines in multiple locations pending final engineering.

5.13 Land Use Plans

Provide information from all land-use plans adopted by local governments that pertain to the project area, extending out two miles from the project boundary. Only submit those pages relevant to the project siting or operation. Do not submit multi-page ordinances, land use plans, etc. unless the entire document would be helpful for context. Include a list of website addresses to the source documents. Include not only general land-use plans, but also other relevant planning documents such as:

5.13.1 *County Recreation Plans*
5.13.2 *Farmland Preservation Plans*
5.13.3 *Highway Development Plans*
5.13.4 *Sewer Service Area Plans*

Copies of the requested land-use plans within the Project Area and a two-mile buffer are included in **Appendix S**. A table of the plans and links to where they can be found on the internet is included below.

[45] Pipeline and Hazardous Material Safety Administration. National Pipeline Mapping System – Public Viewer. Accessed March 2021.

Table 5.13 Land Use Plans	
Local Government	**Hyperlink**
Columbia County	Columbia County Comprehensive Plan[46] Farmland Preservation Plan[47] Zoning Ordinance[48]
Town of Arlington	Town of Arlington Comprehensive Plan[49]
Town of Dekorra	Town of Dekorra Comprehensive Plan[50] Park and Outdoor Recreation Plan[51]
Town of Hampden	Town of Hampden Comprehensive Plan[52]
Town of Leeds	Town of Leeds Comprehensive Plan[53]
Town of Lowville	Town of Lowville Comprehensive Plan[54]
Town of Otsego	Town of Otsego Comprehensive Plan[55]
Village of Arlington	N/A
Village of Poynette	Village of Poynette Comprehensive Plan[56]

5.14 Archaeological and Historic Resources

Confidential information includes only the specific location and other sensitive details of archaeological and human burial sites (e.g., maps). Confidential information should be submitted on ERF as a confidential version in addition to a redacted public version. The Wisconsin Historical Society (WHS) can provide a list of qualified archaeologists, architectural historians, human burial specialists, or tribal preservation officers who may be required to perform steps of this review. Access to the Wisconsin Historic Preservation Database (WHPD) is required to complete this review. Access to WHPD is free at the WHS headquarters or can be used online for a fee. Depending on

[47]https://www.co.columbia.wi.us/columbiacounty/Portals/3/Farmland%20Preservation/Certified%20Documents/Certif%20Plan.pdf?ver=2013-10-02-110436-907
[48]https://www.co.columbia.wi.us/columbiacounty/planningzoning/PlanningZoningHome/ZoningLandUseOrdinances/tabid/3652/Default.aspx
[49]https://www.arlingtontown-wi.com/comprehensive-plan-1
[50]https://dekorra-wi.gov/wp-content/uploads/2021/03/Dekorra-Comprehensive-Plan.pdf
[51]https://dekorra-wi.gov/wp-content/uploads/2021/03/Parks-Master-Plan.pdf
[52]https://www.co.columbia.wi.us/columbiacounty/planningzoning/PlanningZoningHome/Planning/TownComprehensivePlanning/TownofHampden/tabid/515/Default.aspx
[53]https://www.townofleeds.org/wp-content/uploads/2016/07/Town-of-Leeds-Adopted-Comprehensive-Plan2030.pdf
[54]https://www.co.columbia.wi.us/columbiacounty/planningzoning/PlanningZoningHome/Planning/TownComprehensivePlanning/TownofLowville/tabid/523/Default.aspx
[55]https://www.co.columbia.wi.us/columbiacounty/planningzoning/PlanningZoningHome/Planning/TownComprehensivePlanning/TownofOtsego/tabid/528/Default.aspx
[56]http://poynette-wi.gov/DocumentCenter/View/414/2017-Comprehensive-Plan-Update

the outcome of this review, the Commission may be required to consult with the State Historic Preservation Office (SHPO). SHPO consultation may take up to an additional 30 days. The Guide for Public Archeology in Wisconsin, provides information about best management practices.

5.14.1 *Provide maps or GIS files and a description of all archaeological sites, historic buildings and districts, and human burial sites within or near the proposed project area.*

5.14.2 *For archaeological sites and historic buildings or districts, determine the boundaries, historic significance, and integrity of each resource. Additional field surveys may be required to make these determinations.*

5.14.3 *Identify the potential project effects on each resource.*

5.14.4 *Describe modifications to the project that would reduce, eliminate, avoid, or otherwise mitigate effects on the resources. Examples of modifications include changes to construction locations, modified construction practices (e.g. use of low-pressure tires, matting, etc.), placement of protective barriers and warning signage, and construction monitoring.*

5.14.5 *For human burial sites, obtain a Burial Site Disturbance Authorization/Permit from WHS for all human burial sites that would be affected by the project.*

5.14.6 *Provide an unanticipated archaeological discoveries plan. The plan should outline procedures to be followed in the event of an unanticipated discovery of archaeological resources or human remains during construction activities for the project.*

5.14.7 *Notify Wisconsin Tribal Historic Preservation Officers of any Native American human burial sites and significant prehistoric archaeological sites that could be impacted by the project. Provide copies of all correspondence.*

High Noon Solar contracted Commonwealth Heritage Group, Inc. (Commonwealth) to complete a cultural resources review, conduct architectural history evaluations, and procure an unanticipated discoveries plan for the Project. These analyses and materials were conducted to ensure compliance with all applicable state and federal historic preservation laws and were assessed through the review of published literature and records maintained by the Wisconsin State Historic Preservation Office (SHPO) and the Wisconsin Office of the State Archaeologist. Commonwealth reviewed the site file and survey documentation from the Wisconsin Historic Preservation database (WHPD) for previously identified archaeological and cemetery/burial sites and above ground architectural/historical resources within and adjacent to the Project Area. The area of potential effects (APE) for direct effects to archaeological resources was defined to encompass the entire Project Area; the APE for indirect (visual) effects to above-ground architectural/historic resources included a 0.25 mile buffer around the Project Area.

Commonwealth's cultural resource review identified one previously reported cemetery site and fourteen above-ground architectural/historic resources within the 0.25 mile buffer area. No reported archaeological or architectural resources were identified within the Project Area. In accordance with Wisconsin Statue § 157.70, Commonwealth recommended avoidance of ground

disturbing activities within 10 ft of the parcel boundary of the cemetery, which was incorporated into the Project Layout to avoid potential impacts.

An architectural history evaluation of the architectural/historic properties was completed to reassess the previously surveyed properties. Based on a survey completed in May 2022, the identified structures were recommended not eligible for the National Register as they did not meet the criteria for listing.

No adverse impacts to archaeological or architectural resources are anticipated. If unrecorded archaeological resources or human remains are discovered during construction, the Unanticipated Discoveries Plan in the Cultural Resources Report in **Appendix T** will be followed. Additional information is included in the Confidential Cultural Resources and Architectural History Evaluations Reports in **Appendix T**.

5.15 Agricultural Impacts

5.15.1 *Identify current agricultural practices in the project area.*

The Project Area is heavily dominated by row crop agriculture, primarily composed of corn (*Zea mays*) and soybeans (*Glycine max*). The majority of the corn grown in the Project Area has historically been sold for ethanol production.

5.15.2 *Identify the location of known agricultural drainage systems (tiles, ditches, laterals), irrigation systems, erosion control and water management practices and facilities in the project area that could be impacted by construction activities or the location of the proposed facilities.*

High Noon Solar has reached out to all participating landowners to ask for their assistance in locating tile; requesting drain tile maps, personal knowledge of their property, and knowledge of existing tile that was placed without written record. High Noon Solar will continue communication with landowners on a parcel-by-parcel basis as construction approaches; possibly utilizing field location services and historical satellite imagery when necessary to identify drain tiles systems that may be impacted by construction activities. It is expected that drain tile will be impacted in portions of the Project Area that are tiled and undergo construction, but High Noon Solar will make commercially reasonable efforts to prevent damage to drain tile mains by incorporating the identified locations into final engineering design. In the event damage to a drain tile main is unavoidable and such damage would create adverse drainage effects to participating or neighboring property, High Noon Solar will re-route drainage or repair the existing drain tile main during the construction process.

High Noon Solar has identified five center pivot irrigation systems, one in each of Fence Areas K, T, and P and two in Fence Area O. Pursuant to the Project land contracts, High Noon Solar will work with landowners to remove any center pivot irrigation systems that are incompatible with the final Project Layout.

5.15.3 *Identify any farming operations such as herd management, specialty crop production, field and building access, organic farming, etc. that could be impacted by the construction of the project.*

One participating landowner produces seed corn, red heirloom corn, wheat, and rye within the Project Area for their commercial whiskey business. If solar facilities are sited on this land during final engineering, up to approximately 395 acres of these crops may come out of production. These crops are grown within Fence Areas P and O (**Figures 4.1.2 and 4.1.7.4 Appendix A**). No confined animal operations, organic farms, or other unique farming operations are anticipated to be impacted by construction of the Project.

5.15.4 *Identify the amount (in acres) of designated prime farmland that would be removed from agricultural use during the operational life of the solar project.*

There are 3,547 acres designated as prime farmland by the NRCS within the Project Area. Approximately 1,713 acres of prime farmland are anticipated to be removed from agricultural use during the operation life of the Project. There are 304,058 acres of farmland in Columbia County.

5.15.5 *Describe how damage to agricultural facilities and interference with farming operations would be minimized during construction.*

No damage to agricultural facilities (beyond those discussed in Section 5.15.2) or interference with non-participating farming operations are anticipated during construction of the Project. Minimal interference between Project construction equipment and farm equipment travelling on State, County, Town, and Village roadways may occur, but is not anticipated to be an issue as haul routes will be limited and marked with signage in advance to minimize congestion and road impacts. Deliveries will be scheduled to prevent congestion as discussed in Section 3.3.5.2.

Project land contracts have been negotiated to address interference with farming operations on participating properties, such as compensation for crop damage if construction begins when crops are still in the fields, though High Noon Solar will endeavor to avoid this to the extent practicable. High Noon Solar has discussed with landowners the concept of advanced notice of construction to minimize interference with procurement of agricultural inputs such as fuel, fertilizer, and seed well in advance of actual planting. The lands that are converted to solar arrays will be suitable for a return to agricultural farming activities after decommissioning. High Noon Solar has hired a local representative to assist in facilitating communications with landowners before and during construction. This communication path can minimize agricultural impacts by gathering input from landowners such as where to locate access roads and how to avoid or relocate drain tile components.

The Project will provide benefits to the agricultural land and landowners. High Noon Solar has voluntary easements with the owners of the agricultural land that would host the Project. These landowners are sophisticated, experienced agricultural producers. They have an educated view of the agricultural market and have knowingly and voluntarily decided to participate in the Project. Their property rights deserve to be respected and their economic opportunities not unfairly restricted. High Noon Solar is seeking a merchant CPCN and not a Utility CPCN and will not be

seeking condemnation powers. Thus, any landowners who own land that is presently agricultural and would host solar generating facilities are choosing to do so voluntarily.

5.15.6 *Describe how damage to agricultural facilities would be identified and repaired.*

No damage to agricultural facilities is anticipated for this Project beyond those discussed in Section 5.15.2.

5.15.7 *Identify any farmland affected by the project that is part of an Agricultural Enterprise Area.*

The Project will not affect any farmland that is part of an Agricultural Enterprise Area.

5.15.8 *Identify any farmland in the project area that is part of a Drainage District, and identify the Drainage District if applicable. The following items apply when any part of a project is located within a Drainage District.*

5.15.8.1 *Describe any permits needed from a Drainage District Board for construction and operation of the proposed project, and the status of any permits.*

5.15.8.2 *Identify if and where any culverts would be installed in areas of the Drainage District.*

5.15.8.3 *Provide any correspondence with State Drainage Engineer regarding the project.*

No portion of the Project is located within a Drainage District.

5.15.9 *Identify any lands within the project boundary that are enrolled in agricultural conservation or agricultural tax incentive programs. Describe the process for returning land to agricultural use after decommissioning, including any subsequent years of monitoring.*

None of the proposed Project lands are currently enrolled in the Conservation Reserve Program (CRP), Managed Forest Law (MFL) program, or any other agricultural conservation program to the knowledge of High Noon Solar. Participating landowners may be receiving farmland preservation tax benefits but no Farmland Preservation Agreements are in effect as the Project is not in an Agricultural Enterprise Area.

Detailed decommissioning steps for the Project are provided in Section 1.7.3 and outline a process for returning the Project to productive agricultural use. Decommissioning steps include the removal of impervious surfaces, above and below-ground Project infrastructure, and decompaction of the Site.

The topsoil present in the Project Area, which has benefitted agriculture for several decades, was created over time by deep-rooted perennial native species prior to its conversion for agricultural use. The selection of native and naturalized prairie and savanna species as the primary vegetation cover for the Project will help maintain and improve soil health as documented in **Appendix K**. Even minimally diverse prairies provide superior rainwater infiltration and control, filtering and

improving the quality of groundwater, and increasing soil health. It has been well documented that the integration of native prairie and savanna species on the land can result in tangible soil improvements including significantly reduced topsoil loss through erosion, an increase in soil organic carbon levels, improved soil fertility through increased soil organic matter, and improved soil moisture and drought resilience. In addition, a shift in soil microorganisms to a higher fungal/microbial ratio overall is expected to improve the soil structure and stability against erosion. Accordingly, because of the improvement to soils, it is very likely the cropland will be returned to pre-construction yields or better after years of use as a solar generating facility.

High Noon Solar expects that significant environmental benefits will result from the implementation of the proposed VMS. From a nutrient and water runoff perspective, at similar large-scale Invenergy solar projects in Wisconsin, anticipated water quality improvements included phosphorous reductions of 53 - 68 percent and nitrogen reductions of 48 - 95 percent. Similarly, water run-off rate reductions of 17 – 30 percent were modeled for 100-year precipitation events. Similar benefits are anticipated for High Noon Solar.

5.15.10 *Discuss induced voltage issues as they relate to the project arrays, collector circuits, and generator tie line. Provide the following information:*

5.15.10.1 *Identify the location of confined animal dairy operations within one-half mile of any proposed transmission or distribution centerline or other project facilities.*

One confined animal dairy operation located near Fence Area E is within 0.5 miles of proposed Project facilities.

5.15.10.2 *Identify the location of agricultural buildings located within 300 feet of any proposed transmission or distribution centerline or other project facilities.*

No agricultural buildings are located within 300 ft of any proposed collection circuit or the Gen-Tie Routes. Six agricultural buildings are located within 300 ft of Proposed Array areas along Thiele Road, Krier Drive, County Road 22, County Road CS, King Road, and Hall Road. Six additional agricultural buildings are located within 300 ft of Alternative Array areas along Thiele Road, Kroncke Road, County Road C, and Goose Pond Road.

5.15.10.3 *Discuss induced voltage issues related to the project and its transmission or distribution line routes.*

High Noon Solar does not anticipate issues regarding induced voltage as a result of the Project. Induced voltage issues can be caused by a number of factors, but the engineering of the Project, including specific characteristics of components, is anticipated to prevent induced voltage. High Noon Solar will be designed and constructed to meet the standards of Wis. Admin. Code Chapter SPS 316 and PSC 114 – Wisconsin State Electrical Code, and the NFPA 70 National Electric Code. Following the adopted electric codes and guidelines will ensure the system is designed correctly and potential issues of induced voltage are mitigated in accordance with applicable law.

5.15.10.4 *Discuss any plans to conduct stray voltage testing pre- and post-construction.*

High Noon Solar does not believe stray voltage testing is necessary based on the Project's engineering and test results at similar projects in Wisconsin. However, if required, High Noon Solar will conduct pre- and post-construction stray voltage testing at confined animal operations located within 0.5 miles of Project facilities.

5.16 Airports and Landing Strips

5.16.1 *Airport, Landing Strips, and Helipads*

5.16.1.1 *Identify all public and private airports, landing strips, and helipads within 10 miles of the project facilities (both for solar arrays and the nearest generator tie line structure).*

5.16.1.2 *Describe each of the airports, landing strips, and helipads with a description of the runways/landing zone and type of use.*

5.16.1.3 *Describe any potential for impacts to aircraft safety and potential facility intrusion into navigable airspace.*

5.16.1.4 *Describe any mitigation measures pertaining to public airport impacts.*

Please see **Table 5.16.1** below for details regarding aviation facilities located within 10 miles of proposed Project facilities. Due to the height of the proposed Project facilities and distance to aviation facilities, no impacts to aviation facilities are anticipated as a result of Project development, construction, or operation; therefore, no mitigation measures have been proposed.

Facility Name	Airport ID:	Distance from Project	Ownership	Runway Information
Bancroft East	4WI1	6.61 miles northeast	Private	One turf runway, private uses
Dane	WI65	8.1 miles northwest	Private	One turf runway, private uses
Del Monte	WI51	1 mile south	Private	One turf runway, private uses
Eberle Ranch	5WN2	8.08 miles southwest	Private	One turf runway, private uses
Elert	WS12	5.1 miles south	Private	One turf runway, private uses
Gilbert Field	17WI	3.6 miles north	Public	One turf runway, private uses
Higgins	7WI2	4.51 miles south	Private	One turf runway, public uses
Knutson Field	WN39	5.6 miles north	Private	Two turf runways, private uses

Facility Name	Airport ID:	Distance from Project	Ownership	Runway Information
Lodi Lakeland	9WN5	6.7 miles west	Private	One turf runway, private uses
Millhouse Field	WS15	6.7 miles north	Private	One turf runway, private uses
Morrisonville	WN85	4.3 miles south	Private	One turf runway, private uses
Prescott Field	WS32	5.7 miles north	Private	One turf runway, private uses
Weatherbee Field	7WI6	5.4 miles north	Private	One turf runway, private uses

5.16.2 *Commercial Aviation*

5.16.2.1 *Identify all commercial air services operating within the project boundaries (i.e. aerial applications for agricultural purposes, state programs for control of forest diseases and pests (i.e. Gypsy moth control).*

5.16.2.2 *Describe any potential impact to commercial aviation operations.*

5.16.2.3 *Describe any mitigation measures pertaining to commercial aviation.*

According to DATCP's Interactive Map of the Gypsy Moth Aerial Spray Program[57], no areas in Columbia County are being treated with aerial applications.

Inquiries with local landowners determined that the use of limited, targeted aerial application services for fungicide occurs annually within the Project Area. Due to the height of the proposed Project facilities and cessation of aerial application on property included in the final Project Layout, no impacts to commercial aviation operations are anticipated as a result of Project construction or operation; therefore, no mitigation measures have been proposed.

5.16.3 *Agency Consultation*

5.16.3.1 *Identify any potential construction limitations and permit issues.*

5.16.3.2 *Provide a summary of the status of any FAA determinations with details on mitigation actions or how any unresolved problems with aircraft safety are being addressed (including generator tie line structures)*

[57] Wisconsin Department of Agriculture, Trade and Consumer Protection. Gypsy Moth Aerial Spray Program. Accessed March 2021.

5.16.3.3 *Provide a list of any structures, including generator tie line structures, requiring WisDOT high structure permits, and the status of any such permits.*

No construction limitations or WisDOT high structure permits are required for the Project.

CFR Title 14, Part 77.9 states that notice is required for any construction or alteration exceeding 200 ft above ground level, any construction or alteration within 20,000 ft of a public use airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 ft, any construction or alteration within 10,000 ft of a public use airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 ft, or within 5,000 ft of a public use heliport which exceeds a 25:1 surface. None of the airports in **Table 5.16.1** meet the criteria listed in §77.9 therefore a Notice of Construction is not anticipated to be required.

High Noon Solar utilized the FAA's Notice Criteria Tool to evaluate potential notice requirements for the Gen-Tie structures. The Notice Criteria Tool indicated that notice may be required based on proximity to nearby facilities. As a result of this analysis, High Noon Solar plans to file a notice with the FAA but does not anticipate that any changes or alterations to the Project design will be needed based on the language of CFR Title 14, Part 77.9.

No WisDOT permits are required. Based on Wisconsin Statutes Section 114.135(7)[58], the necessity of a permit for the erection of high structures is limited to objects that extend to a height greater than 500 ft aboveground within one mile of the location of the object, or above a height determined by the ratio of one vertical foot to 40 horizontal feet measured from the boundary of the nearest public airport or spaceport within the state. As there will be no structures constructed above 500 feet in height or within two miles of a public airport or spaceport for the Project, no WisDOT high structure permits are required.

