

**BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN**

Application for a Certificate of Public Convenience and Necessity of Two Creeks Solar, LLC to Construct a Solar, Electric Generation Facility to be Located in Manitowoc and Kewaunee Counties, Wisconsin

Docket No. 9696-CE-100

Application for a Certificate of Public Convenience and Necessity of Two Creeks Solar, LLC to Construct an Electric Tie Line to Connect a Solar Electric Generation Facility to the Existing Transmission System, to be Located in Manitowoc and Kewaunee Counties, Wisconsin

Docket No. 9696-CE-101

INITIAL BRIEF OF TWO CREEKS SOLAR, LLC

INTRODUCTION

On June 1, 2018, Two Creeks Solar, LLC (“Two Creeks Solar” or the “Applicant”) filed certificate of public convenience and necessity (“CPCN”) applications with the Public Service Commission of Wisconsin (“PSCW” or the “Commission”) in the above-referenced proceedings for authority to construct a solar electric facility (“Solar Project”) and an associated electric generation transmission line (“Gen-Tie Project”) in Manitowoc and Kewaunee Counties, Wisconsin (collectively, the “Project”). As set forth more fully below, both the Solar Project and Gen-Tie Project meet all statutory requirements. Accordingly, the Applicant requests that the Commission issue CPCNs for the Project.

PROJECT OVERVIEW

The Solar Project is a 150 MW alternating current (“AC”) photovoltaic (“PV”) generating facility located within approximately 1,815 acres of disturbed agricultural land in Manitowoc and

Kewaunee Counties. (Solar Direct-Two Creeks Solar-Darwish-r-4 (PSC REF#: 357863)).¹ The Solar Project will use PV solar modules connected to a single-axis tracking system. (Solar Direct-Two Creeks Solar-Cook-r-2 (PSC REF#: 357861)). The major Solar Project components include the PV panels, power conversion units (“PCU”), inverters, collection lines, a collector substation, generation step-up transformer (“GSU”), and an operation and maintenance (“O&M”) building. (*Id.*) The Solar Project Area, including the primary and alternate arrays, comprises approximately 1,020 acres that are separately fenced and consist of 50 AC blocks. (Solar Supplemental Direct-Two Creeks Solar-Cook-s-1-2 (PSC REF#: 354356)). The number of rows varies per block, but the current design anticipates approximately 139-152 rows. (*Id.*) Each block includes one inverter and is connected to the associated PV panels. (*Id.*) The rows of panels are approximately 6.6 feet wide (East-West) and 270 feet long (North-South). (*Id.*)

The Solar Project will consist of solar PV modules connected to a single-axis tracking system to follow the sun from east to west throughout the day. (Solar Direct-Two Creeks Solar-Darwish-r-4-5). The power generated from these panels will be in the form of direct current (“DC”) electricity and will total approximately 213 MW DC and interconnect at 150 MW AC. (Solar Direct-Two Creeks Solar-Darwish-r-4; Solar Direct-Two Creeks Solar-Cook-r-2). The Solar Project will use approximately 533,000 mono-crystalline module panels. (Solar Direct-Two Creeks Solar-Cook-r-2).

Inverters will be used to convert the DC electricity to AC electricity and pad mounted transformers will increase the voltage to 34.5 kV. (*See id.* at 3-4, 10). The AC electricity from the inverters will then be carried to the collector substation by the medium voltage 34.5 kV

¹ To distinguish between the testimonies and exhibits of the same witnesses in the two dockets, references to Solar Project testimony and exhibits will be prefaced with “Solar” and references to Gen-Tie Project testimony and exhibits will be prefaced with “Gen-Tie.”

underground collection system. (*Id.* at 3-4). The collector circuits will connect to a collection substation where the voltage would be increased from 34.5 kV to 138 kV. (*Id.*) The collector substation will be located on a parcel approximately 0.7 acres in size located east of STH 42 and north of East Tapawingo Road.

Two Creeks Solar also will construct an O&M building in the Project area. The O&M building is anticipated to be under 3,000 square feet in size and located on a parcel under one-acre. (Appendix F of the Solar Project Application (PSC REF#: 350351)).

Two Creeks Solar has entered into three- to five-year Option to Lease Agreements with participating Project landowners. (Solar Direct-Two Creeks Solar-Darwish-r-8). Upon approval of the Project CPCN and prior to construction, Two Creeks Solar will exercise those options and commence a 30- to 50-year lease term for the Project Site. (*Id.*)

Two Creeks Solar proposed a grouping of six sub-array sites that could serve as sites for the proposed Solar Project. (Appendix of the Solar Project Application – Map 4.1.2 (PSC REF#: 355054)). Another six sub-array sites provide options from which the Commission can select as allowable alternatives for the installation of the Solar Project. The alternative areas were designed to provide a 25 percent alternative to for the Solar Project array. The alternative sites are permissible and buildable, but are not preferred due to the smaller blocks of land and increased collector circuits that would be needed to incorporate them into the project. (Solar Direct-Two Creeks Solar-Darwish-r-5-6).

The single 138 kV generator tie line would be constructed on a new right-of-way (“ROW”), and Two Creeks Solar has acquired the easements necessary for construction along the proposed routes. (Gen-Tie Direct-Two Creeks Solar-Darwish-r2-4-5 (PSC REF#: 357891)). A range of structures may be used, including steel monopole, wooden three-pole, or steel H-frame, depending

on engineering or site requirements. (Gen-Tie Direct-Two Creeks Solar-Cook-r-3 (PSC REF#: 357883)). The 138 kV line will run approximately 4.5 miles from the Two Creeks Solar Project's collector substation to the Kewaunee Switchyard located adjacent to the decommissioned Kewaunee Power Station. (See Gen-Tie Direct-Two Creeks Solar-Darwish-r2-7). Two Creeks Solar examined both primary and alternative routes. Generally speaking, both proposed routes commence at the planned Two Creeks Solar collector substation which will be located approximately 0.4 miles north of E. Tapawingo Rd east of Highway 42. (*Id.*) The routes, which both require a new ROW of between 100 and 150 feet, run north generally paralleling the existing American Transmission Company ("ATC") 345 kV line. Near the mid-point of the route, the line turns east crosses under the 345kV line, turns north and over Highway 42. Approximately one-half mile before the Point of Interconnect ("POI"), the primary and alternate routes diverge, taking different paths to the POI. (*Id.*) The route ends at the POI in the existing Kewaunee switchyard. Maps of both the preferred and alternate route are contained in Ex.-Two Creeks Solar- Darwish-2r (PSC REF#: 357890) as well as at Appendix A – Project Maps (Map 1.9 – General Map Index and Series (PSC REF #: 350315-350316)) to Two Creeks Solar's CPCN Application. The details of the transmission or interconnection facility upgrades required for the solar generation facility to be operational are dependent on the Midcontinent Independent System Operator, Inc.'s ("MISO") August 2017 Definitive Planning Phase ("DPP") Study Cycle. The final results of this analysis are due in August 2019.

