

**APPENDIX E**  
**ALTERNATIVES EVALUATION STUDY**

**BADGER STATE SOLAR, LLC – ALTERNATIVES EVALUATION STUDY**



**Badger State Solar, LLC –  
Alternatives Evaluation Study**

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## BADGER STATE SOLAR, LLC – ALTERNATIVES EVALUATION STUDY

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## **Executive Summary**

Badger State Solar, LLC (“Badger State” or “Project”) is seeking approvals and authorizations required to construct, install, operate, and maintain a 149 Megawatt (MW) Alternating Current (AC) solar energy generating facility.

In addition, Badger State is seeking federal financing from the United States Department of Agriculture Rural Utilities Service (USDA-RUS) for the Project and, at the request of RUS, is preparing this Alternative Evaluation Study.

Badger State’s proposed generation facility would be a wholesale merchant plant as defined by Wis. Stat. 196.491(1)(w). As such, alternatives presented for generation projects within 1970-O Exhibit B are not considered applicable to this Alternatives Evaluation Study. It is the opinion of the Applicant that the Proposed Action and the No Action Alternative are the appropriate alternatives to be carried forward for detailed analysis. Other on-site alternatives that were considered but ultimately dismissed from further consideration are described briefly in this document.

The proposed Project would be located on approximately 1,200 acres of primarily agricultural land in Jefferson County, Wisconsin. The major components of the proposed project include the PV panels, power conversion units (PCU), collection lines, a collector substation, and a short 138 kV generator tie line.



## **1.0 INTRODUCTION**

On May 13, 2019, pursuant to Wis. Stat. § 196.491 and Wis. Admin. Code chs. PSC 4 and 111, Badger State Solar, LLC (Badger State) filed with the Public Service Commission of Wisconsin (PSCW) an application for a Certificate of Public Convenience and Necessity (CPCN) to construct a new solar photovoltaic (PV) electric generation facility. The PSCW issued an Order approving the CPCN application subject to conditions issued in the Final Decision on February 26, 2020. The Badger State CPCN application and all relevant decision documents may be found in docket 9800-CE-100 at [PSC Badger State Solar Project \(wi.gov\)](https://psc.wisconsin.gov/psc/badger-state-solar-project) and <https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=366644>

Badger State’s proposed generation facility would be a wholesale merchant plant as defined by Wis. Stat. 196.491(1)(w) and would have a generating capacity of up to 204.9 megawatts (MW) direct current (DC) and up to 149 MW alternating current (AC). The proposed Project would be located on approximately 1,200 acres of primarily agricultural land in Jefferson County, Wisconsin (see Figure 1 attached at the end of this document). The major components of the proposed Project include the PV panels, power conversion units (PCU), collection lines, a collector substation, and a short 138 kV generator tie line.

The proposed electric generation Project was reviewed by the PSCW for environmental impacts. Wisconsin Admin. Code ch. PSC 4, Table 3, identifies construction of a solar-powered electric generation facility as a Type III action. However, Wis. Admin. Code § 4.10 specifically provides that while Type III actions do not normally require preparation of an Environmental Assessment (EA) or an Environmental Impact Statement (EIS), an evaluation of a specific Type III proposal may indicate that preparation of an EA or EIS is warranted for that proposal. An EA was warranted for the proposed Project due to the novelty of the proposed Project in this state, as well as the size and amount of land that would be covered by the proposed Project. The environmental review focused primarily on impacts to wildlife, including rare or endangered species, aesthetics, historic resources, wetlands and waterways, and local landowner impacts. The EA concluded that approval and construction of this Project is unlikely to have a significant impact on the human environment as defined by Wis. Stat. § 1.11.

Badger State is seeking financing from the United States Department of Agriculture Rural Utilities Service (USDA-RUS) for the Project. This Alternative Evaluation Study is being prepared at the request of the USDA-RUS.

### **1.1 PROFILE OF THE APPLICANT**

Badger State Solar, LLC (Applicant), will be the direct owner of the Project. The Project is being developed by Ranger Power LLC (“Ranger Power”) with investment capital from D. E. Shaw Renewable Investments (“DESRI”).

### **1.2 PROFILE OF DAIRYLAND POWER COOPERATIVE**

Dairyland Power Cooperative (Dairyland) signed a Power Purchase Agreement with Badger State Solar, LLC on February 13, 2019 to purchase the power generated by the Project. As a Touchstone Energy Cooperative, Dairyland (based in La Crosse, Wisconsin) provides the wholesale electrical requirements for 24 distribution cooperatives and 17 municipal utilities that supply the energy needs of more than a half-million people in their service territory which includes Wisconsin, Minnesota, Iowa, and Illinois.



## **2.0 PROJECT PURPOSE AND NEED**

### **2.1 APPLICANT’S PURPOSE AND NEED**

Ranger Power is a developer of large utility-scale solar farms and is responsible for securing land, transmission access, and obtaining project permits. Ranger Power seeks solar development opportunities throughout Wisconsin and other Midwestern states.

Wisconsin has an aging fleet of fossil-fuel power plants, many of which are scheduled to come offline over the next several years according to announcements by large utilities. Of the twelve coal fired power plants in operation in Wisconsin at the start of the previous decade, six have been retired or are scheduled to go offline. The more recent closure includes We Energies’ Pleasant Prairie Plant in Kenosha County, Wisconsin, the scheduled closure of Alliant Energy’s Edgewater Plant in Sheboygan County in 2022, and the June 1, 2021 closure of Dairyland’s Genoa #3 coal-fired facility. Solar is one of the lowest cost forms of new energy generation for the region, with low operating costs and no fuel costs.