At 60 degrees (tilted to the highest position), the highest point of the solar modules will be no more than 15 ft above ground. No mitigation measure are anticipated for the solar modules. Pole structures for the Gen-Tie will not exceed 150 ft in height. Although FAA Notice will be submitted, High Noon Solar does not anticipate any changes or alterations to the Project design, or mitigation measures will be required.

5.17 Communications Towers

For the following sections, include in the assessment all facilities that make up the solar arrays as well as any structures that are part of a necessary generator tie line for the project.

5.17.1 *Provide an analysis or supportive data to predict whether or not any aspect of the proposed project would interfere with:*

[58] Wisconsin State Statute Chapter 114 – Aeronautics and Astronautics.

5.17.1.1 Cell phone communications

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 Area, 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 generation facility 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 generation facilities does not normally extend above 1 MHz. High Noon Solar is not anticipated to have any harmful interference impact on mobile phone operations. Please see **Appendix L** for more information.

5.17.1.2 Radio broadcasts

Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the Project. No recommendation for mitigation is necessary for High Noon Solar, 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 Area. Please see **Appendix L** for more information.

5.17.1.3 Internet (WiFi)

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 the proposed solar generation facility on licensed, proposed, and applied non-federal government microwave systems.

This study identified eight microwave paths within one mile of the Project Area. 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 55 feet above ground level throughout the Project Area. The solar modules have a maximum height of 15 feet. Therefore, all proposed solar array structures within the defined Project Area have sufficient vertical clearance and avoid the risk of obstructing or causing harmful interference to the microwave paths in and around the Project Area. Transmission lines generally do not affect the operation of microwave paths, as their attenuation loss is considered insignificant. On the other hand, transmission tower structures are considered to cause higher signal attenuation losses with more significant reflective and scattering properties and therefore were the primary focus of this study. Given that no Gen-Tie tower structures intersect with any of these microwave paths, the Gen-Tie towers are not anticipated to affect the operation of the microwave paths. Please see **Appendix L** for more information.

5.17.1.4 *Television*

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 will 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. A quality control maintenance program should be in effect for the useful life period of the Gen-Tie's operation. In the unlikely event that EMI is observed at a certain household following the construction of the solar generation facility, 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.

Both cable service and direct broadcast satellite service will be unaffected by the presence of the solar generation facility and may be offered to those residents who can show that their OTA TV reception has been disrupted by the presence of the solar generation facility after it is installed. Please see **Appendix L** for more information.

5.17.1.5 *Doppler radar network*

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 solar modules have a maximum height of 15 feet. Because the radar towers are elevated to avoid interference from topography (minimum height of the NEXRAD towers is 10 meters in height), High Noon Solar believes there will be no impact from the development of a solar facility.

Based on their geographical locations, Comsearch determined the separation distance from each radar to the nearest point along the proposed Gen-Tie, of the eleven Doppler Weather radar locations identified the nearest one is more than 31 kilometers from the Gen-Tie Routes. Due to the distance separating the Dopper radars from the Gen-Tie, no harmful impact due to EMI is anticipated. Please see **Appendix L** for more information.

5.17.2 *Describe mitigation measures should interference occur during project operation for any of the communications infrastructure listed above.*

In addition to the items analyzed in Sections 5.17.1.1 through 5.17.1.5, High Noon Solar commissioned an assessment of the emergency services in the Project Area by Comsearch to identify potential impact from the Project. 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 mitigation to coverage impact was recommended for any of the items referenced in Sections 5.17.1.1 through 5.17.1.5, or herein, as the proposed Project is not expected to cause any

significant degradation in signal strength after construction. Please see **Appendix L** for more information.

5.18 Electric and Magnetic Fields (EMF)

5.18.1 *Provide an estimate of the magnetic profile created by any necessary overhead collector circuits and electric transmission facilities (generator tie line). Estimates should be made using the following criteria:*

- *Show the predominant electric line configurations proposed for the project (H-frame, single-pole delta, double-circuit, etc).*
- *Show any existing lines that would be affected by the proposed collector circuits or generator tie-line and a post-construction diagram that incorporates the new existing lines.*
- *Assume all panels are working and project is producing at maximum capacity.*
- *Show EMF profile at 0 ft., 25 ft., 50 ft., and 100 ft. from the centerline of each circuit type modeled.*

Magnetic fields, measured in milliGauss (mG), are generated when electricity flows on a conductor. 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. For the purposes of the EMF Study (**Appendix U**), maximum loading was assumed for the unique line segments associated with this Project. 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. The PSC has also concluded that there is no correlation between magnetic fields and negative health effects.

Appendix U details the magnetic field profiles for each unique underground circuit configuration at the Project's full capacity. Separate profiles were added for the Gen-Tie Routes. Predicted electric fields are de minimus due to the advanced engineering and design of the underground collection system and proposed Gen-Tie. Predicted magnetic fields are below levels associated with typical household electric appliances and tools.

5.19 Noise

Pre- and post-construction noise studies are required for all electric generation projects. Noise measurement studies must be approved by PSC staff.

5.19.1 *Provide existing (ambient) noise measurements and projected noise impacts from the project using the PSC's Noise Measurement Protocol. The PSC Noise Measurement Protocol can be found on the PSC website at: https://psc.wi.gov/SiteAssets/ConventionalNoiseProtocol.pdf.*

A pre-construction noise analysis was conducted for the Project by Hankard Environmental, Inc. (Hankard). The analysis consisted of determining the location of all noise-sensitive receptors located near the Project (primarily residences), measuring existing noise levels within and near the Project Area, 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. The analysis factors in recent operational noise measurements performed by Hankard at other Invenergy-operated solar projects, which have served to calibrate and validate the model for evaluation of this Project.

Noise-producing elements of the Project operation include inverters, transformers, and cooling systems. Solar inverters will be distributed throughout the Project and will have associated transformers and cooling systems co-located. Noise sources associated with the BESS include inverters, transformers, and battery cooling systems. Noise will also be emitted from the three main power step-up transformers located at the Project Substation. Operational monitoring has shown that solar tracking motors contribute negligible quantities of noise. Noise-producing equipment to be employed during construction are detailed in Section 3.3.1.

In summary, the analysis shows that under typical operating conditions non-participating noise-sensitive receptors within the Project Area are predicted to experience less than 38 dBA at night and less than 41 dBA during the day from the Project. For more detailed information, please refer to **Appendix J.**

5.19.2 *Provide copies of any local noise ordinance.*

The Columbia County Code of Ordinances contains a *Noise criteria* subsection specific to wind energy facilities; however, no noise criteria were identified specific to solar energy facilities, or for other general construction operations. Columbia County Code of Ordinances Chapter 12 can be found in **Appendix S**.

5.19.3 *Provide equipment manufacturer's description of noise attenuating methods and materials used in the construction of proposed facilities.*

Please see Section 5.19.1 and **Appendix J** for detailed information responsive to this Section.

5.19.4 *Describe how noise complaints would be handled.*

High Noon Solar will 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 equipment, and High Noon Solar will determine if the noise is the result of a mechanical issue that can be repaired. If not, High Noon Solar will attempt to reach a mutually agreeable solution with the resident.

5.19.5 *Discuss any mitigation measures that would be used to address noise complaints during the operation of the project.*

With a predicted maximum noise level of less than 38 dBA during nighttime and 41 dBA during daytime during typical operating conditions, High Noon Solar believes it unlikely that the Project will elicit noise complaints that require mitigation. However, in the unlikely event that mitigation

becomes necessary, High Noon Solar will evaluate options such as localized buffers or barriers to reduce noise propagation.

5.20 Solar Panel Glint or Glare

5.20.1 *Provide an analysis showing the potential for glint or glare from a typical project solar panel, as well as from the project as a whole. Include the following:*

- *The analysis should list the basic assumptions used and the methodology/software used for creating the glint or glare analysis.*
- *The analysis should evaluate impacts to aircraft and air traffic controllers from any impacted airports.*
- *The analysis should also examine the risk of glint or glare to local residents and road users in the project area.*
- *The analysis software may indicate that proposed array areas are large enough to impact the accuracy of glare results. If this warning is encountered in the modeling, the applicant should break the affected array areas into smaller sub-arrays and perform the glare analysis using these smaller sub-arrays.*
- *The analysis software may model different amounts of glare at observation points with different elevations. For any stationary observation points that could have human occupancy at higher elevations (e.g. a second story of a residence), the applicant should model multiple elevations for those stationary observation points.*
- *The analysis software may model different amounts of glare depending on the assumed heights of the solar panels. The applicant should model panel elevations for at least two different solar panel heights to establish a range of potential glare results.*
- *The analysis software may model different amounts of glare depending on the assume rest angle of the solar panels. The applicant should model at least two resting angle configurations, including one configuration with a resting angle set at between zero and five degrees.*

A glare analysis for the Project is included in **Appendix V**. The ForgeSolar PV planning and glare analysis software, GlareGauge[59], was used to characterize the potential of glare from the PV panels as viewed by a receptor (i.e., observer). For glare to reach a receptor, the observer must be able to see the top of a PV module, the panels must be angled such that they reflect the sunlight towards the observer, and the view of the panels must be clear of obstruction. Solar PV modules are designed to absorb light to produce energy, not reflect light. They are also manufactured with a non-reflective film.

[59] ForgeSolar. GlareGauge Comprehensive Solar Glare Analysis Software. Accessed 2022.

High Noon Solar is not proposed to be developed on or near a federally obligated airport or within five miles of an Air Traffic Control Tower cab. The FAA does not require glare analysis for aircraft flying over a photovoltaic solar energy system that is not located on a federally obligated airport. High Noon Solar anticipates that, based on the FAA's analysis, any glint and glare from solar energy systems experienced by pilots flying through the Project Area would also be similar to glint and glare pilots routinely experience from water bodies, glass-façade buildings, parking lots, and similar features.

Initial modelling in GlareGauge used the following assumptions: glare analyses did not account for physical obstructions between reflectors and receptors (e.g., buildings, topography, or vegetation) and the glare hazard determination relied on approximations of observer eye characteristics, view angle, and blink time.

One hundred and fifty-two (152) Observation Points (OPs) consisting of 76 residences were established within the Project Area for glint and glare modelling (*see* Tables 5 and 6 and Appendix B in **Appendix V**). The OPs consisted of non-participating residences within 500 ft of an array. Each modeled residence was assigned an OP reference number notating the observation level (5 ft – ground floor or 15 ft – 2nd floor), Array Height (6 ft or 9 ft), and Resting Angle (0 Degree or 5 Degree). Additionally, 42 road route segments within 500 feet of an array were modeled in the analysis. As noted in **Appendix V**, each OP and Route was assessed for glare with the array resting angle at 5 degrees and 0 degrees, and using a 6 ft and 9 ft array height.

The model classifies the impact of glare for 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) for any OP or Route under any scenario, i.e. 0 or 5 degree rest angle and 6 or 9-foot array height.

At an array height of 6 ft and module resting angle of 0 degrees, the model predicted instances of low potential for producing an after-image (green) at 152 resident OPs and 24 route segments and potential for producing an after image (yellow) glare at 128 resident OPs and 28 route segments. With a 5-degree rest angle the model predicted (green) glare at 41 resident OPs and 14 route segments and (yellow) glare at 56 resident OPs and 10 route segments (Appendix D in **Appendix V**). The remaining OPs and route segments are not expected to experience glint or glare effects. At an array height of 9 ft, the same or less glare is predicted as when modeled at 6 ft, with the exception residence Ops for the combination of 9-ft array height and 5-degree resting angle where 78 residence OPs are predicted to experience (yellow) glare.

High Noon Solar does not consider an OP or Route with an instance of yellow glare as a safety issue, and is confident that glint and glare do not present safety concerns near the Project. Visual impacts from Project-related glare are expected to be mitigatable, minimal, or insignificant. First, the Glare Study included conservative modeling parameters such as assuming clear, sunny skies year-round and disregarding any physical obstructions between reflectors and receptors such as vegetation or other visual screens. Direct lines of sight may not exist under real world conditions, precluding the possibility of glare exposure at receptor locations. Second, the Project is designed to reduce glare. By using a single-axis tracking system, steep glancing angles that often produce

glare are minimized. Moreover, High Noon Solar anticipates utilizing panel modules with an anti-reflective coating to minimize glare and increase efficiency. Finally, in the unlikely event that an issue is raised related to glare during operation of the Project, the glare can easily be mitigated by installation of vegetative buffers or programming of special tracking schedules for problematic solar racks.

5.20.2 *In the event of an inquiry or complaint by a resident in or near the project area, describe what modeling or other analysis would be used to evaluate the possibility of unreasonable panel glint or glare at the residence.*

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

5.20.3 *Describe mitigation options available to reduce unreasonable panel glint or glare.*

As the PV panels will be mounted to single-axis tracking systems, the surface of the PVs will 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, High Noon Solar may use fencing, vegetation, or other objects of obstructive nature to mitigate glint or glare effects, or possibly slightly adjust the resting angle.

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

6. Local Government Impacts

6.1 Joint Development and Other Agreements

6.1.1 *Provide a summary of major agreement items agreed upon in any Joint Development Agreements (JDA) or other type of agreement including:*

6.1.1.1 *All services to be provided by the city, town, and/or county during construction and when the plant is in operation (e.g. water, fire, EMS, police, security measures, and traffic control).*

6.1.1.2 *Specifically, address community and facility readiness for incidents such as fires.*

Although the Project is under the PSC's jurisdiction, High Noon Solar is engaged with the Town of Arlington, Town of Leeds, Town of Lowville, Town of Hampden, and Columbia County, and will offer to negotiate JDA/LOC/MOU(s) with these municipalities. High Noon Solar anticipates these negotiations to yield an agreement on items 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 payments
- State Utility Aid Shared Revenue payments for county and municipal governments
- Decommissioning
- Construction period public safety and EMS service
- Site lighting
- Insurance issues
- Dispute resolution process

High Noon Solar is using the template draft agreement in **Appendix W** as a starting point for negotiations.

High Noon Solar expects that the Arlington Fire and EMS Department will provide fire and emergency services to the Project during construction and operations as needed. If needed, the Columbia County Sheriff's Office is expected to provide traffic control and security services. High Noon Solar does not anticipate significant impacts to local public services or traffic.

High Noon Solar will propose in the draft agreement(s) 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, discuss safety practices, and coordinate local emergency response capabilities.

Construction of a solar photovoltaic electrical generating facility does not create any unique or especially dangerous environments or situations for emergency responders. High Noon Solar will require that all contractors on-site meet all state, federal, and industry best practice standards for employee and public safety. High Noon Solar intends to communicate regularly with Project Area emergency response agencies to provide Project familiarization and establish communication channels. Should any aspect of the Project construction or operations present unfamiliar situations for responders, High Noon Solar will arrange for adequate professional training to address those concerns.

Regarding the BESS, safe operation of advanced energy storage systems begins with safe equipment and compliance with safety codes and regulations. Any potential equipment suppliers to High Noon Solar manufacture to stringent quality standards, and equipment used for the Project must be tested and certified by third-party professionals. As a member of the U.S. Energy Storage Association's Corporate Responsibility Initiative and American Clean Power's Energy Storage Safety, Codes, and Standards Committee, Invenergy is an industry leader in advancing responsible supply chain practices and emergency response planning that would be utilized at High Noon Solar.

High Noon Solar will closely coordinate with local emergency responders to ensure they are prepared in the unlikely event that an incident occurs. High Noon Solar will prepare a site-specific ERP for local authorities. The ERP will typically require quarterly safety drills and

annual safety training with local emergency responders. The ERP will include emergency procedures for fire, medical emergencies, and other potential situations. In general, the ERP will state that emergency responders should not enter a Project enclosure or the BESS Area.

The BESS will be equipped with a battery management system (BMS) that provides constant monitoring of key safety parameters and can automatically stop operations if necessary, as described in Section 2.7. Any alarm also notifies the Invenergy Control Center, which has redundant remote shut-down capability and will alert local Project technicians to investigate further or notify local emergency responders if conditions require.

As described in Section 2.7, an automatic fire suppression system would be installed as part of a BESS at High Noon Solar. This system would use U.S. Environmental Protection Agency-approved suppression agents certified for battery storage systems and meet all applicable codes and regulations, including those set by the National Fire Protection Association.

The final ERP may include information not outlined in the preceding list as a custom approach is taken to address local concerns.

6.1.2 *Provide a copy of all agreements with local communities (e.g. JDA, road use).*

High Noon Solar is engaged with the Town of Arlington, Town of Leeds, Town of Lowville, Town of Hampden, and Columbia County, and have discussed negotiating possible JDA/LOC/MOU(s) but negotiations are not complete. High Noon Solar is using the template draft agreement in **Appendix W** as a starting point for negotiations.

6.2 Infrastructure and Service Improvements

6.2.1 *Identify any local government infrastructure and facility improvements required (e.g. sewer, water lines, drainage districts, police, and fire).*

No additional infrastructure or facility improvements are expected to be required for the construction and operation of the Project.

6.2.2 *Describe the effects of the proposed project on city, village, town and/or county budgets for these items.*

The Project's impact to budgets of local governments will be positive due to increased revenue from the Utility Aid Shared Revenue payments and ancillary impacts such as increases in local jobs, landowner payments, and increased spending locally during the construction period. (*See* **Appendix X**). High Noon Solar will fund Fire/EMS training exercises associated with the Project as needed.

6.2.3 *For each site provide an estimate of any revenue to the local community (i.e. city, village, town, county) resulting from the project in terms of taxes, shared revenue, or payments in lieu of taxes.*

Under Wisconsin's current Utility State Aid Shared Revenue formula, local governments would receive a total of $4,000/MW/year, or $1,200,000/year for the Project, with the County receiving 58 percent of the total and the Towns receiving 42 percent.

High Noon Solar has proposed a "hold harmless" provision in the template draft agreement (**Appendix W**), such that the Project would make up for all local taxing bodies that will not receive Shared Revenue funds, including annual increases during the life of the Project, subject to PSC approval if the Project is acquired by a regulated utility in Wisconsin.

6.2.4 *Describe any other benefits to the community (e.g. employment of local residents, reduced production costs, goodwill gestures).*

6.2.5 *Provide information on the direct, indirect, and induced state of local economic impacts during and after construction.*

Utility-scale solar energy projects have numerous benefits for local communities including direct payments to participating landowners, increased local government revenue from Utility Aid Shared Revenue Payments, and job opportunities during both the short-term construction phase and the long-term operational phase of the Project. In addition to the workers directly involved in the construction and maintenance of the Project, numerous other jobs are created through indirect supply chain purchases, services required, and the higher spending that is induced by employees and landowners. High Noon Solar is estimated to create 194 new local jobs during construction and 24 new local long-term jobs for Columbia County. These new jobs are anticipated to equate to over $11.6 million in new local earnings during construction and $2.3 million in new local long-term earnings for Columbia County annually. Local revenue and other benefits to the community from the Project are presented at length in the Economic Impact Study (**Appendix X**).

7. Landowners Affected and Public Outreach

7.1 Contact Lists

Provide a separate alphabetized list (names and addresses) in Microsoft Excel for each of the groups described below:

7.1.1 *Property owners and residents within the project boundary and a separate list of property owners and residents from the project boundary out to a distance of one mile. It is strongly recommended that applicants consult with PSC staff in order to ensure that the format and coverage are appropriate considering the project type, surrounding land use, etc.*

7.1.2 *Public property, such as schools or other government land.*

7.1.3 *Clerks and chief officers of cities, villages, townships, and counties affected by the proposed project; and the contact for the Regional Planning Commission relevant to the project area. Also include on this list the main public library in each county the proposed facilities would occupy.*

7.1.4 *Local media for the project area, at least one print and one broadcast.*

Appendix Y addresses the requirements of Sections 7.1.1 through 7.1.4.

7.1.5 *Tribal government representatives for Native American Tribes that hold off-reservation treaty rights in Ceded Territory. This only applies to projects within*

the following counties: Douglas, Bayfield, Ashland, Iron, Vilas, Forest, Florence, Marinette, Oconto, Menominee, Shawano, Langlade, Oneida, Price, Sawyer, Washburn, Burnett, Polk, Barron, Rusk, Taylor, Lincoln, Marathon, Portage, Wood, Clark, Chippewa, Eau Claire, Dunn, and St. Croix County. The following Tribes hold off-reservation treaty rights in Ceded Territory:

- *Bad River Band of Lake Superior Chippewa Indians*
- *Lac Courte Oreilles Band of Lake Superior Chippewa Indians*
- *Lac du Flambeau Band of Lake Superior Chippewa Indians*
- *Red Cliff Band of Lake Superior Chippewa Indians*
- *St. Croix Chippewa Indians of Wisconsin*
- *Sokaogon Chippewa Community (Mole Lake Band of Lake Superior Chippewa Indians)*

Not Applicable.