PROCEDURAL HISTORY

Prior to filing the CPCN Applications, Two Creeks Solar held meetings on January 9, 2018, and March 7, 2018, with PSCW and Wisconsin Department of Natural Resources ("WDNR") with the latter being the formal pre-filing meeting. The meetings discussed the overall Project;

determined and confirmed appropriate permit requirements and processes; and reviewed schedule and data needs, public and agency outreach, and Project alternatives and related matters. (Solar Direct-Two Creeks Solar-Darwish-r-4; Gen-Tie-Direct-Two Creeks Solar-Darwish-r2-4.)

Two Creeks Solar submitted a preliminary Engineering Report for the Solar Project on March 20, 2018 (PSC REF#: 339853.) Two Creeks Solar filed both CPCN Applications on June 1, 2018. PSCW and WDNR staff determined the Applications complete on September 13, 2018 (PSC REF#: 349957 (Solar Project); PSC REF#: 349966 (Gen-Tie Project)). Subsequently, on September 21, 2018, Two Creeks Solar filed updated versions of both Applications that include all of the PSCW and WDNR suggested changes.

On September 18, 2018, the PSCW issued a Public Notice for the two Environmental Assessment scoping sessions in Two Rivers, Wisconsin (PSC REF#: 350181 (Solar Project); PSC REF#: 350182 (Gen-Tie Project)). A total of three comments were filed in both proceedings (PSC REF#: 352356 (Solar Project); PSC REF#: 352357 (Gen-Tie Project)).

On October 4, 2018, the PSCW issued its Notice of Proceeding for both Applications (PSC REF#: 351184 (Solar Project); PSC REF#: 351187 (Gen-Tie Project)).² A prehearing conference for both the Solar Project and the Gen-Tie Project was held on November 4, 2018. The prehearing memorandum, which formally set the schedule for the Applications moving forward, was issued on November 27, 2018 (PSC REF#: 353834 (Solar Project); PSC REF#: 353833 (Gen-Tie Project)).

² The following parties were granted intervention in the Solar Project proceeding on October 19, 2018 (PSC REF#: 351929):

- ATC
- Citizens Utility Board (“CUB”)
- RENEW Wisconsin (“RENEW”)
- Wisconsin Industrial Energy Group (“WIEG”)

The following parties have been granted intervention in the Gen-Tie Project proceeding:

- ATC (October 19, 2018) (PSC REF#: 351851)
- WIEG (November 1, 2018) (PSC REF# 352598)

The PSCW issued notice of hearings for both Applications on November 30, 2018 (PSC REF#: 354250 (Solar Project); PSC REF#: 354251 (Gen-Tie Project)).

Two Creeks Solar filed its Direct Testimony in both proceedings on November 20, 2018. Two Creeks Solar also provided supplemental Direct Testimonies in the Solar Project proceeding on December 4, 2018 to account for minor modifications to the Solar Project layout. In addition, revised Direct Testimony was provided in the Gen-Tie Project proceeding to facilitate a correction after discussions with PSCW Staff. On December 7, 2018, PSCW Staff and WDNR Staff filed their Direct Testimony in both proceedings.

On December 11, 2018, PSCW Staff filed its Preliminary Determination for the Environmental Assessment (“EA”) for the Gen-Tie Project which found “no significant impacts on the human or natural environment are likely to occur as a result of the construction and operation of this project” based upon their review (PSC REF#: 355065 at 1). PSCW Staff issued their Preliminary Determination for the Solar Project on December 12, 2018. PSCW Staff also found “no significant impacts on the human or natural environment are likely to occur as a result of the construction and operation of this project” (PSC REF#: 355103 at 1). As part of this process, the PSCW performed a consolidated EA for both proceedings and made copies of the EA available to the public at their request. On January 7, 2019, Two Creeks Solar filed comments on PSCW Staff’s EA for both proceedings (PSC REF#: 356765-356766 (Solar Project); PSC REF#: 356767-356768 (Gen-Tie Project)). A Final EA was issued on January 14, 2019 reaffirming the initial determination that the Project would have no significant impacts on the human or natural environment.

On December 21, 2018, Two Creeks Solar filed its Rebuttal Testimony for both the Solar Project and the Gen-Tie Project. RENEW also filed Rebuttal Testimony in the Solar Project Docket on December 21, 2018.³

On January 10, 2019, PSCW Staff filed Surrebuttal Testimony in both the Solar Project and Gen-Tie Project proceedings.

The technical hearing for both proceedings was held on January 15, 2019 in Madison, Wisconsin.

Two public hearings for both proceedings were held on January 22, 2019 in the Project Area in Two Rivers, Wisconsin. Oral comments were received from approximately five witnesses. Additionally, a limited number of comments were filed by members of the public in the Solar Project proceeding.

ARGUMENT

I. THE DESIGN AND LOCATION OF THE PROJECT IS IN THE PUBLIC INTEREST

In evaluating the CPCN application for the Solar Project, the Commission must determine that it is in the public interest, applying the statutory criteria set forth in Wis. Stat. section 196.491(3)(d)(3) – with the exception of requirements that specifically do not apply to wholesale merchant plants.⁴ The record evidence establishes that the Project meets the applicable statutory requirements and is in the public interest. Accordingly, the Commission should issue CPCNs for the Project.

³ RENEW also filed an Exhibit to their Rebuttal Testimony on December 26, 2018.

⁴ The Solar Project is a “wholesale merchant plant.” Wis. Stat. § 196.491(1)(w)(1). As a result, criteria not applicable to the Solar Project include alternative sources of supply, engineering, economic factors, the “reasonable needs” analysis, and the “certificate of authority” criteria. Wis. Stat. §§ 196.491(3)(d)(2), (3)(d)(3), and (3)(d)(5).

A. The Proposed Project Location is Superior to Alternatives

Pursuant to Wis. Stat. section 196.491(3)(d)(3), the Commission must consider alternative locations when reviewing whether a CPCN application is in the public interest. The Commission has previously held that an Applicant must identify an additional 25 percent of developable property and such additional alternative locations must be feasible.⁵ The record demonstrates that the Project meets the alternative site requirements.

With respect to the Solar Project, Two Creeks Solar identified six alternative sub-array sites that provide an additional 25 percent of developable land above and beyond what is required for the Project. (Solar Direct-Two Creeks Solar-Darwish-s-3; Solar Ex.-Two Creeks Solar-Darwish-2r). The primary site is preferred because it is based on a more compact layout of the solar PV array and requires less underground 34.5 kilovolt collection lines than the alternative site. (Solar Direct-Two Creeks Solar-Darwish-r-5-6). The more compact layout on the primary site is more cost effective and energy efficient than the layout on the alternative site. (*Id.* at 6). This issue is uncontested.