Badger State initiated a preliminary site review to identify potential locations for development of a solar energy facility. The first phase of assessment evaluated electric transmission infrastructure to ensure it is sufficient to connect a project to the power grid. Existing substations and transmission lines are preferred because the cost to connect a project to the grid increases with the distance over which project-specific transmission must be built. Badger State searched for injection points that are close to major load centers and where the existing electrical infrastructure is robust in order to minimize the interconnection facility costs and network upgrades required for the new generating facility. In addition, Badger State prioritized projects where open land was available adjacent to the point of interconnection, to minimize the length of high voltage transmission generation tie lines and the number of structures that support them. The Project will not require any additional upgrades to the transmission system to inject its power. The Project substation will be located adjacent to the existing American Transmission Company (ATC)-owned Jefferson 138kV substation and has executed a Generator Interconnection Agreement with ATC dated April 22, 2020. Finally, Badger State sought project sites with receptive potential host landowners and values working with communities that welcome solar projects and responsible economic development opportunities.

The sole purpose of the Applicant’s business model is to replace load demand by local utilities that is being created by ongoing coal-fired power plant decommissioning activities with solar generation.

### **2.2 DAIRYLAND POWER COOPERATIVE**

Dairyland signed a Power Purchase Agreement with Badger State Solar, LLC on February 13, 2019 to purchase the power generated by the Project. Dairyland’s current energy portfolio includes a combination of renewable energy sources (i.e., hydroelectric, wind, solar, and natural gas) and non-renewable energy sources (i.e., coal-fired plants).

Dairyland’s Sustainable Generation Plan provides a framework for their energy portfolio with carbon reduction and system reliability identified as central considerations (Dairyland Power Cooperative, 2020-2021 Sustainability Report, p. 3). In 2020, Dairyland’s Board of Directors approved a goal of 50 percent reduction in carbon dioxide intensity rate by 2030 and a 30% renewable by 2030 goal (Id.). Dairyland also announced plans to retire the Genoa Station #3 coal-fired facility in 2021 (Id.). With the retirement of Genoa Station #3, it is anticipated that energy and capacity will be replaced with additional renewable generation resources, including solar developments such as the Badger State Solar Project (Dairyland Power Cooperative, 2020 Optional-IRP Compliance Report, p. 8).

The Badger State Solar Project will allow Dairyland to simultaneously meet its generating capacity needs and its sustainability goals. The following information is taken from Dairyland’s 2020 Optional-IRP filed with the Minnesota Public Utilities Commission and includes a summary of load trends and existing capacity, as well as a summary of renewable generation.



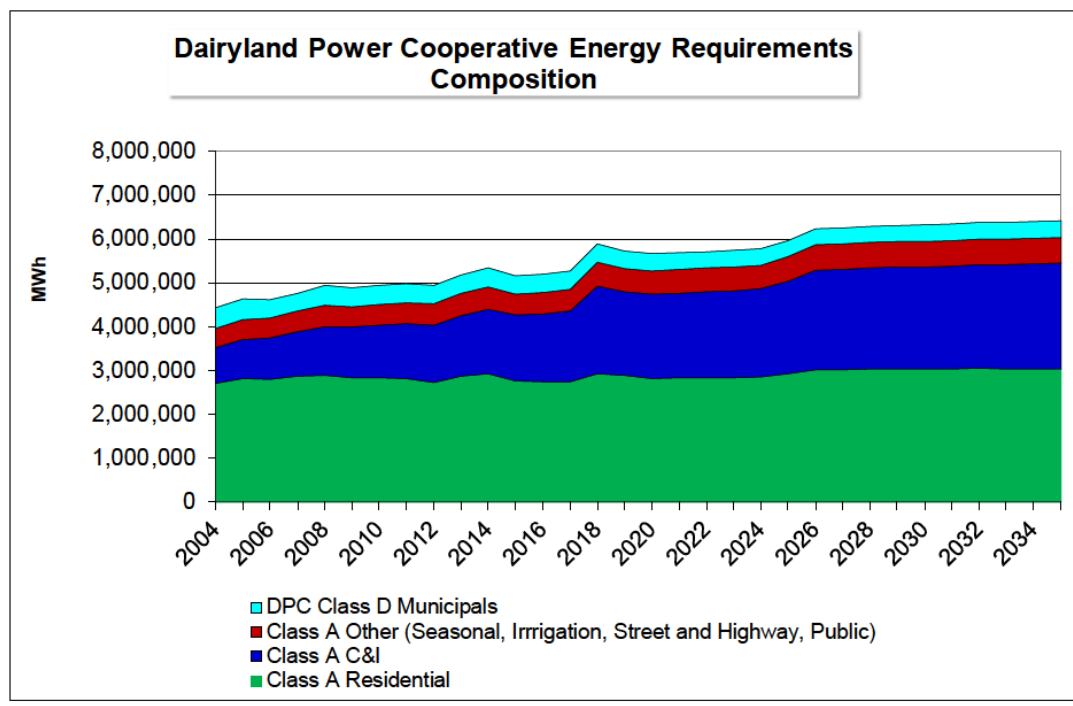
Load Trends

Dairyland updates its long-term load forecasts on a two-year cycle prepared in compliance with RUS guidelines as stated in 7 CFR, Part 1710, Subpart E of the Federal Register (updated March 2000). The current load forecast uses historic data through June 2019 along with updates to the economic and appliance end-use projections based on 2019 updates released by Woods & Poole Economics and the Energy Information Administration (EIA) respectively. Dairyland’s energy and peak demand were forecasted to grow at a 0.5% and 0.2% average annual growth rate respectively during the 2018-2035 timeframe based on the 2019 Load Forecast.