7.2 Public Outreach and Communication

7.2.1 *List and describe all attempts made to communicate with and provide information to the public. Describe efforts to date and any planned public information activities.*

7.2.2 *Provide copies of public outreach mailings or website addresses for project pages.*

7.2.3 *Describe plans and schedules for maintaining communication with the public (e.g. public advisory board, open houses, suggestion boxes, and newsletters).*

As evidenced by the pre-application communication efforts put forth, High Noon Solar recognizes the importance of community outreach and information sharing.

Landowners – Project representatives have been meeting with area landowners to discuss the Project and land leasing since February 2021. Participating landowners have received welcome packets, update mailings, and notification letters since joining the Project. Beginning in early 2022, High Noon Solar employed a local representative who has introduced herself to all participating landowners and held multiple one-on-one meetings with participating and non-participating landowners. The High Noon Solar local representative is related to a participating landowner in a nearby prospective development in Dane County. High Noon Solar felt that including her in this Project with her real-world experience with utility scale solar project development and agricultural and professional background would optimize communication and affinity with the local community. In May 2022, she also began hosting office hours at 415 Main St, Poynette, WI, on Thursdays from 3:00 PM to 7:00 PM. Special appointments are also available as requested.

Regulatory Agencies – Beginning in early 2021, meetings and discussions concerning the Project and possible permitting issues were held with staff from the PSC, USFWS, and WDNR.

Local Governmental Units – Beginning in Summer 2021, meetings to describe the Project were held with local government representatives for the Project Area. As the plans for the Project have matured, the aggregate list and engagement with local government stakeholders has grown

correspondingly. The list of local government units engaged with the Project to date include Columbia County (County Administration, Planning and Zoning, Supervisors, Accounting Department), Town of Leeds (Chair, Supervisors), Town of Lowville (Chair, Supervisors), Town of Hampden (Chair, Supervisors), Town of Arlington (Chair, Supervisors), and the Village of Arlington (Board of Trustees).

General Public – Project representatives have shared information with the general public in the Project Area and surrounding areas via presentations to the Towns of Lowville, Leeds, Hampden, and Arlington, engaging in 60 – 90 minute public comment question and answer sessions at each. High Noon Solar has also given a presentation to the Village of Arlington. Project representatives held an Open House on May 26, 2022 and mailed invitations to 83 members of the public including both participating and non-participating landowners within and directly adjacent to the Project Area. Project representatives will continue to engage with all members of the public who reach out to continue discussions and will host one-on-one meetings at the Project's local office as requested. Project representatives have been in attendance at County, Town, and Village board meetings, and have followed up with individuals who have stated they would like to learn more about the Project. Project representatives plan to continue working with members of the public and local governments after the CPCN Application is filed via local government meetings, small group meetings, one-on-one meetings, social media, advertisements, mailings, the local office, and the local representative.

Examples of Project mailings and other community informational material is provided in **Appendix P**.

Dates for Appendix P

Mailings – Below is a list of mailings sent to Project participants and neighbors within or adjacent to the Project Area:

Date	Mailing Title
2/5/2022	Landowner Introductory Letter
2/25/2022	Solar Coffee Hour
5/6/2022	Open House Invitation
5/30/2022	Good Neighbor Introductory Letter

Meetings/Events – Below is a list of meetings and events held throughout the local community:

Date	Organization/Meeting Participant
3/9/2021	UW Sustainability Director / Arlington Research Station
3/9/2021	WDNR/USFWS
3/26/2021	Madison Audubon Society
3/29/2021	UW Sustainability Director
5/12/2021	Madison Audubon Society / Goose Pond Sanctuary
7/1/2021	Madison Audubon Society / Goose Pond Sanctuary
8/18/2021	Town Chair of Lowville

Date	Organization/Meeting Participant
8/18/2021	Columbia County Planning and Zoning
8/18/2021	Columbia County Chair, First Vice Chair, Corporation Counsel and District 13 Supervisor
8/31/2021	Columbia County First Vice Chair/Supervisor
8/31/2021	Town Chair of Hampden
9/8/2021	Town Chair of Arlington
9/8/2021	Town Chair of Leeds
9/8/2021	Columbia County First Vice Chair
9/14/2021	WDNR / USFWS
9/21/2021	PSC / WDNR
9/23/2021	UW Sustainability Director / Arlington Research Station Manager
10/6/2021	Columbia County Chair, First Vice Chair, Comptroller, Corporation Counsel
10/14/2021	Town Chair of Leeds
1/26/2022	Wisconsin State Senator, District 14
1/26/2022	Wisconsin State Representative, District 42 / Columbia County Supervisor District, District 25
3/10/2022	Madison Audubon Society
3/10/2022	Participating Landowner Meeting
3/10/2022	Town Board of Lowville Presentation
3/14/2022	Village of Arlington Presentation
3/21/2022	Town Board of Leeds Presentation
3/22/2022	Town Board of Hampden Presentation
3/22/2022	Wisconsin State Representative, District 42 / Columbia County Supervisor District, District 25
3/29/2022	DeForest-Windsor Chamber of Commerce
3/29/2022	Wisconsin State Senator, District 14
4/6/2022	Portage Chamber of Commerce
4/13/2022	Columbia County Economic Development Corporation
4/13/2022	Town of Arlington Board Meeting
4/13/2022	Town of Arlington Fire/EMS
5/3/2022	Columbia County Supervisors Districts 25 & 27
5/26/2022	Local Office Open House
6/9/2022	Columbia County Executive Committee Address

Online - The High Noon Solar Facebook presence is nested within a single, statewide page called "WisconSUN." This is updated regularly to share solar information, receive questions and comments from the public, and further communicate on Project status. The Facebook page can be found at https://www.facebook.com/WisconSUN. Additionally, High Noon Solar created a

Project-specific website for the general public to access information about the Project. The Project website can be accessed at https://HighNoonSolarEnergyCenter.com/.

7.2.4 *Identify all local media that have been informed about the project.*

Local media informed about the Project include radio stations WDDC 100.1 and WBKY 95.9 and print news outlets, the Portage Daily Register and the Lodi Enterprise.

7.2.5 *Describe the ongoing ways that the public would be able to communicate with plant operators or the company. Describe any internal process for addressing queries or complaints.*

Throughout the remainder of the Project's development, Project representatives will continue communication via local government meetings, small group meetings, one-on-one meetings, social media, advertisements, mailings, the local office, and the local representative.

When construction commences, High Noon Solar will select a Construction Site Manager as the primary local point of contact. This person will be available on-site for local inquiries and can be reached via phone and email. The Construction Site Manager will have daily plan of the day meetings with the construction contractors during which any complaints can be discussed and resolved.

During operation, members of the community will be able to communicate with Project personnel through the O&M building, which will be the main working base for the Project's technicians. Any maintenance or operations related questions can be directed to the staff at this location.

8. Waterway/Wetland Permitting Activities

Section 8.0 covers information required by DNR for waterway and wetland permits. The following subsections apply to both proposed and alternate solar array sites. Questions about this section should be directed to DNR Office of Energy staff.

8.1 Waterway Permitting Activities

This section should be consistent with the waterways included in DNR Tables 1 and 2 and associated maps. See page iii in this document on what to include in DNR Tables 1 and 2 regarding waterway resources.

8.1.1 *Identify the number of waterways present, including all DNR mapped waterways and field identified waterways, assuming all waterways are navigable until a navigability determination is conducted (if requested). Provide an overall project total, as well as broken down by the proposed site and the alternative site and their associated facilities.*

Project infrastructure has been sited to avoid all impacts to wetlands and waterways. A desktop delineation of wetlands and waterways for the Project Area was completed prior to a field delineation for preliminary planning and familiarity of what resources may be around the land proposed for development. The desktop delineation was completed using available public

resources such as USGS topography, National Wetlands Inventory Mapping (NWI), National Hydrography Dataset flowlines and waterbodies (NHD), Wisconsin Wetland Inventory Mapping (WWI), WDNR 24K Hydrography Dataset, Wisconsin Surface Data Viewer, FEMA floodplain mapping, Digital Elevation Model mapping, Natural Resources Conservation Service (NRCS) Soil Survey Geographic database (SSURGO2) for Columbia County, and several years of aerial photography from Google Earth and U.S. Department of Agriculture (USDA) National Aerial Imagery Program (NAIP) imagery. Wetlands and waterways on participating land in the Project Area were field delineated using the level two routine determination method set forth in the USACE 1987 Manual[60] and the Northcentral & Northeast Regional Supplement[61].

The field delineation occurred between October 12 - 14, 2021, and May 9 - 10, 2022. The field delineated resources are shown in **Figures 4.1.7.1**, **8.3.1,** and **8.3.2 (Appendix A**) and **WDNR Tables 1** and **2** (**Appendix O**).

A summary of the waterways within the Project Area is included in **DNR Table 2** (**Appendix O**) and shown on **Figures 4.1.7.1**, **8.3.1** and **8.3.2** (**Appendix A**). **DNR Table 2** indicates whether a waterway is associated with the Proposed or Alternative Arrays or is within the greater Project Area but outside of the fenced arrays. A total of ten (10) WBIC flowlines were identified in the Project Area. However, the field delineation indicated that eight (8) WBIC flowlines lacked waterway characteristics such as a defined bed and bank and ordinary high-water mark (OHWM). A navigability determination request has been submitted to WDNR for those eight (8) WBIC flowlines. Two (2) WBIC flowlines, WBIC 5032414 (WW-1) & 1263700 (WW-3), were delineated as navigable. One additional waterway (WW-2), which did not correspond to a mapped WBIC flow line, was field delineated as navigable.

Of the three (3) delineated waterways that are within the Project Area, none are within the fenced Proposed or Alternative Arrays.

Three WBIC flowlines that are anticipated to be determined non-navigable, pending a navigability determination, are within the fenced Proposed Arrays (WBIC #5032151, WBIC #5032129, WBIC #5031943). These WBIC flowlines lacked a defined bed and bank and ordinary high-water mark (OHWM). No WBIC flowlines are within the fenced Alternative Arrays.

Collection lines associated with the Proposed Arrays do not cross any delineated waterways. Five WBIC flowlines are crossed by collection lines within the Proposed Array that are currently seeking a navigability determination request (WBIC #5032151, WBIC #5032129, WBIC #1264300, WBIC #5031943, and WBIC #5032426). Collection lines associated with the Alternative Arrays cross one delineated waterway (WBIC #5032414; WW-1) and one WBIC

[60] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
[61] U.S. Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northeast/Northcentral Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

flowline (WBIC #843100). However, the Project will avoid impacts to the waterway through construction methods such as directional drilling.

Three WBIC flowlines that are anticipated to be determined non-navigable (WBIC #5032404, WBIC #1264200, and WBIC #5032426) will be crossed by the Proposed and Alternative Gen-Tie routes.

Navigability determination requests have been submitted to DNR for portions of the eight WBIC flowlines which lacked waterway characteristics that are transected by Project infrastructure (WBIC #5035404, WBIC #5032151, WBIC #5032129, WBIC #1264300, WBIC #5031943, WBIC #1264200, WBIC #843100, and WBIC #5032426). The navigability requests are included in **Appendix O**.

8.1.2 *Identify any waterways in the project area that are classified as Outstanding or Exceptional Resource Waters, Trout Streams, Wild Rice Waters, and Wild or Scenic Rivers.*

As indicated in **Figure 4.1.7.1** (**Appendix A**), no features identified as Trout Streams, Wild Rice Waters, or Wild or Scenic Rivers were identified within the Project Area, however, one Outstanding and Exceptional Stream (Rowan Creek) is identified within the Project Area. Rowan Creek has been avoided by all Project infrastructure.

8.1.3 *State if you are requesting DNR staff perform a navigability determination on any of the DNR mapped waterways and/or field identified waterways that would be impacted and/or crossed by project activities. If a navigability determination is requested, provide the following information in a separate Appendix with the application:*

- *A table with columns for:*
  - *The crossing unique ID,*
  - *Waterbody Identification Code (WBIC) for each waterway (found in the Surface Water Data Viewer or in the GIS data for the DNR mapped waterways),*
  - *Latitude and longitude for each crossing,*
  - *Waterway name,*
  - *Waterway characteristics from field investigation, and;*
  - *Any other pertinent information or comments.*
- *Site photographs, clearly labeled with the photo number, direction, date photo was taken, and crossing unique ID. A short description of what the photo is showing, and any field observation must also be included in the caption.*
- *Project map showing the following:*
  - *Aerial imagery (leaf-off, color imagery is preferred),*
  - *DNR mapped waterways (labeled with their unique ID),*
  - *Field identified waterways (labeled with their unique ID),*
  - *the location of each site photograph taken (labeled with the photo number),*

- *the project area, and;*
- *Call out box/symbol for each DNR mapped waterway crossing where the navigability determination is requested (labeled with their unique ID).*

Navigability determination requests have been submitted to DNR for portions of eight (8) WBIC flowlines. These features are included in **DNR Tables 1** and **2**. The required photos, maps, tables, and forms for the navigability determination requests are included in **Appendix O**.

8.1.4 *For both the proposed and alternative sites and their associated facilities, provide the following:*

8.1.4.1 *The number of waterways that would be crossed by collector circuits and specify the installation method (e.g. X waterways would be bored, Y waterways would be trenched, etc.).*

As summarized in **DNR Table 1** (**Appendix O**), Supplement to DNR Form 3500-53, and as shown on **Figures 8.3.1** and **8.3.2** (**Appendix A**), directional boring under one field delineated waterway (WW-1/WBIC #5032414) is proposed for the collection lines associated with the Alternative Arrays. No underground collector circuit directional boring for field delineated waterways is proposed for collection lines associated with the Proposed Arrays.

8.1.4.2 *The number of waterways that would be traversed with equipment for temporary access roads, and how that crossing would be accomplished (e.g. temporary clear span bridges (TCSB), use of existing bridge or culvert, etc.).*

No impacts to waterways are proposed for temporary access roads.

8.1.4.3 *The number of waterways that would be impacted for permanent access roads, and how that crossing would be accomplished (e.g. placement of culvert, ford, permanent bridge, etc.).*

No field delineated waterways will be impacted by permanent access roads. Three (3) WBIC flowlines that are anticipated to be determined non-navigable would be crossed by permanent access road crossings that are associated with the Proposed Array areas (WBIC #5031943, WBIC #1264300, and WBIC #5032151). Navigability determination requests have been submitted for the portions of the flowlines associated with these crossings (**Appendix O**). Pending the results of the navigability determination, if found to be a navigable waterway, the features will likely be avoided during final engineering. If avoidance is not feasible, the waterways would be crossed via a low water ford crossing or culvert as appropriate, and any necessary permits would be obtained from DNR.

No WBIC flowlines would be crossed by permanent access road crossings for the Alternative Array areas.

8.1.4.4 *The number of waterways that would be impacted and/or crossed by fence installation and footings.*

No field delineated waterways will be crossed by perimeter fencing associated with the Proposed Arrays. Perimeter fencing associated with the Proposed Arrays is currently proposed to cross over three (3) WBIC flowlines that are anticipated to be determined non-navigable (WBIC #5032151, WBIC #5032129, and WBIC #5031943). These three WBIC flowlines were field reviewed and lacked waterway characteristics. A navigability determination request for the three flowline features has been submitted to DNR. If the WBIC flow lines are determined to be navigable, the Project Layout will likely be amended during final design to avoid impacts to the navigable waterways.

8.1.4.5 *The number of waterways that would be impacted and/or crossed by other construction activities or facilities (e.g. placement of a storm water pond within 500 feet of a waterway, stream relocation, staging areas, etc.).*

No additional impacts to WBIC flowlines or field-delineated waterways are anticipated within the Project Area. The final Project Layout will be adjusted to avoid WBIC flowline features if they are deemed navigable.

8.1.5 *Provide the methods to be used for avoiding, minimizing, and mitigation construction impacts in and near waterways. This discussion should include, but not be limited to, avoiding waterways, installation methods (i.e. directional bore versus open-cut trenching or plowing), equipment crossing methods (i.e. for temporary access, the use of TCSB versus temporary culvert; for permanent access, the use of permanent bridge versus permanent culvert), sediment and erosion controls, invasive species protocols for equipment, etc.*

Impacts to waterways will be avoided through siting and construction planning. All collector circuit crossings of waterways will be directionally bored to avoid impacts. Appropriate sediment and erosion control measures will be implemented during construction to avoid sedimentation into waterways. This information will be incorporated into the ECSWMP. When feasible, HDD equipment, trenching equipment and backhoes will be power washed before mobilization to the site to prevent introduction of invasive species from off-site sources and equipment will be manually cleaned of plant materials between work zones where invasive species have been identified within the Project Area per the VMS (**Appendix K**).

8.1.6 *Describe fence crossings of waterways, including the location of support pilings (i.e. in waterway channel, at the top of the waterway banks) and the amount of clearance between the bottom of the fence and the ordinary high-water mark. Also describe any existing public use of the waterway and how this public use may be impacted by the fence crossing.*

Perimeter fencing associated with the Proposed Arrays is currently proposed to cross three (3) WBIC flowlines (WBIC #5032151, WBIC #5032129, and WBIC #5031943) that were field reviewed and were determined to lack waterway characteristics. A navigability determination request has been submitted for the portions of the WBIC flowlines that are associated with these fence crossing locations. The flowlines are anticipated to be determined non-navigable. No

WBIC flowlines or field-delineated waterways are crossed by perimeter fencing associated with the Alternative Arrays. Ultimately, the final Project Layout will avoid any impacts to navigable waterways.

8.1.7 *For waterways that would be open-cut trenched, provide the following:*

8.1.7.1 *State if any waterways are wider than 35 feet (measured from OHWM to OHWM).*

8.1.7.2 *The machinery to be used, and where it would operate from (i.e. from the banks, in the waterway channel) and if a TCSB is needed to access both banks.*

8.1.7.3 *The size of the trench (length, width, and depth) for each waterway crossing.*

8.1.7.4 *The details on the proposed in-water work zone isolation/stream flow bypass system (i.e. dam and pump, dam and flume, etc.).*

8.1.7.5 *The details on the proposed dewatering associated with the in-water work zone isolation/stream flow bypass system, including where the dewatering structure would be located.*

8.1.7.6 *The duration and timing of the in-stream work, including the installation and removal of the isolation/bypass system and the trenching activity.*

8.1.7.7 *How impacts to the waterway would be minimized during in-water work (e.g. energy dissipation, sediment controls, gradually releasing dams, screened and floating pumps, etc.).*

8.1.7.8 *How the waterway bed and banks would be restored to pre-existing conditions.*

All collection circuit crossings of waterways will be directionally bored. No open-cut trenching across waterways is proposed, and no other crossings of waterways for access roads or fences is proposed to be included in final Project Layout. As noted previously, if in response to the navigability determination request, WDNR determines that waterways currently crossed by Project infrastructure are navigable, the final Project Layout will be adjusted to avoid impacts.

8.1.8 *For waterways that would be directionally bored, provide the following:*

8.1.8.1 *Where the equipment would operate from (e.g. from upland banks, from wetland banks, etc.) and if a TCSB is needed to access both banks.*

Entry points and exit points will be positioned at least 10 ft outside of the OHWM for the waterways and will be moved further away when appropriate to achieve the proper depth required for each bore and to avoid tree lines or other obstacles.

8.1.8.2 *The location and size of any temporary staging and equipment storage.*

Temporary staging and equipment storage will be located in upland areas in an area of up to 200 ft by 50 ft, depending on the length of the bore, which includes area to stage the bore pipe.

8.1.8.3 *The location and size of bore pits.*

Bore pits will generally be 20 ft long, 20 ft wide, and 4 ft deep. Installation depths will be at least 5 ft below the bottom of the waterway crossing.

8.1.8.4 *Provide a contingency plan for bore refusal and a plan for the containment and clean-up of any inadvertent releases of drilling fluid (e.g. a frac-out).*

Typical crossing details and a standard frac-out plan is included in **Appendix C**. In the event of a refused boring, the boring will be re-attempted from the same boring pit on a slightly different path than the refused bore. In the case it is determined that the area of the refused bore is not adequate for a bore, the bore location will be moved to a new location and the bore re-attempted, which may require an additional bore pit at that location.