Two Creeks Solar also provides two route alternatives for the Gen-Tie Project that will connect the Solar Project to the transmission system at the Kewaunee Switchyard. Generally speaking, both proposed routes commence at the planned Two Creeks Solar collector substation which will be located approximately 0.4 miles north of E. Tapawingo Rd east of Highway 42. (Gen-Tie Direct-Two Creeks Solar- Darwish-r2-7). The routes, which both require a new ROW of between 100 and 150 feet, run north generally paralleling the existing ATC 345 kV line. Near

⁵ Final Decision, *Application of Wisconsin Electric Power Company for a Certificate of Public Convenience and Necessity to Construct a Wind Electric Generation Facility and Associated Electric Facilities, to be located in the Towns of Randolph and Scott, Columbia County, Wisconsin*, Docket No. 6630-CE-302 (January 22, 2012) (PSC Ref. #: 126124)(“Glacier Hills Final Decision”).

the mid-point of the route, the line turns east crosses under the 345kV line, turns north and over Highway 42. (*Id.*) Approximately one-half mile before the POI, the primary and alternate routes diverge, taking different paths to the POI. The route ends at the POI in the existing Kewaunee switchyard. (*Id.*) The two routes share approximately 2.25 miles of common area over the entire 4.5-mile tie line distance. Maps of both the preferred and alternate route are contained in Ex.-Two Creeks Solar- Darwish-2-r as well as at Appendix A – Project Maps (Map 1.9 – General Map) to Two Creeks Solar’s Gen-Tie Project CPCN Application.

Two Creeks Solar reviewed and evaluated the routing siting priorities at Wis. Stat. section 1.12(6). (Gen-Tie Direct-Two Creeks Solar- Darwish-r2-7-8). The preferred route was in part selected due to landowner preferences, including the Project matching the span distances for the existing ATC transmission line to the extent possible. Moreover, in contrast to the alternative route, the preferred route will use less infrastructure and has reduced impacts to existing farming operations. (*Id.* at 8). Nor are the preferred or alternate routes in the Lower Wisconsin State Riverway. (*Id.* at 5), thus Wis. Stat. § 196.491(3)(d)(3m) is not applicable to the chosen route. As with the Solar Project preferred location, the Preferred Gen-Tie Project location is uncontested.

B. Individual Hardships

Two Creeks Solar implemented a broad outreach process to minimize impacts from the Project on property owners in the vicinity of the Project. (Solar Direct-Two Creeks Solar-Darwish-r-7-8; Gen-Tie Direct-Two Creeks Solar-Darwish-2r-9-10; Solar Rebuttal-Two Creeks Solar-Darwish-2-3 (PSC REF#: 355974)). As early as December 2017, land agents representing Two Creeks Solar made phone calls to landowners in and around the Project area to gauge initial feedback of locating solar panels on their property and signing real estate agreements with the Project. One of the main criteria for siting the Project was landowner participation and eagerness to sign an option for a long-term lease for a solar project. (Solar Rebuttal-Two Creeks Solar-

Darwish-2-3). In general, landowners that chose not to participate simply declined on the basis that they either wanted to continue farming or grazing cattle on their property or because they were otherwise not interested. Two Creeks Solar sited the Project in accordance with the exclusionary areas laid out in the terms of the real estate agreements with participating landowners. (*Id.*) For example, some landowners requested that a buffer be left around the perimeter of their property so that they could access all sides of their property outside of the Project fence. (*Id.*) Other landowners requested that Two Creeks Solar leave access routes for neighbors to continue to hunt deer on the property outside of the solar project fence. (*Id.*) Where there was an opportunity to accommodate a specific request, it was done so within the terms of the real estate agreements and incorporated into the current layout.

This process resulted in Two Creeks Solar receiving very limited comments in this docket that raised issues of aesthetics or similar concerns in regards to the Solar Project (PSC REF#: 352356). If and when concerns arise, where practical, Two Creeks Solar will continue to work directly with landowners to attempt to address their concerns in a mutually agreeable manner. (*Id.* at 3). In fact, Two Creeks Solar has followed up with adjacent landowners that filed comments to further address any specific concerns.

Going forward, Two Creeks Solar will use the same complaint process that the future Owners' Manager of the Project, Wisconsin Public Service Corporation, uses for the rest of its generation fleet. (Solar Rebuttal-Two Creeks Solar-Darwish-2-3.) This complaint process for major projects includes having a dedicated project phone number. When calls are made to the dedicated phone number for Two Creeks Solar, they will be documented in a database and the response tracked to completion. PSCW staff raised a concern in their testimony about the ability of a complaint filed through this proposed system to reach the Commission. (Surrebuttal-PSC-

Schumacher-r-3 (PSC REF#: 357876)). At the hearing, staff agreed that the statutory right of utility customers to file a complaint with the Commission would provide that avenue, as the Project will ultimately be owned by Wisconsin utilities. (Hearing Transcript at 57-58). The process, staff further agreed, would be available to individuals no later than when the Project is transferred to the utilities. (*Id.*). It is anticipated that the Project will be transferred to Wisconsin utilities prior to construction. As such, the utility complaint process will be available to the public prior to Project construction. Thus, a robust complaint process will be available to address any concerns raised by participating or non-participating community members.

C. Safety

At NextEra Energy and all of its affiliates (including Two Creeks Solar), safety is a core value and is recognized as the cornerstone of sustaining operational excellence. (Solar Direct-Two Creeks Solar-Cook-r-9; Gen-Tie Direct-Two Creeks Solar-Cook-r-12-13). Safety will be a primary concern at the Project location.

NextEra Energy's vision for its employees is to establish and promote a safety culture based on the principle that zero injuries at work and home is an achievable result. (*Id.*). Two Creeks Solar has adopted best management practices that include frequent communication among the land services, environmental, engineering, and construction teams during the permitting and construction phases that will ensure a safe and successful project. (*Id.*). Two Creeks Solar also expects that companies providing services to Two Creeks Solar have the same high standards of safety and health. (*Id.*).

The Project will be designed, constructed, and operated in accordance with all applicable safety standards of the National Electric Code ("NEC"), National Electric Safety Code ("NESC"), Wisconsin State Electric Code, and utility interconnection standards for safe and reliable operation

of solar facilities.⁶ (Solar Direct-Two Creeks Solar-Cook-r-2; Gen-Tie Direct-Two Creeks Solar-Cook-r-3; Hearing Transcript at 27-28). During construction of the Project, each morning field teams will convene a safety and environmental meeting to discuss specific activities planned for the day, including daily safety-related behaviors, conditions, and job hazard analyses as well as review any environmental compliance that could impact construction activities. (Solar Direct-Two Creeks Solar-Cook-r-8; Gen-Tie Direct-Two Creeks Solar-Cook-r-12).

Post-construction, Two Creeks Solar will perform all scheduled and unscheduled service and required preventative maintenance of all equipment including: PV module and components, PCU's, controllers, control panels, connections to SCADA system sensors, DC electrical collection system, including the controls, and instruments and resetting of PCUs, according to PV module and the PCU O&M Manual. (*Id.* at 10; 13). Two Creeks Solar will also provide scheduled and unscheduled services to the electrical system from the inverters to the substation including the pad mount transformers and collection system. (*Id.*) In addition, the site will be on a 24/7 schedule, remotely monitored, diagnosed, and controlled from the Renewable Operations and Control Center/Energy Resources Control Center ("ROCC/ERCC") in Juno Beach, Florida. (*Id.*)

Lastly, there will be fencing around both the PV array and the substation. Two Creeks Solar will review "deer fencing" to determine if such fencing can be designed to provide adequate security in compliance with all codes, including North American Electric Reliability Council ("NERC") Critical Infrastructure Protection ("CIP") requirements. (Rebuttal-Two Creeks Solar-Cook-r-1-2). If the applicable requirements can be met, Two Creeks Solar will utilize "deer fencing" for the PV solar array. (*Id.*) However, for public safety reasons, for the substation site, Two Creeks Solar will utilize an eight-foot fence with a seven-foot chain link fence and one-foot