Figure 2 shows the breakdown of forecasted energy requirements through 2035 based on the 2019 Load Forecast. Historical values are included from 2004 through 2019. Forecast numbers are based on the historical numbers through June 2019.

Dairyland classifies sales to member cooperatives as Class A. Dairyland’s energy sales increased at an average of 1.7% annually over the last five years, while Dairyland’s peak demand increased at an average of 1.6% over the same time period. Energy for Dairyland’s member cooperatives Large C&I class has grown from 15.9% of Class A sales five years ago to 19.3% of Class A sales currently (2014-2019). Residential customers of Dairyland’s member cooperatives still account for 56.5% of Class A energy sales and 79.8% of customers.

In addition to providing service to its member distribution cooperatives, Dairyland provides wholesale service to seventeen municipal utilities and classifies the sales as Class D. Three of the seventeen municipal utilities are served by Dairyland indirectly through Class A member distribution cooperatives.



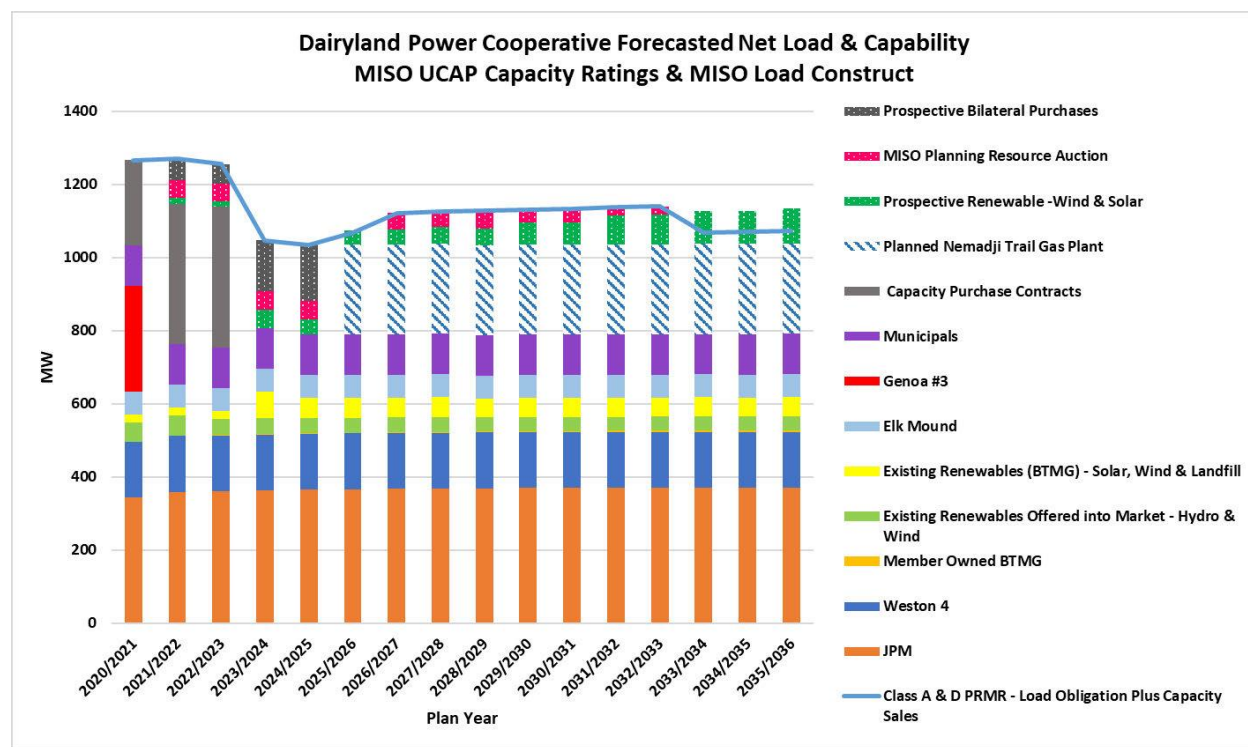
**Figure 2. Dairyland Power Cooperative Forecasted Energy Requirements**





Existing Capacity

Dairyland currently owns, or has under contract, 1,267 MW of accredited capacity in MISO. This value is based on the MISO Unforced Capacity (UCAP) definition for the rating of power plants and capacity purchases. Figure 3 depicts Dairyland's forecasted net load and capacity to meet MISO Resource Adequacy requirements. Off-system capacity sales are added to Dairyland's Class A & D planning reserve margin requirement in Figure 3.



**Figure 3. Dairyland Power Cooperative Forecasted Net Load and Capability**

Renewable Generation Summary

Dairyland owns or purchases a variety of renewable generation including hydroelectric, wind, landfill gas, animal waste gas, and solar. Dairyland intends to meet its renewable obligations in all the states where Dairyland provides wholesale service, including Wisconsin. Dairyland's projected renewable generation and existing renewable requirements are provided in Figure 3.

Dairyland currently has 18 solar projects totaling 25 MWs of generation capacity. The solar sites are estimated to power nearly 4,000 consumer-member homes and 250 acres of pollinator habitat have been developed at these sites. In addition, Dairyland's member cooperatives have added community solar projects to their distribution systems. As of June 2020, 22 sites operational with a total nameplate capacity of 4,228 kilowatts (kW) AC.

In addition to existing resources, Dairyland is considering the addition of 100 MW of wind nameplate capacity beginning in 2021 and 100 MW of solar nameplate capacity starting in 2023. Combined wind and solar capacity are anticipated to gradually increase to 480 MW nameplate by 2035. The wind and solar capacity under consideration is indicated in the green striped lines in Figure 3.