Appendix C describes in detail the response actions for clean-up of inadvertent releases of drilling fluid, but in general the actions to be taken include ceasing work to assess the nature of the release, containment of the released fluids, and notification to the appropriate agency(ies), if required.

8.1.9 *For waterways that would have a TCSB installed across them, provide the following:*

8.1.9.1 *A description of the TCSB proposed, including dimensions, materials, and approaches.*

8.1.9.2 *State if any waterways are wider than 35 feet, and/or if any in-stream supports would be used.*

8.1.9.3 *State how the TCSB placement and removal would occur (e.g. carried in and placed with equipment, assembled on site, etc.) and if any disturbance would occur to the bed or banks for the installation and removal, including bank grading or cutting.*

8.1.9.4 *The duration of the TCSB and when installation and removal would occur.*

8.1.9.5 *Describe sediment controls that would be installed during the installation, use, and removal of the TCSBs.*

8.1.9.6 *Describe how the TCSBs would be inspected during use, and how they would be anchored to prevent them from being transported downstream.*

8.1.9.7 *State if the required five foot clearance would be maintained, or if the standards in Wis. Admin. Code NR 320.04(3) would be complied with.*

8.1.9.8 *How the waterway banks would be restored when the TCSB is removed.*

No temporary clear span bridge (TCSB) crossings of waterways are proposed.

8.1.10 *Describe the proposed area of land disturbance and vegetation removal at waterway crossings. Include a description of the type of vegetation to be removed, and if this vegetation removal would be temporary (allowed to regrow) or permanent (maintained as cleared).*

An approximately 20 by 20-ft area will be temporarily cleared of vegetation for bore pits for waterway crossings. Bore pits will be located in uplands at least 10 ft from the OHWM for all waterways and will be moved further away when appropriate to achieve the proper depth required for each bore. Bore pits will be located to avoid the need to clear woody vegetation. High Noon Solar expects that herbaceous vegetation will be removed temporarily and will be replanted and/or allowed to regrow after construction in accordance with the VMS (**Appendix K**). Potential waterway crossings from fences will be avoided during final engineering so no vegetation removal is anticipated for Project fence crossings of waterways.

8.1.11 *If any of the following activities are proposed, provide the information as detailed on the applicable permit checklist:*

- *New culvert placement: https://dnr.wi.gov/topic/waterways/documents/PermitDocs/GPs/GP-CulvertWPEDesign.pdf (General Permit) or https://dnr.wi.gov/topic/Waterways/documents/PermitDocs/IPs/IP-culvert.pdf (Individual Permit).*
- *New permanent bridge: https://dnr.wi.gov/topic/waterways/documents/PermitDocs/GPs/GP-ClearSpanBridge.pdf (General Permit, no in-stream supports) or https://dnr.wi.gov/topic/Waterways/documents/PermitDocs/IPs/IP-bridgeTempCross.pdf (Individual Permit, in-stream supports).*
- *New storm water pond placed within 500 feet of a waterway: https://dnr.wi.gov/topic/waterways/documents/PermitDocs/GPs/GP-StormwaterPond.pdf.*

High Noon Solar will conform to WPDES requirements for temporary stormwater ponds that may be located within 500 ft of a jurisdictional waterway pending final engineering. No other permits are anticipated to be necessary for crossings of jurisdictional waterways.

8.2 Wetland Permitting Activities

This section should be consistent with the wetlands included in DNR Tables 1 and 2 and associated figures. See page iii in this document on what to include in DNR Tables 1 and 2 regarding wetland resources.

8.2.1 *Describe the method used to identify wetland presence and boundaries within the project area (i.e. wetland delineation, wetland determination, review of desktop resources only, etc.). If a combination of methods were used, describe which project areas utilized which method. The associated delineation report and/or desktop review documentation should be uploaded to the PSC's website as part of the application filing. State if wetlands mapped via desktop resources would be field confirmed, and when (if known).*

As stated in Section 8.1.1, a desktop delineation of wetlands and waterways within the overall Project Area was completed using available public resources prior to the field delineation. Desktop wetlands within the Project Area were confirmed in the field and, if meeting the criteria

for wetland conditions, delineated as wetlands with associated upland/wetland transects using USACE Northcentral & Northeast region datasheets. If the field conditions (hydrology, soils, and vegetation) indicated that a desktop wetland was actually an upland, a data point, USACE datasheet, and photos were taken. A field delineation of wetlands and waterways was completed between October 12 and 14, 2021 and May 9 and 10, 2022 (**Figures 4.1.7.1**, **8.3.1, 8.3.2, a**nd **8.3.3 Appendix A; WDNR Tables 1** and **2 Appendix O, Wetland Delineation Report**). Wetlands were delineated in accordance with the level two routine determination method set forth in the USACE 1987 Wetlands Delineation Manual[60] and the supplemental methods set forth in the regional supplement to the USACE Wetland Delineation Manual: Northcentral & Northeast Region[61]. A total of sixteen (16) wetlands totaling 43.90 acres were field delineated on participating land within the Project Area. Two additional wetlands, totaling 0.46 acres, were identified through desktop delineation in a portion of the Project Area that was not field delineated because no infrastructure is proposed in that area.

A summary of 18 wetlands in the Project Area can be found in **WDNR Table 2** and the Wetland Delineation Report in **Appendix O**. A mapbook of all desktop- and field-delineated features is shown in **Figure 4.1.7.1** (**Appendix A**)**.**

8.2.2 *Identify the number of wetlands present and by wetland type, using the Eggers and Reed classification. Provide as an overall project total, as well as broken down by the proposed site and the alternative site and their associated facilities.*

A total of 18 wetlands are present on participating land within the Project Area. 16 wetlands were field delineated during the field visit. A portion of the Project Area was not accessible during the field visits, which resulted in two additional wetlands being desktop delineated. No facilities are planned in the area of the desktop delineated wetlands.
All field delineated wetlands are classified according to the Eggers & Reed method and are included in **Appendix O** and **Figure 4.1.7.1** (**Appendix A**). The sixteen (16) distinct Eggers and Reed community types of the sixteen (16) field-delineated wetlands include seasonally flooded basins (11), shallow marsh (1), and deep marsh (4).

The Proposed Array areas includes a total of two (2) field delineated wetlands (**Appendix O, WDNR Table 2**). The two wetlands, a seasonally flooded basin and deep marsh, would be located inside of the perimeter fence; however, no wetlands would be impacted by Project infrastructure.

The Alternative Array areas include a total of four (4) field-delineated wetlands (**Appendix O, WDNR Table 2**). Three (3) of the wetlands associated with the Alternative Array areas are classified as seasonally flooded basins and one (1) is classified as a deep marsh.
The six wetlands would be located inside of perimeter fence; however, no wetlands would be impacted by Project infrastructure. Three wetlands would be crossed by underground collector circuit bores in the Alternative Array areas (**Appendix O, WDNR Table 1**).

8.2.3 *Wetland functional values:*

8.2.3.1 *Discuss the existing functional values of the wetland present. Functional values include but are not limited to floristic diversity, fish and wildlife*

habitat, flood storage, water quality, groundwater discharge and recharge, public use, etc.

8.2.3.2 *Discuss how the project may impact existing functional values of wetlands.*

8.2.3.3 *Provide Wisconsin Rapid Assessment Methodology (WRAM) forms, or other assessment methodology documentation, if completed.*

No wetland impacts are anticipated for the Project; therefore, assessments of functional values, impacts to functional values, and procurement of WRAM forms or similar documentation is not necessary. Observations made by a field biologist during the field delineation concluded the wetlands delineated in the Project area were of lower quality. As noted in the Wetland Delineation Report Appendix D (**Appendix O**), many of the wetlands had a dominance of reed canary grass, an indicator of low functional value.

8.2.4 *Identify the any wetlands in the project area that are considered sensitive and/or high-quality wetlands, including, but not limited to:*

8.2.4.1 *Any wetlands in or adjacent to an area of special natural resource interest (Wis. Admin. Code NR 103.04).*

No wetlands are in or adjacent to an area of special natural resource interest.

8.2.4.2 *Any of the following types: deep marsh, northern or southern sedge meadow not dominated by reed canary grass, wet or wet-mesic prairie not dominated by reed canary grass, fresh wet meadows not dominated by reed canary grass, coastal marsh, interdunal or ridge and swale complex, wild rice-dominated emergent aquatic, open bog, bog relict, muskeg, floodplain forest, and ephemeral ponds in wooded settings.*

A total of five (5) wetlands within the Project Area were delineated as deep marsh. These wetlands totaled approximately 10 acres. No impacts are proposed to the deep marsh wetlands. No floodplain forest, northern or southern sedge meadow not dominated by reed canary grass, wet or wet-mesic prairie not dominated by reed canary grass, fresh wet meadows not dominated by reed canary grass, coastal marsh, interdunal or ridge and swale complex, wild rice-dominated emergent aquatic, open bog, bog relict, muskeg, or ephemeral ponds in wooded settings communities were identified in the field or desktop delineations.

8.2.4.3 *Any wetlands with high functional values based on factors such as abundance of native species and/or rare species, wildlife habitat, hydrology functions, etc.*

No wetland impacts are anticipated for the Project; therefore, assessments of functional values, impacts to functional values, and procurement of WRAM forms or similar documentation is not necessary. Observations made by a field biologist during the field delineation concluded the wetlands delineated in the Project area were of lower quality. As noted in the Wetland Delineation Report Appendix D (**Appendix O**), many of the wetlands had a dominance of reed canary grass, an indicator of low functional value.

8.2.5 *For both the proposed and alternative sites and their associated facilities, provide the following:*

8.2.5.1 *How many wetlands would be crossed by collector circuits and specify the installation method (i.e. X wetlands would be bored, Y wetlands would be trenched).*

No wetlands will be crossed by collector circuits associated with the Proposed Arrays. Three wetlands are proposed to be crossed by collector circuits associated with the Alternative Arrays. All underground collection lines are proposed to be directionally bored to avoid impacts to wetland features.

8.2.5.2 *How many wetlands would have construction matting placed within them to facilitate vehicle access and operation and material storage. Also provide the total amount of wetland matting, in square feet.*

No construction matting in wetlands is proposed for Project construction.

8.2.5.3 *How many wetlands would be impacted for permanent access roads and indicate if culverts would be installed under the roads to maintain wetland hydrology.*

No permanent or temporary access roads will be constructed in wetlands.

8.2.5.4 *How many wetlands would be impacted and/or crossed by fence installation and footings.*

No wetland areas will be impacted by fence installation and footings.

8.2.6 *Describe if wetlands would be disturbed for site preparation activities (e.g. grading, leveling, etc.) in the array areas, and for the installation of the arrays and associated supports.*

No grading or leveling of field delineated wetlands is anticipated as solar arrays have been sited outside of field delineated wetlands. Additionally, no wetland impacts are anticipated for perimeter fencing, and roads.

8.2.7 *Describe if wetlands will be disturbed for site preparation activities:*

8.2.7.1 *Grading, leveling, etc. in the array areas, and for the installation of arrays and associated supports.*

8.2.7.2 *If vegetation removal will be conducted in wetlands, describe how woody debris (i.e. brush piles, wood chips, etc.) would be handled and disposed of when clearing shrub and forested wetlands.*

No wetland impacts are anticipated for the installation of arrays or associated supports.

8.2.8 *Describe the sequencing of matting placement in wetlands and the anticipated duration of matting placement in wetlands. For matting placed in any wetland for*

longer than 60 consecutive days during the growing season, prepare and submit a wetland matting restoration plan with the application filing.

No construction matting in wetlands is proposed for Project construction.

8.2.9 *For wetlands that would be open-cut trenched, provide the following:*

8.2.9.1 *Provide details on the total disturbance area in wetland, including how total wetland disturbance was calculated. Include the size of the trench (length, width, and depth), where stockpiled soils would be placed (i.e. in upland, in wetlands on construction mats, etc.), and where equipment would operate.*

8.2.9.2 *Details on the proposed trench dewatering, including how discharge would be treated and where the dewatering structure would be located.*

8.2.9.3 *Duration and timing of the work in wetland.*

8.2.9.4 *How the wetland would be restored to pre-existing conditions.*

No open-cut trenching of wetlands is proposed for Project construction.

8.2.10 *For wetlands that would be directionally bored, provide the following:*

8.2.10.1 *How bored wetlands and associated bore pits would be accessed.*

Bored wetlands and associated bore pits would be accessed from adjacent upland areas.

8.2.10.2 *The location and size of any temporary staging and equipment storage.*

Temporary staging and equipment storage will be located in upland areas in an area of up to 500 ft by 30 ft, which includes area to stage the bore pipe.

8.2.10.3 *The location and size of bore pits.*

Entry points and exit points will be positioned at least 10 ft outside of the established wetland boundaries and will be moved further away when appropriate to achieve the proper depth required for each bore and to avoid tree lines and other obstacles. Bore pits will generally be 20 ft long, 20 ft wide, and approximately 4 ft deep.

8.2.10.4 *Provide a contingency plan for bore refusal and a plan for the containment and clean-up of any inadvertent releases of drilling fluid (e.g. a frac-out).*

Typical crossing details and a standard frac-out plan is included in **Appendix C**. In the event of a refused boring, the boring will be re-attempted from the same boring pit on a slightly different path than the refused bore. In the case it is determined that the area of the refused bore is not adequate for a bore, the bore location will be moved to a new location and the bore re-attempted, which may require an additional bore pit at that location.

Appendix C describes in detail the response actions for clean-up of inadvertent releases of drilling fluid, but in general the actions to be taken include ceasing work to assess the nature of

the release, containment of the released fluids, and as required, notification of the appropriate agency(ies), if required.

8.2.11 *Describe how fence installation would occur in wetlands, including the footing types (e.g. direct imbed, concrete, etc.), any associated wetland impact such as vegetation clearing, operation of equipment, etc.*

No fence installation is proposed in wetlands, and no direct or indirect impacts to wetlands from fence construction is anticipated.

8.2.12 *For wetland vegetation that would be cleared or cut, provide the following:*

8.2.12.1 *The justification for why wetland trees and shrubs are proposed to be cleared, and what construction activity the clearing is associated with.*
8.2.12.2 *The timing and duration of vegetation removal*
8.2.12.3 *Describe the type of equipment that would be used, and if the vegetation removal would result in soil disturbance, including rutting and soil mixing.*
8.2.12.4 *The type of wetland and type of vegetation to be cleared.*
8.2.12.5 *If tree and shrubs removed would be allowed to regrow or be replanted, or if cleared areas would be kept free of trees and shrubs long-term.*
8.2.12.6 *Indicate the plan for removal and disposal of brush and wood chips.*

Tree and shrub clearing is not anticipated for wetland crossings as cover in the area is entirely herbaceous.

8.2.13 *Indicate if any permanent wetland fill is proposed, such as for substation placement, permanent roads, fence or array footings, pole locations, etc. and provide the amount of permanent wetland fill.*

High Noon Solar has carefully designed the Project to avoid all impacts to wetlands. No permanent wetland impacts are anticipated.

8.2.14 *Provide the methods to be used for avoiding, minimizing, and mitigation construction impacts in and near wetlands. This discussion should include, but not limited to, avoiding wetlands, installation methods (i.e. directional bore versus open-cut trenching, soil segregation during trenching, etc.), equipment crossing methods (i.e. use of construction matting, frozen ground conditions, etc.), sediment and erosion controls, invasive species protocols for equipment, etc. Additional guidance to prepare this discussion can be found here: https://dnr.wi.gov/topic/Sectors/documents/PAAsupp3Utility.pdf.*

All collector circuit crossings of wetlands will be directionally bored to avoid impacts. The remaining direct Project impacts will be avoided through final engineering. During construction, appropriate sediment and erosion control measures will be put in place to avoid sedimentation into any wetlands during construction and be clearly marked to avoid disturbance. Additional information regarding invasive species management is provided in Sections 5.5 and 5.6 as well as the VMS (**Appendix K**).

8.2.15 *Indicate if an environmental monitor would be employed during project construction and restoration activities. If so, describe the monitors roles and responsibilities, frequency of visits, etc.*

A third-party stormwater/environmental monitor will be on-site periodically throughout construction to ensure compliance with the construction stormwater permit, that wetland/waterway impacts are being avoided, and that environmental best management practices are being properly utilized to avoid encounters with wildlife species.

8.2.16 *Describe how all wetlands within the project area would be restored. This includes wetlands that would be encompassed within the arrays even if not directly impacted by project construction. This discussion should include details on the seeding plan, maintenance and monitoring, restoring elevations and soil profiles, restoring wetland hydrology, etc.*

High Noon Solar has carefully designed the Project to avoid all impacts to wetland and waterways. No temporary wetland impacts are anticipated; however, if incurred, any temporarily impacted wetlands will be restored to pre-existing contours and re-seeded. Seeding of wetland areas will be comprised of native sedge, grass, rush, and forb species classified as FAC, FACW, or OBL. Spot herbicide treatments will be used to prevent invasive species propagation as needed before, during, and after construction. Periodic inspections of establishing and established vegetation will be made to detect native and non-native invasive species issues. As most of the wetlands within the solar array areas and fencing are currently surrounded by row crop production, vegetative diversity and improved wildlife habitat are expected. Deep-rooted native and naturalized plant species planted in adjacent uplands will also provide erosion control through increased soil stabilization. Decreased nutrient runoff, fertilizer application, and herbicide and pesticide use should also improve water quality. Details on restoration of wetlands can be found in the VMS (**Appendix K**).

8.3 Mapping Wetland and Waterway Locations, Impacts, and Crossings

Provide the following map sets, as detailed below for each proposed facility. Each map set should include an overview or index page that includes page extents for the corresponding smaller-scale map pages within the remainder of the map set. The smaller-scale map pages, to show the project and resources in greater detail, should include page numbers to reference to the overview page and have consistent scales throughout the smaller-scale pages.

8.3.1 *Topographic map set showing the following:*

- *Solar arrays and all associated components, including but not limited to:*
  - *Permanent and temporary access roads*
  - *Fences*
  - *Collector circuits (labeled with the installation method, i.e. directional bore, plow, open-cut trench, etc.).*
  - *Staging areas (labeled with identifying name/number) and all temporary work spaces*
  - *O&M building and associated driveways, storm water management features, etc.*

  - *New and existing substations*
  - *Distribution or transmission interconnection, including pole locations and all access roads (including off-ROW access roads), include identifying labels for each facility*
  - *Generator tie line, including pole locations and all access roads, including off-ROW access.*
- *Delineated wetlands, labeled with the feature unique ID*
- *Wisconsin Wetland Inventory and hydric soils, if a delineation was not conducted.*
- *DNR mapped waterways, labeled with the feature unique ID.*
- *Field identified waterways, labeled with the feature unique ID.*
- *Locations of proposed storm water features (i.e. ponds, swales, etc.).*
- *Vehicle crossing method of waterways for both permanent and temporary access, labeled by the crossing method (i.e. TCSB, installation of culvert, installation of bridge, installation of ford, use of existing culvert, use of existing bridge, use of existing ford, driving on the bed).*
- *Placement of construction matting in wetlands.*
- *Excavation areas in wetlands (i.e. bore pits, open-cut trench, etc.).*

8.3.2 *Aerial photo map set showing the following:*

- *Solar arrays and all associated components, including but not limited to:*
  - *Permanent and temporary access roads*
  - *Fences*
  - *Collector circuits (labeled with the installation method, i.e. directional bore, plow, open-cut trench, etc.).*
  - *Staging areas (labeled with identifying name/number) and all temporary work spaces*
  - *O&M building and associated driveways, storm water management features, etc.*
  - *New and existing substations*
  - *Distribution or transmission interconnection, including pole locations and all access roads (including off-ROW access roads), include identifying labels for each facility*
  - *Generator tie line, including pole locations and all access roads, including off-ROW access.*
- *Delineated wetlands, labeled with the feature unique ID*
- *Wisconsin Wetland Inventory and hydric soils, if a delineation was not conducted.*
  - *DNR mapped waterways, labeled with the feature unique ID.*
  - *Field identified waterways, labeled with the feature unique ID.*
  - *Locations of proposed storm water features (e.g. ponds, swales, etc.).*

- *Vehicle crossing method of waterways for both permanent and temporary access (i.e. TCSB, installation of culvert, installation of bridge, installation of ford, use of existing culvert, use of existing bridge, use of existing ford, driving on the bed).*
- *Placement of construction matting in wetlands.*
- *Excavation areas in wetlands (i.e. bore pits, open-cut trench, etc.).*

8.3.3 *A map showing which method(s) were used to identify wetland presence and boundaries within the project area (i.e. wetland delineation, wetland determination, review of desktop resources only).*

Appendix A includes **Figures 8.3.1**, **8.3.2,** and **8.3.3** which address the requirements of Sections 8.3.1, 8.3.2, and 8.3.3.