⁶ The NESC and Wisconsin State Electric Code govern the PV array and the substation.

of barbed wire on top. The high voltages and resulting potential hazards associated with the substation necessitate additional barriers to entry provided by the barbed wire. (*Id.*)

D. Reliability

The Project will not adversely affect system reliability. The Project will meet the applicable safety standards of the NEC and the NESC, the Wisconsin State Electric Code, and utility interconnection standards for safe and reliable operation of solar plants. (Rebuttal-Two Creeks Solar-Cook-r-3). Two Creeks Solar filed an Interconnection Request in June 2017 and is in the MISO August 2017 Definitive Planning Phase (DPP) Study Cycle and has been assigned queue position J886. Per the most recently updated DPP study schedule (posted by MISO on November 1, 2018), Two Creeks received the first round of DPP 1 study results in December 2018, the second round of DPP 2 study results are expected to be received in April 2019, and the third round of study results are expected to be received in August 2019. (Hearing Transcript at 22-23) The MISO interconnection process is designed to ensure that interconnection of the Project will not result in any adverse reliability impacts to the grid.⁷

E. The Project will not have an Undue Adverse impact on the Environment

As established by the record evidence, the Project will not have undue adverse effects/impacts upon water quality, natural environmental resources, historic and cultural resources, or agricultural lands. Temporary impacts to wetlands or streams will be minimized through the use of construction mats and/or protective, vegetated buffers. Moreover, Two Creeks Solar will take measures to avoid or minimize impacts to any federally or state-listed species, wildlife habitat and significant natural communities at the Project Site. As the PSCW determined

⁷ For the same reasons, the Project will not have a material adverse impact on competition in the relevant wholesale electric market. *See* Wis. Stat. §196.491(3)(d)(7). As established by Two Creeks witness Toni Darwish, the Project is injecting additional energy into the market and is anticipated to have a positive impact on wholesale energy prices. (Solar Direct-Two Creeks Solar-Darwish-7.)

in the EA, the construction and operation of the Project is unlikely to have a significant impact on the human or natural environment.

1. Wetlands/Waterways

The Project has been designed to avoid or minimize impacts to wetlands or waterways. With respect to the Solar Project, less than 0.006 acre of wet meadow and farmed wetlands will be permanently impacted due to construction and operation of the Solar Project. (Solar Direct-Two Creeks Solar-Blank-r-5 (PSC REF#: 357857); Solar Rebuttal-Two Creeks Solar-Blank-r-2 (PSC REF#: 357860)). Specifically, there is potential for permanent wetland impacts at two locations (one wet meadow and one farmed wetland). Approximately 240 square feet (less than 0.006 acre) of wet meadow wetland will be filled due to the installation of a permanent access road serving the O&M building and a primary array. (Solar Direct-Two Creeks Solar-Blank-r-5). The wetland is associated with an intermittent waterway (roadside ditch) adjacent to Irish Road. A culvert will be installed within the intermittent waterway. In addition, approximately 12.6 square feet (less than 0.0003 acre) of permanent impact may occur in a farmed wetland due to the construction of a fence surrounding an alternate solar array location (if built). (*Id.*)

With respect to the Gen-Tie Project, one 28-square-foot (less than 0.001 acre) permanent impact is anticipated in either the preferred or alternate routes due to the placement of a pole and associated guy wires in a low-functional value shrub-carr wetland. (Gen-Tie Direct-Two Creeks Solar-Blank-r-5 (PSC REF#: 357882)). No pole structures will be placed in waterways within the Project ROW. (*Id.*) One waterway will be crossed during construction activities on both the preferred and alternate routes. However, impacts will be avoided through the use of a temporary clear span bridge. (*Id.* at 5-6). Two Creeks Solar will utilize relevant construction BMPs to protect

wetlands and waterways during and after construction. (Solar Direct-Two Creeks Solar-Blank-r-6; Solar Rebuttal-Two Creeks Solar-Blank-r-2).

No sensitive wetlands, state or federally listed waterways, trout streams, fisheries, wilderness areas, wild or scenic rivers, recreational areas, or other sensitive resources of state or federal concern will be impacted by Project construction activities. (Solar Direct-Two Creeks Solar-Blank-r-6). Moreover, no surface waters identified as outstanding or exceptional resources (Wis. Admin. Code Ch. NR 102) will be impacted. (*Id.*). Thus, no undue adverse effect to wetland functions and values will occur as a result of the Project.

2. Wildlife Habitat and Endangered Species

i. Wildlife Habitat

The predominant land use within the Project area is agricultural (row crops and pastureland). Wetlands and forested habitat within the Project area have been avoided to the extent practicable. Therefore, impacts to wildlife habitat have been minimized.

The Project will have minimal impact on wildlife species or their preferred habitats because the majority of impact from construction and operation will be on actively tilled agricultural land.⁸ (Solar Direct-Two Creeks Solar-Blank-r-7; Gen-Tie Direct-Two Creeks Solar-Blank-r-6). With respect to the Gen-Tie Project, wooded wetlands within the preferred or alternate routes will be spanned by increasing the height of the transmission structures on either side of the wetland area so as to not impact the resources below the lines. Conductors will be raised above the tops of existing mature trees. (Gen-Tie Direct-Two Creeks Solar-Blank-r-6-7).

⁸ After consultation with USFWS and WDNR, it was determined that no pre-construction studies were required if tree clearing occurs outside of the nesting season. (Solar Direct-Two Creeks Solar-Blank-7.) If clearing within potentially suitable habitat during the breeding season is required, Two Creeks Solar will complete nest surveys and/or coordinate with WDNR prior to construction. (*Id.*)

For the life of the Project, Two Creeks will voluntarily develop and implement a Wildlife Response and Reporting System (“WRRS”) for the Solar Project. (Solar Direct-Two Creeks Solar-Blank-r-7). The WRRS will be derived from a voluntary WRRS for wind generating facilities that was previously developed and implemented by NextEra Energy Resources in collaboration with USFWS at generating facilities throughout the country. (*Id.*) The purpose of this WRRS is to standardize actions taken by site personnel to detect wildlife incidents within project boundaries. (*Id.*) The WRRS provides direction for project personnel who may encounter wildlife on-site, in an effort to fulfill obligations in reporting wildlife incidents. (*Id.*) All dead, injured, or stranded wildlife found by project personnel or others in the Solar Project area will be reported to the company's appropriate Environmental Services personnel. (*Id.*)

Significantly, PSCW Staff testified that avian mortality is not predicted to be a significant impact at the Project site. (*See* Solar Direct-PSC-Schumacher-r-6 (PSC REF#: 357874)). Nevertheless, Staff requests an order point requiring Two Creeks Solar to conduct a post-construction avian mortality study. (*Id.*) As set forth below, Staff’s request for an avian mortality study is not supported by the record and should be rejected.