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With the resources currently in place, along with the addition of more renewable energy resources, including solar, Dairyland indicates it will have a renewable certificate surplus in 2020, and in subsequent planning years. Assuming all other existing renewable projects (shown in Figure 3) continue to be in place and operate along with prospective solar and wind additions, Dairyland will have enough renewable resources in place to exceed obligations by a significant margin in each year of the planning period, resulting in a renewable certificate surplus (Figure 4).

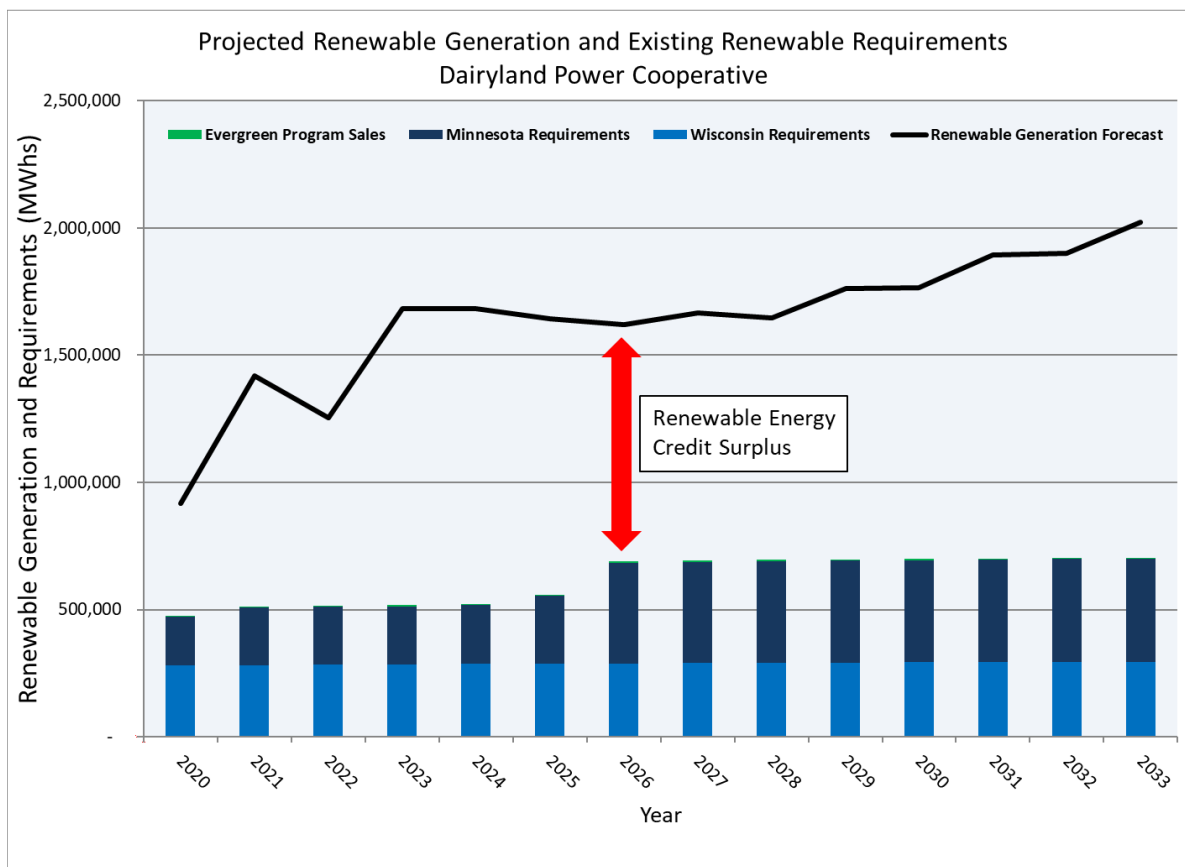


Figure 4. Projected Renewable Generation and Existing Renewable Requirements

### Need Summary

A comparison of Dairyland's forecasted net load to its projected generating capacity demonstrates that it will meet the MISO Resource Adequacy requirements, including the planning reserve margin requirement, through 2032. In addition, Dairyland expects to have enough renewable energy generating capacity during the 2021-2032 planning period to exceed its Minnesota and Wisconsin renewable energy requirements by a significant margin. The Badger State Solar project is a key component of Dairyland's generating capacity projection for both the MISO Resource Adequacy requirements and the Minnesota and Wisconsin renewable energy requirements. As noted above, the Badger State Solar Project will allow Dairyland to simultaneously meet its generating capacity needs and its sustainability goals.



## **3.0 PROJECT DESCRIPTION**

Badger State has sited solar photovoltaic generation assets on approximately 1,200 acres of land in the Town of Jefferson, Jefferson County, Wisconsin to optimize solar and land resources in the area while minimizing environmental impacts to the extent practicable. Although the PSCW had authority to permit the Badger State Solar Project, the local governments and Badger State separately pursued a Joint Development Agreement. The purpose of the agreement is to ensure that when the Project moves forward, Badger State will commit to requirements such as setbacks from residences and roads, construction requirements, infrastructure protection, and financial conditions.

Badger State's proposed generation facility would be a wholesale merchant plant as defined by Wis. Stat. 196.491(1)(w). As such, alternatives presented for generation projects within RD Instruction 1970-O Exhibit B are not considered applicable to this Alternatives Evaluation Study. It is the opinion of the Applicant that the Proposed Action (Section 3.1) and the No Action Alternative (Section 3.2) are the appropriate alternatives to be carried forward for detailed analysis; however, other alternatives that were considered but ultimately dismissed from further consideration are described briefly in Section 3.3 below.