9. DNR Information regarding Erosion Control and Storm Water Management Plans (not PSC requirements)

This section serves as guidance for development of Erosion Control and Storm Water Management Plans associated with DNR NR 216 permits. These are not requirements for a PSC CPCN or CA.

9.1 Erosion Control and Storm Water Management Plans

DNR requires a detailed description of temporary and permanent erosion and sediment control measures to be utilized during and after construction of the project.

If the project would involve one or more acres of land disturbance, the applicant's request for permits under Wis. Stat. § 30.025 must identify the need for coverage under the Construction Site Storm Water Runoff General Permit [PDF] from DNR. The permit application itself must be submitted through DNR's electronic Water Permits system after the PSC order. This permit may also authorize construction site dewatering discharges under certain conditions.

The Storm Water Permit and Wis. Admin. Code ch. NR 216 require a site-specific Erosion Control Plan, Site Map, and Storm Water Management Plan. The permittee would be required to implement and maintain, as appropriate, all erosion and sediment control practices identified in the plans from the start of land disturbance until final stabilization of the site. Final stabilization means that all land-disturbing construction activities at the construction site have been completed and that a uniform perennial vegetative cover has been established with a density of at least 70 percent of the cover for the unpaved areas and areas not covered by permanent structures or equivalent stabilization measures.

The Erosion Control Plan, Site Map, Storm Water Management Plan, and any supporting documentation (such as modeling input/output, design specifications,

geotech/soil report, site photos, etc.) must be submitted with the Storm Water Permit application through the DNR's ePermitting system.

Erosion Control Plan - See Wis. Admin. Code § NR 216.46 for details regarding information required in the Erosion Control Plan as part of a complete permit application. Sections include:

- *Site-specific plans.*
- *Compliance with construction performance standards in Wis. Admin. Code § NR 151.*
- *Details about the site and the project.*
- *List and schedule of construction activities.*
- *Site map(s) with site, project, and erosion and sediment control details.*
- *Description of temporary and permanent erosion and sediment controls.*
- *Compliance with material management, velocity dissipation, and inspection schedule requirements.*

Storm Water Management Plan – See Wis. Admin. Code § NR 216.47 for details regarding information required in the Storm Water Management Plan as part of a complete permit application. Sections include:

- *Compliance with applicable post-construction performance standards in Wis. Admin. Code § NR 151.121 through § NR 151.128.*
- *Description of permanent storm water management practices at the site and technical rationale.*
- *Groundwater and bedrock information if using permanent infiltration devices.*
- *Separation distances of permanent storm water management practices from wells.*
- *Long-term maintenance agreement for site vegetation and any other permanent storm water management features.*

An ECSWMP will be completed and provided during final engineering documenting compliance with Wis. Admin. Code § NR 216 and Wis. Admin. Code § NR 151, respectively. The ECSWMP will include those items listed in Wis. Admin. Code § NR 216.46 and Wis. Admin. Code § NR 216.47 as well as written responses and documentation for compliance with the applicable post-construction performance standards in Wis. Admin. Code § NR 151.121 through § NR 151.128. A Notice of Intent will be submitted and coverage under the WDNR Construction Site Storm Water Runoff General Permit will be obtained prior to construction.

Application for Certificate of Public Convenience and Necessity
High Noon Solar Energy LLC
Docket Number 9814-CE-100
Gen-Tie AFR
Columbia County, WI

High Noon

SOLAR ENERGY CENTER

TABLE OF CONTENTS

1 PROJECT OVERVIEW

High Noon Solar Energy LLC (High Noon Solar) is an independent power producer (IPP) proposing to construct a new 300 MW solar photovoltaic energy generating facility as well as a 165 MW Battery Energy Storage System (BESS) known as the High Noon Solar Energy Center (Project) in Columbia County. The Project includes the construction of a new, approximately 1.9-mile 345 kV high-voltage Generator Transmission Line (Gen-Tie) to electrically connect the Project to the existing high-voltage transmission system. This Application evaluates two Gen-Tie routes beginning at the Project Substation and ending at the Interconnection Switchyard where the Point of Interconnection (POI) will be.

High Noon Solar respectfully submits this Application to the Public Service Commission (PSC) for a Certificate of Public Convenience and Necessity (CPCN) pursuant to Wis. Stat. §196.491 and Chapter PSC 111, Wisconsin Administrative Code. Pursuant to Wis. Stat. § 196.491(3)(a)1., this Gen-Tie AFR is jointly filed with the Solar AFR for the Project in PSC Docket Number 9814-CE-100.

1.1 Identify the owners and investors of the proposed project including their names, addresses, and percent of ownership (Wis. Admin. Code § PSC 111.55(6))

High Noon Solar Energy LLC is a wholly owned subsidiary of Invenergy Solar Development North America LLC and an affiliate of Invenergy LLC (Invenergy) and is currently the entity anticipated to own and operate the Project. High Noon Solar's address is One South Wacker Drive, Suite 1800, Chicago, IL 60606.

1.2 Provide contractual agreements between developer and utilities to construct, finance, lease, use or own transmission facilities

At this time, no Wisconsin utilities are under contract with High Noon Solar for the procurement, use, or ownership of the Project. Please refer to Section 1.3.6.1 of the Solar AFR for further information.

1.3 Describe the location of the proposed project and its end points

High Noon Solar is proposing to construct a new, approximately 1.9-mile 345 kV Gen-Tie to electrically connect the solar generation and battery storage portion of the Project to the existing American Transmission Company (ATC) transmission system. The Gen-Tie is a related facility to the solar generation portion of the Project, and is essential to allow the electricity generated by the Project to be transmitted to the existing transmission system. This Application evaluates two Gen-Tie routes beginning at the Project Substation and ending at a new Interconnection Switchyard positioned along the Columbia to North Madison 345 kV transmission circuit north of the Village of Arlington where the POI will be. The Project layout is shown in **Figures 4.1.1** and **4.1.2** (**Appendix A**).

1.4 Provide a list of all cities, villages, and townships and their respective counties that the proposed project, any associated facilities, and any potential construction activities would cross or potentially impact

The Gen-Tie is located in Columbia County within Arlington (T10N R9E) and Leeds (T10N R10E) Townships. The Gen-Tie is north of the Village of Arlington and State Highway 60, southeast of the Village of Poynette, and crosses U.S. Highway 51.

1.5 PSC Review

1.5.1 *State if the application is for a Certificate of Authority (CA) or a Certificate of Public Convenience and Necessity (CPCN) under Wis. Stat. §§ 196.49 and 196.491.*

This Application is for a CPCN pursuant to Wis. Stat. § 196.491. This Gen-Tie AFR is being jointly filed with the Solar AFR in PSC Docket Number 9814-CE-100. (*See* Wis. Stat. §196.491(3)(a)1.)

1.5.2 *Identify the expected type of Commission action under Wis. Admin Code § PSC 4.10.*

Under Wis. Admin. Code § PSC 4.10, Table 2, Section F, this Application would be a Type II Action requiring an Environmental Assessment.

However, because this CPCN Application (1) relates to a Gen-Tie connecting the proposed solar generation portion of the Project to the transmission system; (2) this Gen-Tie will be constructed only if the solar generation portion of the Project is approved; and (3) this Gen-Tie would be approximately 1.9 miles in length and is within the Project Area already identified in the Solar AFR, the Commission should consider whether the type of action for this Gen-Tie AFR should follow the type of action for a solar powered electric generation facility, which by Commission rule, Wis. Admin. Code § PSC 4.10, Table 3, section cr., would be a Type III action not requiring an Environmental Assessment.

Alternatively, given PSC precedent for conducting Environmental Assessments for solar projects, High Noon Solar requests that the PSC conduct a joint Environmental Assessment for this Application.

1.5.3 *State if the project qualifies for the CPCN exemption under Wis. Stat. § 196.491(4)(c)1m.*

The Gen-Tie does not qualify for the CPCN exemption under Wis. Stat. § 196.491(4)(c)1m.

1.5.4 *State if the applicant is seeking an expedited review for the project under Wis. Stat. § 196.491(3b)(a).*

High Noon Solar is not seeking an expedited review under Wis. Stat. § 196.491(3b)(a).

1.6 Project Details and Project Area Information

Provide general descriptions of each of the proposed routes and the project area, including the following:

1.6.1 The location of route(s) and associated facilities.

The Gen-Tie is located in Columbia County within Arlington and Leeds Townships and is within the Project Area (**Figure 1.1.5 Appendix A**). The Gen-Tie is north of the Village of Arlington and State Highway 60, southeast of the Village of Poynette, and crosses U.S. Highway 51. The Gen-Tie will connect the Project Substation to the ATC transmission system at a new Interconnection Switchyard positioned along the Columbia to North Madison 345 kV transmission circuit north of the Village of Arlington where the POI will be. The Project Layout is shown in **Figures 4.1.1** and **4.1.2** (**Appendix A**).

This Application contains two Gen-Tie route options that are identified herein as the Proposed Route and the Alternative Route.

Proposed Route
The approximately 1.9-mile Proposed Route heads west from the Project Substation, crossing Thiele Road, Goose Pond Road, and U.S. Highway 51 prior to entering the Interconnection Switchyard north of the Village of Arlington. There is not currently an interconnection switchyard at this location. The new Interconnection Switchyard would be constructed approximately 0.2 miles west of U.S. Highway 51 (*see* **Figures 4.1.1** and **4.1.2 Appendix A**). The Proposed Route follows a shorter, more direct path and is preferred by the participating landowner.

Alternative Route
The approximately 2.0-mile Alternative Route follows the same path as the Proposed Route from the Project Substation but deviates north after crossing Goose Pond Road for an approximately 1.1-mile segment before rejoining the Proposed Route prior to entering the Interconnection Switchyard. The Alternative Route more closely adheres to parcel boundary lines and crosses U.S. Highway 51 at a different location than the Proposed Route but would have a greater footprint and is not the preferred route by the participating landowner.

1.6.2 The footprints of associated facilities.

The Gen-Tie is proposed to be an overhead transmission line of a single-circuit, monopole design. The pole structures will be approximately 80 - 135 ft in height for the tangent structures and dead-ends and corner structures will have poles that range from approximately 90 – 150 ft. The Proposed Route is anticipated to have approximately 19 pole structures. The Alternative Route is anticipated to have approximately 20 pole structures. Each pole structure will have an approximately 113 sqft permanent land cover impact.

For all tangents along the Gen-Tie Route, cross-arm configuration will be a delta or vertical configuration. Tangent structures along each route will likely be direct-embed. Corner structures and dead-ends will likely be placed on concrete foundations. Please see **Appendix C** for typical foundation designs. Pole material type will be determined during final design but will likely be weathered steel.

The Proposed Route and Alternative Route will require the construction of a new Interconnection Switchyard approximately 5 acres in size. The final footprint and design will be determined in coordination with ATC during final engineering.

1.6.3 *Generalized geology, topography, land cover, and land use.*

Please refer to Sections 5.1, 5.2, 5.3, 5.4, 5.13 of the Solar AFR.

1.6.4 *Any special or unique natural or cultural resources.*

Please refer to Section 5.14 of the Solar AFR.

1.6.5 *Areas of residential concentrations and urban centers.*

The population centers in the general vicinity of the Gen-Tie Routes are the Village of Arlington and the Village of Poynette, WI. The closest residence in the Village of Arlington is approximately 0.7 miles from the Proposed Gen-Tie Route. The closest residence in the Village of Poynette is approximately 2 miles away from the Alternative Gen-Tie Route. Along the Gen-Tie Routes, the residential areas are comprised of farmsteads and rural homes in relatively low concentration.

1.6.6 *Transmission configuration (such as single-circuit or double-circuit with existing line, overhead or underground, conductor replacement or new construction, etc.)*

The Gen-Tie will be built as new single-circuit 345 kV overhead transmission line, with new conductor and a single shield wire. Additional Gen-Tie configuration details are provided in Section 5.3.

1.6.7 *The proposed project right-of-way (ROW) (for example: new ROW, partially overlapping existing transmission ROW, completely within existing ROW, etc.).*

The Gen-Tie Routes are proposed on new 150-ft wide ROWs and are entirely within the Project Area.

1.7 Other Agency Correspondence/Permits/Approvals

1.7.1 *Provide copies of all official correspondence between the applicant and all state, federal, or local government agency as described in the Introduction, page v.*

Please see **Appendix F** and Sections 1.8.2, 6.0, and 7.0 of the Solar AFR.

1.7.2 *Provide a list of all state and federal permits/approvals that would be required for this project and their status.*

Please see **Table 1.8.1** of the Solar AFR for a comprehensive list of permits required as a general matter for new development based on High Noon Solar's review of applicable law. No further permits are anticipated to be necessary for the Gen-Tie portion of the Project. Permits to be applied for will be determined based on High Noon Solar's final engineering following issuance of a Final Decision.

1.7.3 *Local Permits*

1.7.3.1 *For Certificate of Authority applications, provide a list of all local permits and/or ordinances that apply to the proposed project and the status of those permits.*

Not applicable.

1.7.3.2 *For CPCN applications and applications filed under the Wis. Stat. § 196.491(4)I1m exemption, provide a list of local permits and/or ordinances that would apply to the proposed construction activities, if the exemption did not apply.*

Please see **Table 1.8.1** of the Solar AFR for a comprehensive list of permits required as a general matter for new development based on High Noon Solar's review of applicable law. No further permits are anticipated to be necessary for the Gen-Tie portion of the Project. Permits to be applied for will be determined based on High Noon Solar's final engineering following issuance of a Final Decision.

1.7.4 Railroad ROWs

1.7.4.1 *Identify route segments that cross or share railroad ROWs.*

The Gen-Tie Routes cross a Soo Line Railroad ROW approximately 700 ft west of U.S. Highway 51.

1.7.4.2 *Identify the owners of the railroad ROWs.*

Soo Line Railroad is the owner of the Railroad ROW and is the primary subsidiary of the Canadian Pacific Railway, one of seven U.S. Class I railroads controlled through the Soo Line Corporation.

1.7.4.3 *Identify abandoned railroad ROWs that are crossed or shared by route segments.*

The Gen-Tie does not cross or share any abandoned railroad ROWs.

1.7.4.4 *Provide documentation, if possible, that the proposed ROW crossing or sharing is acceptable to the company.*

High Noon Solar has conducted initial outreach to Soo Line Railroad and will seek to negotiate a crossing agreement with Soo Line Railroad to cross the Railroad at a perpendicular angle with sufficient clearance as to not interfere with railway operations. High Noon Solar will work with Soo Line Railroad to ensure that there are minimal impacts to railroad operation during construction.

1.7.5 Pipeline ROWs

1.7.5.1 *Identify route segments that cross or share any pipeline ROWs.*

The Gen-Tie Routes cross a Northern Natural Gas Company pipeline ROW approximately 600 ft west of U.S. Highway 51.

1.7.5.2 *Identify the owners of the ROW property or easements, as applicable.*

The Northern Natural Gas Company is the owner of the Pipeline ROW and is a subsidiary of Berkshire Hathaway Energy.

1.7.5.3 *Provide documentation, if possible, that the proposed ROW crossing or sharing is acceptable to the company.*

High Noon Solar has conducted initial outreach to the Northern Natural Gas Company and will seek to negotiate a crossing agreement with the Northern Natural Gas Company to cross the Pipeline at a perpendicular angle with sufficient clearance as to not interfere with pipeline operations. High Noon Solar will work with the Northern Natural Gas Company to ensure that there are minimal impacts to pipeline operations during construction.

1.7.6 *Wisconsin Department of Transportation (WisDOT) ROWs*

1.7.6.1 *Identify route segments that cross or share WisDOT ROW easements and/or properties.*

The Gen-Tie Routes cross the U.S Highway 51 ROW approximately 1.3 – 1.4 miles northwest of the intersection of US-51/WIS-60 in the Village of Arlington.

1.7.6.2 *Supply documentation, if possible that the proposed ROW crossing or sharing is acceptable to the agency.*

No official correspondence has occurred between the Project and Wis-DOT. High Noon Solar anticipates discussing the ROW crossing with Wis-DOT in Q4 2023, or earlier.

1.8 Construction Schedule

1.8.1 *Provide the anticipated general construction schedule, identifying any potential seasonal or regulatory construction constraints.*

Please refer to Section 3.1.1 of the Solar AFR.

1.8.2 *Generally discuss any generation or transmission outage constraints that may have to be accommodated.*

No generation outages are currently known to be required to construct the Gen-Tie; however, a short localized outage of the existing ATC transmission system may be needed to commission the new Interconnection Switchyard. High Noon will work with ATC and MISO to determine the need and duration of any outage of existing transmission infrastructure during the construction of the Project.

1.9 Project Maps

Provide route maps that use the best and most recent data available. Maps must clearly portray the project in a format and scale that is unambiguous and easy to understand. Labels and symbology used on the maps must be clearly visible. Boundary information which is unknown or assumed at the time of submittal should be symbolized differently and discussed in the application. The scale of the maps, the applicable project data, the number of map sets necessary to show all relevant data, and whether they will be submitted electronically or on paper will be discussed during pre-application consultations.

- *Aerial photographs not more than three years old*
- *Project Data*

- *Alternative routes/segments, not presented in application*
- *Proposed routes and segments (subsegments also, if used for magnetic field analyses). If possible, GIS segment routes should use the pole alignments as opposed to centerline of the ROW. Identify which was used in the GIS spreadsheet (Section 1.10.2).*
- *Segment nodes*
- *Proposed associated facilities*
- *Proposed access roads*
- *Proposed laydown areas*
- *Environmental Data*
- *Rivers, lakes, and other waterways*
- *Wetlands*
- *Soils*
- *NHI rare species occurrences (confidential)*
- *Topographic maps*
- *Floodplains*
- *Parcel Data*
- *Private properties (GIS data cross-referenceable with mailing lists)*
- *Public properties (symbolized differently than private properties)*
- *Tribal or other types of properties*
- *Political subdivision boundaries*
- *Township, range, section*
- *Land Use*
- *Land cover (correlatable to PSC Table 2)*
- *Zoning*
- *Active mines and quarries*
- *Sensitive sites (e.g. daycare centers, schools, hospitals, cemeteries, etc.) If possible, GIS segment routes should use the pole alignments as opposed to centerline of the ROW. Identify which was used in the GIS spreadsheet (Section 1.10.2).*
- *Confined animal dairy operations within one-half mile of the proposed centerline*
- *Agricultural buildings within 300 feet of the proposed centerline*
- *Airports, airstrips (public and private)*
- *Communication towers*
- *Recreation areas, trails*
- *Utility/Infrastructure Data*
- *Existing transmission, pipelines, and other applicable infrastructure*
- *Existing distribution lines that would be modified or relocated due to the proposed project or are adjacent to proposed routes*
- *Roads, highways, interstates*
- *Applicable infrastructure ROWs (e.g., DOT, pipeline, electric distribution, electric transmission, railroad, trail)*
- *DNR-required information (see Section 8.4) such as locations of possible Chapter 30 activities (e.g., grading, riprap), temporary clear span bridges, pole locations and*

ROW, Wisconsin Wetland Inventory, wetland/waterway field data (correlatable to DNR tables), hydric soils, etc.

Please see **Appendix A** and Section 4.1 of the Solar AFR.

1.10 ESRI ArcGIS Data Files (see Introduction, page iv)

1.10.1 *Use the most recent version of ESRI ArcGIS to support all maps and information submitted as part of the application.*

1.10.2 *Provide a spreadsheet that lists each GIS file (clearly named and organized), a description of the data, data source, and the date when the data was generated or collected for field data.*

The Project maps were created in ESRI ArcGIS. A spreadsheet of each Geographic Information System (GIS) file, including the description of the data, the data source, and the date when the data was collected or published has been included in **Appendix M**.

1.11 Mailing Lists

1.11.1 *Provide a Microsoft Excel mailing list in an acceptable format and cross-correlatable to GIS parcel data as described in the Introduction, pages iii-iv.*

Please see **Appendix Y** and Section 7.1 of the of the Solar AFR.