In support of its request, Staff references the lake effect hypothesis, and refers, without specificity, to avian studies conducted in dry, arid landscapes. (*See* Solar Direct-PSC-Schumacher-5-6; Hearing Transcript 39.) NextEra Energy Resources, LLC (“NEER”), Two Creeks Solar’s indirect parent, is conducting several of those studies and has found to date that there are no consistent patterns in water-dependent bird fatalities among the projects. (Solar Rebuttal-Two Creeks Solar-Blank-r-4-5). Aside from the fact that the studies have not identified consistent results, two key considerations for this Project are the smaller footprint and its proximity to other naturally occurring bodies of water. (*Id.*) There are several lakes and ponds around Lake Michigan

that clearly offer more natural conditions for waterbirds. (*Id.*) In addition, NEER is participating in and partially funding a study led by the United States Geological Survey (“USGS”) on the lake effect hypothesis in the desert southwest where it is thought the phenomenon may be more prevalent due to the area being one of the most water-poor places on Earth. (*Id.*)

Based on research from multiple sources (including USFWS and independent scientists), there are various anthropogenic causes of avian mortality.⁹ The greatest avian mortality causes are cats and collisions with buildings and vehicles. For example, avian fatalities due to wind turbines have been extensively studied in the U.S and are consistently found to cause considerably less than one percent of avian fatalities.¹⁰ Assuming that PV solar results in less avian mortality than wind turbines, avian mortalities at this facility will not impact avian populations regionally or nationally. As such, there is no empirical evidence that avian studies are necessary for solar PV facilities in the Midwest.

The cost of an avian study will likely be approximately \$200,000 to \$400,000 annually (Hearing Transcript at 32). Staff appropriately conceded the cost of a condition can be considered by the Commission in its review of a wholesale merchant plant. (*See* Hearing Transcript at 38, 44.)¹¹ The fact that CPCN law excludes the application of “economic factors” for a merchant, *see* Wis. Stat. § 196.491(3)(d)(3), is legislative acknowledgement that the economics to utility

⁹ *See* Ex.-Two Creeks Solar-Blank-3 and Ex.-Two Creeks Solar-Blank-4, respectively, for the USFWS website data on avian mortality and a USDA report on anthropogenic causes of avian mortality.

¹⁰ *See id.*

¹¹ “I recognize the cost implication . . .” (Hearing Transcript 38.);

Q: . . . I’m asking you about whether the commission the Commission should consider the cost in the hypothetical I just presented.

A. . . .I think it’s valid for the Commission to consider various aspects of any order condition it puts onto a project. (Hearing Transcript 44).

customers should not be part of a CPCN review process for a merchant plant. However, the Commission should consider, and has considered, the costs of compliance with Commission orders (and thus order points) for merchant plants. In the *Highland Wind* case, the Commission noted the need for siting flexibility for wind turbines in order to allow the merchant owner “to take advantage of opportunities to minimize construction costs”¹² In that same merchant CPCN order the Commission described the siting alternatives analysis as its review of “costs and benefits” *Id.* at 12.

Consistent with precedent, the Commission should consider the costs of an avian mortality study in this case. Specifically, based on the foregoing, such additional annual costs are not justified given that Staff has acknowledged that avian mortality is not predicted to be a significant impact at the Project site. (See Solar Direct-PSC-Schumacher-r-6). Moreover, Two Creeks Solar has already proposed a WRRS for the Solar Project site, thus requiring such a costly additional study is likely to be unnecessarily duplicative. Moreover, Two Creeks Solar has committed to conducted an Avian Risk Model for the Gen-Tie Project in order to assess where to place bird diverters on the Project. Accordingly, the additional avian mortality study should not be required.

ii. Endangered Resources

A Certified Endangered Resources (“ER”) Review was submitted to the WDNR on March 6, 2018. (Solar Direct-Two Creeks Solar-Blank-r-8; Gen-Tie Direct-Two Creeks Solar-Blank-r-7-8). The WDNR approved the ER review and provided concurrence and recommendations on March 8, 2018. The ER Review summarizes state-listed rare species, natural communities, and

¹² Final Decision on Reopening, *Application of Highland Wind Farm, LLC, for a Certificate of Public Convenience and Necessity to Construct a 102.5 Megawatt Wind Electric Generation Facility and Associated Electric Facilities, to be Located in the Towns of Forest and Cylon, St. Croix County, Wisconsin*, Docket No. 2525-CE-100 (October 25, 2013) (PSC Ref #: 192339) at 40.

other natural features with element occurrence records within one mile of the Project segments for terrestrial and wetland occurrences and within two miles for aquatic occurrences. (*Id.*)

In the Gen-Tie Project Area, three federal or state listed species were identified in the ER with potential to be located within or near the Project area (peregrine falcon [bird], bald eagle [bird] and American sea-rocket [plant]). (Gen-Tie Direct-Two Creeks Solar-Blank-r-8). The Project may contain suitable summer habitat for the bald eagle, however, no known eagle nest is located within 660 feet of Project infrastructure. (*Id.* at 7-8). Due to the lack of suitable habitat for the peregrine falcon or American sea-rocket within the Project area, no further actions were required by the WDNR.

With respect to the Solar Project Area, four federally or state-listed species (red-shouldered hawk, bald eagle, thickspike and sand reedgrass) were identified with potential to be located within or near the Project Area. (Solar Direct-Two Creeks Solar-Blank-r-8). No suitable habitat is identified within the Project Area for the thickspike or sand reedgrass. (*Id.*) Therefore, no further actions were required by the USFWS or WDNR for those species. The Solar Project Area may also contain suitable habitat for the red-shouldered hawk. Two Creeks Solar has indicated that they will clear trees outside of the red-shouldered hawk nesting window. If clearing within the nesting window is required, surveys to determine the presence of nests will be completed and/or Two Creeks Solar will coordinate with WDNR prior to construction. (*Id.*)

With respect to the bald eagle, the Solar Project may contain suitable summer habitat for the bald eagle, however, no known eagle nest is located within 660 feet of Project infrastructure. (*Id.*) Accordingly, no significant adverse impacts to endangered resources are anticipated. Two Creeks Solar will refresh the ER analysis closer to the construction start date. (Solar Rebuttal-Two Creeks Solar-Blank-r-5; Gen-Tie Rebuttal-Two Creeks Solar-Blank-2 (PSC REF#: 355960)).

3. Agricultural Land

Agricultural land is the largest land use type present within the Project Area, intermixed with small ranges of woodland and grassland. The agricultural land within the Project area is dominated by row crops. No specialty crops were identified within the Project Area.

Upon information and belief, according to the most recent Farmland Information Center survey, there are approximately 14,568,926 acres of agricultural land in Wisconsin.¹³ As such, the Project will have an extremely minimal impact on agricultural land in the State. Moreover, although Project facilities have been sited on predominately agricultural land, because the construction and operation of the Project will have limited soil disturbance, it is unlikely that a significant amount of earthwork and soil disturbance will occur. (Solar Direct-Two Creeks Solar-Blank-r-9; Gen-Tie Direct-Two Creeks Solar-r-8). Construction-related impacts on agriculture will typically be short-term and may include crop losses, soil mixing, and soil compaction along access routes and near transmission structure installation sites. (*Id.*) Two Creeks Solar will minimize the amount of grading that is required to reduce disruption to the valuable topsoil. Importantly, construction and operation of the Project is not anticipated to significantly change the soil nutrient content in the Project Area. (*Id.*) Accordingly, once the site is fully decommissioned the property owner will be able to return the land to agricultural use.