### **3.1 PROPOSED ACTION**

As mentioned above, Dairyland Power Cooperative signed a Power Purchase Agreement with Badger State Solar, LLC on February 13, 2019 to purchase the power generated by the Project. Therefore, the Proposed Action for Badger State consists of construction and operation of the Project, which includes the following components and activities:

#### Solar Panels

The Project area is designed for approximately 487,848 panels with a generating capacity of 180 MW to 204.9 MW.

The PV module selected for the Badger State Project will have approximately 72-cells and will be a plate glass module with an aluminum frame with approximate dimensions of one meter by two meters. The PV modules will be connected in series for up to 1500V operation and will be mounted on a tracker system in-line in landscape orientation on racking which tracks east to west to follow the sun throughout the day.

#### Solar Panel Foundations

The solar panels will be mounted on a steel racking frame that is positioned three to seven feet from the finished ground with a +/- 60-degree range of motion (single axis tracking) driven by electric motors. The single axis tracking system is anticipated to be mounted on support posts driven or screwed into the ground with steel piles or helical piles. The horizontal tracker would be in its highest position during the morning and evening hours when the trackers are tilted at their maximum angle and would be a maximum of 12 feet above the ground surface. The bottom edge of the modules will be a minimum of one foot above grade at maximum tilt, and up to four feet above grade when tilted flat at mid-day.

In summary:

- Approximate height of tracker rotation shaft – 3 to 7 feet.
- Minimum tracker height (module edge to ground at maximum tilt) – 2 to 4 feet.
- Maximum tracker height (module edge to ground at maximum tilt) – 12 feet.
- Range of tracking angle - +/-60 degrees.

The variability in height is due to the panel configuration on the racking system. Some systems are designed with panels in a single portrait configuration with a single row of panels arranged in a portrait configuration



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relative to a viewer east or west of the row. The long axis of the panels would be perpendicular to the axis of the tracking system. The panels would be approximately four feet above grade when tilted flat at mid-day in this design. A racking system with a two-portrait design may also be selected. This system holds two panels in portrait configuration with an axis that is perpendicular to the tracker. The two-portrait configuration requires taller piles and results in a taller overall system, but also provides for wider aisles. Racking system design will be selected prior to construction.

In the case of extreme weather conditions, Badger State has reviewed the closest weather station's climate history, as verified by the Solar America Board for Codes and Standards. Potential tracking technologies will be assessed in the context of other project attributes, such as resource forecast and expected operating profile. The final selection could assume an operating scenario where equipment can operate in the most extreme heat and cold, or potentially pause tracking operation until these conditions pass.

The complete tracker system will be arranged into rows of individual trackers with an estimated length of 250 feet by seven feet (when panels are horizontal) with gaps placed between sections or groups of sections to allow for maintenance personnel to access the whole site. The piles will run north to south along the row to support each section of the steel structure and will likely include an integrated cable management solution in order to support the insulated copper DC string cabling which interconnects each of the PV modules. Approximately 63,306 foundation piles will be used for the Project.

These solar trackers are currently expected to be self-powered, however some tracker systems available require external power to be bought from an auxiliary power source.

### Access Roads

The Project plans to utilize existing public roadways to access the site. The Project will have up to approximately 15 miles of internal roads. Construction matting may be used to a limited extent during construction in areas with soil strength limitations for construction. In these areas, the existing soil surface will remain intact, planted in perennial vegetation, and maintained for operation and maintenance once construction is completed.

If areas are identified as having soil strength limitations to support construction vehicles where vehicle traffic will be more frequent (i.e., site approaches), aggregate materials may be used. In these areas, topsoil will be moved and stored for use during reclamation. Geotextile matting will be installed prior to placement of aggregate to prevent mixing with native subsoil. The aggregate would be maintained for the life of the Project.

### Underground Collector Circuits

The collector circuits are planned as an underground system with direct buried cables or cables installed in direct buried ducts. There will be approximately 10.5 miles of collector circuits installed by trench and approximately 0.5 miles installed by directional boring. The collector circuit voltage will be 34.5kV.

The collection system will typically be buried at a depth of 36 inches to the top of the cables. The trench for the cable will be one foot wide. Where multiple cables are installed parallel to each other, the cable separation will be two feet apart, therefore the width of the trench will vary depending on the number of circuits within the trench.

### Project Collector Substation

The Project will include a collector substation with a 138/34.5kV main transformer. A footprint of 280 feet by 195 feet has been allocated at this stage and will generally include items below within the substation:

- 34.5kV switchgear or open-air switches;
- 34.5kV bus and supporting structures;
- 34.5kV metering and instrumentation;



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- Station service transformer;
- Main power transformer 34.5kV to 138kV, may also be split into two smaller transformers;
- 138kV circuit breaker;
- 138kV bus and supporting structures;
- 138kV metering and instrumentation;
- 138kV dead-end structure and outgoing transmission line to ATC substation;
- Protection and control building;
- Internal access roads;
- Security fence with vehicle gate, service gate, barbed wire. Fence to be grounded per NESC requirements;
- Buried power cables, control cables and bare copper grounding grid;
- Lightning protection masts (as required);
- Yard lighting to be used during maintenance and or during emergency; and
- Any required power factor control equipment such as a STATCOM or capacitor bank.

### Transmission Interconnection

The Project will be interconnected to the transmission grid through an existing substation owned by ATC. The ATC station is located to the northeast of the proposed Project substation and will require a short 138kV overhead line between the two stations.