1.11.2 *Identify the source of the information contained in the mailing lists and discuss the potential for inaccuracies in the data set (new development, poor data, etc.).*

The information contained in the mailing lists came from a Microsoft Excel file obtained from Columbia County Land Information Department which was provided on April 27, 2022.

1.11.3 *Provide a list of libraries that the application will be mailed to.*

Please see **Appendix Y** and Section 7.1 of the of the Solar AFR.

1.11.4 *Mailing lists must include:*

1.11.4.1 *All property owners within 300 feet of a proposed transmission centerline and associated facilities. List should include properties on both sides of a roadway regardless of distance.*

1.11.4.2 *All public property owners such as schools or other government entities within 300 feet of a proposed transmission centerline and associated facilities. List should include properties on both sides of a street or road.*

1.11.4.3 *The clerks and chief executive officers of the counties, towns, villages, or cities in which the routes or other proposed facilities would occupy. Also include on this list the main public library in each county the proposed facilities would occupy.*

1.11.4.4 *The appropriate Regional Planning Commission(s).*

1.11.4.5 Applicable state and federal agencies.

Please see **Appendix Y** and Section 7.1 of the of the Solar AFR.

2 Project Need and Engineering

2.1 Project Need

The Gen-Tie is required as a Generator Transmission Line to connect the solar generation portion of the Project to the transmission system at the Interconnection Switchyard.

2.2 Transmission Network Alternatives

Provide transmission system alternative studies, including alternative costs, based on current NERC and MISO transmission planning and operating standards.

2.2.1 Describe the Preferred Solution

The Gen-Tie is required as a Generator Transmission Line to connect the solar generation portion of the Project to the transmission system at the Interconnection Switchyard. The Proposed Route is the preferred solution.

High Noon Solar has two interconnection positions in the Midcontinent Independent System Operator (MISO) 2019 Definitive Planning Phase (DPP) Study Cycle and one in the MISO 2021 DPP Study Cycle. The 2019 interconnection positions include a 300 MW solar generation position and a 75 MW BESS position. The 2021 interconnection position is for 90 MW of BESS. Alternatively, High Noon Solar could pursue MISO's Surplus Interconnection process to add an additional 90 MW BESS to the current 300 MW solar interconnection position, but the Project will not exceed the proposed size of 300 MW solar and 165 MW BESS. The current MISO 2019 DPP Study Cycle report is provided in **Appendix D**. High Noon Solar will provide future DPP study reports for the MISO 2019 and 2021 DPP Study Cycles as they become available. Please refer to Sections 1.7.1 and 2.4 of the Solar AFR for more details.

2.2.1.1 Identify and describe any transmission line facilities that would be added or altered for this project. Include one-lines where appropriate.

The Columbia to North Madison 345 kV transmission circuit will be altered to accommodate the new Interconnection Switchyard that will connect the solar generation portion of the Project to the existing transmission system. It is anticipated that ATC will connect the Columbia to North Madison 345 kV transmission circuit to the Interconnection Switchyard so that the Project is connected to the transmission system.

The transmission facilities that will be added or altered for this Project will be determined as part of the MISO interconnection study process. The current MISO 2019 DPP Study Cycle report is provided in **Appendix D**. High Noon Solar will provide future DPP study reports for the MISO 2019 and 2021 DPP Study Cycles as they become available.

2.2.1.2 Identify and describe any substation facilities that would be added or altered for this project. Include electric schematics where appropriate. Substation Filing Requirements may also apply.

The POI will consist of network upgrades including a newly constructed Interconnection Switchyard, which will be constructed and owned by ATC. The Interconnection Switchyard is a related facility to the High Noon Solar generating facility and is essential to allowing the electricity generated by High Noon Solar to be transmitted on the ATC transmission system. The interconnection facilities that will be added for this Project will be determined as part of the MISO interconnection study process. Please refer to **Appendix D** and Section 2.4 of the Solar AFR for more details.

The Project also includes a Project Substation, which is detailed in Section 2.4 of the Solar AFR. (*See also* **Figure 4.1.4/4.1.5/4.1.6 Appendix C**).

2.2.2 *Discuss the viable Alternatives considered.*

The Gen-Tie is required as a Generator Transmission Line to connect the solar generation portion of the Project to the transmission system at the Interconnection Switchyard. Two route options, the Proposed Route and the Alternative Route, are presented as part of the Gen-Tie AFR. The routes were designed and presented based on landowner preferences, and engineering and design optimization.

2.2.3 *For the discussion of the Preferred Solution and viable Alternatives include the following as appropriate:*

2.2.3.1 *Provide relevant regional studies of transmission network solutions.*

The relevant regional studies are provided in **Appendix D**.

2.2.3.2 *Provide details of the reliability and performance benefits of each network solution studied, as available.*

The interconnection facilities that will be added for this Project will be determined as part of the MISO interconnection study process. The Gen-Tie is required as a radial Generator Transmission Line to connect the solar generation portion of the Project to the transmission system at the Interconnection Switchyard.; therefore, looped system transmission solutions are not applicable and were not studied.

2.2.3.3 *Supply the electrical losses for each alternative, peak MW and annual GWH estimates.*

Electrical losses for the Gen-Tie Routes are estimated to be between 0.02 percent and 0.1 percent.

2.2.3.4 *For generator interconnections, supply the detailed short circuit, stability and thermal analysis studies that have been performed. There must be some initial studies performed in order for the application to be complete.*

MISO will supply High Noon Solar with detailed short circuit, stability, and thermal analysis studies as part of the interconnection study process. The current MISO 2019 DPP Study Cycle report is provided in **Appendix D**. High Noon Solar will provide future DPP study reports for the MISO 2019 and 2021 DPP Study Cycles as they become available.

2.2.3.5 *For new distribution substations, supply the information from the Load Serving Entity on the need and alternatives considered. Those issues include existing conditions, voltage profiles, line capacities, outages, load growth, alternate substation feed pickup capability, etc.*

The Project does not include a distribution substation, therefore this section is not applicable.

2.3 Local Transmission, Distribution, and Distributed Resource Alternatives

2.3.1 *Describe local transmission, distribution, and distributed resource alternatives that have been studied and rejected for the proposed project. Local alternatives can include but are not limited to:*

- An upgrade of existing transmission circuits with larger capacity conductors
- Installation of capacitor banks
- Installation of new substation equipment
- New operating guides
- Smaller and less expensive line/s in other locations
- Distribution networking and upgrades
- Distributed resources, including solar and other distributed resources

2.3.2 *Explain why the options were not selected.*

Local transmission, distribution, and distributed resource alternatives are not applicable for meeting the functional requirements of a Gen-Tie line; therefore, this section is not applicable.

2.4 Non-transmission Options

Discuss the potential for non-transmission options to the identified problem, as prioritized in Wis. Stat. §§ 1.12(4) and 196.025(1)(ar).

2.4.1 *Noncombustible renewable energy resources*

2.4.2 *Combustible renewable energy resources*

2.4.3 *Nonrenewable combustible energy resources in the following order:*

2.4.3.1 *Natural gas*

2.4.3.2 *Oil or coal with a sulphur content of less than 1%*

2.4.3.3 *All other carbon-based fuels*

There is no non-transmission option that can connect the solar generation portion of the Project to the transmission system.

2.5 No-build Options

Discuss no-build options and their potential electrical supply and environmental impacts.
There is no no-build option that can connect the solar generation portion of the Project to the transmission system.

2.6 Energy Conservation and Efficiency and Load Response

Provide an analysis of the ability of energy conservation and efficiency and load response to reduce, alter, or eliminate the need for this project. Analysis should include:

2.6.1 *A description of the energy conservation and efficiency and load response programs and services available to customers in the project area.*

2.6.2 *An indication of the amount of additional energy efficiency and demand response, not already included in the forecast, needed to reduce, alter, or eliminated the need for this project.*

2.6.3 *A discussion of the feasibility of achieving the level of energy efficiency and demand response identified in Section 2.6.2.*

There is no energy conservation and efficiency and load response options that would reduce, alter, or eliminate the need for the Gen-Tie.

2.7 For Market Efficiency Projects

Provide the scenario(s) analyses that details adjusted production cost benefits or other market attributes that show the cost and the benefits of the proposed project and/or alternatives. Benefits should include a present value analysis with cumulative tables for the life of the project.

The Gen-Tie is not a market efficiency transmission project.

2.8 Modeling Information

2.8.1 *For all projects submit network modeling information from PSSE or PowerWorld for steady-state power flow solutions. If submitting data from PSSE, submit the *.raw file. If submitting data from PowerWorld, submit the *.pwb file.*

Any network modeling information for this Gen-Tie will be completed as part of the MISO interconnection study process. The current MISO 2019 DPP Study Cycle report is provided in **Appendix D**. High Noon Solar will provide future DPP study reports for the MISO 2019 and 2021 DPP Study Cycles as they become available.

2.8.2 *On an individual application basis, as requested by the assigned engineer, provide the computer network simulations(s) data input files, output files, and/or output summaries.*

The Gen-Tie is required as a Generator Transmission Line to connect the solar generation portion of the project to the transmission system at the Interconnection Switchyard, therefore there is no modeling information or computer network simulations available.

2.9 Area Load Information

Submit historical peak load by substation, if available, for the study area for at least the past ten years. In the cases where coincident peak load data is not available by substation, provide annual peak load data by substation. Indicate for each substation whether the load data is coincident peak or annual peak. Explain each component of the

forecasted load with quantitative detail. Any changes in the projected growth rates over the forecast period should be fully explained. Area load information requirements will be discussed at the pre-application consultations. Based on the need and scope of the proposed project, different historical data may be required.

The Gen-Tie is required as a Generator Transmission Line to connect the solar generation portion of the Project to the transmission system at the Interconnection Switchyard and is not directly serving load, and therefore does not have area load data information.

2.10 Regional Transmission Organization Information

2.10.1 *For regional projects, supply the cost benefit analysis and the likely cost allocation per the Midwest ISO's filings.*

2.10.2 *Description of applicable transmission tariffs.*

2.10.3 *Provide transmission service agreements, if applicable.*

The Gen-Tie is required as a Generator Transmission Line to connect the solar generation portion of the Project to the transmission system at the Interconnection Switchyard and is not providing transmission service under a MISO tariff, and therefore there is no MISO tariff information.

3 Magnetic Fields

Project specific magnetic field data will be discussed during pre-application consultations. The following information should be provided in Table 6 or elsewhere in the application. For rebuilding or reconductoring existing transmission lines or where the proposed line would be double-circuited with an existing line or built next to an existing line (including distribution lines), provide the magnetic field data of the current line and the magnetic field data with the proposed project in place (Section 3.1.2). If asymmetric magnetic profiles are anticipated, the full magnetic field profile may be required for both sides of the centerline as determined during the pre-application consultation process.

3.1 Submit the estimate magnetic field data in PSC Table 6 from the following magnetic field profiles:

Please see **Appendix U, Appendix O,** and Section 5.18 of the Solar AFR.

3.1.1 *Predominant transmission line configurations proposed for the project (H-frame, single-pole delta, double-circuit, etc.)*

The Gen-Tie is proposed to be an overhead transmission line of a single-circuit, monopole design. For all tangents along Gen-Tie Route, cross-arm configuration will be a delta or vertical configuration. Pole material type will be determined during final design but will likely be weathered steel. Please see **Appendix C** for typical pole structure drawings.

3.1.2 *Each unique structure type or circuit configuration (new and existing line) with the exception of dead-end structures adjacent to substations in areas with high residence densities or other sensitive populations.*

There are no structures proposed in areas with high residence densities or other sensitive populations.

3.1.3 *Each existing line that would be affected by the proposed transmission line and a post-construction scenario that incorporates the new and the existing lines.*

The Gen-Tie is required as a Generator Transmission Line to connect the solar generation portion of the Project to the transmission system at the Interconnection Switchyard. The footprint and design of the Interconnection Switchyard will be determined in coordination with ATC during final engineering. It is anticipated that ATC will connect the Columbia to North Madison 345 kV transmission circuit to the Interconnection Switchyard so that the Project is connected to the transmission system.

The Gen-Tie Routes run parallel to and cross existing distribution lines as detailed in **Appendix U** and **Figure 4.1.2 (Appendix A)**.

3.1.4 *Each set of circuit configurations for routes that would have multiple adjacent underground circuits.*

There are no multiple adjacent underground circuits proposed as part of the Gen-Tie.

3.2 Includes the following information in PSC Table 6 for each estimated magnetic field scenario

3.2.1 *Estimate the proposed lines at 80 percent and at 100 percent of peak load for one year post-construction and 10 years post-construction. For existing lines, use present day loadings to estimate the magnetic fields levels.*

3.2.2 *Provide expected current levels for 80 and 100 percent of peak load at one and ten years post-construction.*

PSC Table 6 is provided in **Appendix O**.

3.3 Provide all assumptions used to model magnetic field levels including the below

3.3.1 *Phase ID and angles.*

3.3.2 *Pole design diagram that includes the dimensions of pole arms, dimensions of conductor locations, horizontal distance from the pole to the conductors, and the distance of conductors from the ground at the pole.*

3.3.3 *Height of lowest conductor(s) at mid-span.*

3.3.4 *Depth from ground surface to circuits, for underground construction.*

Please see **Appendix C**, **Appendix U,** and **Appendix O**. There are no underground circuits proposed for the Gen-Tie portion of the Project. Please see Section 5.18 of the Solar AFR for details on the underground collection circuits for the solar generation portion of the Project.

4 Project Costs

Cost tables should be based on the projected in-service year. Tables must be submitted in a Microsoft Excel format, in addition to Adobe Acrobat (*.pdf) format.

4.1 Transmission Route Cost Estimate Tables

Provide table(s) detailing the projected total costs for each proposed route broken into the major categories listed below. Each major category of costs should be broken down into logical components and/or contracts. If portions of the route are to be constructed underground, those costs should be separated from overhead construction costs. Substation costs should also be separated out (see Substation Application Filing Requirements).

- *Material Costs*
- *Labor Costs*
- *Other Costs*
- *Pre-certification Costs*
- *High-Voltage Transmission Impact Fees*
- *Operation and Maintenance Costs*

4.2 For 345 kV projects: Provide a summary table of total costs (transmission and substation) for each proposed route, broken down by the following voltage classes.

- *345 kV*
- *Less than 345 kV*
- *Distribution*

The Gen-Tie is required as a Generator Transmission Line to connect the solar generation portion of the Project to the transmission system at the Interconnection Switchyard. Based on pre-application discussions with PSC staff, High Noon Solar understands that this section is not applicable to the proposed Project.

5 Route Information

5.1 Describe the factors considered in the applicant's evaluation of potential routes and locations for the transmission line and its associated facilities

5.1.1 *Identify route(s) that were considered and explain why those corridors were or were not chosen.*

High Noon Solar identified potential Gen-Tie route options between the Project Substation and POI and considered two proposed routes in accordance with the routing priorities identified in Wis. Stat. § 1.12(6). To the greatest extent feasible, the route corridors will be used in order of priority as provided below:

- Existing utility corridors
- Highway and railroad corridors

- Recreational trails, to the extent that the facilities may be constructed below ground and that the facilities do not significantly impact environmentally sensitive areas
- New corridors

Consistent with Wis. Stat. § 1.12(6) consideration was also given so that routes included economic and engineering considerations, reliability of the electric system, and protection of the environment. In addition to the statutory siting criteria, High Noon Solar considered criteria including but not limited to:

- Landowner preferences on private land
- Preferences of ATC and MISO
- Ability to minimize impacts to environmental features including wetlands, waterways, forested areas
- Avoidance of existing residences and farms
- Archaeological, historic, and architectural resources
- Known habitat for threatened and endangered species
- Maintaining compatibility with existing agricultural practices

High Noon Solar worked closely with landowners in the route development process to avoid impacts to agricultural uses to the extent practicable, and incorporated feedback from the above identified categories. The Proposed Route and Alternative Route both represent feasible route options from the Project Substation to the POI. However, the Proposed Route is strongly preferred by the participating landowner and High Noon Solar. Routes that did not adequately meet any of the criteria mentioned above are not presented for consideration.

5.1.2 *Describe the use of any weighting criteria used to evaluate potential routes.*

Outside of the priorities listed in Wis. Stat. § 1.12(6), weighting was given in the route identification process to:

- Landowner preferences on private land
- Preferences of ATC and MISO
- Ability to minimize impacts to environmental features including wetlands, waterways, forested areas
- Avoidance of existing residences and farms
- Archaeological, historic, and architectural resources
- Known habitat for threatened and endangered species
- Maintaining compatibility with existing agricultural practices

5.1.3 *Describe how the transmission line siting priorities in Wis. Stat. § 1.12(6) were considered.*

The transmission line siting priorities in Wis. Stat. § 1.12(6) were evaluated during preliminary evaluation of the potential Gen-Tie route options. The existing ROWs listed in Wis. §1.12(6) are very limited between the Project Substation and POI. No extended existing utility, highway, railroad, or recreational trail corridors were available for use by High Noon Solar. The Gen-Tie will require one perpendicular crossing of U.S. Highway 51, a Soo Line Railroad, and a Northern Natural Gas Company pipeline. High Noon Solar has voluntary easements with the owners of the agricultural land that would host the Gen-Tie. High Noon 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 would host Gen-Tie facilities are choosing to do so voluntarily. More detailed descriptions about the use of these priorities in the siting process are available in Sections 5.1.1 and 5.1.2 above.

5.2 Changes to Existing Easements

If the proposed project contains segments that share part or all of an existing transmission easement submit the following for each of those segment(s):

5.2.1 *Describe changes to the location or width of existing electric easements.*

5.2.2 *Provide the results of the analysis of existing transmission easements that would be shared by application routes and the potential problems that may be encountered.*

5.2.3 *State if the existing easements are to be renegotiated and/or rewritten. If so, indicate the reason (for example language modernization, change in easement size, change in transmission, etc.).*

The Gen-Tie Routes do not use any existing transmission line easements.

5.3 Route Segments

5.3.1 *Type and dimensions of structure and foundation (such as underground/overhead, single-pole/H-frame, direct embed/concrete caisson, type of material, typical span length, etc.).*

The Gen-Tie is proposed to be an overhead transmission line of a single-circuit, monopole design.

For all tangents along the Gen-Tie Route, cross-arm configuration will be a delta or vertical configuration. Tangent structures along each route will likely be direct-embed and corner structures and dead-ends will likely be placed on concrete foundations. The pole structures will be approximately 80 – 135 ft in height for the tangent structures and dead-ends and corner structures will have poles that range from approximately 90 – 150 ft. Please see **Appendix C** for typical pole structure drawings. Pole material type will be determined during final design but will likely be weathered steel.

The typical span lengths for the Gen-Tie will be approximately 550 ft but will be increased when possible to minimize impacts.

5.3.2 *Transmission configuration (single-circuit, double-circuit, etc.).*

The Gen-Tie is proposed to be an overhead transmission line of a single-circuit, monopole design.

5.3.3 Conductor information (for example size, voltage, etc.).

The Gen-Tie will be designed using a bundled ACSR conductor suitable for 345 kV. Conductor size will range from 636 kcmil to 1590 kcmil and will be optimized during final engineering.

5.3.4 Existing transmission affected by proposed project.

The Gen-Tie will terminate at the new Interconnection Switchyard that is proposed to be located adjacent to and connect with the existing ATC 345 kV Columbia to North Madison transmission circuit.

5.3.5 Existing distribution affected by the proposed project.

The Gen-Tie will cross the distribution circuits that run parallel with Thiele Road, Goose Pond Road, and U.S. Highway 51. No impacts to these distribution circuits are expected.

5.3.6 Shared ROW configuration.

The Gen-Tie ROW will be on land within the Project Area on which High Noon Solar has voluntary easement. The Gen-Tie does not share ROW with any existing transmission or distribution line.

5.4 PSC Impact Tables

Complete the Route Summary and Segment Impact Tables (PSC Tables 2-7) in the Microsoft Excel spreadsheets provided. For each table, indicate the type and date of source material and the methods used to determine the table inputs.

The Route Summary and Impact Tables are provided in **Appendix O**.

5.5 Construction Impacts

5.5.1 Discuss the proposed construction sequence for both overhead and underground lines in the project.

The Gen-Tie consists entirely of overhead transmission line work. Although underground collection circuit work is planned for the Project, no underground transmission line work is planned for the Gen-Tie.

The construction sequence will follow standard transmission line construction sequencing which typically includes: pre-construction pole staking/surveying, ROW clearing, mat placement (if necessary), concrete foundation construction, structure preparation (arm and insulator attachment), structure setting, conductor and shield wire stringing, restoration, and demobilization. Construction will include work associated with the Interconnection Switchyard.