II. THE PROJECT WILL NOT HAVE AN UNDUE ADVERSE IMPACT ON THE PUBLIC HEALTH AND WELFARE

The Commission has previously held that renewable generation projects promote public health and welfare by generally avoiding most of the impacts created by other types of electric generation. (Glacier Hills Final Decision at 40.) Specifically, as in *Glacier Hills*, solar generation will “produce none of the “criteria” air pollutants that are regulated under the federal Clean Air

¹³ <https://www.farmlandinfo.org/statistics/wisconsin>

Act, will release no greenhouse gases, . . . , and will emit no hazardous air pollutants.” (*Id.*) Moreover, the Project will generate power without using a significant amount of water or producing any solid waste. Additionally, the Project will support the State’s renewable energy policy while providing diversification of the state generation pool. As set forth below, the Project provides these benefits to the local community and the State without producing any significant adverse impacts to noise, glint and glare, electric and magnetic fields (“EMF”), stray voltage, or property values. Accordingly, the Commission should conclude that the Project promotes public health and welfare.

1. Noise

Two Creeks Solar conducted a pre-construction ambient sound survey of the substation and solar array areas for the Solar Project to quantify the existing acoustical environment. Work was conducted in accordance with the Commission document “Measurement Protocol for Sound and Vibration Assessment of Proposed and Existing Electric Power Plants” (the Commission’s Noise Protocols). (Solar Direct-Two Creeks Solar-Blank-r-11-12). Residences, schools, churches, hospitals, and other sensitive areas located near the Project were identified and considered within the assessment. (*Id.*) Seven baseline noise monitoring locations were selected. Four locations were chosen near the proposed substation and three near the proposed solar array. (*Id.*) The results of the sound studies were provided in Appendix S to Two Creeks Solar’s Solar Project Application (PSC REF#: 355064).

Noise levels recorded during the ambient noise survey indicated low background sound at all sites, with peaks occurring during times of peak traffic associated with commuters to local areas of employment. Ambient A-weighted sound levels ranged from approximately 49 to 56 decibels A-weighted (dBA) in the morning hours; 39 to 58 dBA at midday; 40 to 54 dBA in the evening;

and 39 to 42 dBA in the nighttime. (Solar Direct-Two Creeks Solar-Blank-r-12). Results are typical of a rural environment with sources including vehicular traffic and farm machinery during the daytime periods and insect noise during the nighttime periods. (*Id.*) Expected noise levels also were modeled for the operation of the proposed substation and array. The expected sound level due to operation of the substation at the nearest receptor (approximately 950 feet) is less than 30 dBA. (*Id.*) This sound level is at or lower than the ambient sound recorded during the pre-construction survey. Sound levels expected at receptors due to operation of the solar array inverters were conservatively modelled assuming the operation of all solar inverters (primary and alternate). The highest sound level expected at residences near the solar array is approximately 40 dBA. (*Id.*) Expected sound levels at nearby residences will be less than the 45 dBA nighttime limit required under Wisconsin Administrative Code section PSC 128.14(3)(a) for wind energy systems. This value is also at or very near the background ambient noise levels as recorded during the ambient noise survey. (*Id.*) Two Creeks Solar will conduct a post-construction noise study including monitoring consistent with PSCW noise guidelines. Accordingly, the construction and operation of the Project will not result in any significant adverse noise impacts. (Solar Rebuttal-Two Creeks Solar-Blank-r-6).

2. Glint and Glare

Two Creeks Solar performed a Glint & Glare Analysis for the Solar Project (PSC REF#: 355067). The Glint & Glare Analysis considered the impact of the Project on aircraft approaching to land on Runways 17/35 and 07/25 at the Manitowoc County Airport, as well as potential impact on nearby roads and residents. The results of the Glint & Glare Analysis show that there is no predicted glare from the solar arrays for aircraft making approaches to Runway 15/33 or 07/25. Moreover, there is also no predicted glare for cars with an estimated viewing height of four feet,

large trucks with an estimated viewing height of eight feet, or residents with an estimated second story viewing height of twelve feet. (*Id.*)

3. EMF

Two Creeks Solar performed an EMF Study for both the Solar Project and the Gen-Tie Project (PSC REF#: 350353 (Solar Project); PSC REF#: 350466 (Gen-Tie Project)). As set forth below, the Project will not result in any significant EMF impacts.

The Solar Project EMF Study assessed the potential maximum electric and magnetic field strengths in the vicinity of the Project's underground electrical cables to determine if the levels are a risk to human health and environment. (Solar Direct-Two Creeks Solar-Blank-r-11). The Solar Project EMF Study considered four collection line scenarios based on the number of parallel feeders within the underground trenches. (*Id.*) The Solar Project EMF Study concluded that the maximum level of electric and magnetic fields that are expected at the approximate centerline of the trench configurations ranged from 0.785 to 1.187 kV/m (maximum electric field) and 43.947 to 65.094 mG (magnetic field at 100% loading). In each scenario, at 25 feet from the centerline, the electric field was below 0.21 kV/m and the magnetic field was below 14 mG. (*Id.*) By way of comparison, a typical electric blanket gives off 0.25 kV/m and a typical microwave gives off 60 mG. (*Id.*)

Similarly, the Gen-Tie Project EMF Study assessed the potential maximum electric and magnetic field strengths in the vicinity of the transmission lines and to determine if the levels are a risk to human health and environment. (Gen-Tie Direct-Two Creeks Solar-Blank-r-10). The Gen-Tie Project EMF Study considered four transmission line scenarios representing the various proposed transmission line, structure and associated equipment configurations. (*Id.*) The Gen-Tie Project EMF Study concluded that the level of electric and magnetic fields that are expected

approximately one meter (3.28 feet) above the ground varies by configuration from 0.387 to 2.174 kV/m (maximum electric field) and 44.631 to 197.433 mG (magnetic field at 100% loading). (*Id.*) Within 300 feet of the transmission lines, the magnetic field diminishes to approximately 0.78 mG. (*Id.*)

Based upon the foregoing, the Project will not result in any significant EMF impacts.

4. Stray Voltage

Stray voltage issues are generally caused by improperly grounded and/or isolated electrical circuits found in older buildings, factories, or barns. (Solar Rebuttal-Two Creeks Solar-Cook-r-2). For example, older buildings may have been constructed out of compliance with electrical code and have minor shorts somewhere in one or more electrical circuits. Similarly, improper circuit grounding can also impart a charge to the floor or ground surface by not providing adequate metal to ground contact to diffuse this power and properly ground the circuit. (*Id.*)

Grounding for the Two Creeks Solar's PV array will be designed and certified by a licensed electrical engineer according to current applicable electric code requirements. (*Id.*) Two Creeks Solar will be interconnecting to the transmission system at the Kewaunee substation and will not connect directly with the local electric distribution system. (*Id.* at 2-3). This effectively isolates the potential contribution of stray voltage from the end user. Moreover, the Kewaunee site has been a generating source for the electric power system for decades without stray voltage issues.