### Project Lifespan

The design life for the Project is approximately 30-35 years.

### Decommissioning

At the end of the Project's useful life, the Project would cease operation. At that time, the facilities would be decommissioned and dismantled, and the site restored to its preconstruction condition or returned to farm production. Decommissioning activities will require approximately 12 months to complete. In general, decommissioning activities will include:

1. Dismantling and removal of all above ground equipment (solar panels, racking, transformers, Project Substation, etc.);
2. Excavation and removal of all above ground cabling;
3. Removal of foundations (piles, piers, and posts);
4. Underground cables will be removed based on agreed upon conditions reached with the landowner and codified in the lease; and
5. Scarification of compacted areas within and contiguous to the solar facility (including but not limited to internal and external access roadways).

For the gen-tie line, telecommunication lines, and collector substation dismantling would proceed according to four general stages: (1) dismantling and demolishing above ground structures; (2) removal of concrete foundations; (3) excavation and removal of soils and broken concrete from the site; and (4) surface contouring to return the disturbed areas to near-original conditions.



If the facility is to be returned to a condition suitable for agricultural production upon the completion of its decommissioning, the land will be tilled to break up the vegetation cover that has been established for the Project. The vegetation layer within the Project area will consist of a mixture of areas where prairie plantings and non-native vegetation covers have been maintained. The use of deeply rooted native prairie vegetation and the “resting” of soil either under this or a non-native cover has been well documented to provide benefits and improvement to soil health.

### **3.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, Badger State would not interconnect at the Jefferson 138kV substation and would not build the Badger State Project. It is assumed, for the purposes of impact analysis therefore, that the environmental impacts associated with the construction and operation of the proposed Project would not occur.

### **3.3 ALTERNATIVES CONSIDERED BUT DISMISSED FROM DETAILED ANALYSIS**

#### **Alternative Project Locations**

The current Project location was selected following a rigorous analysis of three key factors: the existing transmission grid in Wisconsin, the suitability of available land, and the receptiveness of the community. Details of the analysis are provided in the Project’s Site Selection Study (Stantec 2021). Further, the Jefferson County location was selected based on the results of environmental and engineering studies conducted during the CPCN process (see Section 4.0 and 5.0 of the CPCN application (<https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=366644>)). As such, only the current Project location was carried forward for detailed analysis, and other off-site locations were not evaluated further.

#### **Distributed Generation**

Dairyland has implemented a small renewable tariff for retail members of its Minnesota member distribution cooperatives allowing net metering for projects under 40 kW. Between 2013 and 2019, 2,083 member-owned distributed solar and wind projects generation projects were installed on Dairyland’s system totaling 23.2 MW of generation from solar and 1.1 MW of generation from wind distributed projects. By comparison, the Badger State Solar project will add 149 MW of generation to Dairyland’s system. In addition, Dairyland allows its member cooperatives to own or purchase a limited amount of distributed generation from renewable energy facilities to reduce their demand and to own or purchase a limited amount of distributed renewable generation within their service territory that they can sell to Dairyland. The current total solar distributed generation nameplate generating capacity owned or purchased by members is 0.7 MW. The total generation supplied by distributed generation compared to the total supplied by the Project demonstrates that distributed generation cannot meet Dairyland’s capacity needs and renewable energy goals on a scale and timeline comparable to the Project. As a result, distributed generation was not considered as an alternative to development of the Project.

#### **Non-Renewable Fuel Sources**

Dairyland’s current energy portfolio includes a combination of renewable and non-renewable energy sources (see Figure 3 above). As described in Section 2.2, Dairyland’s Board of Directors approved a goal of 50 percent reduction in carbon dioxide intensity rate by 2030 and announced plans to retire the Genoa Station #3 coal-fired facility in 2021. It is anticipated that energy capacity will be replaced over time with additional renewable generation resources, including solar development, which is a key component to meet Dairyland’s goal for increased renewable energy production. However, this does not preclude Dairyland from continuing to pursue other sources of energy production to fill out their existing portfolio. Therefore, although other energy sources continue to be evaluated and utilized by Dairyland as part of their overall



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energy portfolio, these other sources of energy were not considered as alternatives to development of the Project.

### Other Renewable Energy Sources

Dairyland owns or purchases renewable energy from a variety of sources and wind energy alternatives could meet Dairyland’s renewable energy goals. However, solar energy provides the additional advantage of reaching its peak electricity generation during daytime hours when energy demand also peaks. As described in Section 2.2, Dairyland signed a Power Purchase Agreement with the Applicant on February 13, 2019 to purchase the power generated by the Project. This PPA is exclusively for solar energy generation with the Project. As a result, other renewable energy resources were not considered as an alternative to development of the Project.

### Other PPAs

Dairyland selected the Project as the best option to meet its capacity needs and renewable energy goals through a PPA. This PPA is exclusively for solar energy generation with the Project. As a result, other renewable energy resources were not considered as an alternative to development of the Project.

## 4.0 REQUIRED PERMITS AND APPROVALS

Table 1 summarizes the permits and approval types that are required at the federal, state, and local level for the Project. The necessary permits and approvals will be obtained before commencing construction activities.