Construction will not begin until applicable approvals are obtained, crossing agreements are acquired, soil conditions are determined, and design is completed for the selected route. The timing of the construction will take into account various requirements that may be in place due to permit conditions, transmission system loading constraints, weather, and available workforce and materials. Construction of the Gen-Tie will follow standard construction and mitigation practices, including best management practices (BMPs) that were developed from experience with past projects. The BMPs will address ROW clearing, which is anticipated to be minimal,

staging, laydown yard use, spoils management, foundation placement, erecting transmission line structures, stringing transmission lines, and restoration. Construction and mitigation practices to minimize environmental and landowner impacts will be developed based on the proposed schedule, activities, permit requirements, maintenance guidelines, inspection procedures, terrain and other criteria. In certain cases, some of these criteria, will be modified to minimize impacts to sensitive environments. Any contractors involved in construction of the Gen-Tie will adhere to these BMP requirements.

Once a contractor is selected and prior to construction, an Erosion Control and Stormwater Management Plan (ECSWMP) will be finalized, and an NOI will be submitted to WDNR for coverage under the Construction Site Storm Water Runoff General Permit, pursuant to Wis. Admin. Code Chapter NR 216. The contractor will submit a Construction Project Consolidated Permit Application that will meet the Technical Standards developed by WDNR. No other environmental permits are anticipated for the Gen-Tie.

5.5.2 *Describe the construction impacts associated with each phase of construction, including:*

5.5.2.1 *The size of excavations for foundations or other underground structures.*

5.5.2.2 *The type of construction machinery that would be used.*

5.5.2.3 *The construction disturbance zone, if different from the ROW.*

5.5.2.4 *How spoil materials would be managed on and off-site.*

Typical construction equipment used for the Gen-Tie may include but is not limited to; mowers, cranes, backhoes, digger-derrick trucks, track mounted drill rigs, dump trucks, front end loaders, bucket trucks, bulldozers, tree removal equipment, flat-bed tractor trailers, flat-bed trucks, pickup trucks, wheeled and track-mounted skid-steers, concrete trucks, and various-sized mobile trailers. Types of excavation equipment are wheeled or track-driven vehicles. Pole structures will be transported on tractor trailers.

The construction impacts associated with each phase of the construction are described below.

Pole Staking/Survey
The construction impacts associated with the pole staking/surveying are limited. Minimal impacts are anticipated due to pickup truck use and small all-terrain vehicle access along the ROW.

ROW Clearing
The typical construction impacts associated with ROW clearing are minor vehicle rutting and post cut, vegetative debris that will be disposed of per permit requirements or landowner requests. For light tree clearing areas, the required vehicles are typically small- to medium-sized tree removal bucket trucks and mowers, and pickup trucks or all-terrain vehicles for personnel mobilization. Given the land cover of the Gen-Tie Routes, minimal ROW clearing is expected.

Mat Placement
If deemed necessary, wood mat roads will be installed and maintained in order to minimize impacts to the ROW and working areas around pole locations.

The typical construction impacts associated with the pick/place/haul of wood matting are minimal as mats are usually placed in advance of the vehicle offloading and are placed along the ROW and through environmentally sensitive areas. Mat installation and relocation as construction progresses along the ROW, and subsequent removal following Gen-Tie completion will be performed using mat trucks (aka: Timber Pro) with truck-mounted grapple arms, pickup trucks, and all-terrain vehicles for personnel mobilization.

Foundation Drilling and Concrete Construction
Poles that are considered medium angle, heavy angle, or dead-end structures will have concrete foundations. Concrete foundation installation involves excavating and placing temporary steel casing, rebar, concrete and anchor bolt cages. The base of the concrete foundation typically projects 1 - 2 ft above grade. In those cases, holes are drilled in preparation for the foundation. Drilled pier foundations may vary from approximately 3 - 8 ft in diameter and 20 - 30 ft or more in depth, both dimensions depend on soil conditions observed during geotechnical data collection and the foundation design phase of final engineering. Steel reinforcing rebar and anchor bolt cages are installed in the drilled holes prior to concrete placement.

Typical vehicles required for foundation construction include cranes, backhoes, drill rigs, dump trucks, front end loaders, skid steers, concrete trucks, and personnel pickup trucks. The construction impacts associated with foundation drilling and concrete construction are expected to be localized to the work area surrounding each pole location and vehicular traffic to and from each pole location along the ROW.

Structure Setting
Tangent and light angle structures may be placed on poured concrete foundations or directly embedded. Direct embedding involves drilling or digging a hole for each pole, filling the hole partially with crushed rock, and then setting the pole on the top of the rock base. The area around the pole is then backfilled with crushed rock or soil once the pole is set. Any excess soil from the excavation will be spread and leveled near the structure.

For the medium angle, heavy angle, and dead-end structures, after the concrete foundation is set and properly cured, the steel pole sections will be assembled on the ground, erected, and then bolted to the foundation. For larger structures, the bottom section is bolted to the foundation independently and the upper structures are attached from the top down using cranes.

Typical vehicles required for structure setting will include: cranes, backhoes, tall bucket trucks, and pickup trucks. The construction impacts associated with structure setting operations are expected to be minimal as all vehicular traffic will occur along the ROW, and in a localized area surrounding each pole location.

Conductor and Shield Wire Stringing
Conductor and shield wire stringing operations will require temporary access to each structure in order to secure the conductor wire and shield wire once the final stage is established. Temporary guard or clearance structures will be installed as needed over existing distribution or communication lines, roads, navigable waterways, or other obstructions after the necessary notifications are made or permits are obtained. This effort will ensure that when conductors are being installed, they will not obstruct traffic or contact existing energized distribution conductor or other overhead cable. Also, the conductors will be protected from damage.

The typical vehicles required for conductor and shield wire installation will include: cranes, backhoes, conductor pulling trailers, tall bucket trucks, and pickup trucks. The construction impacts associated with conductor and shield wire installation operations are expected to be minimal as all vehicular traffic will occur along the ROW and in a localized area surrounding each pole location.

Site access is expected to be along the Gen-Tie ROW on parcels where voluntary easements or crossing agreements have been obtained. Off-ROW access is not expected. The additional disturbance areas outside of the ROW that may be impacted by the Gen-Tie are the laydown yard locations detailed in the Solar AFR.

To the extent practical, all spoil material will be managed and kept onsite and in accordance with BMPs and will be spread and leveled with the surrounding topography in the immediate vicinity of the excavation. Spreading subsoil on cropland will require topsoil BMPs.

5.5.3 *For unique construction methods (e.g., directional boring, jack and bore, helicopter, vibratory caissons, etc.), provide the following:*

5.5.3.1 *The location and reason for the construction method.*

5.5.3.2 *A description of the construction method.*

5.5.3.3 *The temporary construction needs and limitations such as boring pits, staging areas, frac-outs, timing, weather, etc.*

No unique construction methods or technologies are expected to be used for the Gen-Tie.

5.6 Identify and describe the location, footprint, and existing land use of staging areas and any additional temporary workspace.

Please see **Figures 4.1.1**, **4.1.2,** and **4.1.7.4** (**Appendix A**) and Sections 2.3.1.2, 2.3.5.1, and 5.4 of the Solar AFR.

5.7 Off-ROW Access Roads

5.7.1 *Identify those areas along the proposed routes where off-ROW access roads may be required.*

5.7.2 *For each route, provide the total length of off-ROW access roads.*

5.7.3 *Discuss the reasons for the necessity for off-ROW access roads such as topography, rivers/wetlands, etc. If protection of a natural resource is a reason, discuss how the resource would be protected during construction and operation of the proposed project.*

5.7.4 *Provide quantitative land cover information for off-ROW access roads similar to the information provided in PSC Impact Tables.*

5.7.5 *If the off-ROW access roads would be modified post-construction, provide details.*

Off-ROW access is not expected. High Noon Solar has obtained voluntary easements to any land that would be used for off-ROW access to the Gen-Tie. Access to the Gen-Tie ROW will be made directly along the new Gen-Tie ROW or via land under contract for the Project.

6 Natural Resource Impacts

6.1 Forested Lands

Forested lands are defined as any wooded landscapes (greater than 20% canopy cover) excluding narrow windbreaks located between agricultural areas, but including wooded areas adjacent to waterways.

6.1.1 *For each route segment describe the forested lands that would be impacted by the proposed project. Include the following information in the description.*

- Type of forest.
- Dominant species.
- Average age, size of trees.
- Ownership (private, county, etc.).
- Use (recreation, timber, riparian habitat, etc.).

The Gen-Tie Routes do not cross any forested land. The only tree removal required by either Route is a small windbreak along the Soo Line Railroad.

6.1.2 *Managed Forest Law (MFL) and Forest Crop Law (FCL)*

6.1.2.1 *Identify properties within proposed ROWs that are enrolled in the MFL or FCL programs.*

6.1.2.2 *Discuss how the proposed project would affect the properties enrolled in the MFL or FCL programs.*

The Tax Law point database was downloaded from the WDNR and reviewed for the Routes. The Tax Law Point database is a generalized point representation of lands enrolled in the MFL and FCL programs, collectively referred to as Tax Law. Points are located at the center of each 40-acre quarter-quarter section in which land is enrolled (according to the Public Land Survey System). Acreage enrolled from fractional or government lots are located either to the most approximate quarter-quarter, quarter or section as possible.

There are no properties enrolled in the MFL or FCL program within the Route ROWs; therefore, the Gen-Tie would not affect any properties enrolled in these programs.

6.1.3 *Provide specific details for mitigating or minimizing construction impacts in and around forested lands.*

The Project will require clearing of incompatible vegetation within the ROW. The only tree removal required by either Route is a small windbreak along the Soo Line Railroad and/or a small tree/brush area along Theile Road near O&M Area. No field survey has been completed for the windbreak or small tree/brush area, but a survey will be completed prior to construction to determine the type of vegetation, dominant species, and average age or size of vegetation. After the field survey has been completed, the windbreak and/or small tree/brush may require minimal clearing within the ROW. Clearing of vegetation in the ROW will occur during construction in accordance with permit conditions and construction schedule. No other forested lands will be impacted by Gen-Tie construction.

6.2 Grasslands

Grasslands are defined as any undeveloped landscape dominated by herbaceous (non-wood) vegetation.

6.2.1 *For each route segment describe the grasslands that would be impacted by the proposed project. Include the following information in the description.*

- Type of grassland (prairie, pasture, old field, etc.).
- Dominant species.
- Ownership (private versus public).
- Use (agricultural, non-productive agricultural, recreation, natural area, etc.).

6.2.2 *Provide specific details for mitigating or minimizing construction impacts in and around grasslands.*

Both Route ROWs are on predominantly privately-owned agricultural land currently used for row crops. There are no grasslands or pasture within the Route ROWs; therefore, the Gen-Tie would not impact any such grasslands.

6.3 Wetlands (see Section 8)

6.3.1 *For each route segment, provide the total number of proposed wetland crossings.*

6.3.2 *For each route segment, provide the number of structures that would be constructed within wetlands.*

6.3.3 *Provide the methods to be used for avoiding, minimizing or, if necessary, mitigating construction impacts in and near wetlands.*

6.3.4 *For "significant" or "high-quality" wetlands in the project area, identify:*

6.3.4.1 *The location where the proposed project would cross or potentially impact these wetlands.*

6.3.4.2 *The wetland type (forested, shrub, emergent, or open water).*

6.3.4.3 *The specific methods that would be used to mitigate the potential impacts.*

There are no wetlands within the Route ROWs; therefore, the Gen-Tie would not impact any wetlands. Please refer to Section 8.0 of the Solar AFR for more information.

6.4 Waterbodies/Waterways (see Section 8.0)

6.4.1 *For each route segment, provide the total number of proposed waterbody or waterway crossings.*

Proposed Route:
Three (3) WBIC flowlines (WBIC #5032404, WBIC #5032426, and WBIC #124200) were identified within the Proposed Route ROW. No waterbodies or waterways were field delineated within the Proposed Route. The WBIC flowlines are identified in **DNR Tables 1** and **2** in **Appendix U**. The WBIC flowlines identified in the Proposed Route ROW lacked waterway characteristics (defined bed and bank and ordinary high-water mark (OHWM); therefore, a navigability determination request has been made for the three WBIC flowlines.

Alternative Route:
Three WBIC flowlines (WBIC #5032404, WBIC #5032426, and WBIC #124200) were identified within the Alternative Route ROW. No waterbodies or waterways were delineated within the Alternative Route. The WBIC flowlines are identified in **DNR Tables 1** and **2** in **Appendix U**. The WBIC flowlines identified in the Alternative Route lacked waterway characteristics (defined bed and bank and ordinary high-water mark (OHWM); therefore, a navigability determination request has been made for the three WBIC flowlines.

6.4.2 *For each route segment, provide the number of structures that would be constructed below the ordinary high-water mark (OHWM) of a waterbody or waterway.*

No structures will be constructed below the OHWM for either route. No waterbodies or waterways were field delineated for either proposed Gen-Tie Route. If any of the flowlines within the ROW are identified by WDNR as waterbodies or waterways, overhead lines and poles will be spaced to avoid placing any structures in waterbodies or waterways.

6.4.3 *For each proposed waterbody and waterway crossing, identify the need and method for constructing the crossing.*

No waterbodies and waterways were field delineated for either Gen-Tie Route. If any of the flowlines within the ROW are identified by WDNR as waterbodies or waterways, channels will be avoided by accessing the construction corridor from both sides of the channel and avoiding any in-channel impacts.

6.4.4 *Provide the methods to be used for avoiding, minimizing, and finally mitigating construction impacts in and near waterbodies and waterways.*

No direct or indirect impacts to waterbodies or waterways from Gen-Tie construction are expected. No waterbodies and waterways were field delineated for either Gen-Tie Route. If any

of the flowlines within the ROW are identified by WDNR as waterbodies or waterways, pole locations will be designed and span lengths modified to be positioned in upland areas to span over all waterways. During construction, the most effective way to minimize impacts to waterways will be to avoid the crossing by accessing the construction corridor from both sides of the channel and avoiding any in-channel impacts.

Construction crews will maintain sound water and soil conservation practices during construction and operation of the facilities to protect topsoil and adjacent water resources and to minimize soil erosion. Practices may include containing excavated material, protecting exposed soil, preserving vegetative buffers, and stabilizing restored soil.

High Noon Solar does not anticipate mat placement in wetlands and waterways. High Noon Solar intends to minimize the use of matting, but if deemed necessary, wood mat roads will be installed and maintained in order to minimize impacts to the ROW adjacent to waterways. Mat installation and relocation as construction progresses along the ROW, and subsequent removal following Project completion will be performed using mat trucks with truck-mounted pick arms, pickup trucks, and all-terrain vehicles for personnel mobilization.

6.4.5 *Identify the waterways in the project area that are classified as follows and the site-specific methods that would be used to mitigate potential impacts to these waterways.*

6.4.5.1 *Outstanding or Exceptional Resource Waters*

No Outstanding or Exceptional Resource Waters are mapped in proximity of the Gen-Tie Routes.

6.4.5.2 *Trout Streams*

No Designated Trout Streams are mapped in proximity of the Gen-Tie Routes.

6.4.5.3 *Wild or Scenic Rivers*

No Wild or Scenic Rivers are mapped in proximity of the Gen-Tie Routes.

6.5 Rare Species and Natural Communities (see Section 9)

Please see **Appendix G** and Section 5.8 of the Solar AFR.

6.5.1 *Document communication with DNR and USFWS, as applicable.*

Please see **Appendix F**, and Section 1.8.2 of the Solar AFR.

6.5.2 *Document compliance with DNR and USFWS direction, as applicable.*

High Noon Solar received an Endangered Resources Review (ERR) (#21-616) (**Appendix G**) on 06/10/22, issued by the WDNR, which indicated that suitable habitat for the [redacted] may be present in some areas along the Gen-Tie Routes. High Noon Solar will either assume the [redacted] is present and avoid clearing and initial ground disturbance in these areas from April 20 – August 1 or will have a qualified biologist conduct surveys to determine if they are present.

6.5.3 *For each route, discuss concerns and potential impacts to rare species as identified in the Endangered Resources Review and field studies.*

The ERR (#21-616) (**Appendix G**) indicated the same potential impacts for both Gen-Tie Routes as described in Section 6.5.2 above.

A map of the locations of identified resources is included in **Appendix G**.

6.5.3.1 *For any DNR-identified follow-up actions that must be taken to comply with endangered species law, discuss how each action or rare species identified would affect the proposed project and the specific segment.*

If High Noon Solar plans to conduct clearing and initial ground disturbance from April 20 – August 1 for the sections of the Gen-Tie Routes that overlap potential [redacted] suitable habitat, High Noon Solar will send survey protocols to the ER Utility Liaison for approval prior to the initiation of surveys in those areas with potentially suitable habitat.

6.5.3.2 *For any DNR-identified recommended actions to help conserve Wisconsin's rare species and high-quality natural communities, discuss which actions would be incorporated into the proposed project.*

All WDNR recommended actions are for species not anticipated to be present due to lack of suitable habitat within the Gen-Tie Routes.

6.6 Invasive Species (Uplands and Wetlands)

6.6.1 *Describe areas where invasive species or disease-causing organisms have been observed or are a concern for the construction of the project (e.g., invasive plants, oak wilt, emerald ash borer, etc.).*

6.6.2 *Describe mitigation methods that would be used to avoid the spread of invasive plants or disease-causing organisms and comply with Wis. Admin. Code ch. NR 40, such as cleaning of machinery, surveys, etc.*

The Gen-Tie Routes travel through lands used for row crop agriculture that have nearly eliminated the presence of any invasive species populations. The mitigation methods for the Gen-Tie construction would be the same as used for construction of other portions of the Project, as described in **Appendix K** and Sections 5.5 and 5.6 of the Solar AFR.

6.7 Historic Resources

6.7.1 *List each county, town, range, section and ¼, ¼ section in which any construction would occur, or identify where this information can be determined from application materials.*

The Gen-Tie is located in the Towns of Arlington (T10N R9E) and Leeds (T10N R10E), Columbia County, Wisconsin. In the Town of Arlington, the Gen-Tie is located in the S ½ of the S ½ of Section 12, and the SE ¼ of the SE ¼ of Section 11. In the Town of Leeds, the Gen-Tie is located in the NE ¼ of the NE ¼ of Section 07 and the S ½ of the S ½ of Section 06. The Project layout is shown in **Figures 4.1.1** and **4.1.2** (**Appendix A**).

6.7.2 *Provide a copy of the results of a Wisconsin Historic Preservation Database (WHPD) historical resources search for the entire project construction area, whether it is completed in-house or by a consulting archaeologist. In the search results, list each historical resource from the WHPD that would be found in areas of project-related construction, by State Site number, Burial Site number (if any), and Name. Submit this information to the PSC Historic Preservation Officer under separate cover and do not enter it into the ERF. Reference and summarize the review in the application.*

6.7.3 *For each historical resource identified, describe without showing the specific location of the resource how the proposed project might affect the resource and how the project could be modified to reduce or eliminate any potential effect on the resource. Modifications to the proposed project could include site modification, route changes for access roads, crane paths, or collector circuits, and/or mitigation could include route changes and avoidance, modified construction practices, protective barrier placement, monitoring, excavation, recordation, data recovery and/or relocation.*

The Gen-Tie will not impact any identified historical resources. The portion of the Project Area associated with the Gen-Tie was incorporated in the historic resource review performed for the overall Project. Please see **Appendix T** and Section 5.14 of the Solar AFR for more information.

6.8 Conservation Easements

6.8.1 *By route segment, for each route identify properties with conservation easement agreements.*

6.8.2 *For each conservation easement that would be crossed by a route, identify and discuss:*

6.8.2.1 *The holder and type of easement.*

6.8.2.2 *The conditions of the easement.*

6.8.2.3 *The approvals necessary to construct on the property.*

6.8.2.4 *The potential impacts to the landowner, including costs, penalties etc.*

6.8.2.5 *Whether the proposed project is consistent with the stated goals of the easement.*

None of the proposed Project lands are currently enrolled in the Conservation Reserve Program (CRP), Managed Forest Law (MFL) program, or any other agricultural conservation program to the knowledge of High Noon Solar. Participating landowners may be receiving farmland preservation tax benefits but no Farmland Preservation Agreements are in effect as the Project is not in an Agricultural Enterprise Area.