Similarly, although stray voltage is not normally a power transmission issue because transmission line structure grounds are independent from the distribution line grounds. Gen-Tie Rebuttal-Two Creeks Solar-Cook-r-2 (PSC REF#: 357884). Two Creeks Solar's grounding for the Gen-Tie Project will occur within the conductor cables and at the transmission poles. (*Id.*) All

such grounding systems will be designed and certified by a licensed electrical engineer according to current applicable electric code requirements. (*Id*).

Nevertheless, despite the substantially low risk of the Project causing stray voltage, upon request, Two Creeks will conduct stray voltage testing at any facility within 0.5 mile of the Project. (Hearing Transcript 28.)

5. Impacts on Line-of-Sight and Broadcast Communications

The standard height of the solar panels does not typically obstruct microwave beam paths or degrade broadcast communications signals. Staff witness Schumacher concurred, testifying that it is unlikely the Project facilities would cause disruptions to line-of-sight and broadcast communications. (Solar Surrebuttal-PSC-Schumacher-r-1). Accordingly, Staff does not suggest an order condition that would require Two Creeks Solar provide an assessment of any project impacts on line-of-sight and broadcast communications. However, Ms. Schumacher does propose that Two Creeks Solar mitigate any impacts or otherwise address concerns if any resident or business is able to show impacts to line-of-sight communications or broadcast reception that can be attributed to the new facility. (*Id*). As such, in the unlikely event it is demonstrated that the Project has resulted in an impact to line-of-sight communications or broadcast reception, potential mitigation could be available.

6. Local Economic Benefits

All impacts to the local economy will be positive. The Two Creeks Solar Project has already contributed to the local economy through a number of community partnerships and sponsorship opportunities. (Solar Direct-Two Creeks Solar-Darwish-r-11-12). Moreover, energy revenues from the Project will also be taxed by the Wisconsin Department of Revenue (“WDOR”) and distributed to local municipalities pursuant to WDOR rules. In the EA, using only the primary

array sites located in the town of Two Creeks and Manitowoc County, Staff estimates that the shared revenue would likely be \$200,000 to Manitowoc County and \$100,000 to the town of Two Creeks. (EA at 37). The municipalities also qualify for an incentive payment under Wis. Stat. section 79.04(7)(c)1 which applies to production plants that derive energy from an alternative energy resource. (*Id.*) This incentive payment would be an amount that is equal to the number of megawatts that represents the production plant's name plate capacity, multiplied by \$1,000. (*Id.*) The Project will also contribute to the local economy through the payments that have been, and will continue to be made, to landowners. Moreover, additional income will be generated from payments to construction contractors and suppliers during installation.

7. Decommissioning

A decommissioning plan for both the Solar Project and Gen-Tie Project will be developed to fully address anticipated decommissioning procedures including cost estimates and the plan for funding. The decommissioning plan will be provided prior to the commencement of construction. (Hearing Transcript 24).

With respect to the Solar Project, after the Project ceases operation, the facilities will be decommissioned and the site restored to pre-construction condition. In general, decommissioning activities would include:

1. Dismantling and removal of all above ground equipment (solar panels, racking, transformers, Project Substation, O&M building, etc.);
2. Excavation and removal of all above ground cabling;
3. Removal of posts;
4. Break-up and removal of concrete pads and foundations;

5. Pumping and break-up of any septic tank (backfilled with clean soil) and abandonment of leach field (if applicable);
6. Abandonment of underground utilities; and
7. Scarification of compacted areas within and contiguous to the solar plant facility (including but not limited to internal and external access roadways).

(Solar Direct-Two Creeks Solar-Darwish-r-10).

Similarly, with respect to the Gen-Tie Project, once the gen-tie facilities cease operation, the facilities will be decommissioned and the site restored to pre-construction condition. In general, decommissioning activities would include:

1. Removal of all electrical conductor cable
2. Removal of all poles and any related guy wires
3. Break up and removal of any concrete foundations
4. Fill in holes with native soil and compact to a level consistent with the surrounding undisturbed areas.

(Gen-Tie Direct-Two Creeks Solar-Darwish-r2-10-11).

8. The Project Will Have No Effect on Known Historical or Cultural Resources

A complete investigation of cultural resources in the Project Area was conducted. Records retained at the Wisconsin Historical Society and the Wisconsin Historical Preservation Database were searched to identify if the Project would potentially impact any previously recorded historic properties within one-half mile of the Solar and Gen-Tie Project Area. (Solar Direct-Two Creeks Solar-Blank-r-9; Gen-Tie Direct-Two Creeks Solar-Blank-r-9). Sites of previously recorded historical resources located within the Project Area have been avoided in the design of the Project facilities. (*Id.*)

With respect to the Solar Project, locations of historical resources within one-half mile of the Project Area can be found in Confidential Appendix N of the Application. In November 2017, and May and June 2018, field surveys were conducted to identify potential cultural resources within the Solar Project Area, and to resurvey areas of previously recorded historical resources. (Solar Direct-Two Creeks Solar-Blank-r-9-10). No new cultural resources were identified within areas designated for Solar Project facilities. (*Id*).

One known archaeological site overlaps the Gen-Tie Project area. However, field surveys did not locate any historical resources within the area. (Gen-Tie Direct-Two Creeks Solar-Blank-r-9.) Locations of historical resources within one-half mile of the Project area can be found in Confidential Appendix J of the Gen-Tie application. (*Id*). In November 2017 and May and June 2018, field surveys were conducted to identify potential cultural resources within the Project area. (*Id*). No new cultural resources were identified. (*Id*).

The Project will have no effect on known cultural or historical resources. (Solar Direct-Two Creeks Solar-Blank-r-10). The historic Twin Elder School site is located adjacent to the Solar Project boundary on Twin Elder Road. (*Id*). However, the school has been converted to a private residence and the original architecture has been modified (e.g., bell tower removed). The structure is not listed or eligible to be listed on the Nation Register of Historic Places.

Pursuant to Federal and Wisconsin laws, if grave markers or human skeletal remains are encountered during construction, all activities in the area will cease and the State of Wisconsin Burial Sites Preservation Office will be contacted for further instructions. (Solar Direct-Two Creeks Solar-Blank-r-10; Gen-Tie Direct-Two Creeks Solar-Blank-r-9). In addition, Two Creeks Solar will develop an unanticipated discoveries plan prior to construction for direction in the event

that any previously unknown cultural materials are encountered during the construction of the Project. (*Id*).

9. The Project Will Not Result in a Significant Adverse Visual Impact

An assessment of visual impacts associated with the Project was conducted. (Solar Direct-Two Creeks Solar-Blank-r-13; Gen-Tie Direct-Two Creeks Solar-Blank-r-11). For the Solar Project, four simulated views were provided within the Project Area, including high quality photographs of current conditions and a simulated image of the expected view after construction of the Project is complete. (Solar Direct-Two Creeks Solar-Blank-r-13). The visual study demonstrates that the view of the solar panels is limited, due to the low height of the array. (*Id*). Although, the substation will be visible to adjacent property owners and travelers along State Highway 42, the Project will not result in a significant adverse visual impact. (*Id*).