**Table 1. Required Permits and Approvals**

Type	Authority or Lead Agency	Regulatory Driver	Permit/ Approval Required
<b><i>Federal Permits</i></b>			
Permit	US Army Corps of Engineers (USACE)	Section 404 of Clean Water Act (CWA)	Yes
Consultation	US Fish and Wildlife Service (USFWS)	Due to assumed requirement for CWA Section 404 permit/authorization, Endangered Species Act Section 7 Consultation may be required; Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act (BGEPA) compliance will also be applicable.	Yes
Consultation	Federal Aviation Administration (FAA) FAA Notice Criteria Tool	Navigable Airspace Review (14CFR77.13(a))	Yes



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Type	Authority or Lead Agency	Regulatory Driver	Permit/ Approval Required
Order	Public Service Commission of Wisconsin (PSC)	Certificate of Public Convenience and Necessity	Yes
Permit	Wisconsin Department of Natural Resources (WDNR)	Section 401 of the CWA, Water Quality Certification and State-Regulated Wetlands (Isolated Wetland Permit)	Yes
Permit	WDNR	Wisconsin Pollutant Discharge Elimination System (WPDES)/Stormwater Runoff Permit (NR216)	Yes
Permit	WDNR	Wisconsin Navigable Waters, Harbors and Navigation (Chapter 30)	TBD
Consultation	WDNR	Wisconsin Endangered Species Law (s. 29.604, Wis. Stats.)	Yes
WDNR Notification Number	WDNR	Request for a Well Number Wisconsin Stats. 281.34(3)	Yes (if O&M Building includes plumbing facilities)
Consultation	Wisconsin State Historical Society - Historic Preservation Office (SHPO)	Cultural Resources (historical and archaeological) under Section 106 of the National Historic Preservation Act	Yes
Permit	Wisconsin Department of Transportation (WisDOT)	Utility permit to construct, operate or maintain a utility facility on state trunk highway s. 66.0831, 84.08, 85.15, 86.07(2)(a), 86.16, 182.017 and other applicable Wis. Stats.	Yes
Permit	WisDOT	Driveway/access permit s. 86.07(2) Wis. Stats. & Ch. Trans 231 Wis. Adm. Code	Yes
Permit	WisDOT	Oversize/overweight permit s.348.26(2), (3) Wis. Stats	Yes





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Type	Authority or Lead Agency	Regulatory Driver	Permit/ Approval Required
Permit	State of Wisconsin, Division of Safety and Buildings (or Town depending on scope of building)	Wisconsin Stats. 101.63, 101.73	Yes
<b>Jefferson County</b>			
Permit	Jefferson County Land Management and Zoning	Jefferson County Shoreland Zoning	TBD - Confirm based on final engineering.
Permit	Jefferson County Land Management and Zoning	Jefferson County Floodplain Zoning	TBD - Confirm based on final engineering.
Permit	Jefferson County Highway Department	Pursuant to Section 348.26(2), (3) Wisconsin State Statutes Oversize-overweight permit	Yes
Permit	Jefferson County Land Conservation Department	Stormwater Management and Erosion Control Plan and permit	Required by WDNR regardless
Permit	Jefferson County	Permit to Construct, Maintain or Repair Utilities Within Highway Right-Of-Way	Yes
Permit	Jefferson County Highway Department	County Highway Entrance Permit, Road Use Agreements	Yes
Permit	Jefferson County	Building/Construction/Electrical review	Yes
Permit	Jefferson County	Sanitary Permit	Yes (if O&M Building includes plumbing facilities)
Inspection / Approval	Town of Jefferson	Driveway access approval	Yes
Permit	Town of Jefferson	Sign Permit	Yes
Permit	Town of Jefferson	Building/Construction/Electrical and Erosion Control Permit	Yes
Permit	Drainage District 16	Drainage Alteration Permit ATCP 48.34 Subchapter V	Yes



## **5.0 COMMUNITY OUTREACH**

**Local Residents** – Badger State has been meeting with prospective landowners, their tenants, and nearby residents since early 2017 to determine local interest in the Project and to lease land.

**Local Units of Government** – The Project has also met with local Town and County elected officials and staff to advise them of project activities, to gauge interest in a solar facility, as well as to understand permitting requirements and potential concerns:

- Jefferson and Oakland township board members;
- Jefferson County representatives (County Administration, County Board members, Land and Water Conservation Committee, Planning and Zoning, Conservationist);
- The Mayor of Jefferson City, City Administrator, and the Jefferson City Council;
- The City Administrator and City Engineer of Fort Atkinson.

**State Elected Representatives and Regulatory Agencies** – The Project has also met with state elected representatives and with staff from the Public Service Commission of Wisconsin, Department of Agriculture Trade and Consumer Protection (DATCP) and Wisconsin Department of Natural Resources (WDNR) to discuss permitting and related topics.

**Public** – In addition, the Project has engaged in outreach activities to share information and gather feedback from a broader public audience, including:

- One-on-one communication with Project neighbors and community leaders
- Presentations at public meetings of local units of government
- Meetings with representatives of the Jefferson Chamber of Commerce, Jefferson County Agribusiness Club, Jefferson County Farm Bureau, Jefferson Rotary, Jefferson County Economic Development Coalition/Thrive Economic Development, Madison Region Economic Partnership (MadREP), Wisconsin Manufacturers and Commerce, and the Wisconsin State Farm Bureau.
- Established a dedicated Website ([www.badgerstatesolar.com](http://www.badgerstatesolar.com)) that provides information about the Project along with contact information.
- Maintains a local office in Jefferson, and provides meetings by appointment as well as open office hours
- Actively monitors an informational e-mail address and toll-free phone number.
- Hosted an Open House March 28, 2019, with over 100 attendees. Over 400 invitations were sent, and the list included landowners within a mile of the facility based on a list compiled by the state in 2018.
- The Project has worked with local media to facilitate coverage of plans for the Project, resulting in significant coverage in the local area, including front-page print articles in the Jefferson County Daily Union and in the Watertown Daily Times and a 20-minute on-air discussion on the WFAW Morning Magazine radio show.