6.9 Restoration of Disturbed Areas

Provide a detailed re-vegetation and site restoration plan which discusses the following items.

6.9.1 *Type of re-vegetation proposed for impacted areas (e.g. traditional restoration seed mixes, specialty native seed mixes for restoration of high quality habitats).*

6.9.2 *Vegetative monitoring criteria (number of post-construction years or percent cover achieved) and methods.*

6.9.3 *Invasive species monitoring and management (see Section 6.5).*

Given that the vast majority of the Gen-Tie ROW is on agricultural land, following construction of the Gen-Tie, landowners will continue use of their land in accordance with their land management program to the extent that it does not interfere with Project operations.

7 Community Impacts

7.1 Communication with Potentially Affected Public

7.1.1 *List all attempts made to communicate with and provide information to the public.*

7.1.2 *Provide a description of public information meetings and who was invited.*

7.1.3 *Submit copies of public outreach mailings and handouts.*

Communications about the Project included information about the Gen-Tie. Information regarding public outreach for the Project is provided in **Appendix P** and Section 7.2 of the Solar AFR.

7.1.4 *Provide electronic copies of written public comments (e.g., letters, emails, forms, etc.) submitted prior to filing the application with the PSC.*

There are no written public comments regarding the Gen-Tie that have been submitted prior to the filing of this Application.

7.2 Community Issues

Discuss any concerns that groups or potentially impacted communities have raised.
Please refer to Section 5.12.6 of the Solar AFR.

7.3 Land Use Plans

Provide relevant portions of land-use plans that describe future land uses potentially impacted by the project (Land use plans include recreational plans, agricultural plans, etc.).
Please see **Appendix S** and Section 5.13 of the Solar AFR.

7.4 Agriculture

For each route, by route segment, provide the following:

7.4.1 *Type of farming: pasture, row crops, or other type (e.g., orchards, tree plantations, cranberry bogs, etc.).*

The Gen-Tie Routes pass through approximately 99% row crop agricultural fields and 1% developed/narrow windbreak which are not used for agricultural purposes. Please see **Appendix O** and Section 5.4 of the Solar AFR for more information.

7.4.2 *Any agricultural practices that may be affected by the project (construction or operation), such as irrigation systems, aerial seeding or spraying, windbreaks, organic farms, and drainage tiles.*

High Noon Solar is not aware of any agricultural practices such as irrigation systems, organic farms, or drainage tile systems that may be affected by the Gen-Tie. Aerial spraying currently occurs within the Gen-Tie Routes but will not be conducted during construction or operations. The Proposed Route was selected in consultation with the participating landowners to minimize impacts to agricultural practices. The Alternate Route slightly increases impacts to agricultural practices through a longer ROW. For both Gen-Tie Routes, any impacts to agricultural practices are addressed by the terms of land contracts.

7.4.3 *Identify the number and size of parcels enrolled in farmland preservation programs that may be affected by the proposed project.*

None of the proposed Project lands are currently enrolled in the Conservation Reserve Program (CRP), Managed Forest Law (MFL) program, or any other agricultural conservation program to the knowledge of High Noon Solar. Participating landowners may be receiving farmland preservation tax benefits but no Farmland Preservation Agreements are in effect as the Project is not in an Agricultural Enterprise Area. The Gen-Tie Routes are within a DATCP-approved Farmland Preservation Zone pursuant to Wisconsin State Statutes Chapter 91 and Wisconsin Administrative Code Chapter ATCP 49. High Noon Solar believes the Gen-Tie is an allowable/permitted use of the land, consistent with the Columbia County Farmland Preservation Plan, the Columbia County Ordinances, and applicable state statutes and rules.

7.4.4 *Specific details for mitigating or minimizing construction impacts in and around agricultural lands.*

Please refer to Section 5.5 for specific details regarding mitigating or minimizing construction impacts in and around agricultural lands. Given that the vast majority of the Gen-Tie ROW is on agricultural land, following construction of the Gen-Tie, landowners will continue use of their land in accordance with their land management program to the extent that it does not interfere with Project operations.

7.4.5 *Agricultural Impact Statement (AIS) - Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP). If the project is a transmission line of 100kV or more, is longer than one mile, and would affect any properties used for agricultural purposes, submit one of the following, either:*

7.4.5.1 *A completed Agricultural Impact Notice (see DATCP web site and search "Agricultural Impact Notice" for appropriate form).*

7.4.5.2 *A release letter from DATCP stating that an AIS will not be written for this proposed project.*

The DATCP Agricultural Impact Statement is not required since High Noon Solar is not a public utility and will not be utilizing eminent domain.

7.4.6 *Neutral-to-Earth Voltage (NEV) and Induced Voltage*

Provide for each route and/or route segment:

7.4.6.1 *The number of confined animal dairy operations within one-half mile of the proposed centerline.*

No confined animal dairy operations exist within one-half mile of the Gen-Tie Route centerlines.

7.4.6.2 *The number of agricultural buildings located within 300 feet of the proposed centerline.*

Two agricultural buildings exist within 300 ft of the centerline of the Proposed Route. Three agricultural buildings exist within 300 ft of the centerline of the Alternative Route.

7.4.6.3 *Discuss NEV and induced voltage issues as they relate to the project and routes.*

High Noon Solar does not anticipate issues regarding induced voltage as a result of the Project. Induced voltage issues can be caused by a number of factors, but the engineering of the Project, including specific characteristics of components, is anticipated to prevent induced voltage. High Noon Solar will be designed and constructed to meet the standards of Wis. Admin. Code Chapter SPS 316 and PSC 114 – Wisconsin State Electrical Code, and the NFPA 70 National Electric Code. Following the adopted electric codes and guidelines will ensure the system is designed correctly and potential issues of induced voltage are mitigated in accordance with applicable law.

High Noon Solar has identified a pipeline and railroad that might be impacted by induction associated with the Gen-Tie. If a CPCN is granted for the Project, High Noon Solar will work with the owners of these facilities to implement reasonable mitigation activities as needed, which will be determined as part of the crossing agreement negotiation process. The Gen-Tie will be designed and constructed to minimize the potential for induction issues.

Please see **Appendix U** and Section 3.0 for more details.

7.5 Residential and Urban Areas

7.5.1 *Discuss anticipated impacts to residential/urban neighborhoods and communities such as ROW clearance and temporary construction impacts, including noise, dust, duration of construction, time-of-day of construction, road congestion, impacts to driveways, etc.*

7.5.2 *Discuss how anticipated impacts would be mitigated.*

The population centers in the general vicinity of the Gen-Tie Routes are the Village of Arlington and the Village of Poynette, WI. The closest residence in the Village of Arlington is approximately 0.7 miles from the Proposed Gen-Tie Route. The closest residence in the Village of Poynette is approximately 2 miles away from the Alternative Gen-Tie Route. Along the Gen-Tie Routes, the residential areas are comprised of farmsteads and rural homes in relatively low concentration. There are no structures proposed in areas with high residence densities or other sensitive populations.

Noise

Construction contractors will take steps to minimize construction impacts to residential and rural areas where possible. Construction noise will be created by intermittent construction vehicles mobilizing to and from work areas, material delivery to pole locations, ROW clearing with mowers and saws, drilling and foundation work. In general, most truck and equipment noise will occur Monday through Friday during daylight hours. Please refer to **Appendix J** and Section 5.19 of the Solar AFR for more information.

Dust

Construction contractors will perform drilling operations for the installation of transmission structures and foundations, as necessary. Dust impacts from vehicular traffic on non-paved access roads will be minimized to the extent practicable. Construction vehicle access along the ROW limits the speed of ingress and egress to work areas to less than 10 mph, and therefore will limit excessive dust generation. High Noon Solar Gen-Tie construction contractors will clean up any excessive dirt and mud tracked onto roads by equipment at the end of each day. Tracking pads will be constructed at frequently used access points as necessary to minimize mud being tracked onto public roads. Sweeping will be used as needed to minimize dust. Traffic control plans will be developed and implemented during construction to minimize dust impacts generated by construction vehicle traffic and comply with permit requirements.

Duration of Construction

The preliminary project construction schedule estimates construction of the Gen-Tie to commence during Q4 2024 and complete by Q2 2025. Please refer to Section 3.1.1 of the Solar AFR for more information.

Time-of-Day Construction

Construction contractors typically work during daylight hours Monday through Friday. The workday will vary slightly depending upon the time of year, access constraints and weather conditions. In addition, there might be occasions where contractors are required to perform work on weekends or at night due to the electrical system or access constraint requirements.

Road Congestion

Construction vehicles will use public roads and contracted land for accessing the ROW. All traffic control measures will be followed while equipment is on public roadways. Conductor stringing over roads and highways ROWs will commence per permit requirements and during hours of low community traffic. Please refer to Section 3.3.5 of the Solar AFR for more information.

Driveways

High Noon Solar does not anticipate using private residential driveways for equipment parking, travel, or access roads associated with the Gen-Tie. If a driveway is needed to access the ROW, the driveways may be protected using composite mats or other low-profile protection systems if deemed necessary. Commercial or agricultural driveways will be evaluated prior to use as surface protection may not be required. Any damage caused by construction access will be repaired as needed. The contractors will not block any residential driveways with equipment.

7.6 Aesthetic Impacts

7.6.1 *Submit photo simulations of the project for public-valued views based on collaboration with the agencies.*

Photo simulations for nine locations near the Project are included in **Appendix N**. PSC staff consultations were conducted electronically to determine the suitability for the Key Observation Points (KOPs) for the photo simulations. KOPs were selected to represent areas frequented by the public and provide a representative view of the Project from different perspectives.

Existing site condition photos were taken in November 2021 and May 2022. Photos were taken at each location using a digital camera set at a 28 mm foal length with crop factor equivalent to a 50 mm full-frame to best reflect the experience of a person standing at the KOP. A 3-dimensional model of the existing topography was then construction incorporating the Project Layout, proposed infrastructure, equipment specifications, and anticipated restoration or vegetative methods. Using a photo-matching software, the model was inserted into the photographs with high confidence of placement and scale in order to generate renderings simulating the view after construction of the Project. A map of the photo locations, and both the raw images (existing conditions) and renderings of the proposed conditions are included in **Appendix N**. High-resolution raster image files have been provided to the PSC via SFTP file transfer.

7.6.2 *Identify scenic roads within the project area and discuss the potential impact of the project.*

There are no Wis-DOT classified scenic byways nor are there any county classified rustic roads in proximity to the Gen-Tie Routes.

7.7 Parks and Recreation Areas

7.7.1 *Identify any parks and recreation areas or trails that may be impacted by the proposed project and the owner/manager of each recreation resource.*

7.7.2 *Discuss how short- and long-term impacts to these resources might be mitigated.*

The Gen-Tie Routes do not cross any federal, state, or county recreation areas. One segment of snowmobile trail (Trail #15) maintained by the Arlington Prairie Drifters is crossed by the Gen-Tie Routes (*see* **Figure 4.1.7.3 Appendix A**). There will be sufficient clearance underneath the Gen-Tie to allow for the continued use of the snowmobile trail during operations. Please refer to Section 5.9 of the Solar AFR for more information.

7.8 Airports

7.8.1 *Identify the location of all private and public airports/airstrips in the project area.*

7.8.2 *Describe the airports/airstrips, their runways (length, orientation), and type of use.*

7.8.3 *Describe any potential for impact to aircraft safety and intrusion into navigable airspace (runway approaches).*

7.8.4 *Identify potential construction limitations and permit issues.*

7.8.5 *Provide documentation of consultation with the WisDOT Bureau of Aeronautics and the Federal Aviation Administration.*

No airports or landing strips exist within the Project Area. The closest public use airport is approximately 4.51 miles from the Project Area. High Noon Solar utilized the FAA's Notice Criteria Tool to evaluate potential notice requirements for the Gen-Tie structures. The Notice Criteria Tool indicated that notice may be required based on proximity to nearby facilities. As a result of this analysis, High Noon Solar plans to file a notice with the FAA but does not anticipate that any changes or alterations to the Project design will be needed based on the language of CFR Title 14, Part 77.9.

7.9 Communication Towers

7.9.1 *Discuss any potential interference to the function of communication towers within the project area by the proposed project.*

No interference with communication towers is expected from the Gen-Tie. Please refer to **Appendix L** and Section 5.17 of the Solar AFR for more information.

7.9.2 *Provide GIS location information for communications facilities evaluated in Section 7.9.1. Include in the GIS information the communications technologies used for each facility.*

The requested GIS information is included in **Appendix M**.

7.10 Community Income from High-Voltage Transmission Impact Fees

7.10.1 *Provide an estimate of all fee payments that must be made to the Department of Administration as required under Wis. Stat. §196.491(3g).*

7.10.2 *Identify which components of the total project cost were used as the base cost and how the fees were calculated.*

7.10.3 *Provide estimates of one-time and annual payments that would be made to each affected city, village, town, or county.*

An annual impact fee of 0.3 percent of the total cost of the Gen-Tie and a one-time environmental impact fee in an amount equal to 5 percent of the Gen-Tie cost will be paid to the Department of Administration pursuant to Wis. Stat. § 196.491(3g) and Wis. Admin. Code Ch. Adm 46. Fifty percent of the fee paid will be distributed to Columbia County and fifty percent will be distributed to the Towns of Arlington and Leeds in proportion to the allocations determined by the Commission. The total cost of the Gen-Tie will depend on route, final engineering, and construction timing. Upon receiving a CPCN for the Project, High Noon Solar will work with the Commission to determine the total fee to be paid to the Department of Administration.

8 DNR Permits and Approvals for Impacts to Waterways and Wetlands

Submit the appropriate waterway and wetland permit application materials for all proposed project construction that may impact a waterway or wetland. DNR permit materials can be found at http://dnr.wi.gov/topic/sectors/energy.html. Permits may also be required by the U.S. Army Corps of Engineers. Application materials will also include the following items.

The Gen-Tie Routes avoid impacts to wetlands and waterways and therefore no permits will be needed for the construction of the Gen-Tie.

8.1 DNR Tables for Wetland and Waterways

For each route, complete a DNR Waterway/Wetland Impact Location Table and a Waterway/Wetland Environmental Inventory Table (DNR Tables 1 and 2) in the directional order that the wetlands and waterways would be encountered.

A WDNR Waterway/Wetland Impact Location Table and a Waterway/Wetland Environmental Inventory Table (**WDNR Tables 1** and **2**) is included for the Gen-Tie Routes in **Appendix O**.

8.2 Wetland Practicable Alternatives Analysis (Wis. Admin. Code ch. NR 103)

8.2.1 *Describe how wetlands were factored into the corridor and route selection process.*

The Gen-Tie Routes were completed by overlaying the accessible parcel locations with an environmental constraints map that included NWI wetlands, WWI wetlands, NHD watercourses and waterbodies, FEMA floodplain mapping, and desktop delineated wetlands. Routes were then created that appeared to impact the least amount of potential wetland and waterway areas. The area was then field delineated by a wetland biologist, where the biologist confirmed that no wetlands existed along the Gen-Tie Routes and the potential waterways within the Gen-Tie Routes did not have the necessary features to be considered waterways. A Navigability Determination Request will be submitted to the WDNR for those waterways; therefore, no impacts to wetlands and waterways are anticipated.

8.2.2 *Describe how the location of proposed routes and design of the line avoids and minimizes wetland impacts including consideration for placing structures outside wetlands. Explain how proposed access routes will avoid or minimize wetland impacts.*

8.2.3 *For proposed construction that will impact wetlands, detail why project alternatives are not practicable after taking into consideration cost, available technology, and logistics in light of overall project purpose.*

8.2.4 *If wetland impacts cannot be avoided, describe all temporary and permanent impacts, as well as the construction and restoration methods that would be used to minimize wetland impacts.*

No wetlands were identified within the Gen-Tie Route corridors; therefore, no temporary, permanent, direct, or indirect impacts are anticipated.

8.3 Wetland Delineations

Identify all wetlands on a map in accordance with the U.S. Army Corps of Engineers' January 1987 Technical Report Y-87-1 entitled, "Corps of Engineers Wetland Delineation Manual" and relevant guidance documents. Wetland delineation reports should not be submitted as part of the printed application but in electronic format only

In lieu of field-delineating wetlands, it is acceptable to identify wetland boundaries by utilizing a more conservative approach including the use of remote sensing tools. These wetland determinations can then be refined with simple field surveys to determine the general upland/wetland boundaries.

Remote sensing of wetland boundaries should include wet and potentially wet areas identified from existing mapping resources, including: Wisconsin Wetland Inventory, NRCS Soil Survey, USGS Topographic Maps, and available USDA FSA Slides.

These wetland boundary determinations can be refined with field verification by taking into account topography and vegetation. If vegetation is lacking, hydrology indicators such as inundation, saturation in upper 12 inches, watermarks, drift lines, sediment deposits, drainage patterns, and water-stained leaves should be used to define the general edge of the wetland.

Background for All Routes:
Wetlands and waterways were field delineated for the Project Area using a level two (field) routine determination method established by the United States Army Corp of Engineers (USACE) 87 Manual and the North-central and Northeast Regional Supplement[1]. The Project

[1] *Desktop delineated wetlands and watercourses were delineated using USGS topography, National Wetland Inventory Mapping (NWI), National Hydrography Dataset flowlines and water basins (NHD), Wisconsin Wetland Inventory Mapping (WWI), FEMA floodplain mapping, Digital Elevation Model mapping, Hillshade contour mapping and aerial photography from 2010, 2015 and 2017 from the NAIP and BING.*

Area that was field-delineated is 4,355 acres and encompasses the entire Project, including both the Proposed and Alterative Gen-Tie Routes.

A WDNR Waterway/Wetland Impact Location Table and a Waterway/Wetland Environmental Inventory Table (**WDNR Tables 1** and **2**) are included for each route in **Appendix O**.

8.4 Mapping Wetland and Waterway Crossings

For segments in or adjacent to wetlands or waterways provide maps with the following information:

8.4.1 *Recent aerial photo*

8.4.2 *Transmission line*

8.4.3 *ROW*

8.4.4 *Pole locations*

Label each pole by number if appropriate. For rebuild projects, the maps should include the location of existing poles and proposed poles if they are to significantly change location.

8.4.5 *Waterways*

8.4.6 *Wisconsin Wetland Inventory*

8.4.7 *Delineated wetlands*

8.4.8 *Hydric soils*

8.4.9 *Proposed temporary bridge locations (labeled to correlate with DNR Table 1)*

8.4.10 *Locations for other Chapter 30 activities such as grading or riprap (labeled to correlate with DNR Table 1)*

A map book set of wetland and waterway crossings detailing the information requested is included in **Figures 8.3.1** and **8.3.2** of **Appendix A**.

9 Endangered, Threatened, Special Concern Species and Natural Communities

Pre-application meetings with DNR staff are required to determine the information necessary to be included in the application. DNR staff will indicate the type, scope, and timing of required field work relative to the application process. In the Introduction, pages ii of this document, additional details about performing habitat assessments and how to file results of DNR-required field surveys is provided. More information can be found on the DNR website: **http://dnr.wi.gov/topic/endangeredresources/laws.html.**

Endangered Resource (ER) Reviews may be done by either requesting a review from the Utility and Energy Reviewer in the DNR Bureau of Endangered Resources (BER) or by submitting a proposed ER review completed by a certified individual to the Utility and Energy Reviewer for concurrence. Please note that NHI-related information (i.e., the names and locations of endangered, threatened, special concern species, natural communities, and habitat features) are considered confidential. Submit information in both a redacted (non-confidential) and confidential version.

9.1 Submit a DNR-ER review for all route segments

High Noon Solar received an Endangered Resources Review (ERR) (#21-616) (**Appendix G**) on 06/10/22, issued by the WDNR.

9.2 Submit maps and/or data files showing NHI occurrences

A map of the locations of NHI resources identified in the ER Review is included as Figure 4 in **Appendix G**. **Appendix G**, including Figure 4, and the ER Review are Confidential Information as designated by the WDNR.

9.3 Submit results from habitat or natural community assessments and biological surveys for the proposed routes segments that DNR has requested to be included in the application. Results from additional surveys conducted during the review of the application, prior to the start of construction, and/or post-construction must be submitted as they are completed.

Please see the Site Characterization Study in **Appendix G**.

10 DNR Guidance Information (not PSC CPCN or CA requirements)

11 DNR Guidance for Materials Management Plans

12 DNR Guidance for Dewatering Plans

13 DNR Guidance for Dewatering Plans