Similarly, three simulated views of the Gen-Tie Project were provided within the Project Assessment Area, including high quality photographs of current conditions and a simulated image of the expected view after construction of the Gen-Tie Project is complete. (Gen-Tie Direct-Two Creeks Solar-Blank-r-11.) The majority of the Gen-Tie Project is located parallel to an existing 345 kV transmission line and will provide a similar appearance. In areas where the Project is raised to span over forest wetlands, the lines will be visible from State Highway 42 and nearby properties, however, the Gen-Tie Project will not result in a significant adverse visual impact out of character with the surrounding. (*Id*).

Nevertheless, in response to reasonable requests by non-participating landowners, Two Creeks Solar will consider screening vegetation or other similar measures on a case by case basis. (Solar Rebuttal-Two Creeks Solar-Darwish-4 (PSC REF#: 355974)). Screening vegetation and other similar measures could have shading impacts on the panels and thereby reduce generation

from the Project or increase the overall cost of the Project. (*Id.*) Thus, Two Creeks Solar will likely not implement screening measures that reduce Project generation. (*Id.*)

III. THE PROJECT WILL NOT UNREASONABLY INTERFERE WITH THE ORDERLY LAND USE AND DEVELOPMENT PLANS FOR THE AREA

Consistent Wis. Stat. section 196.491(3)(d)(6), the Project will not unreasonably interfere with the orderly land use and development plans for the area. There are no specific zoning requirements or limitations on the development of solar facilities. (*See* Application Section 5.6.1.) However, in the Application, Two Creeks Solar has set forth various local zoning requirements and plans, which it will follow, as reasonable, in its construction and operation of the Project. (Solar Direct-Two Creeks Solar-Darwish-r-6-7; Gen-Tie Direct-Two Creeks Solar-Darwish-r2-5). Given the State's goal of increasing renewable generation and the absence of any local requirements restricting such development, the Project is consistent with the orderly land use and development in the area.

IV. USE OF A BROWNFIELD SITE FOR THE SOLAR PROJECT IS NOT PRACTICAL

Pursuant to Wis. Stat. section 196.491(3)(d)(8), to the extent practical, brownfields should be utilized for large electric generation facilities. An element of the statutory definition requires that such brownfields be idle or underused industrial or commercial facilities. The Project location required over 1000 acres of nearly contiguous developable land in close proximity to a transmission interconnection. (Solar Direct-Two Creeks Solar-Darwish-r-7). Two Creeks Solar is not aware of a Wisconsin brownfield location that would meet these, and other, Project site criteria.

V. THE PROJECT IS CONSISTENT WITH THE ENERGY PRIORITIES LAW

Section 1.12 of the Wisconsin Statutes establishes the energy policy for the State. Specifically, to the extent cost-effective and technically feasible, it is the goal of the State that “all new installed capacity for electric generation in the state be based on renewable energy resources,” included solar energy. (Wis. Stat. § 1.12(3)(b).) Moreover, in meeting the energy demands of the State, with the exception of energy efficiency, the utilization of non-combustible renewable energy resources is the highest priority. (*Id.* at §1.12(4).) Importantly, pursuant to Wis. Stat. section 196.025, to the extent it is cost-effective, technically feasible, and environmentally sound, the Commission is required to implement the priorities set forth in 1.12, “in making all energy-related decisions and orders.” Specifically, the Commission is directed to “encourage public utilities to develop and demonstrate electric generating technologies that utilize renewable sources of energy.” (Wis. Stat. § 196.377(1).)

The Project is consistent with the Energy Priorities Law (“EPL”), which places only energy efficiency above solar.¹⁴ As to the Solar Project, it is uncontested that the energy and capacity value of this resource cannot be supplanted by energy efficiency. (Solar Direct-Two Creeks Solar-Darwish-r-7). For the Gen-Tie Project, the gen-tie line is needed to connect the Solar Project to the POI at the Kewaunee switchyard adjacent to the Kewaunee Power Station. Energy efficiency cannot make that connection. Without the Gen-Tie Project, the renewable energy output from the Two Creeks Solar generation facility would not be injected into the transmission grid for the benefit of Wisconsin citizens.

¹⁴ Two Creeks Solar does not concede that the EPL applies to merchant generation. *See discussion at Glacier Hills Final Decision*, at 4, 10-11 (Commission indicating that the Energy Priorities Law may not apply, but that if it does, it is complied with in that wind case). As noted in the body of this brief, *if* the EPL applies, the Project complies with it.

Thus, through the utilization of renewable solar energy, the Project is consistent with and furthers the goals of the State energy policy and is consistent with the Energy Priorities Law.

VI. THE EA CORRECTLY DETERMINED THAT NO SIGNIFICANT IMPACTS ON THE HUMAN ENVIRONMENT ARE EXPECTED FROM THE CONSTRUCTION AND OPERATION OF THE PROJECT

The EA states that no significant impacts on the human environment are expected from the construction and operation of the Solar Project and the Gen-Tie Project. (*See* EA at 59-60, PSC REF#:357516.) Thus, the EA concludes that preparation of an environmental impact statement is not required. (*Id.*) Two Creeks Solar agrees with this conclusion.

With respect to the Solar Project, Two Creeks Solar has designed the Project to avoid or minimize impacts to natural resources. (Solar Rebuttal-Two Creeks Solar-Blank-r-2). Permanent wetland impacts due to construction and operation of the Project total less than 0.006 acre. (*Id.*) One culvert within a ditch wetland and waterway will be required due to the installation of a permanent access road. (*Id.*) Temporary impacts to wetlands due to construction activities total less than 0.05 acre. (*Id.*)

Similarly, Two Creeks Solar has also designed the Gen-Tie Project to avoid or minimize impacts to natural resources. Permanent wetland impacts total less than 0.001 acre for either the alternate or primary routes. (*See* Gen-Tie Rebuttal-Two Creeks Solar-Blank-r-1-2). Temporary impacts due to the use of mats during construction to protect wetlands total less than 0.08 acre. (*Id.*)

BMPs will be utilized during construction to protect sensitive natural resources. (*See* Solar Rebuttal-Two Creeks Solar-Blank-r-2; Gen-Tie Rebuttal-Two Creeks Solar-Blank-r-1-2). Areas of soil disturbance will be revegetated in a timely manner to minimize erosion and sedimentation. (*Id.*) Appropriate seed mixes will be used during revegetation to minimize the spread of invasive

species. (*Id.*) Machinery and equipment will be cleaned when moving from areas with invasive species to non-invasive vegetation. (*Id.*) Moreover, noise due to the operation of the facility is not predicted to be in excess of 40 dBA at the closest residences. (*Id.*) This level is below the 45 dBA nighttime requirements for wind energy systems. A WRRS will be implemented for the Solar Project and an Avian Risk Model conducted for the Gen-Tie Project in order to assess where to place bird diverters on the Project. For the reasons stated above, as well as those addressed by Commission staff in the EA, the Project is unlikely to have a significant impact on human health and the environment.

CONCLUSION

As set forth above, based upon the record evidence, the Project meets all statutory requirements. Accordingly, the Applicant requests that the Commission issue CPCNs for the Project.

Respectfully submitted this 25th day of January, 2019.

TWO CREEKS SOLAR, LLC

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