### **PSC Proceedings:**

Environmental Assessment public scoping meetings were held on Monday, July 1st, 2019, with one starting at 2:00 p.m. and another starting at 6:00p.m. at Jefferson County Highway Department Building, 1425 South Wisconsin Drive, Jefferson, WI. Both meetings were held in an open house format instead of a formal presentation. Staff from the Commission and DNR will have copies of the application materials and maps for the public to review. Staff can answer questions about the review process and the application. Local residents are encouraged to attend and provide comments about the Project and its environmental impacts. Those comments were considered by staff during the analysis of the Project.

Additional opportunities for public participation include the opportunity to comment on the environmental assessment of the Project, and the public hearing comment period.



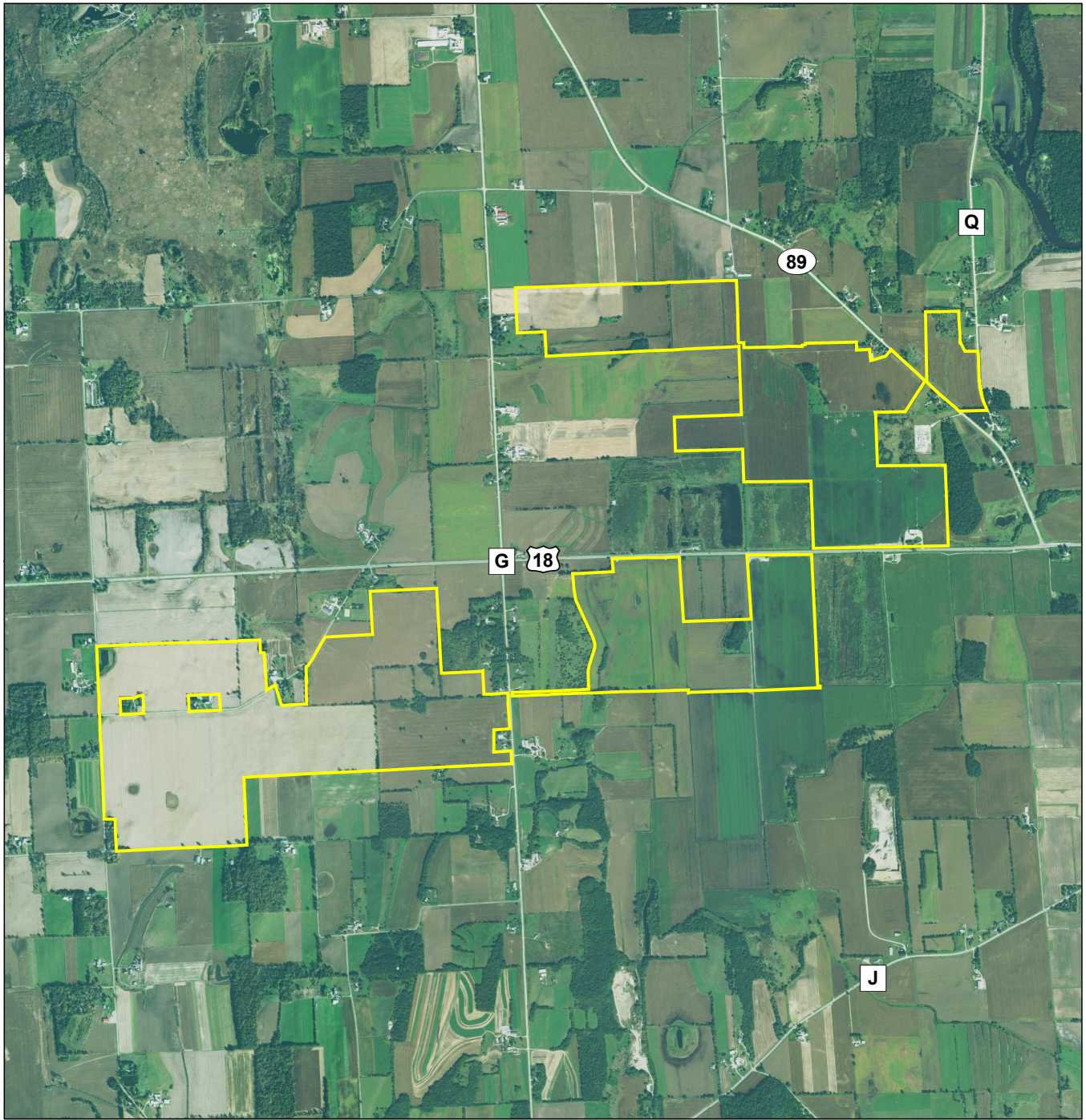
## **BADGER STATE SOLAR, LLC – ALTERNATIVES EVALUATION STUDY**


On September 24, 2019, the Commission issued a Notice of Hearing to announce the date and location of the public hearing sessions. Two sessions were held on Wednesday, November 6th, 2019, with one starting at 2:00 p.m. and another starting at 6:00p.m. at the Activity Center at Jefferson County Fair Park, 503 N. Jackson Ave. Jefferson, WI.

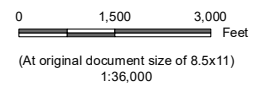


# Figures





**Legend**  
 Approximate Project Area



*Project Location* Prepared by RA on 2021-01-26  
T6N, R13E, S11, 12, 14 TR by JP on 2021-01-26  
T. of Oakland, Jefferson Co., WI IR by SP on 2020-01-26

*Client/Project* 193705828  
Badger State Solar, LLC  
Badger State Solar Project

*Figure No.*  
**1**  
*Title*  
**Badger State Solar Site**